2003

MANITOU

SHERMAN

FLICK FIREFLY BREAKOUT SLIDER

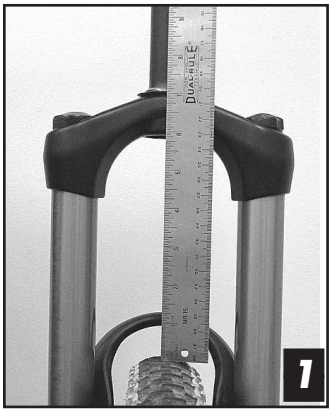
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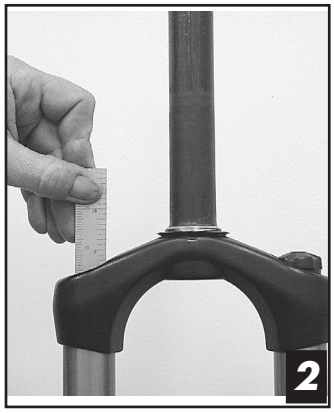
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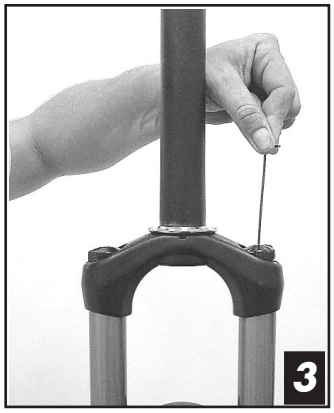
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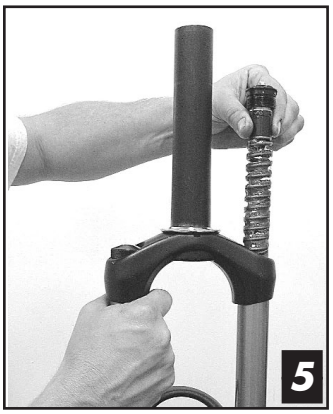
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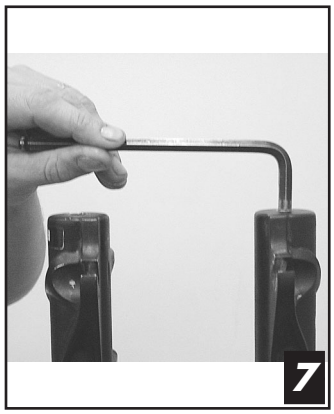

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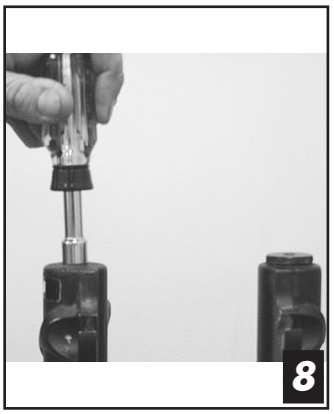

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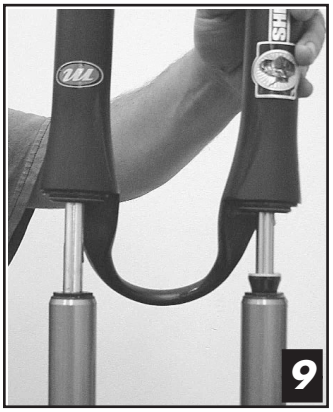

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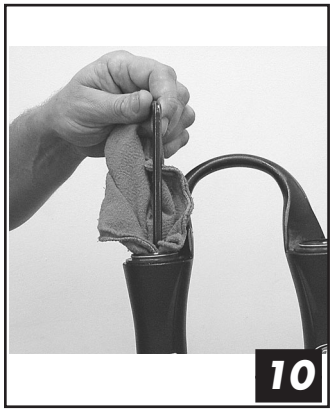

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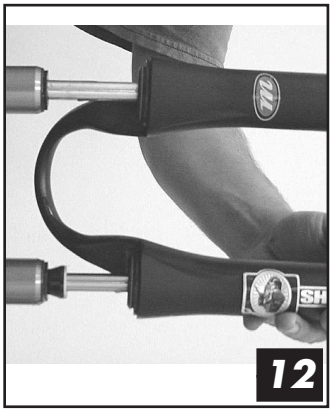

