2004 OWNER'S MANUAL

ALL SWINGER
REAR SHOCKS

PN 042106

• ENGLISH

MANITOU SWINGER REAR SHOCK

Aftermarket Manitou Swinger SPV (Stable Platform Valve) air shocks come fully assembled and ready to be installed onto your bicycle. Aftermarket coil shocks come with the shock body, coil spring, and mounting hardware in the box. Special mounting hardware and a specific shock length are needed for each bicycle. Consult Manitou's website at **www.answerproducts.com** or visit your local bike shop to ensure that your shock is compatible with your frame. Before riding, take the time to read this manual on set-up, use, and service of your shock.

SWINGER COIL SPV 6-WAY ADJUST
Coil spring (piggyback) shock with rebound, preload, SPV pressure, SPV volume, high-speed compression, and low-speed compression adjustments.

SWINGER COIL SPV 4-WAY ADJUST
Coil spring (piggyback) shock with rebound, preload, SPV pressure, and SPV volume adjustments.

SWINGER COIL SPV 3-WAY ADJUST
Coil spring inline shock with rebound, preload, and SPV pressure adjustments.

SWINGER AIR SPV 4-WAY ADJUST
Air spring (piggyback) shock with rebound, air spring pressure, SPV pressure, and SPV volume adjustments.

SWINGER AIR SPV 3-WAY ADJUST
Air spring inline shock with rebound, air spring pressure, and SPV pressure adjustments. Also available in Twin Tube version with large volume canister for a more linear spring rate. See the Answer Products website at **www.answerproducts.com** for recommended use of Twin Tube shocks.

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 SHOCK WILL REDUCE THE POSSIBILITY OF INJURY OR POSSIBLE DEATH. PRIOR TO RIDING YOUR BICYCLE, YOU SHOULD INSPECT YOUR SHOCK TO ENSURE THAT NO DAMAGE HAS OCCURRED DURING THE COURSE OF RIDING. DO NOT RIDE YOUR BICYCLE IF THE SHOCK 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 HAVE ANY PROBLEMS WITH THIS SHOCK, CONTACT A MANITOU AUTHORIZED DEALER WHO CAN ARRANGE FOR SHIPMENT TO ANSWER PRODUCTS, OR YOU MAY CALL ANSWER TO HAVE IT SHIPPED DIRECTLY AT 800-423-0273.**

WARRANTY INFORMATION

Any Answer Products shock 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 shock that has been subject to misuse or whose serial number has been altered, defaced or removed. This warranty does not cover paint or other cosmetic 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 shock to the place of purchase. In the USA, dealers should call Answer Products for a return authorization number (RA#) at 800-423-0273. 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. For a complete listing go to **www.answerproducts.com**.

WARNING **OPENING YOUR REAR SHOCK WITHOUT RELEASING PRESSURE SHOULD NOT BE DONE. DOING SO WILL RESULT IN SERIOUS INJURY.**

If your shock ever loses oil, air pressure, or begins to make noise, stop riding the shock and have the shock inspected by an authorized Manitou dealer or contact Answer at 800-423-0273.

WARNING **RIDING YOUR BICYCLE WITH IMPROPER SHOCK PRESSURE CAN RESULT IN LOSS OF CONTROL AND POSSIBLE SERIOUS INJURY OR DEATH.**

Swinger SPV shocks depend on the reservoir air pressure to create damping and function properly. The air pressure range is 50-175 psi. A pressure within this range must be checked and maintained before each ride. Use of the shock with improper air pressure can cause a total loss of damping and malfunction of the shock.

WARNING **CHECK FRAME AND SEAT POST FOR SHOCK CLEARANCE.**

When the shock compresses, its position within the frame will change. Always check for adequate clearance between the shock and frame/seat post through the entire stroke/motion of the shock. Be careful not to lower the seat post below the bottom of the seat tube. It is the responsibility of the user to check for adequate clearance between the shock and frame/seat post for the entire stroke/motion of the shock. If your bicycle offers multiple shock mounting options, it is the user's responsibility to make sure that any mounting options also offer adequate clearance between the shock and frame/rocker/seat post.

