



manitou

REAR SHOCK OWNER'S MANUAL



## WORLDWIDE LIMITED WARRANTY

HB Suspension (producer/manufacturer) warrants to the original retail purchaser ("you") that the HB Suspension product for which they received this warranty is free from defects in material and workmanship for ONE year (two years in European Union countries) from the date of original retail purchase. This warranty is not transferable to a subsequent purchaser. HB Suspension's sole obligation under this warranty is to repair or replace the product, at HB Suspension's option. HB Suspension must be notified in writing of any claim under this warranty within 60 days of any claimed lack of conformity of the product.

### Warranty Limitations

The duration of any implied warranty or condition, of merchantability, fitness for a particular purpose, or otherwise, on this product shall be limited to the duration of the express warranty set forth above. In no event shall HB Suspension be liable for any loss, inconvenience or damage, whether direct, incidental, consequential or otherwise, resulting from breach of any express or implied warranty or condition, of merchantability, fitness for a particular purpose, or otherwise with respect to this product, except as set forth herein. Some states or countries do not allow limitation on how long an implied warranty lasts and some do not allow exclusions or limitations of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which may vary, from location to location. This warranty will be interpreted pursuant to the laws of the United States. The original English language version/meaning of this warranty controls over all translations and HB Suspension is not responsible for any errors in translation of this warranty or any product instructions. This warranty is not intended to confer any additional legal, jurisdictional or warranty rights to you other than those set forth herein or required by law. If any portion of this warranty is held to be invalid or unenforceable for any reason, such finding will not invalidate any other provision. For products purchased in countries other than the United States please contact HB Suspension's authorized distributor or retailer in that respective country.

### Warranty Service Options

To obtain service under this warranty you must:

Bring or send your HB Suspension product, together with this warranty, the retail seller's original receipt or other satisfactory proof of the date of purchase to the

retailer where you purchased the item or another authorized HB Suspension retailer, or authorized HB Suspension distributor.

Any postage, insurance or other shipping costs incurred in sending your HB Suspension product for service is your responsibility. HB Suspension will not be responsible for products lost or damaged in shipping.

For products purchased in countries other than the United States please contact HB Suspension's authorized distributor or retailer in the country where the product was purchased. They can be found on our website at [www.manitoumtb.com](http://www.manitoumtb.com).

### Warranty Exclusions

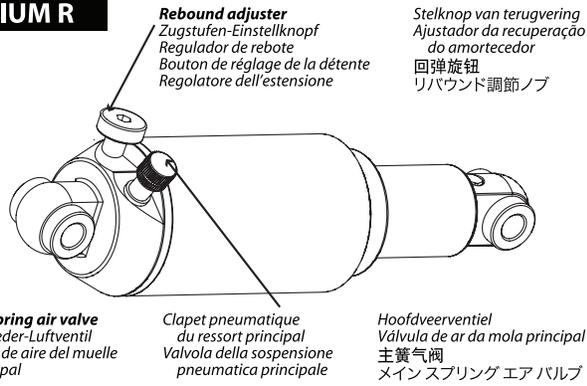
Retailers and sellers of HB Suspension's products are not authorized to modify this warranty in any way. It is your responsibility to regularly examine the product to determine the need for normal service or replacement. This warranty does not cover the following:

- Products that have been modified, neglected or poorly maintained, used for commercial purposes, misused or abused or involved in accidents.
- Damage occurring during shipment of the products (such claims must be presented directly to the shipper).
- Products whose serial number has been altered, defaced or removed.
- Damage to products resulting from improper assembly or repair, the use or installation of parts or accessories not compatible with the original intended use of the product, or the failure to follow the product warnings and usage instructions.
- Damage or deterioration to the surface finish, paint, aesthetics or appearance of the product.
- The labor required to remove and/or re-fit and re-adjust the item covered by this warranty.
- Normal wear to the product.
- Any products for which the consumer does not follow the warranty procedures outlined above.

For the current version of this warranty please visit our website at [www.manitoumtb.com](http://www.manitoumtb.com).

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## RADIUM R



**Rebound adjuster**  
Zugstufen-Einstellknopf  
Regulador de rebote  
Bouton de réglage de la détente  
Regolatore dell'estensione

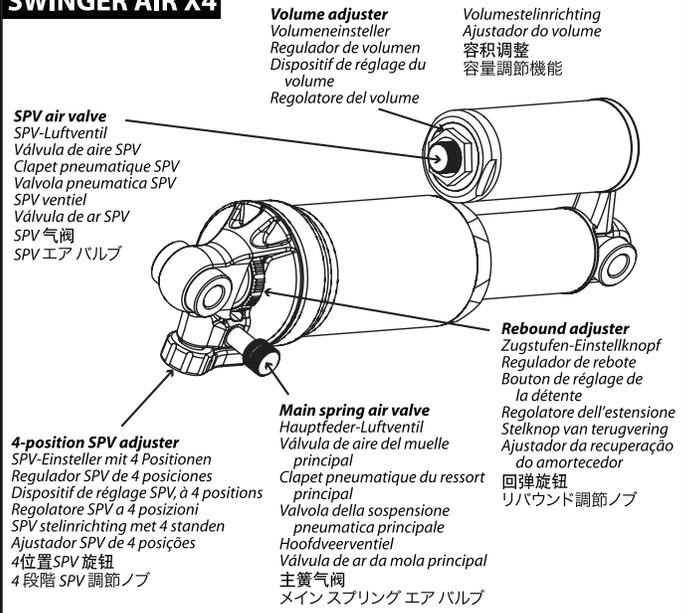
Stelknop van terugvering  
Ajustador da recuperação  
do amortecedor  
回弾旋鈕  
リバウンド調節ノブ

**Main spring air valve**  
Hauptfeder-Luftventil  
Válvula de aire del muelle  
principal

Clapet pneumatique  
du ressort principal  
Valvola della sospensione  
pneumatica principale

Hoofdveerventiel  
Válvula de ar da mola principal  
主簧气阀  
メインスプリングエアバルブ

## SWINGER AIR X4



**Volume adjuster**  
Volumeneinsteller  
Regulador de volumen  
Dispositif de réglage du  
volume  
Regolatore del volume

