The race sag is set to insure that the suspension works in its most effective range and to keep a good chassis weight balance, front to rear. Setting your race sag is also the most important step up in affecting your bike's overall handling traits.

The first step toward determining proper suspension adjustment is to set the rear spring preload, so that the proper ride height, or race sag dimension, is achieved. You should check this crucial adjustment before each ride to insure it remains at your determined setting. For this adjustment procedure, the bike should be brought to normal racing weight – correct fuel, transmission oil and coolant levels. The shock should be cool to the touch, as heat build up will directly affect your sag.

1. Using the tape measure provided, measure the unloaded dimension when your bike is supported by a bike stand and the rear wheel is off the ground. Measure the distance from the rear axle up to a fixed point, like the fender and side panel junction, in line with the arc of the axle. You can also put a mark on the fender, which lines up with an even number to make it a little easier to calculate. Write down as Dimension A (Unloaded Example: 605 mm).

2. Now, place the motorcycle on level ground. Next, measure the loaded dimension with the rider aboard, wearing all normal riding gear, sitting forward on the seat, straight up from the pegs. Bounce your weight on the seat a couple of times to help the suspension overcome any stiction. Make sure you keep your hands on the bars, with your feet in front of the pegs, and settle all of your weight on the seat with your feet barely touching the ground, just enough to keep your balance. Using a helper, measure the distance between the same two points determining Dimension B (Loaded Example: 502 mm).

3. To change the sag, use a long punch and a large hammer to loosen the spring locking nut on the shock.

4. Then, turn the spring with your hand to adjust the rear spring preload. Make sure that when you’re turning the spring, the preload nut is also turning. There may be times where you will need to push on the preload nut with the punch while you’re turning the spring.

   **Note:** Increasing spring preload will decrease race sag and visa versa.

5. Once the race sag is set, retighten the lock ring with the punch and hammer.

**Race Sag Example**

<table>
<thead>
<tr>
<th>Dimension A Unloaded</th>
<th>= 605 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimension B Loaded</td>
<td>= 502 mm</td>
</tr>
</tbody>
</table>

**Race Sag**

= 103 mm
Static sag can be used to help determine the proper spring rate. Now, you must compare the rear suspension sag under the weight of the sprung portion of the bike alone (without rider’s weight) to the unloaded dimension. Having the proper spring rates in the front and rear is critical for proper handling. The spring rates must be selected to match the size of the bike and weight of the rider. A good approximation of your rear spring requirements can be found by measuring the rear suspension’s static sag. This measurement will quickly determine if your rear spring is approximately correct for your weight. Static sag is a measurement of how much the bike sags under its own weight.

Important Note: You must first set the race sag to determine this measurement.

**Static Sag (Without Rider)**

1. The first measurement is taken, as earlier, with the bike on a stand, and the rear wheel hanging freely. Measure the distance between the rear axle and the same point used to measure the race sag. This will determine Dimension A (Static Sag Example: 605 mm).

2a. The second measurement is taken with the bike on the ground. But first, push down on the seat and slowly let it rise up to its final resting position.

2b. Again, measure the distance between the same two points used above. This determines Dimension B (Static Sag Example: 568 mm).

Note: The static sag is the difference between Dimension A & B.

**Recommended Sag Specifications**

<table>
<thead>
<tr>
<th></th>
<th>50cc - 65cc</th>
<th>85cc - 100cc</th>
<th>125cc - 450cc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race Sag</td>
<td>70mm</td>
<td>80mm - 90mm</td>
<td>102mm - 105mm</td>
</tr>
<tr>
<td>Static Sag</td>
<td>25mm - 35mm</td>
<td>25mm - 35mm</td>
<td>30mm - 40mm</td>
</tr>
</tbody>
</table>

Pro Circuit Products, Inc.
2771 Wardlow Road, Corona, CA 92882
TEL: 951.738.8050
FAX: 951.738.8065
WEB: www.procircuit.com