SPV PERFORMANCE FEATURES

Stable Platform Valve technology creates an efficient, firm platform to eliminate excessive movement (bobbing) from low resonance forces such as pedaling. Upon bump impact, however, the SPV valve opens to allow for massive amounts of oil flow to eliminate spiking and to absorb impacts. Since our shock does not over-travel to absorb impacts, attitude and cornering stability are greatly improved along with the overall stability of the bike. The ability to create an adjustable platform without spiking or compromise in suspension performance is something that we've found cannot be achieved with simpler damping systems.

An additional benefit to the SPV system is that it has externally adjustable rebound damping and platform threshold on all shocks, adjustable spring curve (via a 16 mm socket) on 4-way shocks, and high and low speed compression adjustments on 6-way shocks. Externally adjustable damping allows for any rider to achieve the optimum set up for any bike, trail conditions, and rider weight in minutes with no disassembly. Position-sensitive compression damping allows for light initial damping and much heavier damping at full compression.

SPV SUSPENSION TERMINOLOGY EXPLAINED

• **Bobbing:** The up and down motion that robs pedaling power. This movement occurs due to the pedal pulse inputs (low resonance) and from weight shift during pedaling.

• **Attitude and Ride Stability:** Created by the SPV controlled damping action that manages excessive dive, squatting, bobbing, chassis motion and the springy ride of conventional shocks that can throw a rider off-line during aggressive riding and/or terrain.

• **Stable Platform Damping:** The new damping characteristics of the SPV technology that improves pedaling and attitude/ride stability.

• **Spike:** The harsh feeling that occurs when riding over high velocity compressions such as sharp, square-edge bumps, rocks, roots and big hits.

• **Bump Dump:** The shock's ability to absorb the spike of high velocity (high-speed shaft movement) compressions due to the massive compression flow available through the SPV system.

• **Position-Sensitive Compression Damping:** Damping that increases automatically depending on the shock's location in its compression stroke. Position-sensitive damping allows for light initial damping that progressively increases as the shock is compressed.

• **Sag:** The amount of shock compression caused by the rider's weight while positioned on the bike in a normal riding position. Sag creates negative travel for better traction and control through turns and rough terrain. With SPV, even the most energy conscious riders can run proper and even ample sag without compromising pedaling efficiency.

• **Spring Rate:** The amount of force required to compress the spring a given length. English Standards are measured in pounds to compress one inch (i.e. 400#/in.).

• **Spring Preload:** The difference between the free length of a spring and the installed length of the spring when in a shock. Preload changes the starting force required to compress a spring.

• **Air Spring Pressure:** The air pressure that acts as the spring on air shocks. More pressure equals a firmer and more progressive spring.

• **SPV Air Pressure:** The air pressure that controls the SPV compression damping qualities and characteristics. More air pressure creates a firmer platform and increased compression damping. Less pressure creates a lighter platform and more supple response.

• **SPV Volume Adjustment:** The volume adjuster located on the SPV shock reservoirs. This adjuster controls how firm and progressive the position-sensitive compression damping feature acts. The smaller the volume in the SPV chamber, the more progressive and position sensitive the compression damping becomes.

• **Compression Damping:** The amount of resistance created by the shock during the bump induced movement of the shock. Compression damping controls how fast the shock is compressed by turning the energy created during the bump force into heat and dissipating it.

• **Rebound Damping:** The amount of resistance created by the shock during the return movement of the wheel. Rebound damping controls the speed at which the shock returns after being compressed, by turning the energy created by the spring into heat and dissipating it.

WHAT'S NEEDED TO ADJUST SPV TECHNOLOGY?

