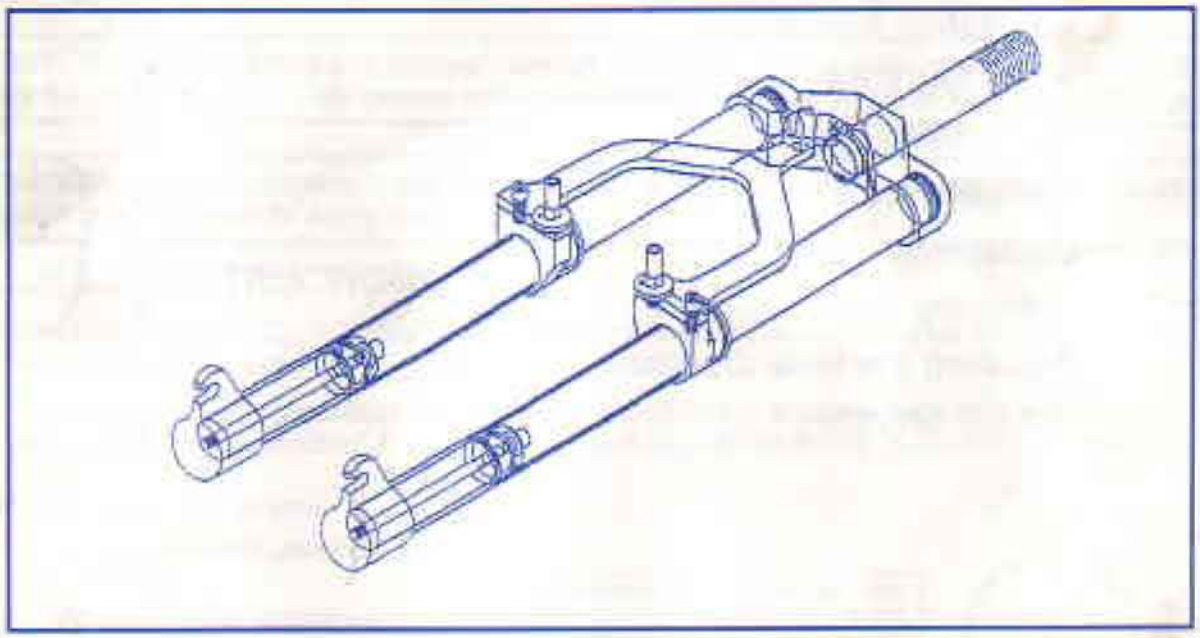
A N S W E R

MANITOU™

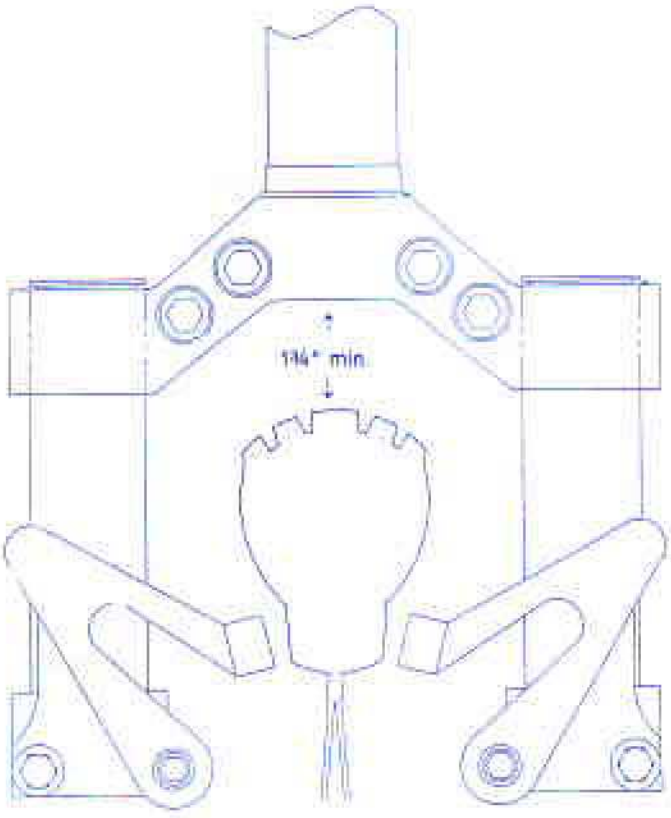
PRECISION SUSPENSION FORKS



Owners Manual

ANSWER PRODUCTS INC. 27460 AVE. SCOTT VALENCIA, CA 91355

PHONE (805) 257-4411 FAX (805) 257-4011



WARNING: Do not raise or lower the fork tubes in the crown. This could cause lack of proper tire clearance when the fork compresses or reduce the amount of fork leg engagement at the crown. Either case constitutes an unsafe condition.