Volumestelinrichting  
Ajustador do volume  
容積調整  
容量調節機能

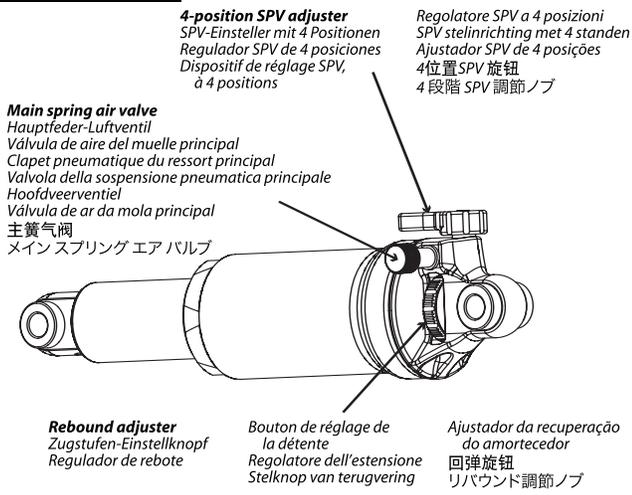
**SPV air valve**  
SPV-Luftventil  
Válvula de aire SPV  
Clapet pneumatique SPV  
Valvola pneumatica SPV  
SPV ventiel  
Válvula de ar SPV  
SPV 气阀  
SPV エアバルブ

**4-position SPV adjuster**  
SPV-Einsteller mit 4 Positionen  
Regulador SPV de 4 posiciones  
Dispositif de réglage SPV, à 4 positions  
Regolatore SPV a 4 posizioni  
SPV stelinrichting met 4 standen  
Ajustador SPV de 4 posições  
4位置SPV 旋鈕  
4段階 SPV 調節ノブ

**Main spring air valve**  
Hauptfeder-Luftventil  
Válvula de aire del muelle  
principal  
Clapet pneumatique du ressort  
pneumatica principale  
Valvola della sospensione  
pneumatica principale  
Hoofdveerventiel  
Válvula de ar da mola principal  
主簧气阀  
メインスプリングエアバルブ

**Rebound adjuster**  
Zugstufen-Einstellknopf  
Regulador de rebote  
Bouton de réglage de  
la détente  
Regolatore dell'estensione  
Stelknop van terugvering  
Ajustador da recuperação  
do amortecedor  
回弾旋鈕  
リバウンド調節ノブ

## SWINGER AIR X3



**4-position SPV adjuster**  
SPV-Einsteller mit 4 Positionen  
Regulador SPV de 4 posiciones  
Dispositif de réglage SPV,  
à 4 positions

Regolatore SPV a 4 posizioni  
SPV stelinrichting met 4 standen  
Ajustador SPV de 4 posições  
4位置SPV 旋鈕  
4段階 SPV 調節ノブ

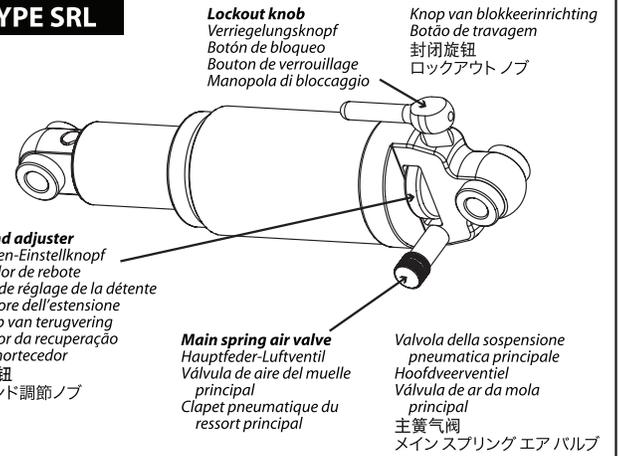
**Main spring air valve**  
Hauptfeder-Luftventil  
Válvula de aire del muelle principal  
Clapet pneumatique du ressort principal  
Valvola della sospensione pneumatica principale  
Hoofdveerventiel  
Válvula de ar da mola principal  
主簧气阀  
メインスプリングエアバルブ

**Rebound adjuster**  
Zugstufen-Einstellknopf  
Regulador de rebote

Bouton de réglage de  
la détente  
Regolatore dell'estensione  
Stelknop van terugvering

Ajustador da recuperação  
do amortecedor  
回弾旋鈕  
リバウンド調節ノブ

## S-TYPE SRL



**Lockout knob**  
Verriegelungsknopf  
Botón de bloqueo  
Bouton de verrouillage  
Manopola di bloccaggio

Knop van blokkeerinrichting  
Botão de travagem  
封闭旋鈕  
ロックアウト ノブ

**Rebound adjuster**  
Zugstufen-Einstellknopf  
Regulador de rebote  
Bouton de réglage de la détente  
Regolatore dell'estensione  
Stelknop van terugvering  
Ajustador da recuperação  
do amortecedor  
回弾旋鈕  
リバウンド調節ノブ

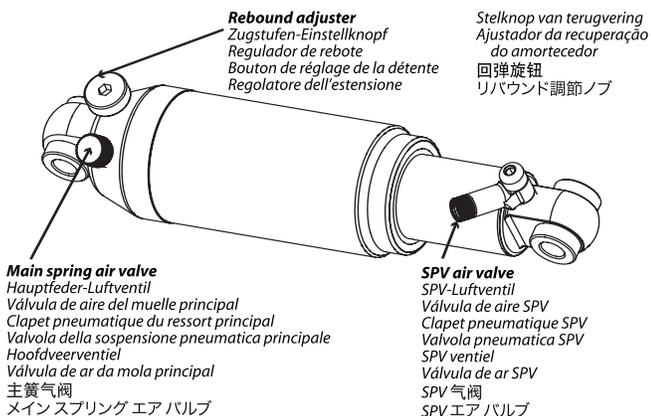
**Main spring air valve**  
Hauptfeder-Luftventil  
Válvula de aire del muelle  
principal  
Clapet pneumatique du  
ressort principal

Valvola della sospensione  
pneumatica principale  
Hoofdveerventiel  
Válvula de ar da mola  
principal  
主簧气阀  
メインスプリングエアバルブ

## S-TYPE SPV

(OPTIONAL ROTATING VALVE SHOWN)  
(OPTIONALES ROTIERENDES VENTIL ABGEBILDET)  
(SE MUESTRA LA VÁLVULA ROTATIVA OPCIONAL)  
(CLAPET ROTATIF OPTIONNEL ILLUSTRÉ)  
(É ILLUSTRATA LA VALVOLA ROTANTE OPZIONALE)