• Manitou air spring shock pump (or similar shock pump up to 300 psi), part #85-4069
• Manitou SPV pump, or similar pump up to 175 psi, part #85-4161
• SPV 16 mm volume adjust socket, part #85-3007
• Swinger SPV owner's/tuning manual, part #042106

SETTING UP YOUR SWINGER SPV SHOCK

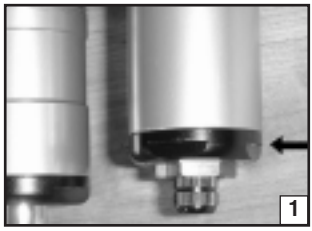
The following information will guide you through the set-up and tuning of your Swinger SPV shock. SPV technology offers the ability to quickly and easily tune the performance of your Swinger shock to your riding preference, bike or terrain conditions and offers the highest performing shock technology available. When setting up your Swinger shock **USE THE FOLLOWING ORDER**. First, make sure that pressure in the SPV damper is between 50% and 70% of your body weight **BEFORE MAKING ANY SAG ADJUSTMENTS**. Only after proper sag has been set should you then fine-tune your SPV pressure adjustment. SPV volume adjustments should follow as necessary. You should allow for a minimum of one hour break-in period prior to determining your preferred settings. The instructions below will walk you through the recommended sequence for setting up your Swinger SPV shock.

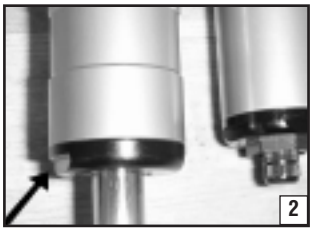
1 SPV AIR PRESSURE – SPV technology depends on air pressure to function properly. Use of the shock with improper air pressure will cause damage and failure of the shock and will void the warranty. Note that this is not spring pressure, but is the valve located on the reservoir of the shock (for "piggyback" models) or on the narrow damper end of inline shocks. The air pressure settings control the starting compression force that affects the pedaling platform and bump-dump blow-off, as well as the overall compression damping characteristics. This is the primary adjustment of SPV technology. The SPV air pressure range is 50-175 psi. Never use a pressure below or above this recommended pressure range. See warning above.

