• ENGLISH

MANITOU

02 OWNER'S MANUAL

MARS

COMPCOIL ELITE DIVA SUPER

• Betriebsanleitung • Manual del usuario • Manuel de l'utilisateur
• Manuale del proprietario • Handleiding • Manual do proprietário • オーナーズマニュアル

P/N 042036

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AMERICAN MADE MANITOU SUSPENSION FORKS

CONGRATULATIONS ON CHOOSING THE LATEST IN SUSPENSION TECHNOLOGY AVAILABLE, A 2002 MANITOU MARS FORK BUILT IN THE USA. This MARS fork is fully assembled and is ready to be installed onto your bicycle. It comes equipped with a 1 1/8-inch threadless steerer tube, and is available with a V-brake-style hangerless arch or a disc brake only version.

2002 MANITOU MARS FORK LINE

MARS COMP COIL.....80 MM TRAVEL / COIL SPRING / TPC DAMPING / HOLLOW CROWN

MARS ELITE .....80 MM TRAVEL / AIR-COIL SPRING / TPC DAMPING / HOLLOW CROWN

MARS SUPER .....80 MM TRAVEL / AIR-COIL SPRING / LOCKOUT / TPC DAMPING / HOLLOW CROWN

MARS DIVA .....80 MM TRAVEL / AIR-COIL SPRING / LOCKOUT / TPC DAMPING / HOLLOW CROWN

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, 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 PRODUCTS 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 PRODUCTS TO HAVE YOUR FORK SHIPPED DIRECTLY AT (661) 257-4411.

IMPORTANT: The MARS fork is an off-road fork, and as such, does not come with proper reflectors for on-road use.

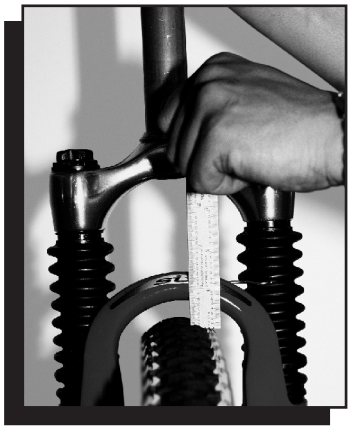
CONSUMER SAFETY INFORMATION

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 a higher performance versus bolt-in inner legs, but cannot 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 the Answer Warranty Department at (661) 257-4411.
3. Any other alteration or modification to your fork should be considered unsafe. Contact Answer Warranty prior to modifying your fork in any way for safety information.
4. Do not use the MARS fork if any parts are broken, bent, cracked, or you suspect may be damaged. Contact your dealer or the Answer Warranty Department at (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 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.



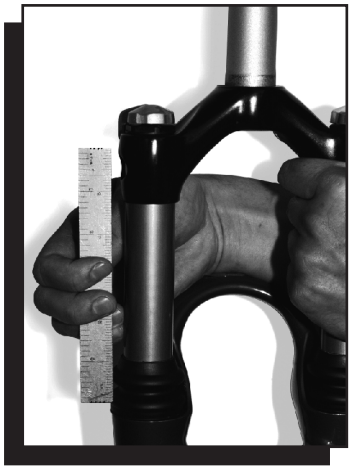
1

Tire clearance
Reifenabstand
Espacio libre de la cubierta
Distance arceau/pneu
Spazio libero del pneumatico
Bandspeling
Folga do pneu
タイヤクリアランス



2

Checking Oil Level
Kontrolle des Ölstandes
Verificación del nivel de aceite
Vérification du niveau d'huile
Controllo del livello dell'olio
Oliepeil controleren
Verificação do nível de óleo
オイル量のチェック



3

Travel Measurement
Messung der Auslenkung
Cómo medir el recorrido
Mesure de la course
Misurazione della corsa
Meting van loop
Medição do curso
トラベル量の測定

INSTALLATION INSTRUCTIONS

Ensure that the proper steerer tube has been delivered on your MARS 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.

⚠ 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. 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. 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 gun) via the Microlube 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 MARS 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, and stem.
8. Install the stem cap and bolt. Tighten the bolt to headset manufacturer's specifications.
9. Install the handlebars to the 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. 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. Install the brake cable per manufacturer's instructions.

NOTE: 2002 MARS 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 AT LEAST 10 MM (SEE FIGURE 1).

IMPORTANT: The MARS 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:

1. **Use of fork boots is recommended to keep your MARS fork performing at its optimum for extended service cycles, and maintaining maximum life of the fork.**
2. **Use of this fork without fork boots will require frequent service intervals to maintain performance and normal life of the fork.**
3. **The warranty will be void if the fork is found to show that the boots were not in place and frequent service was not performed.**

Your MARS 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 using the Microlube ports located on the back of each outer leg.