(OPTIONEEL DRAAIVENTIEL AFGEBEELD)  
(VÁLVULA ROTATIVA NA FIGURA)  
(图示选项转动阀)  
(オプションの回転式バルブが搭載されたモデルが表示されています)



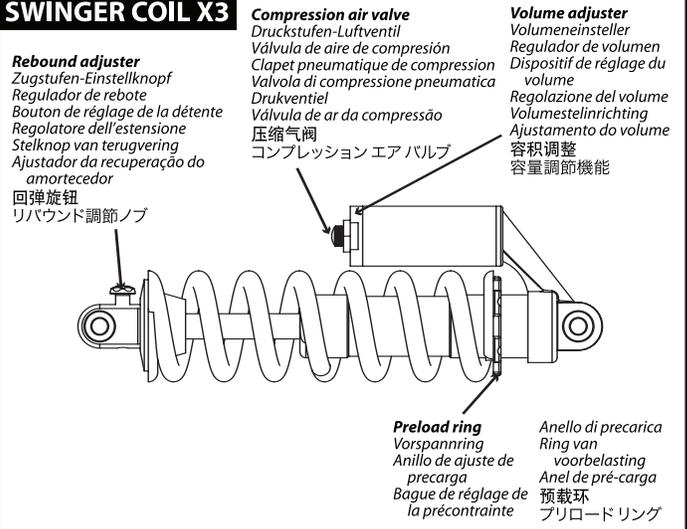
**Rebound adjuster**  
Zugstufen-Einstellknopf  
Regulador de rebote  
Bouton de réglage de la détente  
Regolatore dell'estensione

Stelknop van terugvering  
Ajustador da recuperação  
do amortecedor  
回弾旋鈕  
リバウンド調節ノブ

**Main spring air valve**  
Hauptfeder-Luftventil  
Válvula de aire del muelle principal  
Clapet pneumatique du ressort principal  
Valvola della sospensione pneumatica principale  
Hoofdveerventiel  
Válvula de ar da mola principal  
主簧气阀  
メインスプリングエアバルブ

**SPV air valve**  
SPV-Luftventil  
Válvula de aire SPV  
Clapet pneumatique SPV  
Valvola pneumatica SPV  
SPV ventiel  
Válvula de ar SPV  
SPV 气阀  
SPV エアバルブ

## SWINGER COIL X3



**Compression air valve**  
Druckstufen-Luftventil  
Válvula de aire de compresión  
Clapet pneumatique de compression  
Valvola di compressione pneumatica  
Drukventiel  
Válvula de ar da compressão  
压缩气阀  
コンプレッションエアバルブ

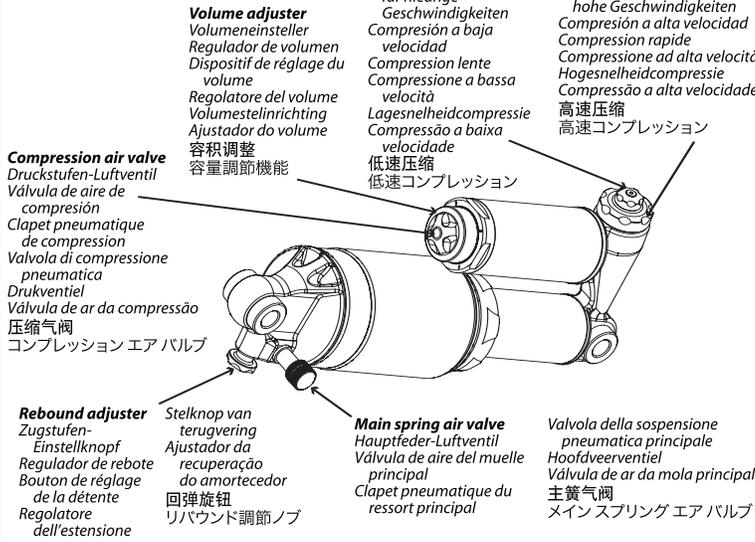
**Volume adjuster**  
Volumeneinsteller  
Regulador de volumen  
Dispositif de réglage du  
volume  
Regolazione del volume  
Volumestelinrichting  
Ajustamento do volume  
容積調整  
容量調節機能

**Rebound adjuster**  
Zugstufen-Einstellknopf  
Regulador de rebote  
Bouton de réglage de la détente  
Regolatore dell'estensione  
Stelknop van terugvering  
Ajustador da recuperação do  
amortecedor  
回弾旋鈕  
リバウンド調節ノブ

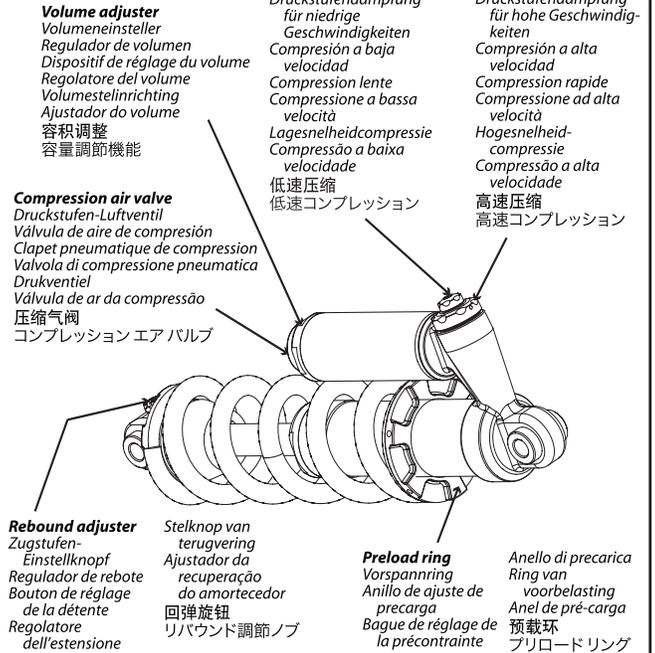
**Preload ring**  
Vorspannung  
Anillo de ajuste de  
precarga  
Bague de réglage de  
la précontrainte

Anello di precaria  
Ring van  
voorbelaasting  
Anel de pré-carga  
预載环  
プリロードリング

