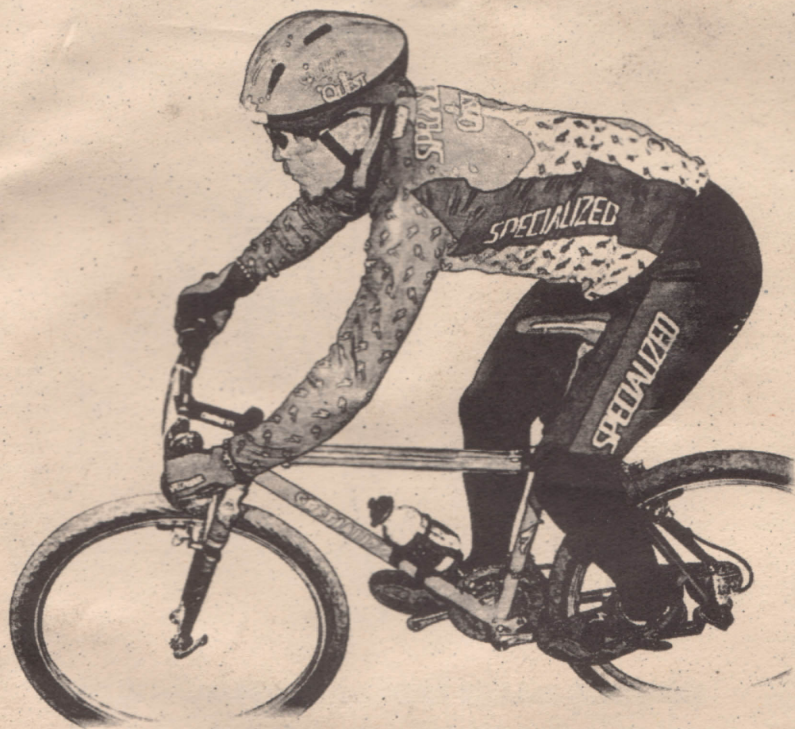




*SPECIALIZED.*

# STUMPJUMPER FSR SPORT



## Suspension Tuning Guide

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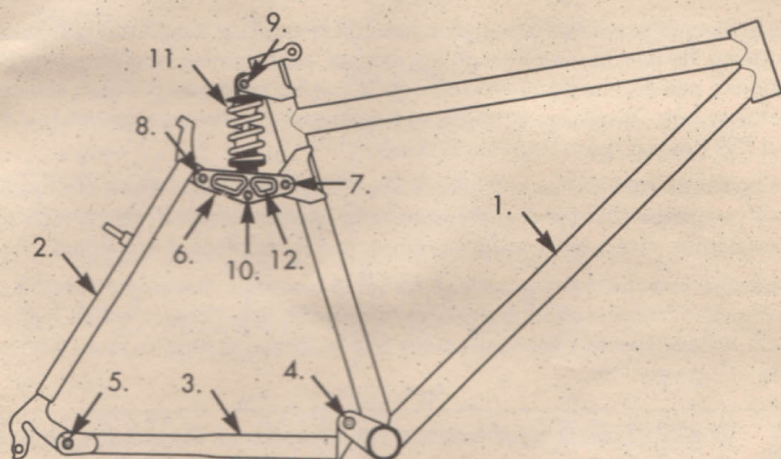


Fig. 1

### STUMPJUMPER FSR SPORT FRAME FEATURES

- |                         |                                     |
|-------------------------|-------------------------------------|
| 1. Front Triangle       | 7. Seat Tube Shock Link Pivot       |
| 2. Seatstay Link        | 8. Seatstay Shock Link Pivot        |
| 3. Chainstay Link       | 9. Shock Upper Pivot                |
| 4. Bottom Bracket Pivot | 10. Shock Lower Pivot               |
| 5. Dropout Pivot        | 11. Specialized/RST Shock           |
| 6. Shock Linkage        | 12. Air Valve (hidden behind plate) |

## Specialized Bicycle Components, Inc.® Stumpjumper FSR Sport Suspension Tuning Guide

Congratulations! You've just purchased what we consider to be the best fully-suspended mountain bike available: the Specialized® FSR. The FSR is designed to provide all the benefits of full suspension—great ride quality, comfort, and high performance—without the drawbacks associated with other designs.

The FSR's four-bar linkage design is amazingly efficient. A series of optimum pivot locations, ensures that the suspension is completely neutral. That means the length on the drive section of the chain doesn't change as the suspension compresses, so there's no pedal kickback, which wreaks havoc with your pedaling efficiency. It also means that the suspension is unaffected by chain tension, which can cause inferior bikes to bob. One more benefit of the FSR's design is that braking doesn't affect the suspension, so you can brake through stutter bumps without feeling like you're back on board an unsuspended bike.