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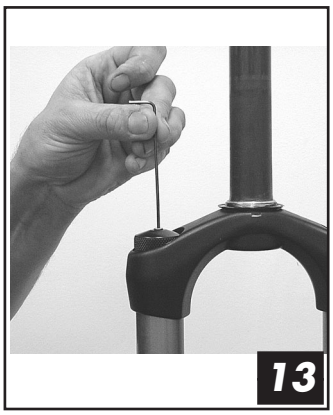

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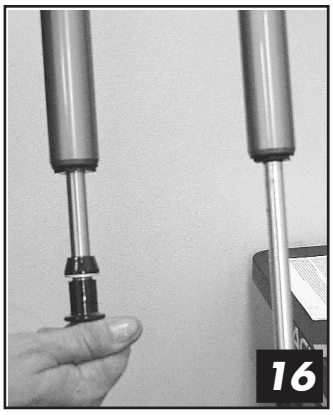

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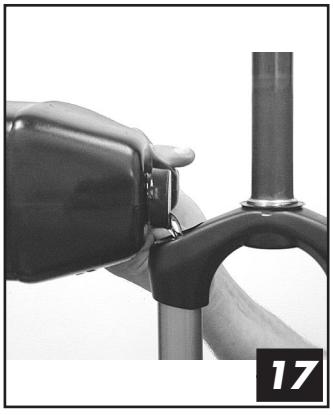

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SERVICE PARTS KITS

SHERMAN ICE

Compression Damping Assembly		85-5125
Rebound Damping Assembly		85-5126
Preload		N/A
Crown/Steer Tube Assembly		85-5091
Sticker Kit		85-5166
Ride Kits -	Soft	85-4966
	Medium	85-4967
	Firm	85-4968
	X-Firm	85-4969
Convertible Travel		85-5067
Knob Kit		85-5060

SHERMAN FLICK

CompressIon Damping Assembly		85-5127
Rebound Damping Assembly		85-5126
Preload		N/A
Crown/Steer Tube Assembly		85-5091
Sticker Kit		85-5166
Ride Kits -	Soft	85-5178
	Medium	85-5179
	Firm	85-5180
	X-Firm	85-5181
Travel Adjust		85-5071
Knob Kit		85-5069

SHERMAN FIREFLY

Compression Damping Assembly		85-5128
Rebound Damping Assembly		85-5126
Preload		N/A
Crown/Steer Tube Assembly		85-5092
Sticker Kit		85-5166
Ride Kits -	Soft	85-5178
	Medium	85-5183
	Firm	85-5184
	X-Firm	85-5181
Travel Adjust		85-5186
Knob Kit		85-5069

SHERMAN BREAKOUT

Compression Damping Assembly		85-5128
Rebound Damping Assembly		85-5126
Preload		N/A
Crown/Steer Tube Assembly		85-5093
Sticker Kit		85-5166
Ride Kits -	Soft	85-4956
	Medium	85-4957
	Firm	85-4958
	X-Firm	85-4959
Travel Adjust		85-5076
Knob Kit		85-5069

SHERMAN SLIDER

Compression Damping Assembly		85-5129
Rebound Damping Assembly		85-5126
Preload		N/A
Crown/Steer Tube Assembly		85-5094
Sticker Kit		85-5166
Ride Kits -	Soft	85-5287
	Medium	85-5288
	Firm	85-5289
	X-Firm	85-5290
Convertible Travel		N/A
Knob Kit		85-5069

Outer Casting Assemblies

Textured Black 85-5161	
Textured Silver 85-5162	
Textured Camo Grey	85-5163
Textured Black N/B	85-5130
Textured Silver N/B	85-5131
Textured Camo Grey N/B	85-5132
*TPC+ for all SHERMAN models	85-5074
*OS S/T for Ice and Flick	85-5186
*OS S/T for Firefly	85-5187
*OS S/T for Breakout	85-5188
*OS S/T for Slider	85-5189
*Through Axle	85-5070

AMERICAN MADE MANITOU SUSPENSION FORKS

CONGRATULATIONS ON CHOOSING THE LATEST IN SUSPENSION TECHNOLOGY AVAILABLE, A 2003 MANITOU SHERMAN BUILT IN THE USA. This SHERMAN fork is fully assembled and ready to be installed onto your bicycle. It comes equipped with a 1 1/8-inch or 1 1/2-inch threadless steerer tube and is available as 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 SHERMAN FORK LINE