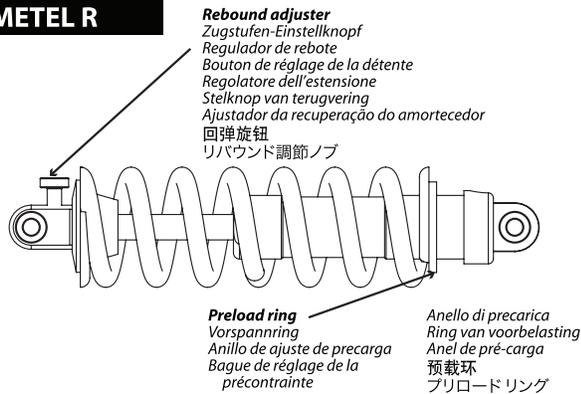
## EVOLVER ISX-4, ISX-6



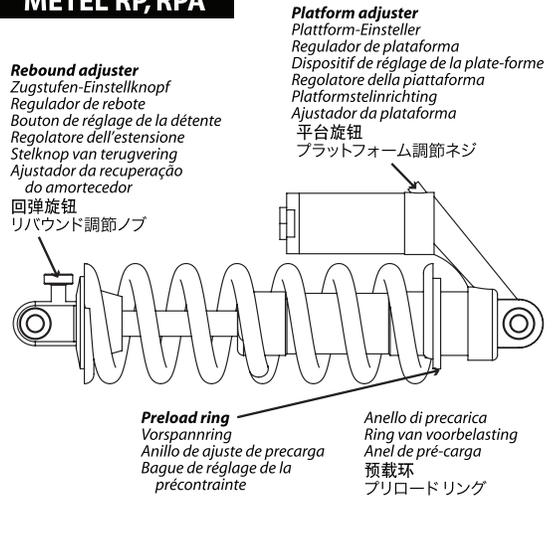
## REVOX



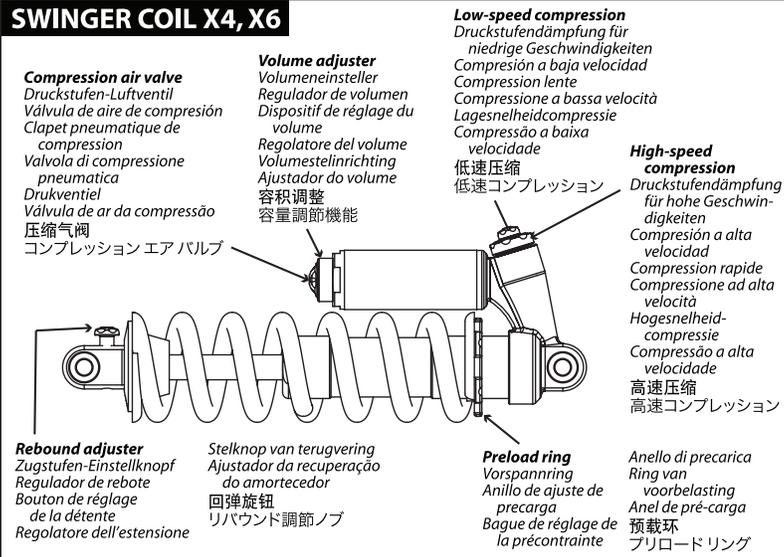
## METEL R



## METEL RP, RPA



## SWINGER COIL X4, X6



## • ENGLISH

### MANITOU REAR SHOCKS

This manual is designed as a comprehensive guide for all Manitou rear shock models, including REVOX, EVOLVER, SWINGER AIR, SWINGER COIL, METEL, S-TYPE, and RADIUM. This manual can also be downloaded from [www.manitoumtb.com](http://www.manitoumtb.com).

Aftermarket Manitou air rear shocks come fully assembled and ready to be mated with appropriate hardware and installed onto your bicycle. Aftermarket coil rear shocks come as a shock body; a coil spring, and appropriate mounting hardware will be required for installation.

**WARNING** SPECIAL MOUNTING HARDWARE AND A SPECIFIC REAR SHOCK LENGTH IS NEEDED FOR EACH BICYCLE. CONSULT MANITOU'S WEBSITE AT [WWW.MANITOUTMB.COM](http://WWW.MANITOUTMB.COM) OR VISIT YOUR LOCAL BIKE SHOP TO ENSURE YOUR REAR SHOCK IS COMPATIBLE WITH YOUR FRAME. ALSO, ALWAYS REFER TO YOUR BICYCLE FRAME MANUFACTURER'S RECOMMENDATIONS FOR APPROPRIATE TORQUE SPECIFICATIONS OF YOUR MOUNTING HARDWARE. FAILURE TO DO SO CAN RESULT IN A FRAME OR REAR SHOCK FAILURE DURING RIDING WHICH CAN RESULT IN LOSS OF CONTROL AND SERIOUS INJURY.

### GENERAL CONSUMER SAFETY INFORMATION

BICYCLING IS A HAZARDOUS ACTIVITY THAT REQUIRES THAT THE RIDER STAY IN CONTROL OF HIS OR HER BICYCLE AT ALL TIMES. ANY FALL FROM YOUR BICYCLE CAN RESULT IN SERIOUS INJURY OR EVEN DEATH. READING THIS MANUAL ENTIRELY AND PROPERLY MAINTAINING YOUR BICYCLE AND REAR SHOCK WILL REDUCE THE POSSIBILITY OF INJURY OR POSSIBLE DEATH. PRIOR TO EVERY RIDE, YOU SHOULD CLOSELY EXAMINE YOUR REAR SHOCK (AFTER CLEANING) IN BRIGHT SUNLIGHT TO ENSURE THAT NO DAMAGE HAS OCCURRED DURING THE COURSE OF RIDING, TRANSPORTING OR AFTER A FALL. PAY PARTICULAR ATTENTION TO THE SCHRADER VALVES, ADJUSTMENT KNOBS, AND "STRESS POINTS" (SUCH AS WELDS, SEAMS, HOLES AND POINTS OF CONTACT WITH OTHER PARTS ETC.) DO NOT RIDE YOUR BICYCLE IF THE REAR SHOCK SHOWS ANY SIGNS OF BENDING, LEAKING, CRACKING, CREAKING, SQUEAKING, CLUNKING OR ANY OTHER UNFAMILIAR NOISES, OR IF IT IS MISSING ANY OF THE ORIGINALLY SUPPLIED COMPONENTS. CONTACT YOUR DEALER IF YOU HAVE ANY QUESTIONS CONCERNING THE FUNCTION, INTEGRITY OR CONDITION OF YOUR REAR SHOCK. ANY MODIFICATIONS NOT AUTHORIZED IN THIS MANUAL SHOULD BE CONSIDERED UNSAFE. HB SUSPENSION RECOMMENDS RETURNING YOUR REAR SHOCK TO HB SUSPENSION AFTER EVERY 150 HOURS OF RIDE TIME FOR A THOROUGH INSPECTION AND UPDATE. TAKE YOUR REAR SHOCK TO A MANITOU AUTHORIZED DEALER WHO CAN ARRANGE FOR SHIPMENT TO HB SUSPENSION.