The bottom line is, with the FSR, you'll find that your pedaling performance isn't compromised, that it works great in all conditions, and that it's not just a downhill bike.

We know you're excited about your new FSR and taking it out for a test cruise. But by taking the time to read through this manual, and learning about how the FSR is designed and can be tuned, you'll be set to get the maximum performance out of your new bike. You'll also learn about the necessary maintenance, which will keep your FSR running great for years to come.

The operation and service of the Rock Shox™ Quadra 5 forks, which are found on the Stumpjumper FSR Sport, are covered in a separate manual. Please refer to it to answer front suspension-specific questions, and for additional tuning tips.

You'll also find that the manual is chock-full of warnings. You might consider them severe, or a hassle to read, but they're intended to help prevent serious injury or death, so pay special attention to them. We want you to have as much fun as possible riding your FSR.



**WARNING: If you have any questions about the product descriptions or service guidelines in this guide, contact your Authorized Specialized Dealer before your first ride.**

The FSR is intended for use under normal mountain bike riding conditions. It is not designed for riders who intend to use it for stunt riding; jumping, trials, aerial ramp riding, racing, etc.



**WARNING: This guide should be read and understood before your first ride. Also, this guide should be stored in a safe place for reference and periodic review. Refer to your bicycle owner's manual for important safety, maintenance, and operational information about your bike.**



**WARNING:** Do not take apart the Specialized/RST shock. The shock should be returned to RST for tuning or repair. See pg. 6 for shipping address.



**WARNING:** Do not take apart the FSR, change or modify any components, or otherwise modify the frame. Doing so will void the warranty, and may result in serious personal injury.



**CAUTION:** You should take time to become familiar with the performance characteristics of the FSR. Suspension improves your comfort and control, but it does not make you a better rider. Suspension may allow you to attain greater speeds, which requires increased stopping distance.

## SIZING

To retain the geometry of the rear suspension, we did something unique with the frame sizing for the FSR. The 16.5", 18", and 19" frames all use the same seat tube length (19"), but have a longer top tube dimension for each larger frame size. Here's a quick reference chart, outlining the dimensions between the different frame sizes.

A	B	C	D	E	F	G	H	I	J
16.5"	530 mm	90 mm	430 mm	42 mm	71°	73°	604 mm	728 mm	312 mm
18"	551 mm	90 mm	430 mm	42 mm	71°	73°	625 mm	728 mm	312 mm
19"	563 mm	110 mm	430 mm	42 mm	71°	73°	637 mm	738 mm	312 mm
20"	579 mm	120 mm	430 mm	42 mm	71°	73°	648 mm	760 mm	312 mm
21.5"	597 mm	155 mm	430 mm	42 mm	71°	73°	669 mm	788 mm	312 mm

A = Frame Size

D = Chainstay Length

G = Seat Tube Angle

J = Bottom Bracket Height

B = Top Tube Length

E = Fork Offset

H = Front Center

C = Head Tube Length

F = Head Tube Angle

I = Standover Height

## ASSEMBLY



**WARNING:** Improper assembly can result in a loss of control or an unstable condition while riding. At the very least the result can be unsatisfactory product performance, and could also cause serious injury or death.

The FSR Sport is available as a complete bicycle or as a frameset only. Either way it is recommended that it be assembled by an authorized Specialized dealer. Have your bicycle inspected periodically by the dealer to ensure that it is in safe working order.



**WARNING: All service and maintenance of your Specialized FSR Sport should only be performed by your Authorized Specialized Dealer.**

Headset Size: 1 1/8" (Oversize)  
Seatpost Diameter: 29.2 mm  
Bottom Bracket Shell Width: 73.0 mm  
Rear Hub Spacing: 135 mm

## CHANGING THE COIL SPRING

The following steps should be taken in changing the coil spring on your Specialized FSR Sport. (The use of a work stand is recommended).

1. Using a 5 mm hex key, remove the three 6 mm bolts from one side of the shock linkage and remove the link plate. (Take note of the position of the black nylon seal rings, and any shims that may be located between the link plate and the frame components).
2. Use a 10 mm box end wrench and a 5 mm hex key to removed the upper shock pivot bolt.
3. Allow the suspension to drop enough that you can slide the shock down and out of the upper bracket, and then slide it outward and off the lower pivot shaft.
4. Completely loosen the preload adjuster and remove the slotted spring collar. This will allow you to remove the coil spring from the shock.
5. Replace the old coil spring with the new one. To reassemble, simply reverse the disassembly procedure. When reinstalling the black nylon seal rings be certain that they are fitted properly over the flanges of the pivot bearings. Failure to locate these properly will destroy the seal rings and bind your suspension.
6. Reinstall all the bolts using a blue LocTite. Make sure all the wave washers are in place, and tighten the bolts with a torque wrench to the specifications outlined on page 8.
7. Double-check the work you have done to be sure everything is in safe working order before riding.