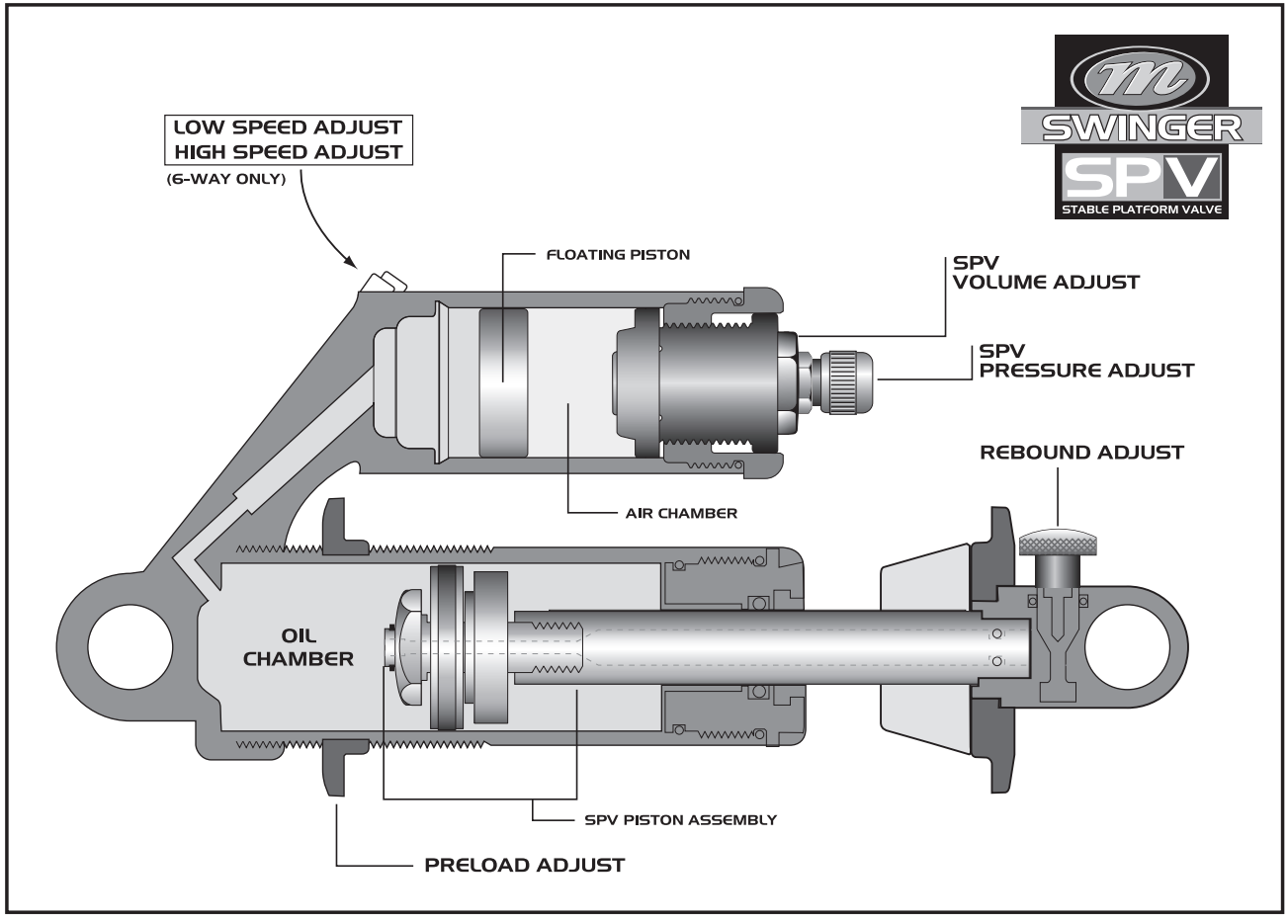
To quickly get "in the ballpark" for your weight, set the starting SPV pressure at 50-70% of your weight. The air pressure also affects the sag, so you should set the air pressure before setting the spring (main spring air pressure or coil preload) and sag. The air pressure setting will vary according to the following: 1) rider weight, 2) spring rate, 3) bike leverage ratio, and 4) personal preference. Lower pressures will create a lighter platform for a softer ride and lower blow-off threshold to the bump dump feature. Higher pressures will provide a firmer platform for firmer pedaling, firmer ride control and a higher blow off threshold to the bump-dump feature.

Once you find an acceptable setting, note that this may not be the optimal setting for all riding. Some courses or trails may have more pedaling sections (requiring higher SPV pressure), some may have more small "chatter bumps" (requiring lower SPV pressure) and some may have more big hits, drops and jump landings (higher SPV pressure and volume ramp). With SPV, this can all be done in a matter of minutes with an air shock pump and a 16 mm socket.

NOTE: NEVER open the shock in the locations shown in Photos 1 and 2.






SWINGER
SPV
STABLE PLATFORM VALVE
LOW SPEED ADJUST
HIGH SPEED ADJUST
(6-WAY ONLY)
FLOATING PISTON
SPV
VOLUME ADJUST
SPV
PRESSURE ADJUST
REBOUND ADJUST
AIR CHAMBER
OIL
CHAMBER
SPV PISTON ASSEMBLY
PRELOAD ADJUST

