2003

MANITOU

AXEL

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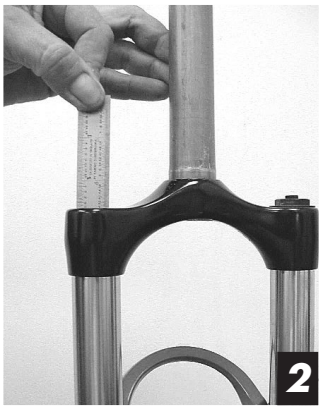
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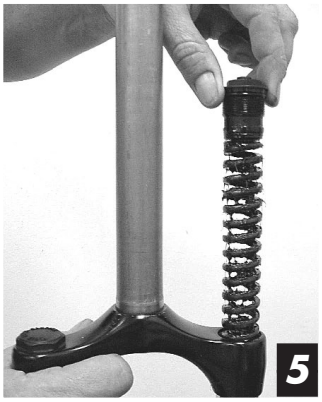
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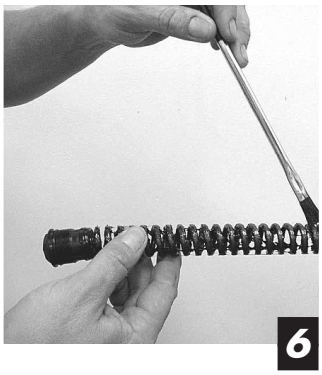

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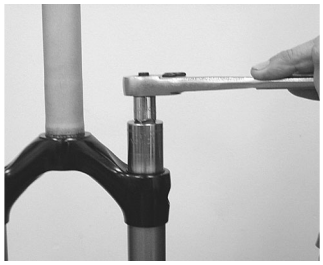

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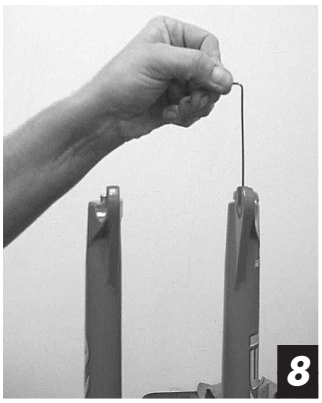

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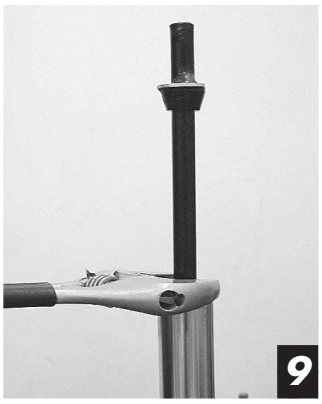

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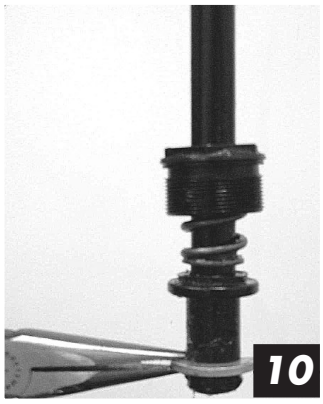

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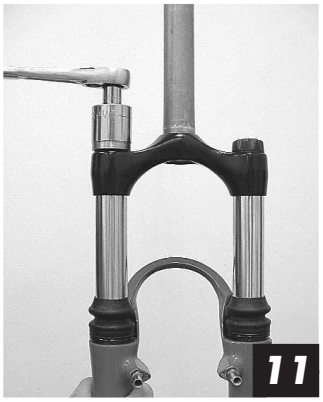

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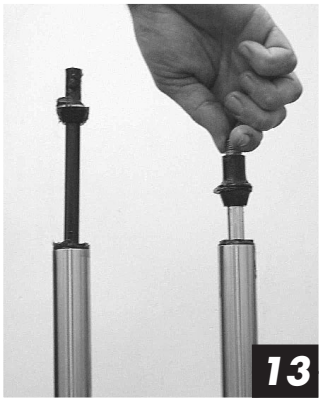

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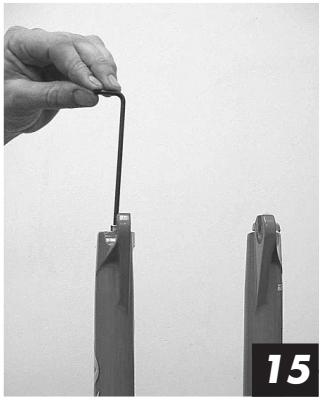