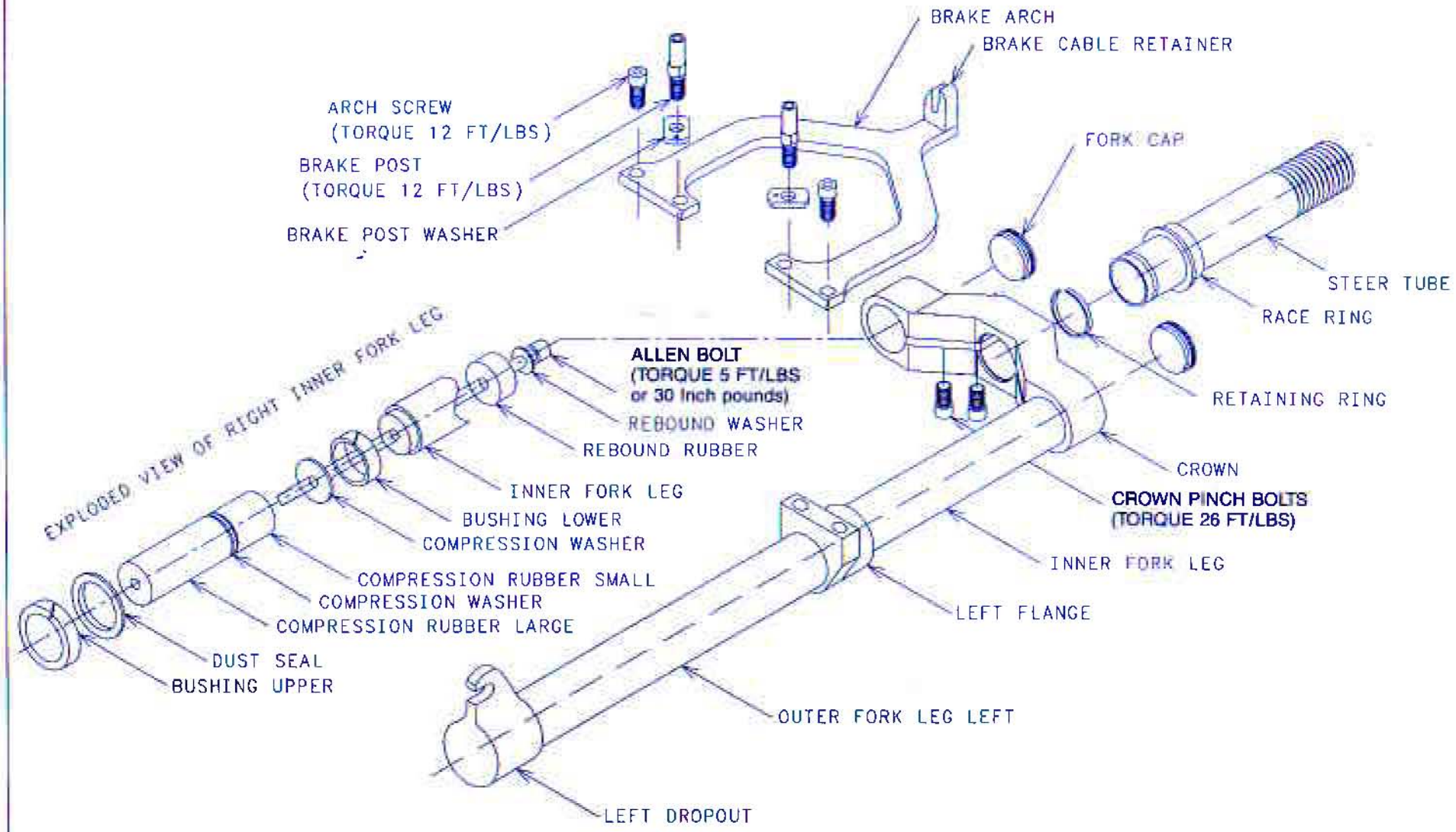
IMPORTANT: When installing wheel or any new tire be sure to check the minimum tire clearance is at least 1¾ inches from the highest point on the tire to the bottom of the crown.

SPARE PARTS REFERENCE	
Part Name	Part Number
Arch Screw	040159
Brake Arch Assembly	040180
Brake Post	040147
Brake Post Washer	040161
Bushing Lower	040154
Bushing Upper	040155
Compression Rubber Large	040164
Compression Rubber Small	040197
Crown 1.000 Inch	040167
Crown 1.125 Inch	040146
Crown 1.250 Inch	040145
Dust Seal	040166
Crown Pinch Bolts	040157
Fork Cap	040141
Fork Cap O-Ring	040158
Inner Leg	040184
Inner Leg Allen Bolt (6x120mm)	040160
Outer Leg Left	040183
Outer Leg Right	040182
Rebound Rubber	040163
Washer Compression	040159
Washer Rebound	040161
12" x5mm Hex Key Wrench	040171