**WARNING** ALL SHOCK CONTENTS ARE UNDER HIGH PRESSURE. NEVER DISASSEMBLE YOUR REAR SHOCK. DOING SO WILL RESULT IN SERIOUS INJURY OR DEATH.

**WARNING** IF YOUR REAR SHOCK EVER LOSES OIL, AIR PRESSURE, OR BEGINS TO MAKE NOISE, STOP RIDING THE REAR SHOCK AND HAVE IT INSPECTED BY AN AUTHORIZED MANITOU DEALER OR SERVICE CENTER.

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

S-TYPE SPV, EVOLVER ISX-1 SPV, ISX-4 SPV, and ISX-6 SPV rear shocks depend on the SPV air pressure (pressure in the red Schrader valve) to create damping and function properly. The air pressure range is 100-200 psi (6.9-13.8 bar). Pressure within this range must be checked and maintained before each ride. Use of the rear shock with improper air pressure can cause a total loss of damping and malfunction of the rear shock.

SWINGER X3 and X4 SPV shocks, with external SPV platform adjustment, are nitrogen charged at the factory. Altering the charge on the SWINGER AIR X3 should only be done by a Manitou Authorized Dealer or Service Center.

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

When the rear shock compresses, its position within the frame will change. Always check for adequate clearance between the rear shock and frame/seat post through the entire stroke/motion of the rear shock. BEFORE RIDING, fit check the rear shock's compatibility with your frame by depressurizing the main air spring [of air sprung rear shocks] or by removing the spring [of coil sprung rear shocks] and then slowly stroking through the travel of the bike with the rear shock mounted to check for adequate clearance. If any part of the rear shock contacts the frame at any point in the travel DO NOT RIDE. The rear shock will not fit your frame. 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 rear shock and frame/seat post for the entire stroke/motion of the rear shock. If your bicycle offers multiple rear shock mounting options, it is the user's responsibility to make sure that any mounting options also offer adequate clearance between the rear shock and frame/rocker/seat post.

**WARNING** "DOWNHILL", "FREESTYLE" OR COMPETITIVE RIDING

TO RIDE DOWNHILL AT HIGH SPEED OR IN COMPETITION IS TO VOLUNTARILY ASSUME A VERY HIGH RISK, AND DOWNHILL OR FREESTYLE RIDING CAN LEAD TO SERIOUS ACCIDENTS. SPEEDS "DOWNHILLING" CAN REACH SPEEDS SEEN ON MOTORCYCLES WITH SIMILAR HAZARDS AND RISKS. WEAR APPROPRIATE SAFETY GEAR, INCLUDING A FULL FACE HELMET, FULL FINGER GLOVES AND BODY ARMOR. HAVE YOUR BICYCLE INSPECTED BY A QUALIFIED MECHANIC BEFORE EVERY EVENT AND BE SURE IT IS IN PERFECT WORKING CONDITION. ROUTINE AND THOROUGH MAINTENANCE IS EVEN MORE CRITICAL THAN WITH A BIKE NOT USED FOR DOWNHILLING OR FREESTYLE RIDING. CONSULT WITH EXPERT RIDERS AND RACE OFFICIALS ON CONDITIONS AND EQUIPMENT ADVISABLE AT THE SITE WHERE YOU PLAN TO RIDE DOWNHILL OR FREESTYLE. SUSPENSION AND DISK BRAKES MAY INCREASE THE HANDLING CAPABILITIES AND COMFORT OF YOUR BICYCLE AND MAY ALLOW YOU TO RIDE FASTER, BUT DO NOT CONFUSE THE ENHANCED CAPABILITIES OF A SUSPENSION BIKE WITH DISK BRAKES WITH YOUR OWN CAPABILITIES. INCREASING YOUR SKILL WILL TAKE TIME AND PRACTICE. PROCEED CAREFULLY UNTIL YOU ARE SURE YOU ARE COMPETENT TO HANDLE THE FULL CAPABILITIES OF YOUR BIKE. WHILE THE RUGGED APPEARANCE OF MOUNTAIN BIKES AND THESE DISK BRAKES MIGHT SUGGEST THEY ARE INDESTRUCTIBLE, THEY ARE NOT. CERTAINLY THEY ARE TOUGH AND STURDY. DOWNHILL OR FREESTYLE RIDING OR RACING PLACES EXTREME STRESS ON BICYCLES AND THEIR COMPONENTS (LIKE IT DOES RIDERS). REPEATED USE OF A REAR SHOCK IN DOWNHILL RIDING MAY RESULT IN SUDDEN OR PREMATURE FAILURE OF A BICYCLE OR COMPONENT RESULTING IN SEVERE INJURIES. IF YOU PARTICIPATE IN THESE TYPES OF EVENTS, THE LIFETIME OF THE PRODUCT MAY BE SIGNIFICANTLY SHORTENED DEPENDING UPON THE LEVEL AND AMOUNT OF RACING. THE "NORMAL WEAR" OF A COMPONENT MAY DIFFER GREATLY BETWEEN COMPETITIVE AND NON-COMPETITIVE USES, WHICH IS WHY PROFESSIONAL LEVEL RIDERS OFTEN USE NEW BIKES AND COMPONENTS EACH SEASON AS WELL AS HAVE THEIR BIKES SERVICED BY PROFESSIONAL MECHANICS.

**WARNING** REDUCED REAR SHOCK LIFE

THE LIFE OF THIS REAR SHOCK WILL BE REDUCED IF (1) YOU USE IT MORE THAN THE AVERAGE USER, (2) YOU ARE HEAVIER THAN THE AVERAGE RIDER, (3) THE TERRAIN YOU RIDE ON IS ROUGHER THAN AVERAGE, (4) YOU TEND TO BE HARDER ON COMPONENTS THAN THE AVERAGE RIDER, (5) IT IS INSTALLED OR MAINTAINED IMPROPERLY, (6) IT MUST ENDURE MORE ADVERSE ENVIRONMENTAL CONDITIONS THAN THE AVERAGE REAR SHOCK (I.E. SWEAT, CORROSIVE MUD, SALTY BEACH AIR ETC.), AND/OR (7) YOU DAMAGE IT IN A CRASH, JUMP OR THROUGH OTHER ABUSE. THE MORE FACTORS YOU MEET, THE MORE ITS LIFE WILL BE REDUCED, HOWEVER IT IS IMPOSSIBLE TO SAY HOW MUCH.