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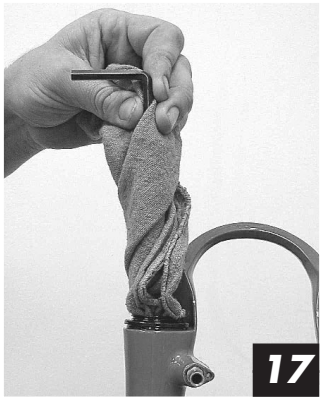

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MANITOU SUSPENSION FORKS

CONGRATULATIONS ON CHOOSING A 2003 MANITOU AXEL FORK. This Manitou AXEL fork is fully assembled and ready to be installed onto your bicycle. It comes equipped with a 1 1/8-inch threadless steerer tube, RA casting and is available with a V-brake-style hangerless arch. AXEL forks are also available in a disc brake only version. A handlebar-mounted reflector must be used for on-road use, which is not included with your fork.

2003 MANITOU AXEL FORK LINE

AXEL COMP .....80 OR 100 MM TRAVEL* / COIL SPRINGS / FLUID FLOW DAMPING / SINGLE CROWN / RA CASTING

AXEL ELITE .....80 OR 100 MM TRAVEL* / COIL SPRINGS / FLUID FLOW DAMPING / SINGLE CROWN / RA CASTING

AXEL SUPER .....80 OR 100 MM TRAVEL* / COIL SPRINGS / FLUID FLOW DAMPING (REBOUND ADJUST) / SINGLE CROWN / RA CASTING / ALUMINUM STEERER TUBE

*Preset from the factory, but changeable. See the Convertible Travel section in the Dealer Service Addendum for details.

You can also download this manual at www.answerproducts.com.

GENERAL WARNING BICYCLING IS A HAZARDOUS ACTIVITY THAT REQUIRES THAT THE RIDER STAY IN CONTROL OF HIS OR HER BICYCLE AT ALL TIMES. READING THIS MANUAL ENTIRELY, AND PROPERLY MAINTAINING YOUR BICYCLE AND SUSPENSION FORK, WILL REDUCE THE POSSIBILITY OF INJURY OR POSSIBLE DEATH. PRIOR TO RIDING YOUR BICYCLE, YOU SHOULD INSPECT YOUR SUSPENSION FORK TO ENSURE THAT NO DAMAGE HAS OCCURRED DURING THE COURSE OF RIDING. DO NOT RIDE YOUR BICYCLE IF THE FORK SHOWS ANY SIGNS OF BENDING, CRACKING, CREAKING, LEAKING, OR IF IT IS MISSING ANY OF THE ORIGINALLY SUPPLIED COMPONENTS. ANY FALL FROM YOUR BICYCLE CAN RESULT IN SERIOUS INJURY OR EVEN DEATH. FOLLOWING THESE INSTRUCTIONS CAN HELP YOU REDUCE THE RISK OF BEING INJURED. IF YOU ARE A MODERATE OR AGGRESSIVE OFF-ROAD RIDER, OR RIDE AT LEAST THREE TIMES A WEEK OVER ROUGH TERRAIN, ANSWER RECOMMENDS RETURNING YOUR SUSPENSION FORK EVERY 2 YEARS FOR A THOROUGH INSPECTION AND UPDATE. TAKE YOUR FORK TO A MANITOU AUTHORIZED DEALER WHO CAN ARRANGE FOR SHIPMENT TO ANSWER PRODUCTS, OR YOU MAY CALL ANSWER AT (661) 257-4411 TO HAVE YOUR FORK SHIPPED DIRECTLY.

IMPORTANT: The AXEL fork is an off-road fork, and as such, does not come with proper reflectors for on road use. Have your dealer or mechanic install proper reflectors to meet the Consumer Product Safety Commission's (C.P.S.C.) Requirements for Bicycles if the fork is going to be used on public roads at any time. If you have questions regarding C.P.S.C. Standards, or would like to purchase a reflector bracket kit (Part #85-3674), contact your dealer.

