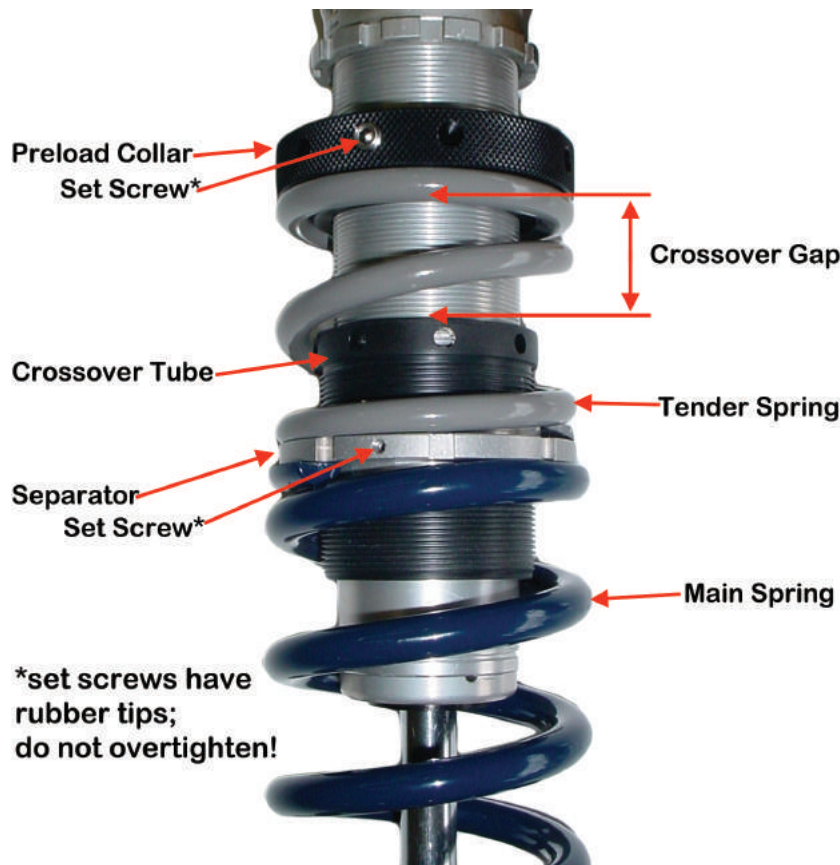


## Setting Ride Height

- Loosen the set screw and adjust ride height by rotating the preload collar.
- Set ride height as outlined in your owner's manual.

## Crossover Adjustment

- Crossover can be adjusted via the threaded separator.
- Adjust crossover to suit your personal riding feel.
- A smaller crossover gap will make the spring set more progressive, this gives the suspension a firm feel.
- A larger crossover gap will make the spring set less progressive, this gives the suspension a plush feel.



\*set screws have rubber tips; do not overtighten!



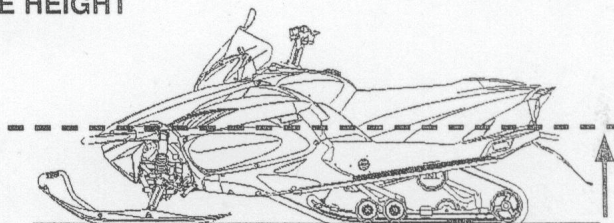
**!** Important! Read all instructions carefully and double check your work. Failure to follow instructions may result in damage to suspension components. After installation is complete be sure to cycle the suspension through it's motion. We are not responsible for any damage that can occur from improper installation.



## SETTING MONO SHOCK™ SPRING PRELOAD/ RIDE HEIGHT

### Spring Preload/ Ride Height:

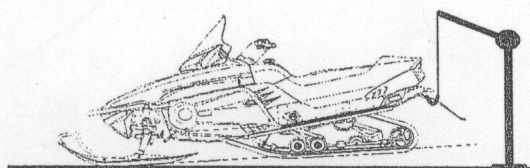
The first rear suspension adjustment should be to adjust rear spring preload to achieve proper ride height. This positions the rear suspension correctly with the rider on the sled. Proper ride height is critical for the suspension to function properly. If set too low or too high, it will have a noticeable effect on both ride comfort and handling.



