

# Servicing the rear shock pre-load adjuster.

Overview.

A how to article on servicing the hydraulic pre-load adjuster.

What is required to service the adjuster.

It is not necessary to remove the rear shock or the adjuster from the shock to perform this service.



This is the pre-load adjuster. It has been removed from the shock for clarity only and removing it is not required for this service. The adjuster works by turning the knob on the oil reservoir clockwise to add pre-load or counter clockwise to remove pre-load. The adjuster would have no pre-load other than that from a completely assembled shock assembly.

## Pre-Load Defined

The free length of a spring is the length measurement of an uninstalled spring.

Pre-load is the length of the spring installed. There will always be a small amount of pre-load on an installed spring.

## Why do we need to adjust pre-load?

Very simply put we need to set the pre-load so the suspension will have a correct starting point based on the weight of the motorcycle, the rider's weight, passenger weight if you carry a passenger, and any gear you carry or wear. Pre-load is the starting point for the suspension and how it will work over bumps and dips. It will dictate ride height and has an effect on how the bike handles and steers.

The exact details of suspension tuning, spring rates and damping will be covered in a separate article. Here we will concentrate on how the pre-load adjuster works and how to keep it working.



This adjuster would have full pre-load applied to the spring.

The adjuster has 35 pre-load positions or “clicks” as they are commonly called from full soft or **LOW** to full hard or **HIGH**. Each click is 180° apart and can be felt as you turn the adjusting knob in both directions.

To reduce the pre-load, light load or smooth road, you would turn the knob counterclockwise.

To increase pre-load, passenger aboard, more gear, rough road conditions, you would turn the knob clockwise.

You will need some type hydraulic fluid, fork oil works well here.

I used a turkey baster hypodermic to fill the reservoir.

Let's get started

You may find it necessary to remove the knob from the reservoir.

- I recommend a strip or two of duck tape on the top edge of the foot peg mount so you don't scratch the paint.
- Loosen the screw on the knob. Just loosen the screw at this point.  
Be prepared for a small ball bearing to fall out as soon as you start to remove the knob.
- Back off the adjuster (counterclockwise) to remove all pre-load you may have set.
- Now you can remove the knob and catch the ball.
- Remove both seats.
- Remove the left side saddle bag.
- Remove the left side cover.
- If you want to measure the piston after the service you will need to remove the right saddle bag and the right side cover. This is not required but for your information only.
- Remove the reservoir.





You will need to get the reservoir high enough so the hose end will be above the level of the adjuster on the shock. This might take some unclipping of the hose and moving the reservoir in and out of linked brake lines, the reason for the removal of the knob.

- Remove the mounting bar from the reservoir.
- Mark the hose location on the reservoir so it can be reinstalled at the same angle.
- Remove the hose end. There are two copper washers on the banjo bolt, one on each side of the banjo.
- Keep the hose end up so the oil will not drain.

At this point you should have the reservoir in hand.

- Drain the oil from the reservoir.
- You will need something to push the piston back down in the reservoir. Be sure the adjuster has been turned all the way counterclockwise.

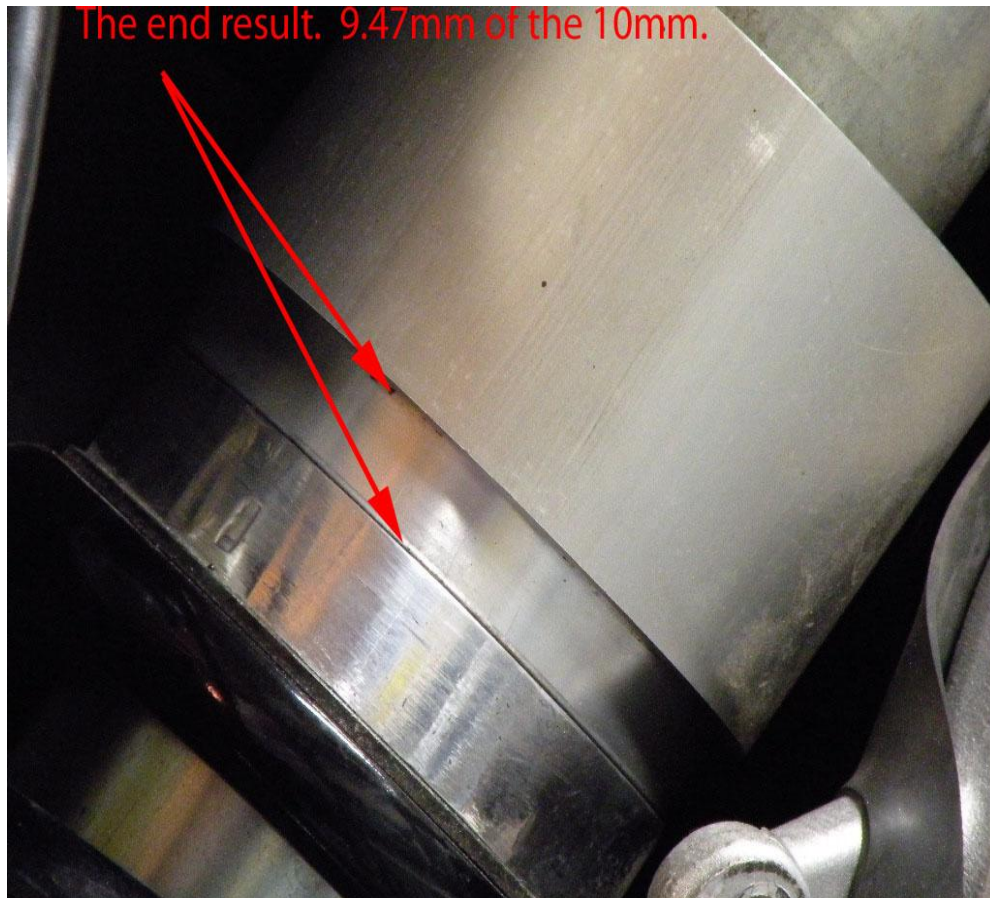


- Push the piston to the bottom of the reservoir. This picture shows two adjusters but it is the allen being used to push the piston that is of importance.

You can now fill the reservoir. I had 7wt. fork oil on hand so that is what I used. Any oil you have on hand will work.

- Fill the adjuster as full as you can keeping it facing up.
- Install the hose with one washer on either side of the banjo.
- Align the hose to the mark you made to orientate the banjo.
- Tighten the banjo bolt. This is a hollow bolt do not get carried away.

You can now reinstall the adjuster routing the hose so it will not get pinched or exposed as best as possible.



The end result on mine. I ended up with about 9.5mm of the approximately 10mm I got on the pre-load adjuster I had off the shock. The difference can be explained by no pressure on the one off the bike and no clear way of getting oil in the hose and the hose on the reservoir without some spillage. I started with less than 5mm so I recovered twice what I started with and the 1/2mm does not really come into play with the weight of this bike.

Paul