CONSUMER SAFETY INFORMATION

1. Never remove or have the steerer tube or stanchions removed from the crown. The steerer tube and stanchions (inner legs) are press fit at the factory. Press fit inner legs have higher performance versus bolt-in inner legs, but can not be pressed out. Pressing them out will permanently damage the crown beyond repair and render it unsafe for any continued use.
2. Never attempt to thread a threadless steerer tube. Cutting threads will weaken the steerer tube and cause an unsafe condition. The only safe thing to do is to obtain the proper crown/steerer from your dealer, or contact Answer Customer Service at (661) 257-4411.
3. Any other alteration or modification to your fork should be considered unsafe. Contact Answer Customer Service prior to modifying your fork in any way for safety information.
4. Do not use the AXEL fork if any parts are broken, bent, cracked, or you suspect may be damaged. Contact your dealer or Answer Warranty (661) 257-4411 if you have any questions concerning the integrity or condition of your fork.
5. Answer Products recommends that you inspect your fork before every ride for wear and damage. Inspect the crown, inner legs, outer legs dropout and brake arch areas for cracks or damage.

WARRANTY INFORMATION

Any Answer Products fork found by the factory to be defective in materials and/or workmanship within one year from the date of purchase (or two years in EU countries) will be repaired or replaced at the option of the manufacturer, free of charge, when received at the factory with proof of purchase, freight prepaid. This warranty does not cover breakage, bending, or damage that may result from crashes or falls. This warranty does not cover any fork that has been subject to misuse or whose serial number has been altered, defaced or removed. This warranty does not cover paint damage. Any modifications made by the user will render the warranty null and void. This warranty is expressly in lieu of all other warranties, and any implied are limited in duration to the same duration as the expressed warranty herein. Answer Products shall not be liable for any incidental or consequential damages. If for any reason warranty work is necessary, return the fork to the place of purchase. At that time, instructions for repair, return, or replacement shall be given. Customers in countries other than USA should contact their dealer or local distributor.

INSTALLATION INSTRUCTIONS

Ensure that the proper steerer tube has been delivered on your Manitou AXEL. The steerer tube may need to be cut to length to fit your bicycle head tube. If you are not familiar with this procedure, or do not have the proper tools to cut the steerer tube, it is recommended that you seek a dealer with a qualified bicycle mechanic to perform installation.

WARNING THE STEERER TUBE AND STANCHIONS (INNER LEGS) ARE A ONE TIME PRECISION PRESS FIT AT THE FACTORY AND CAN NOT BE REMOVED FROM THE CROWN. REPLACEMENT OF THE ENTIRE CROWN/STEERER ASSEMBLY MUST BE DONE TO CHANGE STEERER TUBE LENGTHS OR DIAMETERS. REMOVING AND REPLACING THE STEERER TUBE OR STANCHIONS WILL RESULT IN AN UNSAFE CONDITION AND SHOULD NEVER BE DONE.

BREAK-IN

Your new fork is designed to break-in during your first few rides (about 20 hours total riding time). Prior to break-in, you may notice your fork binds slightly and feels notchy. Following the break-in period, your fork will feel much smoother and will react to bumps much better than when you first put it on your bike. After 20 hours, you may want to recheck your rebound and preload adjustments (when applicable) to fine tune the fork completely. Between services on your Manitou fork, all you must do is lubricate your fork as needed with Manitou Prep M (part number 85-3810 for the lube and 85-3812 for the injector gun) via the Microlube grease ports located on the back of the fork legs.

FORK INSTALLATION

1. Remove the old fork from your bicycle.
2. Measure and cut the steerer tube to fit your bicycle head tube. You can use your old fork as a guide for cutting the steerer tube length.
3. Remove the headset crown race from the old fork and press onto the Manitou AXEL steerer tube until the race is seated over the crown.
4. Clean and grease the headset bearings and races.
5. Install the lower bearings (if applicable) on the fork crown race.
6. Insert the steerer tube into the head tube of the frame.
7. Install the upper bearings, stem spacers, and stem.
8. Install the stem cap and bolt. Tighten the bolt to headset manufacturer's specifications.
9. Install the handlebars to desired height and the torque stem pinch screws or stem clamping system to manufacturer's specifications.
10. Install the brakes and adjust per the manufacturer's instructions.
11. For all AXEL forks, adjust the front wheel quick release to clear the 0.334" (8.5 mm) thick secondary catch dropout. The quick release must be tightened after it is properly seated into the dropout counter bores to manufacturer's specifications. Ensure that there is adequate thread engagement (4 or more threads with the release adjusted to lock).

NOTE: 2003 Manitou AXEL forks are equipped with a secondary catch dropout to retain the wheel in the fork in the event the quick release comes loose.