Adjusting spring preload for correct ride height does not make the spring stiffer or softer. It's possible to have the correct ride height but still have either too much bottoming (spring too soft) or a harsh ride (spring too stiff) due to an incorrect spring rate. However, ride height should always be set first before making other adjustments or changes. After setting preload/ride height, if other suspension adjustments do not make the changes needed, it may be necessary to install an optional spring.

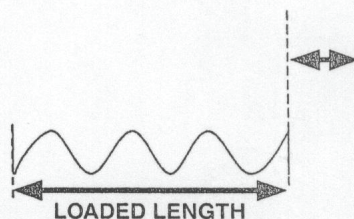
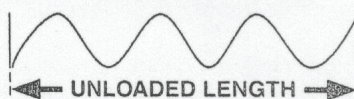
### Measurement:

Correct spring preload is determined by measuring rear suspension "sag," referring to how much the suspension compresses with the weight of the rider on the machine. With the Mono Shock™ suspension, this is done by measuring the length of the spring when fully extended (unit must be tipped or hanging), then measuring the spring length again with the unit on level ground and the rider on it. The measurements should indicate that the spring compresses or sags between 40 and 45mm. This is referred to as spring "sag."



REAR SUSPENSION UNLOADED - HANGING OR TIPPED

### SPRING SAG MEASUREMENT



SAG SHOULD BE 40 - 45mm

REAR SUSPENSION LOADED WITH WEIGHT OF SLED AND RIDER

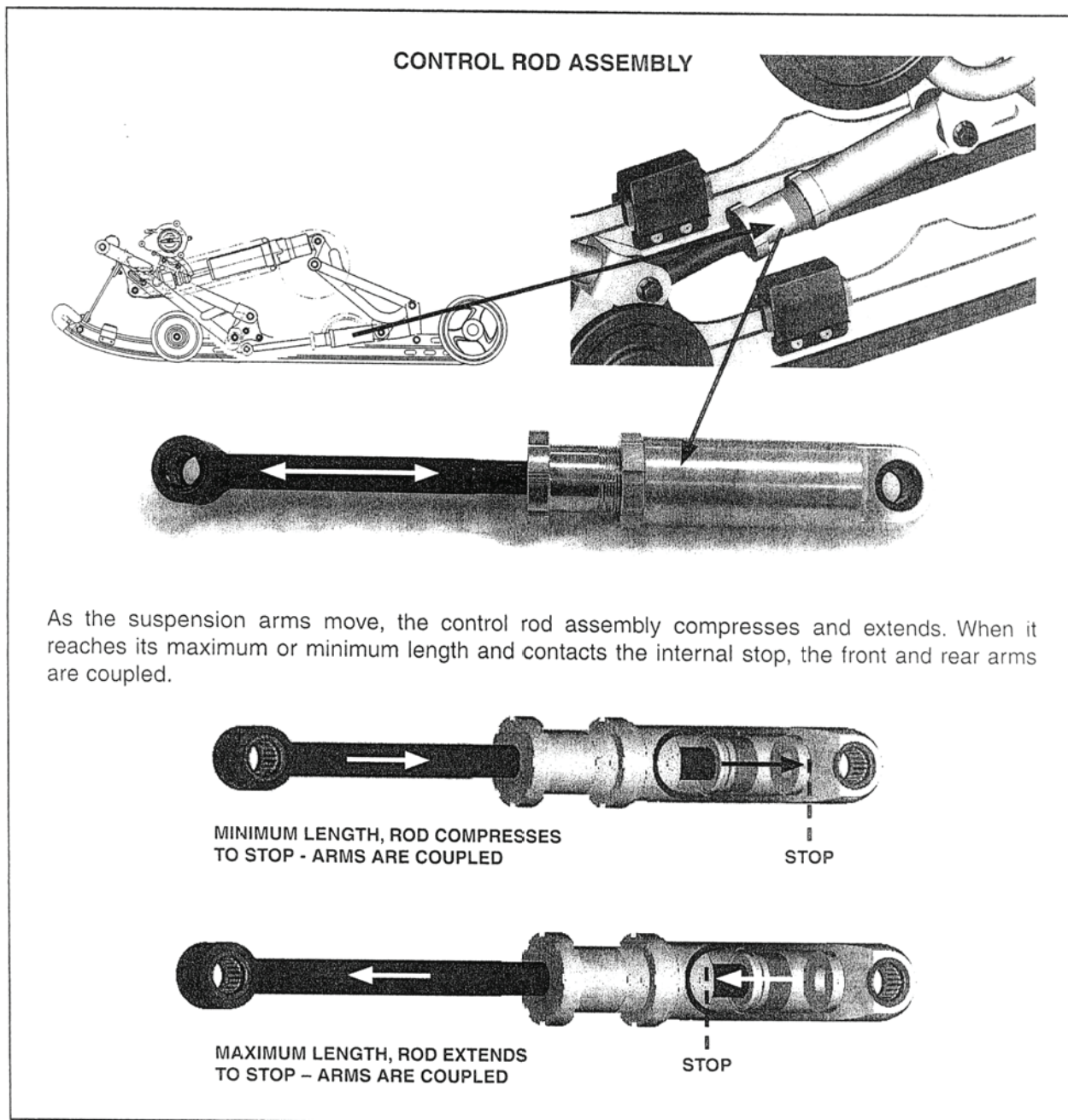




### CONTROL ROD

The control rod assembly connects the front and rear suspension arms and compresses and extends as the suspension arms move. In the initial part of travel, the control rod "floats" allowing the arms to move independently, providing a softer ride. As the arms move further, the control rod reaches an internal stop and couples the arms together to stiffen the suspension.