IMPORTANT: When lubricating the fork through the Microlube ports, it is important to note the lubricant is being forced between the upper and lower bushings. If the area is overfilled, the lubricant may force the upper bushing and dust seal out. You should only insert lubricant to the level at which stiction 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 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-equipped fork is critical. TPC is located in the right leg of your MARS 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 a Manitou MARS fork, 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 (see figure 2). The oil level for the Manitou MARS should be per following table.

FORK MODEL	OIL LEVEL
MARS Comp Coil	101 mm – 127 mm (4 - 5 inches)
MARS Elite	95 mm – 108 mm (3.75 - 4.25 inches)
MARS Super	89 mm – 102 mm (3.5 - 4 inches)
MARS Diva	89 mm – 102 mm (3.5 - 4 inches)

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

If you have any questions regarding your 2002 Manitou MARS suspension fork, contact Answer Warranty 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 2002 Manitou MARS 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 and a piece of paper.

1. Measure the distance from the front axle's centerline to the bottom of the upper crown when no one is 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 is 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
80 mm	12-16 mm

RIDE KITS

MARS COMP COIL		
Rider Weight	**Recommended Ride Kits**	**Part #**
100-150 lbs.	Soft ride kit	85-9127
150-170 lbs.	Medium ride kit	85-9128
170-190 lbs.	Firm ride kit	85-9129
190 plus lbs.	Extra firm ride kit	85-9219
MARS ELITE/SUPER/DIVA		
Rider Weight	**Recommended Ride Kits**	**Part #**
100-125 lbs.	X-Soft ride kit	85-4808
125-150 lbs.	Soft ride kit	85-4878
150-190 lbs.	Medium ride kit	85-4927
190 plus lbs.	Firm ride kit	85-9188

* Air pressure setting should equal 75% of body weight.
* Maximum air pressure is 190 psi.

CHANGING COIL SPRINGS – MARS COMP COIL

1. Start by removing the preload adjuster by unscrewing the cap from the top of the crown/leg assembly. A 20 mm socket may be necessary. Remember: The springs are housed only in the left leg on 2002 Manitou suspension forks.
2. With the adjuster assembly removed, the spring stack is now accessible.
3. Select the appropriate ride kit for the rider's 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. We recommend any thick grease (not light lubricants like Prep M). Install the new spring.
5. Reinstall the preload adjuster assembly, taking care not to cross-thread the cap. It should thread in by hand and does not need to be tightened with a wrench (finger-snug is recommended).

CHANGING COIL SPRINGS – MARS ELITE, MARS SUPER, MARS DIVA

1. Start by unthreading the air cap on top of the left fork leg and removing the fork's air pressure via the Schraeder valve.
2. Next, from the bottom of the casting remove the 2 mm cap screws and caps, the 11 mm open end bolt and 8 mm hex bolt (turn to the right to loosen). Once you do this, you will be able to pull the lowers away from the uppers.
3. On the left leg (as seen from the rider's perspective), remove the 15/16-inch cap from the bottom of the leg. Remove the entire assembly by pulling the rod lightly. At this point, you will see the coil spring.
4. Select the appropriate coil spring for the rider's weight and riding style (refer to the above spring chart for recommended rates).
5. Apply a liberal amount of grease to the outside surface of the new coil spring. We recommend any thick grease (not light lubricants like Prep M). Install the new spring.
6. Reinstall the assembly into the left leg of the fork, taking care not to cross-thread the cap. It should thread in by hand and should only be snug tightened.

7. Reinstall the lowers with the 11 mm and 8 mm bolts and tighten. You may have trouble getting the 8 mm bolt to catch the threads. If this occurs, remove the lowers, pull the rebound damping rod down again, and reinstall the casting. You should be able to now install the 8 mm bolt.

CHANGING AIR SPRING PRESSURE – MARS ELITE, MARS SUPER, MARS DIVA All you need to change the air pressure is a high-pressure Manitou (part #85-4069) or other shock pump. Remove the air cap located on the top of the left leg, and then inflate the fork with the desired pressure. Be aware that sometimes air systems lose a small amount of pressure when the pump is removed, so you may want to check exactly how much your pump loses by reinstalling it on the fork after you have set and checked the pressure.

AIR PISTON LUBRICATION For proper function of your fork, it is essential to have a small amount of lubricating oil on top of the air piston in your MARS Elite, Super or Diva fork. To check this, remove the air cap on the left side of the fork (as seen from the rider's perspective) by simply unthreading it counterclockwise. Release the air pressure from the fork and then use a 20 mm hex wrench to remove the aluminum Schraeder valve. Once you have done this, you can see the top of the air piston and determine if there is a small amount of oil sitting on top of the air piston. If this oil is no longer visible, pour 3 cc of 20W-50 motor oil directly into the open fork leg. After this, reinstall the Schraeder valve and the air cap and pressurize.

MINI BOOT LUBRICATION 2000 MARS forks come with mini boots equipped with a foam lubricating ring inside the top bellow of the boot. Occasionally you will need to relubricate this ring. The best way to do this is turn your bicycle upside down, pull the boots away from the seal and drip a small amount of 20W-50 motor oil down into the boot where the lubricating ring is situated. It is only essential to moisten this ring, so don't over do it.