STEER TUBE LENGTH	STEER TUBE DIAMETER		
	1.000 in. (standard)	1.125 in. (over size)	1.250 in. (evolution)
5.5 Inch	040185	040189	040193
6.5 inch	040186	040190	040194
7.5 inch	040187	040191	040195
8.5 inch	040188	040192	040196
Race Ring	040136	040137	040138
Ret. Ring	040153	040134	040135

SPARE PARTS CAN BE ORDERED THROUGH YOUR DEALER OR DIRECTLY THROUGH ANSWER PRODUCTS. DEALERS OR INDIVIDUALS MAY CALL ANSWER PRODUCTS CUSTOMER SERVICE AT (805) 257- 4411. 8:00 AM TO 5 PM MONDAY THROUGH FRIDAY.

MANITOU FORK SCHEMATIC



MAINTENANCE

Your Manitou Fork is nearly maintenance free. However, moisture and contamination may build up inside the fork. Although this does not affect the performance of the Manitou, to insure long life it is recommended that the fork be periodically disassembled, cleaned, dried and re-greased.

NOTE: The cantilever brakes, brake arch, steer tube, and inner leg tubes *DO NOT* need to be removed for general disassembly or cleaning. We recommend you *AVOID DISASSEMBLING* these components unless absolutely necessary.

Before every ride you should:

1. Wipe the inner legs clean.
2. Visually inspect for obvious damage.
3. Check tightness of front wheel quick release.
4. Check headset slack.
5. Insure that the front brake cable is properly seated in the cable retainer.
6. Check cantilever brake adjustment.
7. Crown bolts should be checked often to confirm they remain properly torqued. (TORQUE 26 FT/LBS)

When cleaning the fork seal area, it is ***NOT RECOMMENDED*** to direct water spray at the seals.

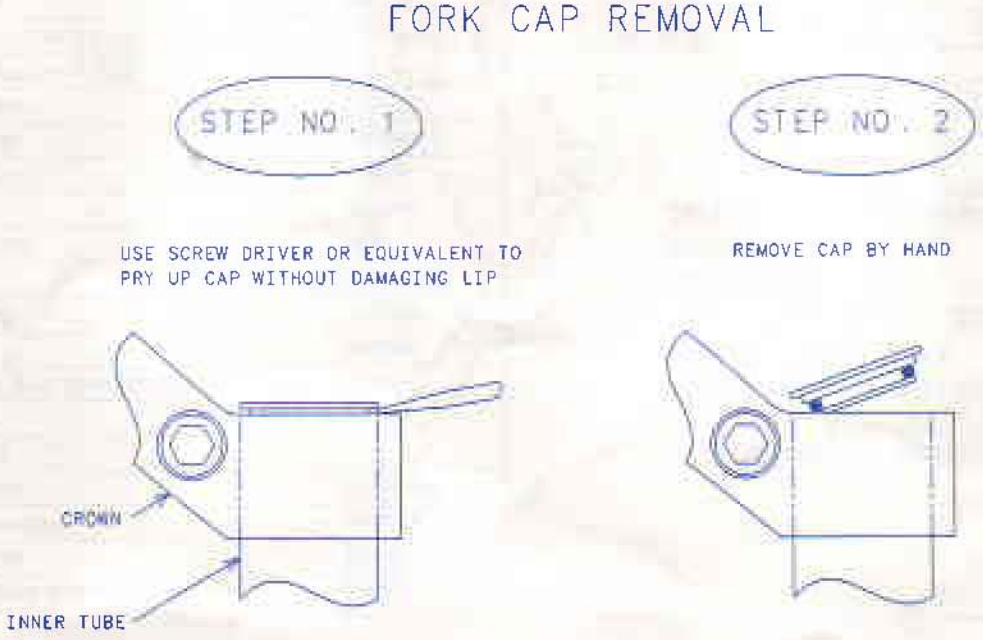
Note: The Manitou should not be used if any parts are damaged. Contact your local dealer or Answer Products directly for replacement parts.