SHERMAN ICE . . . . . 110/130 MM CONVERTIBLE TRAVEL / COIL SPRING / FLUID FLOW DAMPING / SINGLE CROWN / RA CASTING

SHERMAN FLICK . . . . . 110/130 MM EXTERNALLY ADJUSTABLE RAPID TRAVEL II / COIL SPRING / TPC DAMPING / SINGLE CROWN / RA CASTING

SHERMAN FIREFLY . . . . . 110/130 MM EXTERNALLY ADJUSTABLE RAPID TRAVEL II / TI COIL SPRING / TPC+ DAMPING / HOLLOW CROWN / RA CASTING

SHERMAN BREAKOUT . . . . . 132/152 MM EXTERNALLY ADJUSTABLE RAPID TRAVEL II / COIL SPRING / TPC+ DAMPING / HEX LOCK THROUGH AXLE / onepointfive STEERING SYSTEM / RA CASTING

SHERMAN SLIDER . . . . . 152 MM TRAVEL / COIL SPRING / TPC+ DAMPING / HEX LOCK THROUGH AXLE / DOUBLE TRIPLE CLAMP / RA CASTING

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 Manitou SHERMAN 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, contact your dealer.

CONSUMER SAFETY INFORMATION

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 (Slider model excluded). 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. 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, on contact Answer Customer Service at (661) 257-4411. 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.

Do not use the SHERMAN fork if any parts are broken, bent, cracked, or you suspect may be damaged. Contact your dealer or Answer Products Customer Service at (661) 257-4411 if you have any questions concerning the integrity or condition of your fork.

Answer Products recommends that you periodically inspect your fork for wear and damage. Inspect the crown, inner legs, outer legs, dropouts 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, 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 with original purchase receipt 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 SHERMAN fork first. 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.

IMPORTANT NOTE: SOME MODELS FEATURE THE NEW onepointfive STANDARD STEERER TUBE. THE 1 1/2-INCH STEERER TUBE REQUIRES A SPECIFIC BICYCLE FRAME, HEADSET AND STEM. DO NOT ATTEMPT TO MODIFY ANY PARTS TO ADAPT FROM A 1 1/8-INCH SYSTEM TO THE 1 1/2-INCH SYSTEM. FOR MORE INFORMATION, REFER TO WWW.ONEPOINTFIVESTANDARD.COM.

⚠ WARNING THE STEERER TUBE AND STANCHIONS (INNER LEGS) ARE A ONE TIME PRECISION PRESS FIT AT THE FACTORY AND CANNOT BE REMOVED FROM THE CROWN (SLIDER MODEL EXCLUDED). 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 feels tight and slightly 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 compression, rebound and preload adjustments (when applicable) to fine tune the fork completely.

FORK INSTALLATION

1. Remove the old fork from your bicycle.
2. Measure and cut the steerer tube to fit your bicycle head tube. (SEE IMPORTANT NOTE ABOVE). 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 SHERMAN fork steerer 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 fork crown race.
6. Insert the steerer tube into the head tube of the frame.
7. Install the upper bearings, stem spacers, upper triple clamp on the Slider model, and stem.
8. Install the stem cap and bolt. Tighten the bolt to headset manufacturer's specifications.
9. Install the handlebars 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 SHERMAN forks with standard dropouts, adjust the front wheel quick release to clear the 0.275" (7 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).
12. For SHERMAN forks with the Hex-Lock through axle system, install small side of the through axle through the large opening and wheel. Tighten down the hex lock end bolt until it is snug. Then tighten the drop out pinch bolts to 45-55 in-lbs.
13. Install the brake cable per manufacturer instructions.

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

UPPER TRIPLE CLAMP SIZING – SLIDER MODEL

To fit a variety of bike head tube sizes, there are two distinct upper triple clamps. The flat upper triple clamp is the small size and fits head tubes between 125 and 145 mm in length. The drop upper triple clamp is the large size and fits head tubes between 145 and 165 mm in length. Both clamps must fully engage the aluminum bulges on the outer tubes without extending beyond the small taper line with the upper and lower clamps. All triple clamp bolts must be torqued to 80-90 in-lbs. (9 - 10.2 Nm).