## MANITOU DAMPING SYSTEMS AND ADJUSTMENTS

### INTRINSIC DAMPING: REVOX, SWINGER and EVOLVER

Designed to provide a high degree of bump sensitivity and wide range of adjustment, speed sensitive Intrinsic damping is a must-have for long travel suspension bikes. All Intrinsic shocks feature externally adjustable bottoming with the No Tools volume adjustment. Higher-end Intrinsic shocks feature high- and low-speed compression damping adjustments (located inside the piggyback reservoir) as well. SWINGER COIL X6, REVOX and EVOLVER ISX-6 have the added feature external adjustment of the high- and low-speed compression damping circuit. The red knob controls low-speed compression and the black knob controls high-speed compression.

**Low-Speed Compression Damping Adjustment** – This adjustment controls low-velocity rear 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. Firmer (clockwise) adjustments provide a less supple/active ride but greater chassis stability platform.

**High-Speed Compression Damping Adjustment** – This adjustment controls high velocity rear shock compressions and the response to sharp edge bumps and big hit conditions. The faster the rear shock is compressing, the more impact this adjuster has.

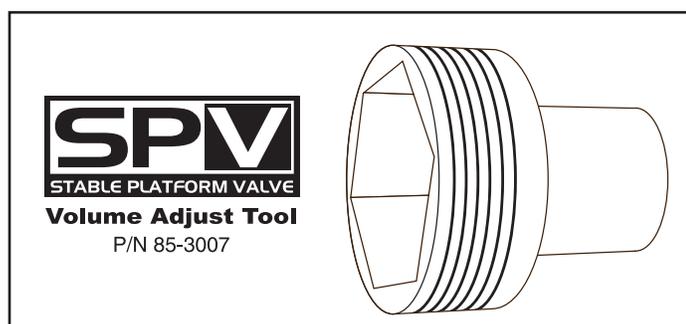
**NOTE:** Over-turning the high- and low-speed pressure adjustment screws *IN EITHER DIRECTION* will damage the adjusters and valves. *ONLY* turn these adjuster screws until you feel resistance and then *STOP*.

### NO TOOLS VOLUME ADJUSTMENT: REVOX, SWINGER COIL and EVOLVER SHOCKS

Air volume settings control the position sensitive compression damping feature of the rear shock. The No Tools volume adjuster is located on the end of the piggyback reservoir. The volume adjuster controls the rear shock's bottoming resistance by varying the rise in compression force during the last 50% of the rear shock stroke. The No Tools volume adjuster has four numbered settings with different volumes. The #1 position has the largest volume, so this is the least progressive of all of the settings. The #4 position corresponds to the most progressive feel. When making air pressure adjustments on the reservoir, the volume adjuster should be set to the #1 position.

### TOOLED AIR VOLUME ADJUSTMENT: SWINGER AIR X4, SWINGER COIL X3

This feature functions in a manner similar to the No Tools volume adjuster, but uses a 16 mm socket for adjustment. We recommend using the SPV Volume Adjustment Tool (part # 85-3007) to make this adjustment. Different from the No Tools volume adjuster, the air pressure should be reset any time a tooled volume adjustment is made.



### NO TOOLS SPV PLATFORM ADJUSTMENT: SWINGER AIR SHOCKS

SWINGER AIR shocks feature an external adjustment for platform that does not require a pump or pressure adjustment. Located on the air canister end of the shock is a gun-metal gray knob that can be turned clockwise to increase platform. There are four distinct clicks that alter platform in approximately equal increments. SWINGER AIR shocks with external platform adjustment come fully charged at the factory, but an Authorized Dealer or Service Center can change the shock charge if higher or lower platform starting points are necessary.

### SPV DAMPING: EVOLVER SPV, SWINGER COIL SPV, and S-TYPE SPV REAR SHOCKS

SPV damping creates an efficient platform to eliminate excessive movement (bobbing) from low resonance forces such as pedaling. To adjust platform, first set the pressure in the SPV chamber to roughly 75 psi (5 bar) **BEFORE MAKING ANY SAG ADJUSTMENTS**. Only after proper sag has been set should you then fine-tune your SPV pressure adjustment. Changing SPV pressure alters your platform threshold. Higher SPV pressures will provide a firmer platform for firmer pedaling, firmer ride control and a higher blow-off threshold. Likewise, decreasing pressure in the SPV chamber decreases platform.

The SPV air pressure range for above shocks is 50-175 psi (3.5-12 bar). See "PRESSURE RANGES AND PRESSURIZING TIPS" for more information.

**WARNING** NEVER USE A PRESSURE BELOW OR ABOVE THIS RECOMMENDED PRESSURE RANGE. SEE WARNING ABOVE.

### PLATFORM PLUS DAMPING: RADIUM R and METEL

Designed to eliminate excessive movement while pedaling, this shim-based platform system is factory set on most models. Piggyback models like the METEL RPA feature an external Platform Plus adjuster located on the reservoir (small red adjuster). Turning the Platform Plus adjuster clockwise will increase platform threshold on the shocks. Turning the adjustment screw counterclockwise results in less platform. **NOTE:** Do not over-tighten or back out this screw beyond its stopping point. Doing so will damage the shock and void your warranty.

### LOCKOUT ADJUSTMENT

The S-TYPE SRL and RADIUM RL rear shocks feature a red lockout lever. Turning the lever counterclockwise will close the compression circuit to keep the rear shock from moving while climbing or riding on smooth surfaces. Manitou's lockout system is a "soft lockout" meaning that even with the lockout on, the rear shock will compress when it encounters larger bump forces.

For information and setup advice on remote lockout systems, please consult the "Service Guides" section of the [www.manitoumtb.com](http://www.manitoumtb.com) website.