GENERAL DISASSEMBLY

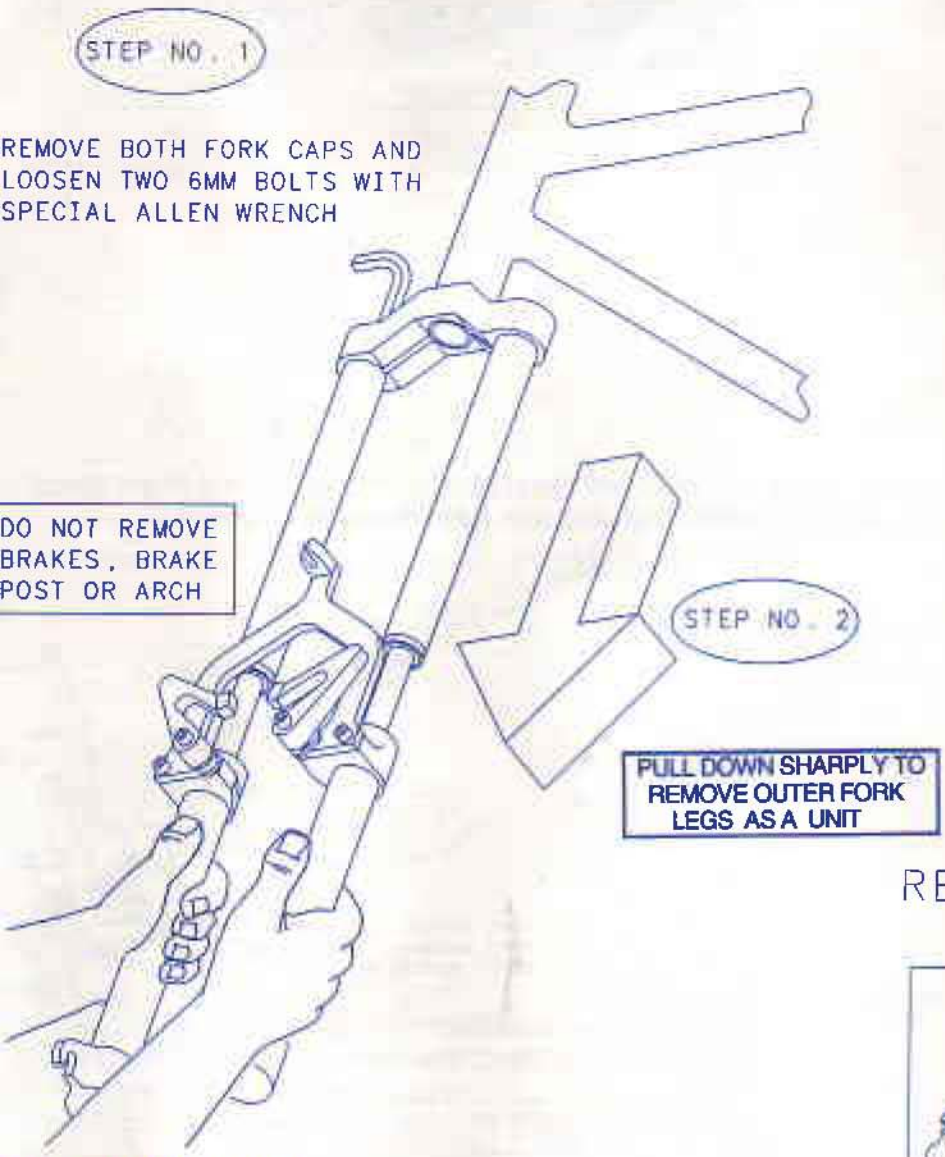
Removal of outer leg:

Note the cantilever brakes, brake arch, steer tube, and inner tubes do not need to be removed for disassembly. It is recommended that brake arch bolts, brake post, and crown pinch bolts be left torqued to preserve the locktited mating surfaces. Forks may be left installed on bicycle.

1. Gently pry to remove both fork caps.



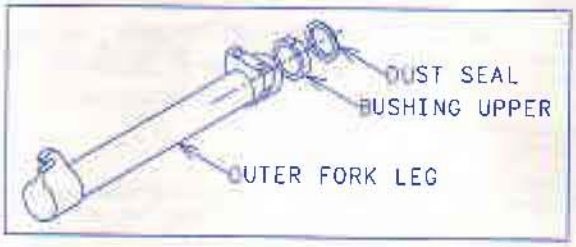
GENERAL DISASSEMBLY
(WITH FORKS ATTACHED TO BICYCLE)



GENERAL DISASSEMBLY (cont.)

2. Use special long 6mm allen wrench to loosen 6mm×120mm bolt.
3. Remove outer leg assembly by pulling it off of the inner leg. Outer leg should slide freely off of inner leg with a sharp pull at the end to complete the fork tube disassembly.