Adding SPV Air Pressure (Photo 3) – Remove the air cap from the red SPV Schrader valve (located on either the "piggyback" reservoir or on the narrow damper end of inline shocks). Attach the Manitou SPV pump (Part #85-4161) or a similar pump to the red Schrader valve. You can damage the pump by turning it on too far, so as soon as the gauge registers pressure, screw 1/2 turn more and pump to the desired level. You can use the micro-adjust feature located on the pump shaft opposite the gauge on the SPV pump to fine tune your air pressure. The slight hiss you hear when unscrewing the pump is primarily the air left in the pump and may affect your pressure setting in the shock very little. [Note: larger hisses may be the result of a loose Schrader valve core. Tighten using a valve core removal tool.] After removing the pump, be sure to reinstall the Schrader valve cap. ***If the shock does not dampen properly after pressurizing, the air pressure was lost during pump removal as a result of a worn or malfunctioning pump fitting o-ring. Do not ride the bike until the shock is pressurized.***

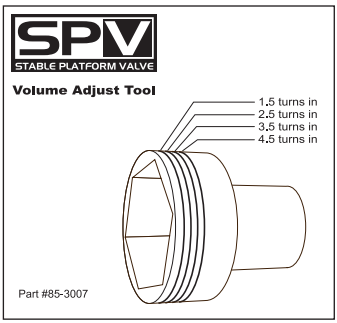

3

2 AIR VOLUME ADJUSTER SETTINGS *(FOR 4-WAY AND 6-WAY SHOCKS)* (Photo 4) –


4

The SPV air volume settings control the position sensitivity compression damping feature of the shock. The SPV air chamber volume adjuster is the red 16 mm nut that is located on the end of the reservoir. The volume adjuster controls the shock's bottoming resistance by varying the rise in compression force during the last 50% of the shock stroke. We recommend using the SPV Volume Tuning Socket shown below (part #85-3007) to tune this adjustment. This tool has markings that easily show where the volume adjustment is in its range.

The Swinger shock's volume adjuster has just over 5 turns of adjustment range. Turning the adjuster out (counterclockwise) makes the volume larger and decreases the compression damping and bottoming resistance during the last 50% of the shock stroke, leading to a more linear spring rate. Turning the adjuster in (clockwise) makes the volume smaller and increases the compression damping and bottoming resistance during the last 50% of the shock stroke, leading to a more progressive spring rate. As a general rule, you will use a smaller air volume with lower pressures and a larger air volume with higher pressures. The air pressure will change when adjusting the volume. Changing from full out to full in corresponds to a 15 psi increase in SPV air pressure, so always readjust your air pressure to your preferred settings after adjusting the air volume. **When the volume adjuster assembly has reached its clockwise or counterclockwise stop limit, continued force on the adjuster may cause damage to the adjuster mechanism that is not covered under warranty. Do not try to continue to rotate the adjuster once you feel resistance.**



3 ADJUSTING SAG – *Note: At least 50 psi of SPV pressure must be in the shock before sag is checked.*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Part of the beauty of SPV technology is that riders can get outstanding pedaling performance without running the shock in an overly-firm main spring setting. As such, Swinger SPV riders tend to run slightly more sag than with conventional shocks. The recommended amount of sag is as follows:

Cross country:	25-30% Sag
Freeriding:	30-40% Sag
Downhill:	30-45% Sag

On piggyback air shocks, use the sag measurements located on the shock (Photo 5).

Remember that sag only sets the initial starting force required to compress the main spring and does not compensate for a spring that is either too soft or too firm for a given rider.

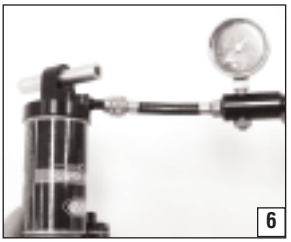
To check sag, measure the distance between the centers of the shock mounting bolts (eye-to-eye length of your shock) and record this measurement. Check the chart below to make sure it correlates with one of the shocks listed.

Next, sit on the bike in a normal riding position near a wall to steady yourself. Without bouncing on the saddle or pedals, distribute your weight on the saddle and pedals in a normal riding position while holding the handlebars. Have a friend measure the new distance between the two points described above and record it.