### REBOUND DAMPING ADJUSTMENT

Rebound damping controls the return rate of the rear shock after it has been compressed to absorb a bump. Rebound on all Manitou rear shocks is adjusted with the blue knob. As a general rule, rebound that is adjusted for an overly fast rate will exhibit a springy ride that may cause excessive pedaling movement and kick up the rear end on multiple bumps and big hits. Rebound that is adjusted for an overly slow rate 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 rear shock to achieve a return movement that is just short of "snapping back".

### SPRING PRELOAD AND SAG ADJUSTMENTS: COIL REAR 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. Springs with varying, non-stock spring rates are available from HB Suspension for a fee. Part numbers, spring rates and travel are stamped on the outside of the spring coils. Coil spring part numbers are listed at the back of this manual.

### PRESSURE RANGES AND PRESSURIZING TIPS

**Maximum air shock main spring air pressure:** 300 psi or 21 bar. Use Manitou air spring rear shock pump, part #85-4162, or similar rear shock pump that will deliver up to 300 psi (21 bar).

**Minimum-Maximum SPV pressure:** 50-175 psi (3.5-12 bar) for all SPV shocks except SWINGER AIR X3 and SWINGER AIR X4. For the SWINGER AIR X3 and SWINGER AIR X4 pressures should be 100-175 psi (6.9-12 bar). Never use a pressure below or above this recommended pressure range. Use Manitou SPV pump, part #85-4163, or similar pump that will deliver up to 175 psi (12 bar).

To adjust air pressure in the main air spring, remove the air cap from the Schrader valve located above the large air canister and attach a shock pump. You can damage the pump by turning it on too far, so as soon as the gauge registers pressure, turn 1/2 turn more and pump to a higher pressure or release air to a lower pressure as desired.

The slight hiss you hear when unscrewing the pump is primarily the air left in the pump and will affect your pressure setting in the rear shock very little. [NOTE: larger hisses (leaking air) may be the result of a loose Schrader valve core.]

If the rear 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 or the Schrader valve core may need to be tightened.

After removing the pump, be sure to reinstall the Schrader valve cap.

## ADJUSTING SAG

The recommended amount of sag for your riding style can be found below.

### RECOMMENDED SAG SETTINGS

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

1. Measure the distance between the centers of the rear shock mounting bolts (eye-to-eye length of your rear shock) and record this measurement.
2. 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 someone measure the new distance between the two points described above and record it.
3. Check this measurement against the chart below and determine the sag for your rear shock.
4. Adjust the coil spring preload adjuster or add/decrease air pressure in the main air spring (on the fatter "can" side of air rear shocks) to achieve the desired amount of sag. Coil rear shocks may require a heavier or lighter spring (see spring part numbers at the end of the manual) that can be purchased to achieve the proper range of sag.

### SAG ADJUSTMENT SETTINGS

Static Eye-to-Eye	Rear Shock Travel	Eye-to-Eye Measurement with Sag				
		25% sag	30% sag	35% sag	40% sag	45% sag
152	32	144	142	141	139	137
165	38	155	153	152	149	147
190	50	177	175	172	170	167
200	50	187	185	182	180	177
200	56	186	183	180	178	175
215	63	199	196	193	189	186
222	70	204	201	197	194	190
230	70	212	209	205	202	198
240	76	221	217	213	209	205
267	89	244	240	235	231	226

## INSTALLING AND REMOVING COIL SPRINGS

The following steps should be followed to remove and install the coil spring on REVOX, SWINGER COIL and METEL rear shocks.

### REMOVING THE SPRING

1. Turn the blue rebound knob all the way in (clockwise) for maximum clearance with the spring. Make sure to note the set location by counting the clicks to full close. **The blue rebound adjuster knob is not removable and doing so will void the warranty of your rear shock.**
2. Loosen the preload adjuster ring until the spring retainer clip can be removed from the rear shock.

3. Remove the retainer clip.
4. Slide the spring off of the rear shock.

**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 bushing or eye.

### INSTALLING THE SPRING

1. Turn the blue rebound knob all the way in (clockwise) for maximum clearance with the spring. Make sure to note the set location by counting the clicks to full close. **The blue rebound adjuster knob is not removable and doing so will void the warranty of your rear shock.**
2. Slide the spring onto the rear shock.
3. Install the spring retainer clip by sliding it between the top of the spring and the non-shock body side eyelet head.
4. Tighten the preload adjuster ring until 1 mm of spring preload (compression) is achieved. Make sure the spring retainer clip is flush with the top of the spring and the eyelet head.
5. Re-install the mounting hardware.
6. Adjust the spring preload according to the spring preload and sag adjustment sections of this manual.

## NON-WARRANTY MAINTENANCE SCHEDULE

### NEW REAR SHOCK

- Check/set rear shock sag/preload.
- Check main spring air pressure.
- Check SPV air pressure (where applicable).
- Check mounting hardware torque.

### EVERY RIDE

- Check main and SPV air pressure (where applicable).
- Make sure coil rear shocks are preloaded properly.

### EVERY 8 HOURS

- Check/set rear shock sag and preload.
- Check mounting hardware torque.
- Check the mounting hardware. To see if replacement is necessary, lift up on the bike's seat post to feel for play. Any kind of a clunk that feels similar to a loose headset may require replacement of your rear shock hardware. For replacement, visit your Authorized Manitou Dealer or contact HB Suspension directly. Contact information is located at the end of this document.

### AFTER EVERY 150 HOURS OF USE

- Send rear shock to service center for oil change and inspection.

**WARNING** CONTENTS UNDER HIGH PRESSURE. NEVER DISASSEMBLE YOUR REAR SHOCK. DOING SO WILL RESULT IN SERIOUS INJURY.

**WARNING** IF YOUR REAR SHOCK EVER LOSES OIL, AIR PRESSURE, OR BEGINS TO MAKE NOISE, STOP RIDING THE REAR SHOCK AND HAVE THE REAR SHOCK INSPECTED BY AN AUTHORIZED MANITOU DEALER/SERVICE CENTER OR CONTACT HB SUSPENSION AT (888) 686-3472.

Periodically you must service and clean the area below the air canister. Follow the recommended service schedule listed below, but a good rule of thumb is if the rear shock begins to make a wheezing sound on compression, it is time to service the air canister. For detailed service kit instructions please visit [www.manitoumtb.com](http://www.manitoumtb.com).

## SERVICE SCHEDULE

Suggested Service for Manitou Rear Shocks

### Normal Conditions – Short/Infrequent Rides

- Clean rear shock body after every ride.
- Clean and re-grease air canister every 3 months (air shocks only).
- Send to service center for oil change and inspection after every 150 hours of use.