COMPRESSION DAMPING ADJUSTMENT – QUICK RANGE 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 the knob counterclockwise decreases compression damping.

ADJUSTING COMPRESSION DAMPING WITH A LOCK OUT The Lock Out is simply an on-off switch for your fork. To adjust compression damping, do the following: Remove the compression assembly located in the right leg. On the lower piston of the lockout assembly is a small set screw. Turn this in or out to increase or decrease compression damping respectively. Note: a half turn makes a lot of difference, so make small and incremental changes to the set screw.

REBOUND DAMPING ADJUSTMENT – QUICK RANGE TPC
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 the knob counterclockwise decreases rebound damping.

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

MAINTENANCE AND SERVICE 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. In addition, with the air spring forks, you will also need to make sure a small amount of lubricating oil (3cc) in sitting on top of the air piston (see Air Piston Lubrication section). 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.

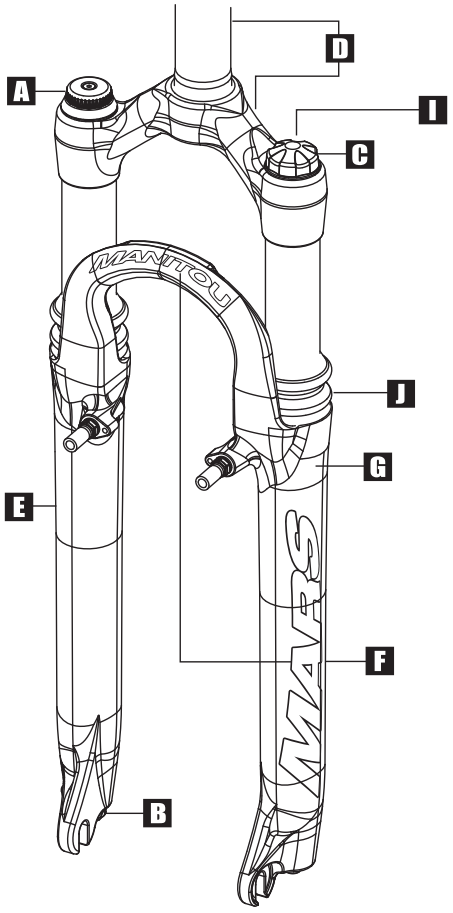
SERVICE SCHEDULE Suggested Service for Manitou Forks

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

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

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

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



SERVICE PARTS KITS

MARS COMP COIL

A	Compression Damping Assembly	85-4875
B	Rebound Damping Assembly	85-4876
C	Preload Adjuster Assembly	85-4877
D	Crown/Steerer Tube Assembly	85-4879
E	Outer Casting Assembly, Candy Blue	85-4880
F	Sticker Kit	85-4881
G	Ride Kit Assembly, Soft	85-9127
	Medium	85-9128
	Firm	85-9129
	Extra-Firm	85-9219
I	Knob Kit	85-4886
J	Boot Kit	85-4839

MARS ELITE

A	Compression Damping Assembly	85-4875
B	Rebound Damping Assembly	85-4876
D	Crown/Steerer Tube Assembly	85-4888
E	Outer Casting Assembly, Candy Chrome	85-4889
F	Sticker Kit	85-4881
G	Ride Kit Assembly, Extra Soft Coil	85-4808
	Soft Coil	85-4878
	Medium Coil	85-4927
	Firm Coil	85-9188
I	Knob Kit	85-4886
J	Boot Kit	85-4839

MARS SUPER

A	Compression Damping Assembly	85-4890
B	Rebound Damping Assembly	85-4876
D	Crown/Steerer Tube Assembly	85-4888
E	Outer Casting Assembly, Candy Red	85-4893
F	Sticker Kit	85-4881
G	Ride Kit Assembly, Extra Soft Coil	85-4808
	Soft Coil	85-4878
	Medium Coil	85-4927
	Firm Coil	85-9188
I	Knob Kit	85-4886
J	Boot Kit	85-4839

MARS DIVA

A	Compression Damping Assembly	85-4890
B	Rebound Damping Assembly	85-4876
D	Crown/Steerer Tube Assembly	85-4888
E	Outer Casting Assembly, White	85-4894
F	Sticker Kit	85-4897
G	Ride Kit Assembly, Extra Soft Coil	85-4808
	Soft Coil	85-4878
	Medium Coil	85-4927
	Firm Coil	85-9188
I	Knob Kit	85-4886
J	Boot Kit	85-4839

SPECIAL OFFER

Buy Prep M lubricant directly from Answer Products at a special introductory price for new purchasers of Manitou forks or Manitou equipped bikes.

Prep M Lubricant Gun & Tube: $19.95

International orders add a $15 handling charge, credit card only. Shipping and handling in the US included in the $19.95 price.

Call Answer Products at 661-257-4411 to order or visit the website at www.answerproducts.com.