Check this measurement against the chart and determine the sag measurement for your shock. Adjust the coil spring preload adjuster or add/decrease air pressure in the main air spring (on the fatter "can" side of air shocks) to achieve the desired amount of sag. Coil shocks may require a heavier or lighter spring to achieve the proper range of sag.

SAG ADJUSTMENT SETTINGS						
		Eye-to-Eye Measurement with Sag				
Static Eye-to-Eye	Shock Travel	25% sag	30% sag	35% sag	40% sag	45% sag
152	32	144	142.4	140.8	139.2	137.6
165	38	155.5	153.6	151.7	149.8	147.9
190	50	177.5	175	172.5	170	167.5
200	50	187.5	185	182.5	180	177.5
215	63	199.25	196.1	192.95	189.8	186.65
222	70	204.5	201	197.5	194	190.5
230	70	212.5	209	205.5	202	198.5
240	76	221	217.2	213.4	209.6	205.8

Spring Adjustment – Air Shocks (Photo 6) – To install air pressure in the main spring, remove the air cap from the Schrader valve located above the large air spring canister. Attach the pump to the Shrader valve. You can damage the pump by turning it on too far, so as soon as the gauge registers pressure, screw 1/2 turn more and pump to the desired level. You can use the micro adjust feature on the Manitou air shock pump to fine tune your air pressure. The hiss you hear when unscrewing the pump is only the air left in the pump itself and not from the shock. This affects your pressure setting in the shock very little. After removing the pump, be sure to reinstall the Schrader valve cap.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Spring Preload and Sag Adjustments – Coil Shocks – Spring preload adjustments are done with the spring preload adjustment ring. Adjust the spring preload adjuster up or down to achieve the desired amount of sag. **Never exceed 8 mm/0.325" of preload on the coil spring. Always make sure that you have a minimum of 1 mm of preload on the spring.** If you reach the maximum spring preload (8 mm) and the sag is too much, you'll need to go to the next higher spring rate. If you reach the minimum amount of spring preload (1 mm) and there is not enough sag, you'll need to go to the next lightest spring rate. Optional spring rates are available from Answer Products. Part numbers, spring rates and travel are stamped on the outside of the spring coils. Coil spring and hardware kit part numbers are listed at the end of this manual.

4 INSTALLING AND REMOVING COIL SPRINGS –

The following steps should be followed to remove and install the coil spring on Swinger shocks.

REMOVING THE SPRING

1. Remove the blue rebound adjuster knob by loosening the small Allen head screw located in the center of the knob.
2. Loosen the preload adjuster ring until the spring retainer clip can be removed from the shock (Photos 7 and 8).
3. Slide the spring off of the shock.


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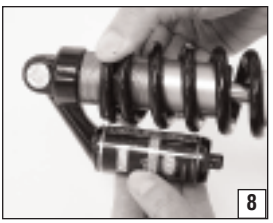
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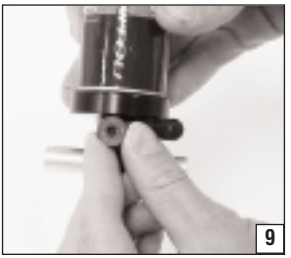
NOTE: If the spring will not clear the mounting hardware, the hardware must be removed and re-installed after the new spring is installed. Care should be taken when removing or installing the mounting hardware as to not damage the DU bushing inside the shock eyelet or the eyelet itself.

INSTALLING THE SPRING

1. Slide the spring onto the shock. Install the spring retainer clip.
2. Tighten the preload adjuster ring until 1 mm of spring preload is achieved.
3. Re-install the mounting hardware and rebound adjustment knob.
4. Adjust the spring preload according to the spring preload and sag adjustment sections of this manual.
5. Recheck the sag.