#### Normal Conditions – Long/Frequent Rides

- Clean rear shock body after every ride.
- Clean and re-grease air canister every 2 months (air shocks only).
- Send to service center for oil change and inspection after every 150 hours of use.

#### Severe Conditions (mud, rain, snow, extreme dust) –

##### Short/Infrequent Rides

- Clean rear shock body after every ride.
- Clean and re-grease air canister every 2 months (air shocks only).
- Send to service center for oil change and inspection after every 150 hours of use.

#### Severe Conditions (mud, rain, snow, extreme dust) –

##### Long/Frequent Rides

- Clean rear shock body after every ride.
- Clean and re-grease air canister every month (air shocks only).
- Send to service center for oil change and inspection after every 150 hours of use.

For updates and tuning information, visit our website at [www.manitoumtb.com](http://www.manitoumtb.com).

For new hardware, contact HB Suspension at (888) 686-3472 or order from the website at [www.manitoumtb.com](http://www.manitoumtb.com).

## SPV SET-UP QUICK REFERENCE GUIDE



***THIS QUICK REFERENCE GUIDE IS TO BE USED AFTER YOU HAVE COMPLETELY READ THE OWNER'S MANUAL.***

### COIL AND AIR SHOCK INITIAL SET UP

#### 1 SET SPV PRESSURE:

Range should be between 50-175 psi. Pressure should be between 50-70% of body weight. More pressure will create more compression damping, hold the bike up more and pedal better. Less pressure will create less compression damping, allow more sag, be more responsive and supple. Always set the No Tools volume adjuster to "1" before making pressure adjustments. Note: SWINGER AIR shocks with external platform adjustment come fully charged at the factory so no initial pressure adjustment is needed.

#### 2 SET SPV VOLUME:

You should begin with the 16 mm adjuster completely backed out or with the No Tools volume adjuster set to "1." Turning the volume adjuster inwards (or to a higher number in the case of No Tools volume adjustment) will create a more progressive damping effect making the suspension firmer from the middle to bottom out. Turning the volume adjuster outwards (or to a lower number in the case of No Tools volume adjustment) will make the rear shock more linear in compression damping and be a softer finish.

#### 3 ADJUST SAG:

Sag is the amount the shock compresses under normal body weight. Recommendations:

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

#### 4 REBOUND DAMPING:

Turn the blue knob located on the eyelet mount clockwise to increase rebound damping.

#### 5 LOW-SPEED COMPRESSION DAMPING (EVOLVER ISX-6, SWINGER X6, AND REVOX ISX ONLY):

Turn in the red adjustment knob to increase chassis stability (also may decrease supple feel of shock).

#### 6 HIGH-SPEED COMPRESSION DAMPING (EVOLVER ISX-6, SWINGER X6, AND REVOX ISX ONLY):

Turn in the black adjustment knob to increase high-speed bottoming resistance.

**NOTE:** On EVOLVER ISX-6, SWINGER X6, and REVOX ISX, please make sure that the two compression adjuster knobs on the reservoir are fully open when setting the shock pressure and volume. You can turn them after you set up the pressure and volume adjuster to achieve more compression damping.

<b>COIL SPRING PART NUMBERS</b>		
<b>COIL SPRING KIT</b>		
<b>Eye-to-Eye X Travel</b>	<b>Rate</b>	<b>Part #</b>
165 X 38 (6.5" X 1.5")	250	85-6660
165 X 38 (6.5" X 1.5")	300	85-6661
165 X 38 (6.5" X 1.5")	350	85-6662
165 X 38 (6.5" X 1.5")	400	85-6663
165 X 38 (6.5" X 1.5")	450	85-6664
165 X 38 (6.5" X 1.5")	500	85-6665
165 X 38 (6.5" X 1.5")	550	85-6666
165 X 38 (6.5" X 1.5")	600	85-6667
165 X 38 (6.5" X 1.5")	650	85-6668
165 X 38 (6.5" X 1.5")	700	85-6669
165 X 38 (6.5" X 1.5")	750	85-6670
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
190 or 200 X 50 (7.5" or 7.875" X 2.0")	600	85-6671
190 or 200 X 50 (7.5" or 7.875" X 2.0")	650	85-6672
190 or 200 X 50 (7.5" or 7.875" X 2.0")	700	85-6673
190 or 200 X 50 (7.5" or 7.875" X 2.0")	750	85-6674
200 X 57 (7.875" X 2.25")	250	85-6700
200 X 57 (7.875" X 2.25")	300	85-6701
200 X 57 (7.875" X 2.25")	350	85-6702
200 X 57 (7.875" X 2.25")	400	85-6703
200 X 57 (7.875" X 2.25")	450	85-6704
200 X 57 (7.875" X 2.25")	500	85-6705
200 X 57 (7.875" X 2.25")	550	85-6706
200 X 57 (7.875" X 2.25")	600	85-6707
200 X 57 (7.875" X 2.25")	650	85-6708
200 X 57 (7.875" X 2.25")	700	85-6709
200 X 57 (7.875" X 2.25")	750	85-6710
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

<b>COIL SPRING PART NUMBERS (continued)</b>		
<b>COIL SPRING KIT</b>		
<b>Eye-to-Eye X Travel</b>	<b>Rate</b>	<b>Part #</b>
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
215 X 63 (8.5" X 2.5")	600	85-6675
215 X 63 (8.5" X 2.5")	650	85-6676
215 X 63 (8.5" X 2.5")	700	85-6677
215 X 63 (8.5" X 2.5")	750	85-6678
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
230 X 70 (9.0" X 2.75")	550	85-5432
230 X 70 (9.0" X 2.75")	600	85-6679
230 X 70 (9.0" X 2.75")	650	85-6680
230 X 70 (9.0" X 2.75")	700	85-6681
230 X 70 (9.0" X 2.75")	750	85-6682
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
240 X 76 (9.5" X 3.0")	600	85-4460
240 X 76 (9.5" X 3.0")	650	85-6683
240 X 76 (9.5" X 3.0")	700	85-6684
240 X 76 (9.5" X 3.0")	750	85-6685
267 X 90 (10.5" X 3.5")	250	85-6850
267 X 90 (10.5" X 3.5")	300	85-6851
267 X 90 (10.5" X 3.5")	350	85-6852
267 X 90 (10.5" X 3.5")	400	85-6853
267 X 90 (10.5" X 3.5")	450	85-6854