

DIY Workshop

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MEET THE TEAM



NICK DOLE

As owner/operator of Teknik Racing, Nick runs a workshop that specialises in motorcycle suspension and mechanical repairs in Penrith, NSW.



IAN HANCOCK

A skilled moto-journalist - Ian's not scared of researching and compiling technical features that delve into the mechanical depths.



TOOLS YOU'LL NEED

- Spring compressor
- Pre-load ring spanner
- Socket set or T-bars
- Copper anti-seize
- Flat-blade screwdriver
- Hammer
- Punch

WHAT IT'LL COST YA

- Labour: 1 hour
- Shock Spring: Up to \$250

CHANGING SHOCK SPRINGS

How to change your shock's spring and dial it for your weight and riding style.

IAN HANCOCK

Manufacturers make a decision about what spring-rate to run on their bikes, based on their best guess about who the 'average buyer' of that model will be. For example, a 250cc trailbike is more likely to be ridden by a lighter, slower rider than a 450cc motocross bike and, as a result, its

stock spring will usually be softer.

Sometimes, the standard spring happens to be perfect. But often, heavier or faster riders will require a heavier rate, and vice-versa. If you're unsure whether you're running the right spring, speak to a suspension expert - get some professional advice and buy one that's correct for you.

While you might be tempted to stretch the truth about your size or style, it will only tend to backfire on you later. With the correct spring in hand, the process of changing springs isn't particularly difficult.

Over the following three pages, Teknik Motorsport's Nick Dole explains the process.



REMOVE THE SHOCK

1

To replace the spring, the rear shock needs to be removed from your bike. This process varies from bike to bike, but you'll typically need to remove the seat, rear section of your exhaust, airbox cover and sometimes part of your rear

subframe. Remove the top and bottom shock bolts - almost all shock bolts have captive heads, meaning you can simply use a T-bar to remove the nut. Then, gently hold up the swingarm, push the bolts out and the shock will come free.

2



COMPRESS THE SPRING

The best way to remove the spring is to use a spring compressor – a special tool designed to compress the shock – which allows you to remove the spring retainer. If you don't have one, and you haven't adjusted the spring pre-load rings in a while, try and beg, borrow or steal one from a mate to avoid the possibility of ruining your shock's thread. With a spring compressor in hand, simply place the shock in the compressor with the spring seat nestled in the hole, then use the jack to compress the spring.

4



REMOVE SPRING RETAINER

With either the spring compressed in the spring compressor – or having wound out the pre-load rings as per Step 3 – the spring should be loose with an inch or so of play. Use a screwdriver to push the bump-stop up the shock shaft, allowing the spring retainer, rubber cup and spring seat to move freely. KYB and Showa shocks have a slot in the spring retainer that allows it to be removed from the shock shaft, while KTM's WP shocks have a removable collar. This will allow the spring and spring seat to be pulled off the shock.

LOOSEN THE PRE-LOAD RINGS

3

If you don't have access to a spring compressor, then you'll need to do it the traditional way – with a hammer and punch. Before you begin, give the shock thread and pre-load rings a thorough clean and spray the whole area with penetrant. That should prevent the rings binding. Next, with the shock held in

a vice, use a hammer and punch to loosen the top pre-load ring and wind it up as far as possible. Loosen the bottom pre-load ring by turning the spring and pre-load ring together. If the rings bind, stop what you're doing and take it to a bike shop – a bugged shock thread will cost you big bucks.



REPLACE THE SPRING

5

With the spring retainer or collar removed, the spring and spring seat will slide over the bottom-end of the shock freely. The new spring can be simply slid into position. On KYB shocks, the spring is a different diameter at each end; so be sure to measure both ends of

the spring and orient the smaller end upward. While the spring is off, inspect the shock shaft according to Step 7 (overleaf). If you're working on a motocross bike with aluminium pre-load rings, consider replacing them with steel units as they're less likely to bind on the shock thread. ↘



6

CHECK THE LOWER SHOCK BEARING

The lower shock bearing – especially on bikes with linkages – always cops a beating, thanks to being regularly drenched with water. While the shock is off the bike, take the time to inspect and regrease the bearing. Use penetrant

to clean off any old oily grease or surface rust, and run over the inner collar with some fine sandpaper if it has any marks on it. Then repack the bearing with grease, making sure to fill around all of the bearing's needles.

INSPECT THE SHOCK'S SHAFT



7

While the spring is off the shock, slide the rubber bump-stop all the way up the shaft and rotate it, looking for any deep marks or scratches. Then pull the bump-stop down and repeat the process on the other end of the shaft. If there are any serious marks – especially at the top-end of the stroke, which sees more action – you may need to get it re-chromed or replaced. Grit can cause wear if it is lodged between the bump-stop and the shaft. You should pull the bump-stop up every couple of times you wash your bike, and hit the shaft with the hose.

REINSTALL THE SPRING RETAINER



8

With the top and bottom pre-load rings wound up high as possible, reinstall the spring seat making sure to put it on the right way up. Then, slide the spring retainer over the shaft – on a KYB or Showa shock – or replace the collar on a WP unit. The bump stop can then be returned to its normal position. When you tighten the pre-load rings in the next step, make sure the spring retainer, spring seat and rubber bump cap are all correctly seated.

SET THE PRE-LOAD RINGS



9

With the whole unit back together, apply a liberal dose of copper anti-seize to the thread and wind down the bottom pre-load ring until it contacts with the spring. Then, wind the spring and ring together until you have about 5mm of pre-load. If it's a new spring or you want to set the sag – this is done with the bike back

on its wheels – leave the top ring loose and the bottom ring there. If you pre-recorded your sag by measuring the pre-load on the spring before you started, you can use a pre-load ring spanner to tighten the ring until you reach the correct pre-load, then, tighten the top pre-load ring as a lock-nut to prevent the unit from turning.

REASSEMBLE YOUR BIKE

With the shock back together, you can reinstall it in your bike and reassemble the exhaust, airbox cover and seat. It may be helpful to have a mate jiggle the swingarm to help get the bottom shock bolt back into position. With the bike back together, set the sag by adjusting the pre-load. Finally, make sure the top pre-load ring is tight before going for your maiden ride on the new spring.



10

PRO TIPS With Nick Dole

- On KYB shocks the spring is a different diameter at each end. The small end should face up.
- If you have already set the sag correctly, measure the length of the spring before undoing the rings to determine the pre-load. You can then reassemble without having to set the sag again.
- Always use copper anti-seize on the shock threads to avoid binding.

NEXT MONTH...

Your bike's graphics get flogged while sliding around between your legs. We'll show you how to change 'em.