5 REBOUND DAMPING ADJUSTMENT (Photo 9) – The rebound damping controls the return rate of the shock after it has been compressed to absorb a bump. Rebound damping can be adjusted for different spring rates, terrain and rider preferences. Rebound on Swinger SPV shocks can be adjusted by the blue knob located on the shaft eyelet mount on coil shocks and on the air canister eyelet mount on air shocks. As a general rule, rebound that is adjusted too fast will exhibit a springy ride that has excessive pedaling movement and kick up the rear end on multiple bumps and big hits. Rebound that is adjusted too slow will exhibit a packing of the rear wheel that is identified by a low ride height, stiff feeling on multiple bumps and the rear wheel drifting to one side on stutter (braking) bumps. A good rebound starting point is to set the shock to achieve a return movement that is just short of "snapping back".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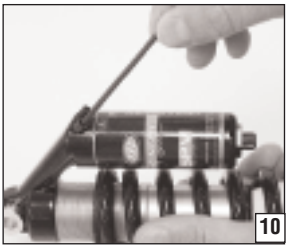
ADDITIONAL ADJUSTMENTS FOR THE SWINGER 6-WAY COIL SHOCK

The Swinger SPV 6-way coil shock offers two additional compression damping adjustment features. These two adjustment knobs are located on the reservoir base and allow for extreme fine-tuning of the shock's velocity/speed sensitive compression damping characteristics. The red knob controls low-speed compression and the black knob controls high-speed compression. You can choose to leave these two adjustments at their minimum setting (all the way out counterclockwise) and just use the SPV air pressure and volume adjustments to control the compression damping. If you choose to fine tune the shock with these adjusters, the following information will help you make the most of the features.

NOTE: Over turning the high and low speed pressure adjustment screws IN EITHER DIRECTION will damage the SPV system. ONLY turn these adjuster screws until you feel resistance and then STOP.

LOW SPEED COMPRESSION DAMPING (Photo 10) – This adjustment controls low-velocity shock compressions and general ride firmness, and adds additional chassis-stability platform to the bike. Lighter (counterclockwise) adjustment provides a more supple/active ride but less chassis stability platform. Firmer (clockwise) adjustments provide a less supple/active ride but greater chassis stability platform. Starting at the minimum, turn the adjuster in until you achieve the stability platform desired without any "spiking". As a general rule, a firmer setting of the low speed compression will allow for lower pressures in the SPV reservoir and larger volume settings. Optimal performance will be achieved by balancing the low speed compression with the SPV pressure settings.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HIGH SPEED COMPRESSION ADJUSTMENT (Photo 11) – This adjustment controls high velocity shock compressions and the response to sharp edge bumps and big hit conditions. This adjuster has its greatest impact at mid to 3/4 stroke, when shaft velocities are at the highest. This is usually the last adjustment made to fine-tune the shock. As a general rule, firmer (clockwise) adjustments will provide more high-speed (velocity) bottoming resistance and allow for larger SPV volume settings. The optimal performance will be achieved by balancing this adjustment with the SPV volume adjuster setting.


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TWIN TUBE SHOCKS – *ALL INLINE AIR SHOCKS* –
Inline air shocks are available in Twin Tube versions, which offer a more linear spring rate than our standard air shocks. Consult our website at **www.answerproducts.com** for the application that is best for your bike.

NOTE: Always refer to your bicycle manufacturer's recommendations for appropriate torque specifications of your mounting hardware.

NON-WARRANTY MAINTENANCE SCHEDULE

NEW
- Check/set shock sag and preload.
- Check SPV air pressure.
- Check mounting hardware torque.

EVERY RIDE
- Check SPV air pressure.

EVERY 8 HOURS
- Check/set shock sag and preload.
- Check mounting hardware torque.
- Check the mounting hardware. To see if replacement is necessary, lift up on the bike's seatpost to feel for play. Any kind of a clunk that feels similar to a loose headset may require replacement of your shock hardware. For replacement, visit your Authorized Manitou Dealer or contact Answer Products directly. Hardware part numbers and contact information are located at the end of this document.

EVERY 200 HOURS
- Send shock to service center for oil change and inspection.