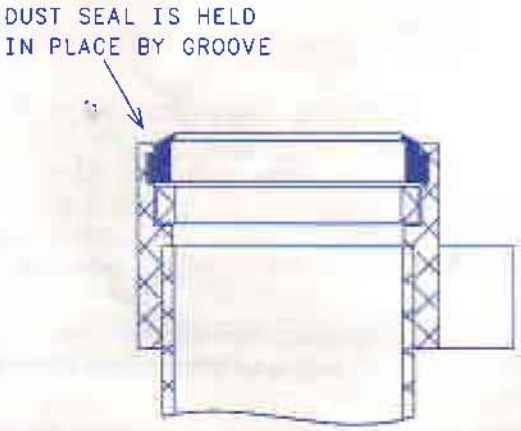
REMOVAL OF DUST SEAL

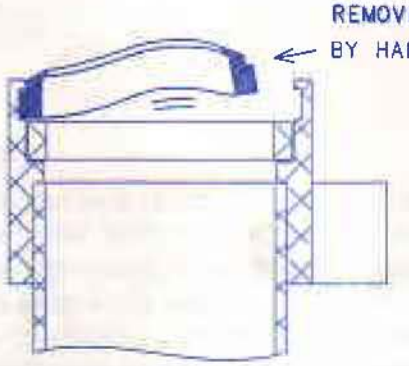


Removal of Dust Seal & Upper Bushing

The dust seal is captured by a groove in the flange and holds the upper bushing in place. It is soft and pliable and may be removed by hand.

1. Remove dust seal by hand taking care not to damage the sealing area with sharp or metal tools.
2. Remove the upper bushing.





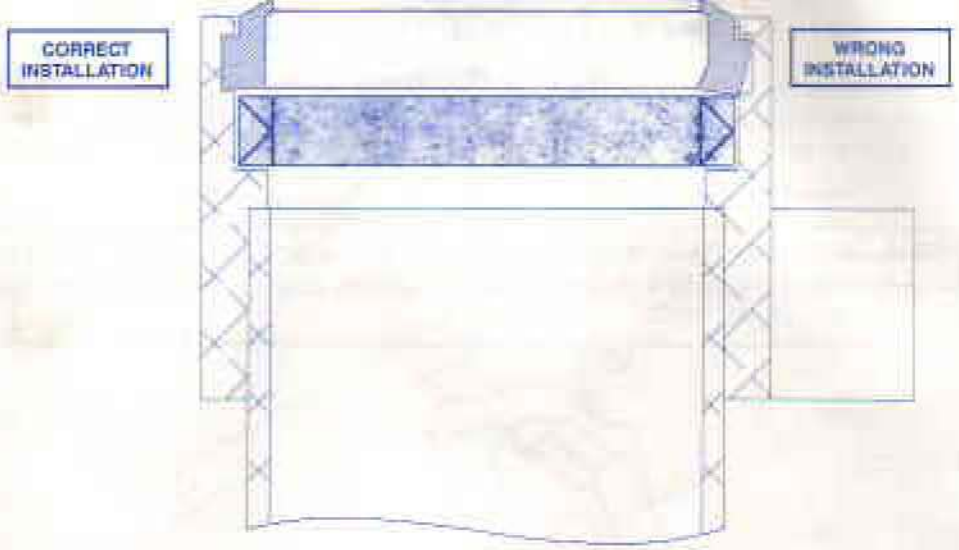
Removal of Compression Rubber and Lower Bushing

The compression rubber fits tightly over the 6mm×120mm bolt.

1. Slide compression rubber off of 6mm bolt.
2. Remove compression washer and lower bushing.
3. Turn inner leg upside-down to remove 6mm bolt and rebound rubber.