The control rod's primary function is to control weight transfer by coupling the front and rear arms. Coupling also provides progressive suspension action and reduces pitching over bumps.



308 Peruville Rd. Freeville, NY 13068

***If in doubt, just ask !***

info@hygearsuspension.com 607.533.7434

### CONTROL ROD ADJUSTMENTS

The control rod adjuster special tool is provided in the machine's tool kit. It's used to loosen the adjuster locknut and provide a measurement tool for reference. The tool is marked with minimum and maximum settings. If the tool is not available, use a ruler to confirm the control rod setting. The standard control rod setting varies by model.

**IMPORTANT:** Ensure that the adjuster is not set beyond the minimum or maximum position.

#### Adjustment Using Special Tool:

Use the special tool or equivalent to loosen the locknut.

Turn the threaded adjuster in or out for the desired setting:

- Turn in to reduce weight transfer
- Turn out to increase weight transfer

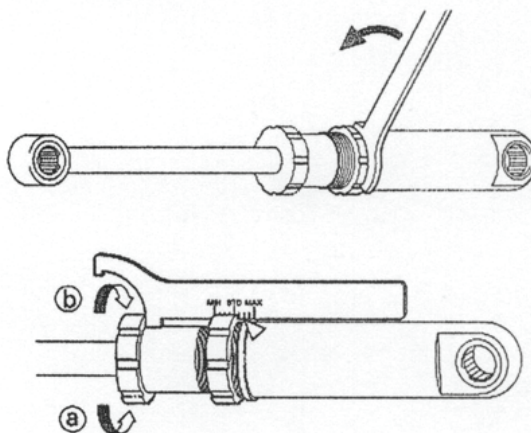
#### CAUTION:

Do not set the control rod adjuster beyond the minimum or maximum lengths indicated on the special tool or specifications listed below. Serious damage can occur.

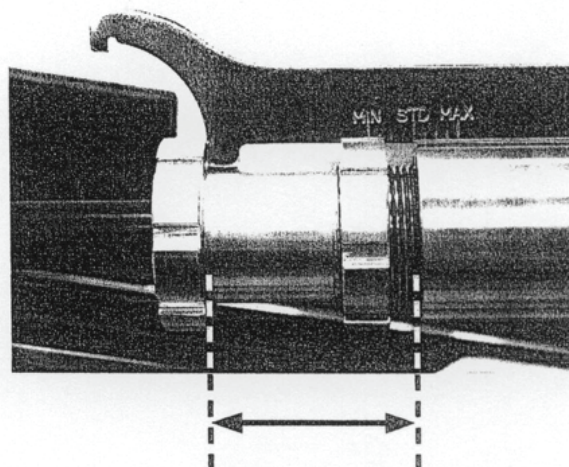
#### Adjustment without Special Tool:

If the special tool is not available, use a ruler to measure adjuster position. Confirm that the setting is within the minimum and maximum specifications shown in the adjacent illustration.