## REAR SUSPENSION TUNING

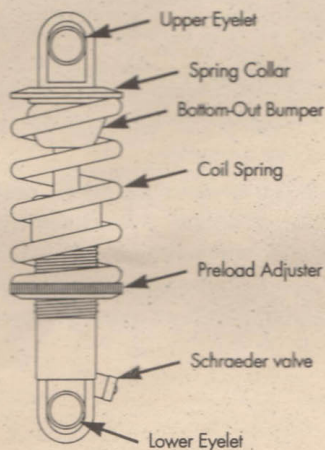
Optimal suspension setup is extremely subjective. It's dependent on many factors, including personal taste, your weight, riding style, and the terrain you ride. That makes it impossible to dictate an exact setup, but we can offer some tips, which are based on lots of experience, riding and testing of the FSR. There are several factors to consider, including:

- Depending on the ride characteristics you're looking for (from full plush to extremely firm), you can vary the spring, or spring preload adjuster. The spring and preload affects the amount of initial sag. With less preload, the ride is softer. With more preload, the ride is stiffer.
- The Specialized/RST coil-over shock is all new. It's a new coil sprung/oil-damped unit that is lightweight, and features easily adjustable spring preload.
- The shock has 1.25 inches of travel, which translates to 3.1 inches of travel at the rear wheel.
- Don't be afraid to try softer preload settings. Since the design of the Specialized FSR eliminates pedaling inefficiency common to other suspension designs, you can make effective use of sag to provide a softer ride, without affecting pedaling performance. Feel free to experiment. Lots of riders start off with an initial setting that's very firm, and discover later that they prefer a softer setting.



**WARNING: There is a Schraeder valve on your Specialized/RST shock. Do NOT depressurize the shock, or attempt to tune it via the air pressure valve. It is for pressurization of the oil chamber only. Should loss of pressure occur, pressurize the shock with a regular floor pump to 100 psi.**

**Fig. 2**  
**RST/Specialized Coil-Over Shock**



## STD. SHOCK SPRING RATES AND RECOMMENDED WEIGHT RANGES

Below is a chart showing standard spring rates, and the recommended spring rates for different weight riders.

Frame Size	Standard Spring Rate	For Rider Weight Range
16.5"	550 lbs./in.	110-160
18"	550 lbs./in.	110-160
19"	650 lbs./in.	140-200
20"	650 lbs./in.	140-200
21.5"	750 lbs./in.	180-220

Should you desire a softer or stiffer spring rate, coil springs are available at your Authorized Specialized Dealer.

Should your RST/Specialized coil-over shock require service, contact RST at (714) 435-1188 for shipping instructions and information.

Outside the U.S., contact your Authorized Specialized Dealer to obtain the information required to have your shock serviced.

## DETERMINING SHOCK SAG SETTING

The recommended amount of sag at the shock absorber is .25". This translates to .63" of suspension travel at the rear axle.

With the bike unloaded, measure the shock length (eye to eye), then remeasure while sitting on the bike with all riding gear (fanny pack, helmet, water carrying system, etc.).

Subtract loaded length from unloaded length to determine sag.

If the shock sag is too small, even with the spring preload adjuster backed off, a coil spring with a lower rate may be necessary.

The best suspension setting is one where the shock uses its full travel over really big bumps. If the system doesn't bottom out occasionally, you're not taking full advantage of all the available travel.

Most riders find that the stock spring rates work extremely well, and with minor spring preload adjustments, they can achieve a perfect setup.

## CLEANING AND MAINTENANCE

Your Stumpjumper FSR Sport requires periodic maintenance. How often you should have your FSR inspected and maintained depends on how often and the manner in which you used it. If you ride once or twice and less than five miles per week on flat, asphalt terrain, you probably need to have your FSR inspected once every six months. If you ride your bike two or three times per week, often on hilly terrain, then you should have it inspected every other month. Never ride your FSR if it requires inspection or service.