SERVICE SCHEDULE

Suggested Service for Manitou Shocks

Normal Conditions – Short/Infrequent Rides
- Clean shock body after every ride.
- Clean and regrease air canister every 3 months.
- Send to service center for oil change and inspection every year.

Normal Conditions – Long/Frequent Rides
- Clean shock body after every ride.
- Clean and regrease air canister every 2 months.
- Send to service center for oil change and inspection every year.

Severe Conditions (mud, rain, snow, extreme dust) – Short/Infrequent Rides
- Clean shock body after every ride.
- Clean and regrease air canister every 2 months.
- Send to service center for oil change and inspection every year.

Severe Conditions (mud, rain, snow, extreme dust) – Long/Frequent Rides
- Clean shock body after every ride.
- Clean and regrease air canister every month.
- Send to service center for oil change and inspection every year.

For updates and tuning information, visit our website at **www.answerproducts.com**.

COIL SPRING AND HARDWARE KIT PART NUMBERS

COIL SPRING KIT		
Eye-to-Eye X Travel	**Rate**	**Part #**
190 or 200 X 50 (7.5" or 7.875" X 2.0")	250	85-6185
190 or 200 X 50 (7.5" or 7.875" X 2.0")	300	85-5431
190 or 200 X 50 (7.5" or 7.875" X 2.0")	350	85-6111
190 or 200 X 50 (7.5" or 7.875" X 2.0")	400	85-6112
190 or 200 X 50 (7.5" or 7.875" X 2.0")	450	85-6113
190 or 200 X 50 (7.5" or 7.875" X 2.0")	500	85-6114
190 or 200 X 50 (7.5" or 7.875" X 2.0")	550	85-6136
215 X 63 (8.5" X 2.5")	250	85-6186
215 X 63 (8.5" X 2.5")	300	85-6187
215 X 63 (8.5" X 2.5")	350	85-6188
215 X 63 (8.5" X 2.5")	400	85-6189
215 X 63 (8.5" X 2.5")	450	85-6190
215 X 63 (8.5" X 2.5")	500	85-6191
215 X 63 (8.5" X 2.5")	550	85-6192
222 or 230 X 70 (8.75" or 9.0" X 2.75")	250	85-6193
222 or 230 X 70 (8.75" or 9.0" X 2.75")	300	85-6137
222 or 230 X 70 (8.75" or 9.0" X 2.75")	350	85-6117
222 or 230 X 70 (8.75" or 9.0" X 2.75")	400	85-6118
222 or 230 X 70 (8.75" or 9.0" X 2.75")	450	85-6119
222 or 230 X 70 (8.75" or 9.0" X 2.75")	500	85-6120
222 or 230 X 70 (8.75" or 9.0" X 2.75")	550	85-5432
240 X 76 (9.5" X 3.0")	250	85-6194
240 X 76 (9.5" X 3.0")	300	85-6195
240 X 76 (9.5" X 3.0")	350	85-6196
240 X 76 (9.5" X 3.0")	400	85-6197
240 X 76 (9.5" X 3.0")	450	85-6198
240 X 76 (9.5" X 3.0")	500	85-6199
240 X 76 (9.5" X 3.0")	550	85-6201

Included with your Swinger air shock purchase are two (one for each shock end) of the following hardware kits:

HARDWARE KIT		Part #
6.0 X 22.2	2 Piece	85-6101
8.0 X 22.2	2 Piece	85-6209

Swinger coil shocks come with two (one for each shock end) of the following hardware kits:

HARDWARE KIT		Part #
6.0 X 22.2	3 Piece	85-6207
8.0 X 22.2	3 Piece	85-6208

Additional kits can be ordered from Answer Products for an additional $5 per shock end or $10 per shock.

For new hardware, contact Answer Products at 800-423-0273, or **www.answerproducts.com**, or write to us at: Answer Products, 28209 Avenue Stanford, Valencia, CA 91355, USA.