- Measure between the edge of control rod tube and the edge of the adjuster.
- The adjustment range is **35 to 55mm**.



|                            |                         |
|----------------------------|-------------------------|
| ADJUSTER TURNING DIRECTION | (a) ← → (b)             |
| WEIGHT TRANSFER            | INCREASED ← → DECREASED |



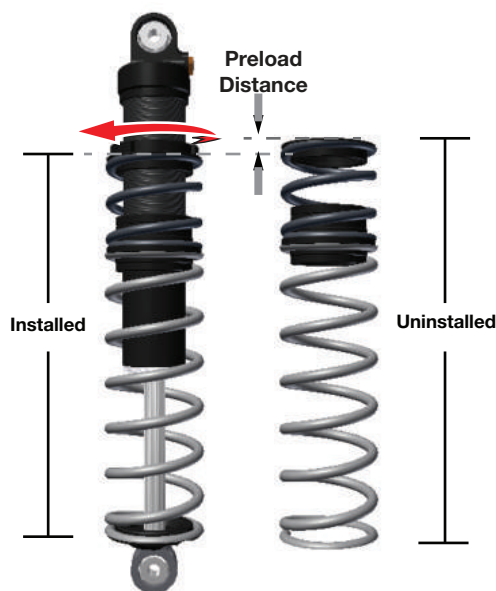
- ADJUSTMENT LENGTH RANGE:
- MINIMUM 35mm
  - MAXIMUM 55mm