WARNING WHEN INSTALLING THE WHEEL OR A NEW TIRE, CHECK TO MAKE SURE THE FORK ACHIEVES MINIMUM TIRE CLEARANCE. MEASURE FROM THE HIGHEST POINT ON THE TIRE TO THE BOTTOM OF THE BRAKE ARCH. THIS MEASUREMENT SHOULD BE 10 MM. (FIGURE 1)

IMPORTANT: The Manitou AXEL fork should not be used if any parts appear to be or are damaged. Contact your local dealer or Answer Products for replacement parts.

MAINTENANCE

IMPORTANT: Use of fork boots is required to keep your Manitou AXEL fork performing well and the warranty in effect. Use of this fork without boots will shorten the life of the fork, decrease the time between maintenance intervals, reduce the performance and void the warranty.

IMPORTANT: When lubricating the fork with grease through the grease ports, it is important to note that grease is being forced between the upper and lower bushings. If the area is overfilled, the grease may force the upper bushing and dust seal out. You should only insert grease to the level at which stiction (stickiness when you compress the fork) is no longer felt.

IMPORTANT: Before every ride you should:

1. **Ensure that quick release skewers are properly adjusted and tight.**
2. **Wipe the inner legs and clean and check entire fork for any obvious damage.**
3. **Check the headset for proper adjustment.**
4. **Ensure that the front brake cable is properly routed and check brake adjustment.**

CHECKING OIL LEVEL

IMPORTANT: Setting the proper oil level in your Fluid Flow damped fork is critical. Fluid Flow damping is located in the right leg of your Manitou AXEL fork. Not enough oil will allow foaming and reduce the performance. Too much oil will restrict travel and may cause damage to the system and create an unsafe riding condition. Finish reading this entire section prior to altering the oil level.

To check the oil level on the Manitou AXEL, remove the compression assembly located in the top of the right leg (as you are looking at the fork from the rider's position). Leave the left side spring stack in place to keep the fork fully extended. Use a tape measure or "dip stick" to measure from the top of the fork crown down to where the oil sits (Figure 2). The oil level for the Manitou AXEL should be per following table.

Fork Model	Oil Level
Manitou AXEL	115-125 mm (4.5-4.9")

NOTE: Use SAE 5WT fork oil suspension fluid only.

If you have any questions regarding your 2003 Manitou AXEL suspension fork, contact the Answer Products Customer Service Department at (661) 257-4411. You can also log on to www.answerproducts.com and download this manual or see detailed instructions on how to service your suspension fork.

Thank you again for choosing a 2003 Manitou AXEL suspension fork.

AXEL DEALER SERVICE ADDENDUM

This section is designed to help you tune and maintain your Manitou suspension fork.

MEASURING SAG To measure sag, you'll need a tape measure, a pencil, a piece of paper and a helper.

1. Measure the distance from the front axle's centerline to the bottom of the upper crown when no one's sitting on the bike and write this distance down. (Remember the exact locations of the two points because you'll need to use them later.)
2. Have the rider sit on the bike and measure the distance between the same two points as in step one. It's important to be in the normal riding position (weight centered) with the rider's feet on the pedals.
3. Subtract the second measurement from the first. The resulting measurement is the static sag or ride height.

SAG MEASUREMENT

Fork Travel	Sag
80 mm	12-16 mm
100 mm	18-24 mm

TRAVEL MEASUREMENT To determine which travel your AXEL fork is in, simply measure the distance from the top of the seal area on the lowers (or the bottom of the fork boot) to the bottom of the crown (Figure 3).

Fork Travel	Seal to Crown Measurement
80 mm	Around 4.3 inches or 109 mm
100 mm	Around 5.2 inches or 130 mm

RECOMMENDED SPRINGS

AXEL	Rider Weight	Recommended Spring Kit
	100-150 lbs.	Soft ride kit (Part #85-4826)
Standard Set-up	150-170 lbs.	Medium ride kit (Part #85-4827)
	170 plus lbs.	Firm ride kit (Part #85-4828)

CHANGING SPRINGS AND/OR MCU'S Once you have checked sag, you can either preload the spring via the cap on top of the left hand leg, or even better, make spring changes to accommodate for your riding style and weight.