RE-ASSEMBLY

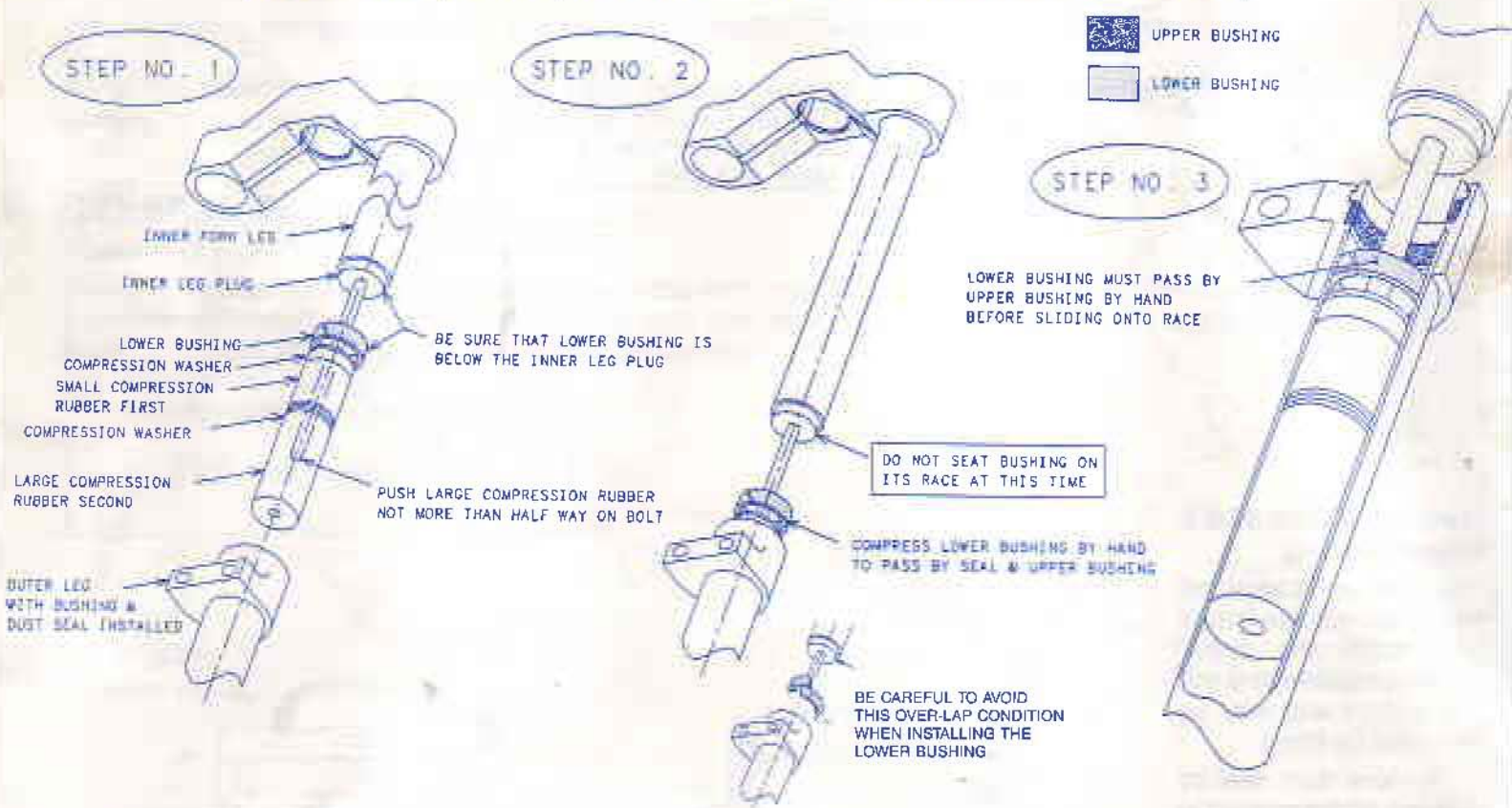
1. Clean all parts thoroughly.
2. Inspect inner and outer legs for excessive scratching or gouging.
3. Replace the bushings and dust seal if excessively worn or damaged.
4. Select new compression and rebound rubbers to change fork performance if desired.
5. Grease all parts lightly but thoroughly.
6. Place upper bushing into flange and install dust seal. Be sure that dust seal is fully seated in its groove.



This illustration shows correct seal installation at the left, and incorrect installation at the right. Use a finger to run around the seal once installed to confirm that seal is properly installed and fully seated at all points.

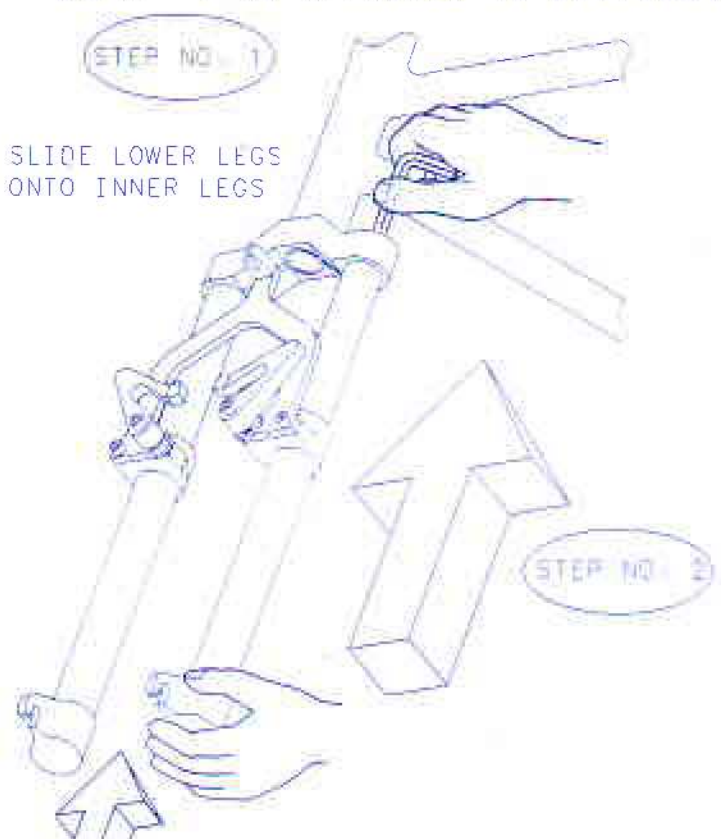
FORK LEG ASSEMBLY SCHEMATIC

(RIGHT LEG, ARCH, & OTHER PARTS REMOVED FOR CLARITY)



7. Slide rebound washer and rubber onto 6mm bolt and drop into inner leg. Shaking it gently will help the bolt find the hole in the inner leg plug.
8. Slide on the lower bushing, compression washer, small compression rubber, intermediate washer and the large compression rubber. Slide large compression rubber only half way onto bolt to leave enough room to work with the lower bushing.