The bushings used at the pivot points of your FSR are all high-quality Oiles bushings. These bushings can be lubed with a grease gun that has a small, pointed nozzle (like SunTour's Grease Guard gun) by aligning the grease gun nozzle with the grease port at each point and adding a small amount of lube. Covering the grease ports, after they're cleaned, with a small piece of clear stick-on chainstay protector works well to keep dirt out of the bearing ports.

Like any bushings, the bushings on the FSR don't last forever, and may need to be replaced periodically. The frequency of replacement is dependent on factors such as the environment you ride in, and how aggressively the bike's ridden. If you start to feel excessive play in the rear end of the bike, you should return the bike to your Authorized Specialized Dealer for service. To check this, hold the seatpost, and move the rear axle from side-to-side. If there's more than 3 mm of free play, you should have the bike checked by your Specialized Dealer.

AFTER WET OR MUDDY RIDING, clean and dry the bike thoroughly, but DO NOT spray high pressure directly at the pivots. This could force mud and crud into the pivots, which could decrease their lifespan.

**NOTICE: Your Specialized bike should be inspected by your Authorized Specialized Dealer at least once a year. Use good judgement; if you're using the bike frequently or in muddy conditions, more frequent inspections may be required.**



**Warning: Should your FSR need maintenance beyond routine cleaning, take it to an Authorized Specialized Dealer for servicing. The bike should also be inspected if you have crashed or suspect that it's damaged in any way. Take it to your Authorized Specialized Dealer for inspection.**



## TORQUE SPECS

The bolts used throughout the rear end of the FSR are high-quality Grade 8.8 bolts with locking nuts designed to keep the bolts tight. If you need to re-torque these bolts, the specs are:

	Size Bolt	Allen Key	Torque
Bottom Bracket Pivot	8 mm	6 mm	200 inch lbs. (23 Nm)
All Other Pivots And Shock Bolts	6 mm	5 mm	104 inch lbs. (12 Nm)

The 6 mm shock bolts and the 8 mm bottom bracket pivot bolts must be cleaned and locked with Loctite primer 7649, and Loctite removable threadlocker 242 (blue). Please follow the manufacturer's instructions when using these products.

## The Specialized Warranty

Specialized Bicycle Components ("Specialized") makes the following Limited Warranty:

### One Year Limited Warranty on Complete Bicycles

Specialized warrants to the original owner that this new Specialized bicycle shall be free of defective materials and workmanship for a period of one year from the date of the original purchase provided the bicycle is purchased in the United States and operated under normal conditions and use. During this one-year warranty period, Specialized shall repair or replace, at its sole option, all parts that are found by Specialized to be defective and subject to this limited warranty. The original owner shall pay all labor charges connected with the repair or replacement of the bicycle frame.

### Lifetime Limited Warranty on Bicycle Frame

Specialized further warrants to the original owner that the frame of this new Specialized bicycle shall be free of defective materials or workmanship during the lifetime of the original owner. During this lifetime warranty period, Specialized shall repair or replace, at its sole option, the bicycle frame if Specialized determines the frame is defective and subject to this limited warranty. The original owner shall pay all labor charges connected with the repair or replacement of the bicycle frame.

### General Provisions

This Limited Warranty is made only to the original owner of this new Specialized bicycle, and it shall remain in force only as long as the original owner retains ownership of the Specialized bicycle. This Limited Warranty is not transferable.

In order to obtain service under this Limited Warranty, the original owner must deliver the Specialized bicycle to an authorized Specialized dealer, together with the Specialized warranty card and the bill-of-sale or other dated proof-of-purchase document identifying the Specialized bicycle by frame number.

This Limited Warranty does not apply to normal wear or tear, nor to defects, malfunctions or failures that result from the abuse, neglect, improper maintenance, alteration, modification, accident, or misuse (including, without limitation, bicycle racing, bicycle motocross, stunt bicycling or similar activities) of the Specialized bicycle.

This Limited Warranty is the only express or limited warranty applicable to Specialized bicycles. Any implied warranties, including warranties of merchantability and fitness for a particular purpose, shall be limited in scope and duration in accordance with this limited warranty. Specialized shall not be responsible for any direct, incidental, consequential or exemplary damages suffered by any party. The foregoing statements of warranty are exclusive and in lieu of all other remedies.

This Limited Warranty gives you specific legal rights; you may also have other legal rights which vary from state to state. Some states do not allow limitations on the duration of implied warranties, or the limitation or exclusion of incidental or consequential damages; therefore, the limitations and exclusions set forth in this Limited Warranty may not apply to you.

The Limited Warranty set forth herein may not be extended, enlarged or otherwise modified by any Specialized dealer, agent or employee, and Specialized does not assume any liability or make any warranty except as stated in this Limited Warranty.

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