1. Start by removing the preload adjuster by unscrewing the 2 mm hex bolt on the adjuster knob. A 20 mm socket will be necessary with the AXEL. Remember: The springs are housed only in the left leg on 2003 Manitou suspension forks. (Figure 4)
2. With the adjuster assembly removed, the spring stack is now accessible. (Figure 5)
3. Select the appropriate coil spring for your weight and riding style (refer to the above spring chart for recommended rates).
4. Apply a liberal amount of grease to the outside surface of the new coil spring (Figure 6). We recommend any thick grease (not light greases like Prep M). Install the new spring stack.
5. Reinstall the preload adjuster knob and adjuster assembly, taking care not to cross-thread the adjuster assembly. It should be snug tightened with a wrench. (Figure 7)

CONVERTIBLE TRAVEL

1. Changing the travel from 80 to 100 millimeters or vice-versa requires the removal of the lower legs.
2. Remove the rebound adjuster knob with a 2 mm hex wrench (AXEL Elite and Super models only). (Figure 8)
3. Next unthread (clockwise to loosen) the 8 mm and 4 mm bolts on the bottom of the fork and pull the lowers free from the uppers. Unscrew the cap on the bottom of the right leg (as seen from the rider's position). This will expose the clip that is used to adjust the travel. (Figure 9)
4. Remove the clip and insert it into the upper position (above the rod flange) for 100 millimeters of travel or the lower position (below the rod flange) for 80 millimeters of travel. (Figure 10)
5. Reassemble fork.

MAINTENANCE AND SERVICE – INTRODUCTION When servicing the fork, take the time to inspect all parts for excessive wear or damage. There are basically four aspects of a fork that will require attention: the stanchions (inner legs), the bushings in the outer legs, the spring stack and the damping fluid. Inspecting any of these parts requires disassembly of the fork. Pay close attention to the bushings, which can be damaged by contamination in severe conditions. Replace any worn or damaged parts that are discovered.

CHANGING THE OIL IN YOUR FORK Changing the oil in your damped fork is very easy to do. All of the damping systems, FFD, TPC and TPC Plus, house the oil in the right leg.

1. Remove the cap from the top of the right fork leg ($1^{1}/_{16}$" socket). (Figure 11)
2. Rock the compression damping assembly back and forth slightly as you pull up on it to remove it.

3. Pour the old oil out of the fork. (Figure 12)

4. Stroke the fork up and down to remove the oil that settles beneath the rebound piston. Pour this oil out as well. (Figure 13)

5. Add oil to the level shown in the Checking Oil Level section of this manual. (Figure 14) Cover the leg opening and stroke the fork up and down a few times before the final measurement is taken to ensure that oil has flowed beneath the rebound piston again.

FORK DISASSEMBLY Disassembly of your AXEL fork is necessary to provide the proper service of your fork. To do this:

1. Remove the adjustment knob on the bottom of your fork with a 2 mm Allen wrench.

2. Remove the bolts from the bottom of the fork leg with 4 and 8 mm wrenches and set aside. (Figure 15)

3. You can now pull apart the fork, removing the casting from crown/steerer assembly. (Figure 16)

4. Wipe clean the inside of the fork casting, stanchion tubes, fork boots, and crown. At the same time you do this, do a complete inspection on the fork. (Figure 17)

MICROLUBE All you need is a Microlube lubricant gun (part #85-3812) and Manitou's Prep M suspension fork lubricant (part #85-3810). Brush any dirt from the grease ports and inset the grease gun into the small fitting located at the back of the fork and squeeze a few times. Continue injecting grease and push the fork up and down until stiction is eliminated.

SERVICE SCHEDULE – Suggested Service for Manitou forks

NORMAL CONDITIONS – Short/Infrequent Rides
- Lube fork as needed with Prep M lubricant via Microlube ports.
- Disassemble, clean and lubricate fork every 4-5 months.
- Lubricate spring stack as needed.
- Service FFD by changing damping fluid every year.

NORMAL CONDITIONS – Long/Frequent Rides
- Lube fork as needed with Prep M lubricant via Microlube ports.
- Disassemble, clean and lubricate fork every 10-14 weeks.
- Lubricate spring stack as needed.
- Service FFD by changing damping fluid every 6 months.

SEVERE CONDITIONS (MUD, RAIN, SNOW, EXTREME DUST) – Short/Infrequent Rides
- Lube fork as needed with Prep M lubricant via Microlube ports.
- Disassemble, clean and lubricate fork every 6-8 weeks.
- Lubricate spring stack as needed.
- Service FFD by changing damping fluid every year.

SEVERE CONDITIONS (MUD, RAIN, SNOW, EXTREME DUST) – Long/Frequent Rides
- Lube fork as needed with Prep M lubricant via Microlube ports
- Disassemble, clean and lubricate fork every 4-6 weeks.
- Lubricate spring stack as needed.
- Service FFD by changing damping fluid every 6 months.