⚠ 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 AT LEAST 12 MM (0.47") FOR ALL SHERMAN FORKS. (FIGURE 1)

IMPORTANT: The SHERMAN 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

Your SHERMAN fork requires periodic maintenance, cleaning and inspection. This is because moisture and contamination may build up inside the fork depending on the severity of riding conditions. To maintain top performance, it is recommended that the fork be periodically disassembled, cleaned, dried and relubricated. You can download service and tuning instructions on the web at www.answerproducts.com.

IMPORTANT: Before every ride you should:

1. **Ensure that quick release skewers are properly adjusted and tight. On Hex Lock through axle models, ensure that the axle is fully inserted into the dropouts and the pinch bolts are tightened to 24-29 in.lbs.**
2. **Wipe the inner legs and clean the fork. Check the 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 TPC+, TPC, or FFD equipped fork is critical. TPC+, TPC, or FFD is located in the right leg of your SHERMAN 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, 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 should be per the following table.

FORK MODEL	OIL LEVEL
SHERMAN ICE	115 to 125 mm (4.5 to 4.9")
SHERMAN FLICK	78 to 83 mm (3.1 to 3.3")
SHERMAN FIREFLY	86 to 91 mm (3.4 to 3.6")
SHERMAN BREAKOUT	86 to 91 mm (3.4 to 3.6")
SHERMAN SLIDER	190 to 220 mm (7.5 to 8.7")
SHERMAN W/LOCKOUT	101 to 106 mm (4 to 4.2")

NOTE: Use SAE 5WT suspension fork oil only.

If you have any questions regarding your 2003 Manitou SHERMAN suspension fork in the U.S., contact the Answer Customer Service Department at (661) 257-4411. For information outside of the U.S., contact your authorized Manitou dealer or distributor. 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 SHERMAN suspension fork.

DEALER SERVICE ADDENDUM

This section is designed to help a qualified bicycle mechanic tune and maintain your Manitou suspension fork.

MEASURING 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 your feet on the pedals.
3. Subtract the second measurement from the first. The resulting measurement is the static sag.

SAG MEASUREMENT CHART

Fork Travel	Sag
110 mm	22 to 27 mm
130 mm	26 to 32 mm
152 mm	30 to 38 mm

SPRING KITS

SHERMAN ICE, SHERMAN FLICK 110/130

Rider Weight	Recommended Spring Kit
130-150 lbs	Soft ride kit (Part #85-5178)
150-170 lbs	Medium ride kit (Part #85-5179)
170-190 lbs	Firm ride kit (Part #85-5180)
190-215 lbs	Extra firm ride kit (Part #85-5181)

SHERMAN FIREFLY 110/130

Rider Weight	Recommended Spring Kit
130-150 lbs	Soft ride kit (Part #85-5178)
150-170 lbs	Medium ride kit (Part #85-5183)
170-190 lbs	Firm ride kit (Part #85-5184)
190-215 lbs	Extra firm ride kit (Part #85-5181)

SHERMAN BREAKOUT

Rider Weight	Recommended Spring Kit
130-150 lbs	Soft ride kit (Part #85-4956)
150-170 lbs	Medium ride kit (Part #85-4957)
170-190 lbs	Firm ride kit (Part #85-4958)
190-215 lbs	Extra firm ride kit (Part #85-4859)

SHERMAN SLIDER

Rider Weight	Recommended Spring Kit
130-150 lbs	Soft ride kit (Part #85-5287)
150-170 lbs	Medium ride kit (Part #85-5288)
170-190 lbs	Firm ride kit (Part #85-5289)
190-215 lbs	Extra firm ride kit (Part #85-5290)

CHANGING COIL SPRINGS

1. Start by removing the spring cap by unscrewing the knob and cap from the top of the crown/leg assembly (Figure 3). Remember: The springs are housed only in the left leg on 2003 Manitou suspension forks (as you are looking at the fork from the rider's perspective) (Figure 4).
2. With the spring cap 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. Reinstall the spring cap, taking care not to cross-thread the cap. It should be snug tightened with a wrench (Figure 4).

COMPRESSION DAMPING ADJUSTMENT – QUICK RANGE TPC AND TPC+ For Quick Range TPC forks, a simple turn of the knob located on top of the right leg is all that is needed. Turning the knob clockwise (as you are looking from a rider's position) increases compression damping, while turning it counterclockwise decreases compression damping.