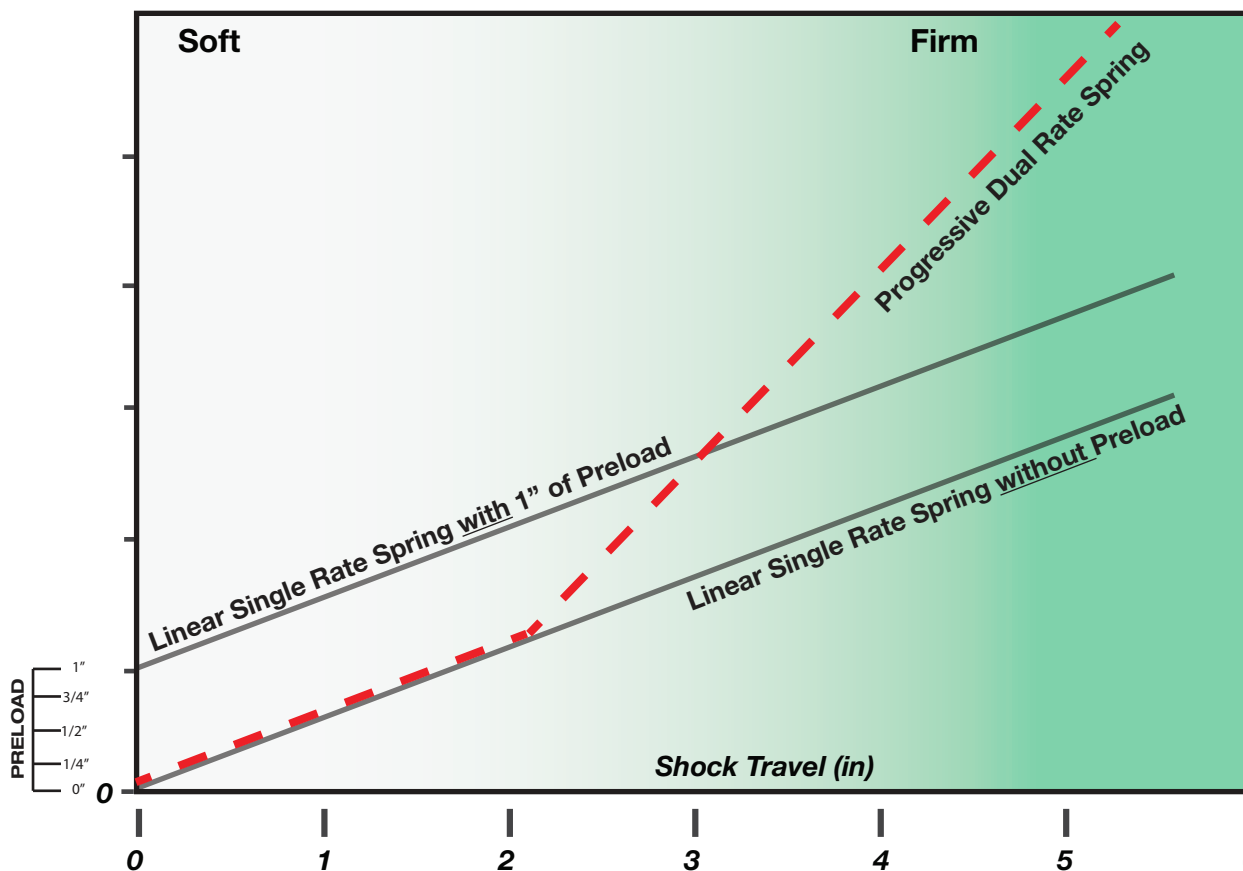
## Preload Adjustment

- Spring preload is used to set the vehicle ride height.
- Spring preload is the difference between the uninstalled length and the installed length of the spring.
- The Dual Rate spring kit allows you to set ride height without affecting ride quality.
- The multi rate springs become progressively stiffer throughout the shock's motion so they can start out plush and become stiffer further into travel to prevent bottoming.



*\*Always measure preload with vehicle off the ground (no load on shock)*

## The Dual Rate Advantage



308 Peruville Rd. Freeville, NY 13068

***If in doubt, just ask !***

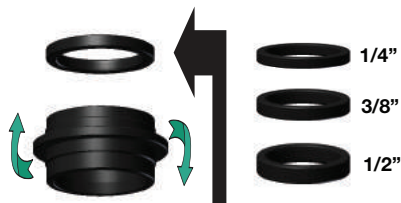
info@hygearsuspension.com 607.533.7434

## Crossover Gap Adjustment

Crossover Gap is the distance the tender spring is allowed to travel. Once the Crossover Gap is completely closed the tender spring no longer has an affect on the rate and only the main spring is working.

- A smaller crossover gap will make the spring set more progressive, this gives the suspension a firm feel at the end of the shock's travel.
- A larger crossover gap will make the spring set less progressive, this gives the suspension a plush feel at the end of the shock's travel.

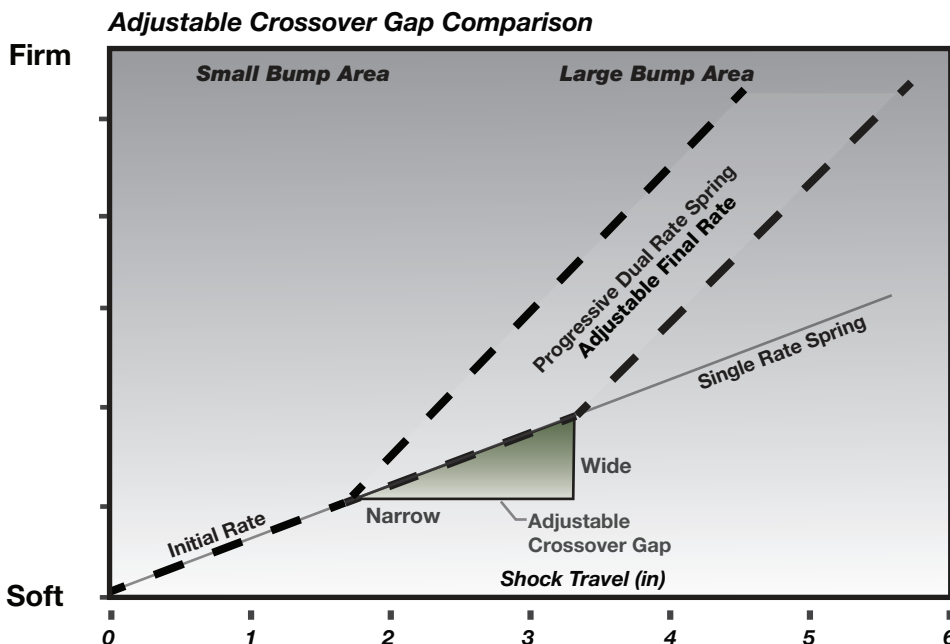
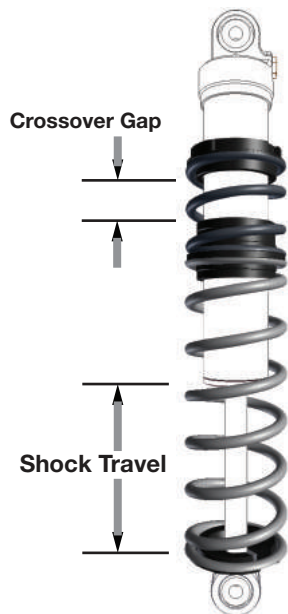
Crossover gap can be adjusted by:



**Sport Kit:** Adding/removing crossover spacers or flipping the direction of the floating separator



**Pro Kit:** Adjusting threaded separator



\*Sometimes it may be necessary to change the spring rate of the main or tender spring to achieve the optimal ride quality that you desire, visit our website to see what other springs are available.

- For stiff/softer initial rate change the tender spring.
- For stiff/softer overall rate change the main spring.





SNOWMOBILE

6/11/2007

S2007-005

# TECH EXCHANGE

**SUBJECTS: 1. Öhlins® EC Rear Shock Absorber Wiring Damage - 2006 Apex GT**

©2007 YAMAHA MOTOR CORPORATION, U.S.A.

## Öhlins® EC Rear Shock Absorber Wiring Damage – 2006 Apex GT

If a customer has a 2006 Apex GT with shock wiring damage, reroute the wiring for the rear shock solenoid in the rear suspension on the front arm and add new clamps (cable ties). If the solenoid wires are damaged, replace the rear shock solenoid (see Tech Exchange S2007-004). Also, if the sub-lead wires are damaged, replace the sub-lead



### Wiring Rerouting Procedure

1. Remove the rear suspension (refer to the Service Manual LIT-12618-RX-01).
2. Replace the solenoid, if necessary, See Tech Exchange S2007-004 for the Solenoid Replacement Procedure.
3. Connect the sub-lead wires to the Öhlins rear shock solenoid wires (see adjacent photo).



308 Peruville Rd. Freeville, NY 13068

***If in doubt, just ask !***

info@hygearsuspension.com 607.533.7434

- 2. Wrap the coupler between the solenoid harness and the sub-lead harness with vinyl tape (see photo below).

**SPECIAL NOTE:** We recommend the use of 3M Scotch 33+ or 88+ vinyl electrical tape for this repair. This special tape is suitable for extreme temperature variations. The tape is available from automotive part suppliers by special order.



- 3. Fold the harness from the solenoid valve before the coupler (see photo below).



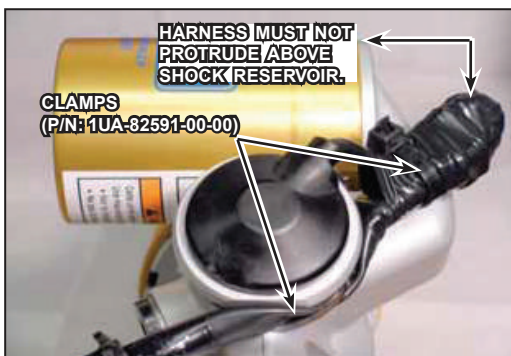
- 4. Wrap the fold with vinyl tape (see adjacent photo).