   Note: Do not slide lower bushing onto the inner tube plug. The fork will not be able to be assembled.
9. **IMPORTANT:** Lower bushing must pass through upper bushing by hand ***BEFORE*** sliding on race of inner leg. It will not go through the upper bushing any other way. (See step 2 & 3).
10. Repeat process for second leg.



RE-ASSEMBLY (cont.)

11. Slide lower legs gently onto inner legs taking care not to damage the dust seal.
12. Continue to slide lower legs until bottomed on the compression rubber.
13. By hand push both legs up until inner legs bottom out. With continuing pressure on the lower legs up against the upper legs, force the long allen bolt down through the elastomer dampening stack with strong downward pressure on the long Manitou allen wrench. Using the allen wrench provided, apply light to medium pressure to start the long allen bolt threading into the lower drop out. Once started, only turn it two or three revolutions into the threading. Now repeat the process on leg number two. You will need some of the slack you have left in the system by not tightening the first bolt to allow you to position the long allen in the second fork leg. Once you get both allen bolts started satisfactorily, tighten both securely with 5 ft./lbs. torque.
14. When properly tightened, this bolt will seat the lower bushing in its permanent and proper position.
15. Replace fork caps.

BRAKE ARCH

Removal:

1. Disconnect brake cable from cantilever brakes.
2. Remove 6mm allen screws and cantilever brakes.
3. Remove 8mm brake arch screws.
4. Remove brake post and brake post washer, use 8mm wrench.

Reassembly:

1. Clean all mating surfaces and threads with solvent.
2. Apply Red Loc-Tite 271 adhesive or equivalent to mating surfaces of arch and flanges.
3. Apply Green Loc-Tite RC607 to 8mm allen screws and 8mm threads on brake post.
4. Install 8mm allen screws, brake post, and brake post washer finger tight.
5. Torque 8mm allen screw to 12 ±2 ft./lbs.
6. Torque brake post to 12 ±2 ft./lbs. using 8mm wrench while holding washer in correct rotation with 13mm wrench.

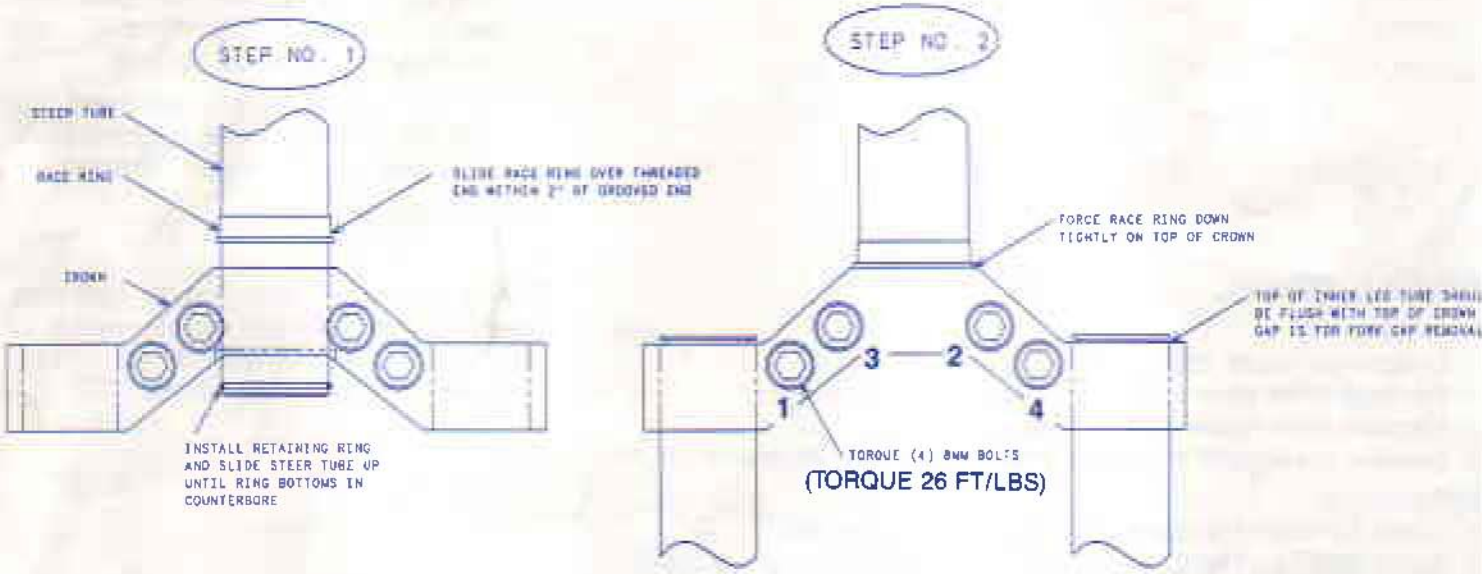
During normal maintenance the fork legs, steer tube and brake arch do not need to be removed. It is recommended that the Loc-Tited joints be left undisturbed.