REBOUND DAMPING ADJUSTMENT – QUICK RANGE TPC, TPC+, AND FLUID FLOW DAMPING (FFD) Rebound adjusters on Manitou forks are located on the bottom of the right fork leg. Turning the knob clockwise (as you are looking at the fork from the bottom) increases rebound damping, while turning it counterclockwise decreases rebound damping.

RAPID TRAVEL II – SHERMAN FLICK, SHERMAN FIREFLY, SHERMAN BREAKOUT To change the travel with Rapid Travel II, just turn the knob located at the top of the left leg. Turning the knob forward places the fork in its long travel position. Short travel position is with the knob to the rear. Compressing the fork slightly is required to release or lock the fork into a different travel position.

CONVERTIBLE TRAVEL – SHERMAN ICE Changing the travel from 110 to 130 millimeters or vice-versa requires the removal of the lower legs (read the Semibath section first). Unthread the 8 mm Allen bolt (clockwise to loosen) and 11 mm bolts on the bottom of the fork and pull the lowers free from the uppers. Then, unscrew the cap on the bottom of the left leg (as seen from the rider's perspective). Remove the upper clip and insert it into the upper position for 130 millimeters of travel or the lower position for 110 millimeters of travel.

MAINTENANCE AND SERVICE – INTRODUCTION

When servicing the fork, take the time to inspect all parts for excessive wear or damage. There are basically five aspects of a fork that will require attention: the stanchions (inner legs), the bushings in the outer legs, the spring stack, lubricating oil, 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.

SEMIBATH LUBRICATION MAINTENANCE

The correct volume of oil to be poured into each leg is 16cc of 5-40wt semibath oil.

1. Remove the rebound damping knob with a 2 mm hex. (Figure 6)
2. With the fork positioned over an oil catch receptacle, loosen (clockwise to loosen) the 8 mm hex damper shaft fitting on the right leg (Figure 7) and remove the 11 mm bolt from the left leg (Figure 8).
3. Remove the outer leg from the crown/steerer (Figure 9), allowing any remaining oil to drain into the receptacle. Inspect the condition of the o-rings on damper shaft fitting and 11mm bolt. Replace if damaged. Replacement o-rings can be found in o-ring kit p/n 85-5294.
4. Clean the inside of the lowers thoroughly and wipe the inner legs until they are completely free of oil or debris. (Figure 10)
5. Fully extend the damper shaft and slide the rubber bumper against the inner leg endcap. Insert the crown/steerer assembly into the outer legs to the upper bushing. Holding the fork horizontal, pour 16cc of 5-40wt semibath oil into the hole at the bottom of each outer leg (Figure 11). A syringe works well for this.
6. Push the outer legs past the lower bushing and reinstall the 11mm bolt and 8mm damper fitting (counter-clockwise). Tighten the 8mm damper fitting to 10-30 in.lbs. and the 11mm bolt to 45-60 in.lbs.

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 adjuster knob. (Figure 13)

2. Loosen the assembly on top of the right fork leg with a 20 mm wrench. (Figure 14) Rock the compression damping assembly back and forth slightly as you pull up on it to remove.

3. Pour the old oil out of the fork. (Figure 15)

4. Stroke the fork up and down to remove the oil that settles beneath the rebound piston. Pour this oil out as well. (Figure 16)

5. Add oil to the level shown in the Checking Oil Level section of this manual (Figure 17). 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. (Figure 2)

SERVICE SCHEDULE – Suggested Service for Manitou forks

NORMAL CONDITIONS – Short/Infrequent Rides
- Disassemble, clean and lubricate fork every 6 months.
- Service TPC+, TPC and FFD by changing fork fluid every year.

NORMAL CONDITIONS – Long/Frequent Rides
- Disassemble, clean and lubricate fork every 4 months.
- Service TPC+, TPC and FFD by changing fork fluid every 6 months.

SEVERE CONDITIONS (MUD, RAIN, SNOW, EXTREME DUST) – Short/Infrequent Rides
- Disassemble, clean and lubricate fork every 4 months.
- Service TPC+, TPC and FFD by changing fork fluid every year.

SEVERE CONDITIONS (MUD, RAIN, SNOW, EXTREME DUST) – Long/Frequent Rides
- Disassemble, clean and lubricate fork every 2 months.
- Service TPC+, TPC and FFD by changing fork fluid every 6 months.