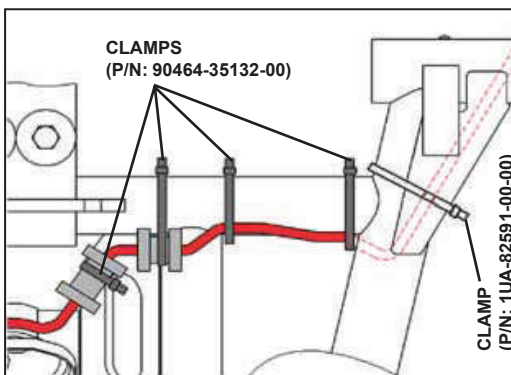
- 5. Secure the harness to the shock using two clamps (tie wraps) as shown in the adjacent photos.

**CAUTION:**

**Make sure the sub-lead harness 1 doesn't protrude above the rear shock (see photos below).**



- 6. Fasten the sub-lead harness to the pivot arm with clamps (tie wraps) as shown below.



- 7. Reinstall the rear suspension assembly.



308 Peruville Rd. Freeville, NY 13068

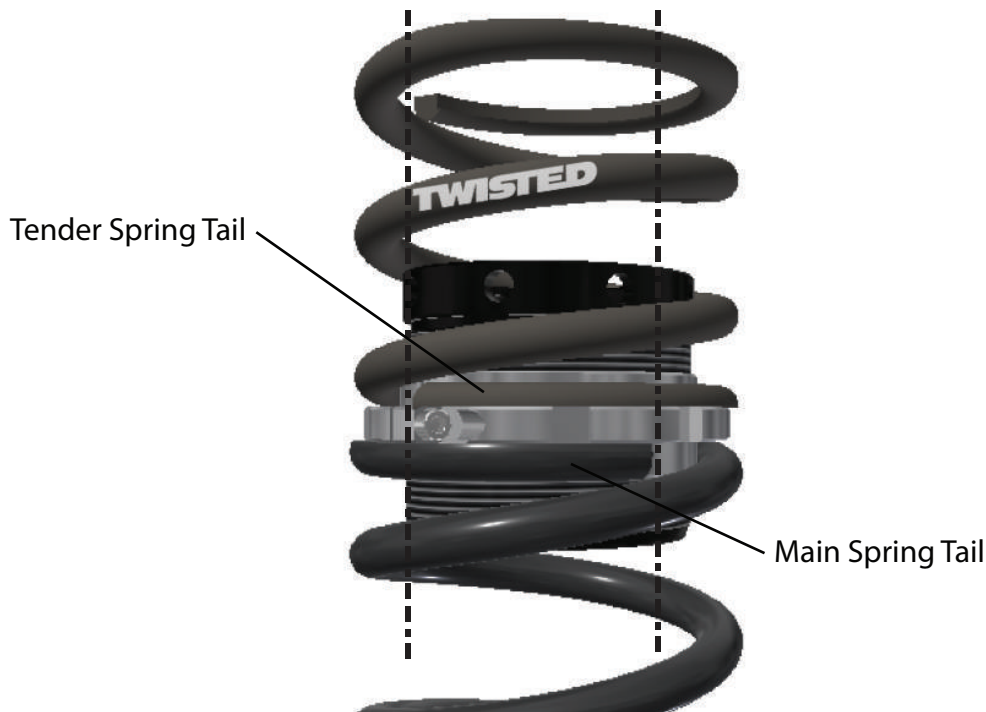
***If in doubt, just ask !***

info@hygearsuspension.com 607.533.7434



### Helpful Tips:

- Spraying the shock body with a water repelling or dry lubricant can help reduce friction and body wear. It is also recommended to spray the shock with lubricant for off season storage.
- Overlapping the spring tails can help reduce friction and wear.



Please note that shock body wear is possible from the sliding spring hardware. The amount of wear can vary depending on application and riding conditions.

\*\*Sliding spring hardware is a wear component. Both springs and spring hardware can be purchased separately. Contact [parts@hygearsuspension.com](mailto:parts@hygearsuspension.com) \*\*

**⚠** *Important! Read all instructions carefully and double check your work. Failure to follow instructions may result in damage to suspension components. After installation is complete be sure to cycle the suspension through it's motion. We are not responsible for any damage that can occur from improper installation. We are not responsible for any damage that can occur from wear to shock surfaces or related components.*