STEER TUBE & FORK LEG

During normal maintenance the fork legs, steer tube and brake arch do not need to be removed. It is recommended that the Loc-Tited joints are left undisturbed.

Removal:

1. Loosen the four 8mm allen screws.
2. With twisting movement remove the fork legs. Fork caps may be left in place.
3. Without damaging the threads, force the steer tube down approximately 1/2" thru the crown and race ring to expose the retaining ring.
4. Remove retaining ring and slide steer tube out.
5. To remove the race ring from the steer tube place a substantial piece of wood on top of the threaded portion of the steerer to protect the threads from damage, and use a press or a mallet to force the steerer down through the race ring and out through the bottom of the crown.



WARNING: Do not raise or lower the fork tubes in the crown. This could cause lack of proper tire clearance when the fork compresses or reduce the amount of fork leg engagement at the crown. Either case constitutes an unsafe condition.

ADJUSTING THE RIDE QUALITIES

Manitou forks offer a wide adjustment range to suit individual riding preference and weight by simply changing the urethane elastometer cartridges. Each production fork comes with urethane cartridges (red) appropriate for an aggressive rider in the range of 155 lbs. to 180 lbs. The production model also includes a pair of softer cartridges (blue) and stiffer cartridges (yellow) to customize the ride.

To adjust the ride or spring rate to match your riding preference, follow the steps on pages 4 and 5. This will expose the dampening stack and allow you to change cartridges easily. Re-assemble fork according to instructions on pages 6 and 7.

If you find you need to change the fork ride characteristics to match your particular riding preference, begin by using the short elastomers that were included with your Manitou fork. The blue polymer will soften the ride or the yellow polymer will firm up the ride qualities. If you find that you need to further adjust the ride of your fork, you can purchase from Answer Products a "Soft" or "Firm" Ride Kit that allows you to change out all the polymers in two different densities. It is possible to mix the various colors (densities) of polymers to achieve the exact ride qualities you desire. A total of eight polymers are included in each Ride Kit. Part No.'s and descriptions are in the chart at right. See page 2 for ordering information.

ELASTOMER ADJUSTMENT KIT SPECIFICATIONS

COLOR	STIFFNESS	RIDE KIT	PART NO.
Black	Extra Soft	Soft Ride	85-3501
Blue	Soft		
Red	Medium	Stock	040164 040197
Yellow	Firm	Firm Ride	85-3502
Brown	Extra Firm		

Fork gets stiffer in cold weather. The Manitou's polymers can get stiffer in extreme temperatures. If you ride during winter months where temperatures are consistantly lower, you might consider using the next level softer polymers until normal riding temperatures return.

TROUBLE SHOOTING

Fork seems to "top out" or have a slight clunking feel when front wheel comes off the ground.
Check to see if the fork will fully return to a fully extended position without some slack. The fork should always have some preload in the system. If it does not, disassemble per instructions on page 4. Remove and inspect the polymers. The long compression polymer should be three inches long, the short 3/4-inch long and the black rebound rubber on the inside of the inner leg 1/2-inch long. The tolerance on all polymers is 1/16-inch over the total length of the polymer. If polymers are within specification, grease the shaft of the long bolt that goes through the polymers and grease the hole in each polymer. Good lubrication on all polymer and bolt surfaces will smooth rebound performance. Re-assemble carefully per instructions on page 6.

Fork seems harsher and not as compliant as when it was new.
Your fork might need to be cleaned and lubricated to return to optimum performance. Disassemble per instructions on page 4. Clean all components in solvent and dry well. Inspect the dust seals carefully and replace if worn or damaged. These are what keep the inner workings of the fork clean and free of contamination. Grease all bushing and seal surfaces well with a high quality waterproof grease. Re-assemble carefully following assembly instructions on page 6.

It is difficult to get 120mm bolt threaded into the drop out in the re-assembly process.
Trying to get this bolt started in a blind hole at the bottom of a long tube is tricky at best. Follow the instructions on page 7 carefully. Some helpful hints are:

1. Be sure the fork is very close to level and not tipped when attempting to get the bolt started.
2. Do not tighten one side and attempt to do the other. You need all the slack in the system you can get to help maneuver the other bolt to get it started.
3. Do not push up too hard with the lower legs. The end of the bolt needs to be able to "seek" the threaded hole in the drop out. Alternating light to medium pressure may help.