

**Your bike  
Made faster**

Optional hydraulic  
preload adjuster  
makes fine-tuning  
a doddle

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# WHAT DIFFERENCE DOES A RACE SHOCK MAKE?

WILL £550  
TRANSFORM  
OUR 2004  
CBR600RR's  
REAR END?



Our CBR handles well on its MCT-rebuilt shock, but the Nitron NCR immediately shaved a second off its lap time

**T**here's no escaping the pernicious works of the accountant. The spreadsheet obsessed mafia of mediocrity won't be happy until everything is utterly average. You only have to take a look around your bike to see where they've cut corners, compromising the genius of your motorcycle's designers. Nowhere is this more apparent than the shock absorber. The average damper on a typical performance bike might be good enough for most riders most of the time – at least until it starts to wear, which it invariably will in very short order. But you're not most riders *any* of the time and if you have any plans at all to make the most of your bike's razor-handling potential you need a decent rear shock.

Original equipment shocks are such atrocious value it's a wonder anyone ever buys them. For the same money you're getting well beyond basic aftermarket units and into race shock territory, although full-on competition shocks are hard to justify for an older machine such as our 2004 Honda CBR600RR. Happily, there's choice and value to be had for more modest budgets.

The Honda has already had some ministrations to its back-end. Last autumn its stock shock was treated to an overhaul courtesy of MC Technics of Stowmarket. They cleaned it out, replaced the oil and recharged the gas. For this they charged a comparatively trifling £76. The lazy ways the bike had learned over the first four years of its life were banished. So by now introducing a Nitron NTR race shock into the mix, we aren't starting from a completely level playing field. But as a point of comparison the MCT rejuvenated shock is probably as close as we can get to a new stock unit.

#### THE SHOCK

You won't find many aftermarket suppliers holding off-the-shelf stocks of race shocks for a 2004 CBR600RR. It's simply one generation too old.

So that means having one made to order. The advantage of this is that you can specify your weight and riding style and the right manufacturer will build you a bespoke shock to fit your requirements.

We opted for a Nitron NTR Race shock and asked it to be made to suit our tester Kev Smith, who weighs just over 12 stones in his leathers.

This shock comes with three-way damping adjustment (rebound plus high and low-speed compression), and a ride-height adjuster. Nitron also kitted us out with an optional remote preload adjuster to speed things up for our test. High-speed compression adjustment (to deal with sudden bumps) is adjusted via a large knob on the end of the remote reservoir, while low-speed compression (for gentler undulations) is tweaked via a screw-head adjuster concentric with the high-speed knob. Rebound is taken care of via an easily turned serrated collar at the bottom of the unit.

Scott Maskell, Nitron's motorcycle suspension technician, built the shock up for us at very short notice. He says: 'The main advantages of a unit like the NTR Race are things like a hard titanium anodised alloy body which doesn't wear and introduce debris into the damping oil like the OE damper bodies do. Grade and type of damping oil is also important. This shock has Silkolene Pro RSS which offers fade-free damping control along with the larger gas charge in the remote reservoir.

'We went for a 575lb-in spring, 25lb-in lighter than standard to suit your 12-stone rider, who also won't be required to carry a pillion. Valving is race standard with all the adjusters set in the middle of the range. The fine tuning is up to you,' says Scott.

#### THE FITTING

As one of the earlier examples of MotoGP-inspired mass centralisation in a road bike, access to many of the CBR600RR's key components is a bit limited. Undeterred and having eyeballed the job, we reckoned we could swap the shock without reducing the bike to its component parts, and being smartarses by nature we even thought we could do it ignoring Honda's recommendation to remove the exhaust system. 🐣 🐣 🐣

# Your bike Made faster



**NTR shock giving Kev lots more confidence going into the chicane**



**Above: Al and Ben make a shock change look easy. Sort of Right: Lightweight, CNC machined, aircraft alloy shock with third piston shim stack for very low rebound control**



Ideally you want one of those paddock stands that engages in the hollow ends of the swingarm spindle. We thought that's what we'd packed prior to heading off to Bruntingthorpe but it transpired we'd picked up a needlessly fussy stand which had been kicking round the lock-up for years. Luckily we'd brought an ancient pair of Paddy Hopkirk car axles stands (Crystal Lakes, Fenstanton car boot, £3), which supported the Honda almost steadily enough on its footrest hangers.

We didn't even take the fairing lowers off, simply undoing the fasteners that held them together along their bottom edge. Removal of the overhauled OE shock was progressing nicely until we came to remove the last of the four bolts securing the casting that the top of the shock mounts to. Funnily enough it was the exhaust that thwarted our progress.

Figuring that it would be simpler to drop the back wheel out so we could move the swingarm up and down more easily, we found just enough clearance to remove the last irritating bolt. Reassembly was easy and the whole job was comfortably completed inside three-quarters of an hour. If you're not up against the strictures of time we were, we'd definitely recommend making things easier on yourself and doing it by the book and removing the exhaust. Also, if you don't have the type of paddock stand described above and

are adopting the axle stand method, have a mate on hand to keep the bike steady while you're swinging around on what can be recalcitrant mounting bolts.

## THE TEST

Bruntingthorpe is a mixture of overbanded concrete, smooth tarmac and less smooth tarmac where last winter took its toll. Its myriad surfaces are in fact fairly representative of the combinations of more and less grip and the consistency of surface smoothness you might find on the road.

First up we sent tester Kev Smith out on the reworked stock shock to gather some baseline data on the logger and get a feel for how the bike was handling. Then came the shock swap as described previously. Kev was despatched again with instructions to return to the pits for suspension tweaks once he again had a feel for what was going on, where suspension human supercomputer Ben Wilkins would translate Kev's impressions into careful adjustments.


The process would then be repeated until suspension nirvana was reached. As it transpired we only had to fiddle with things three times – first time to give the new shock two more turns of preload and two clicks more rebound damping to take some bounce out, and second time to take the preload back off because we'd made the ride a little chippy.

On the third time, because the shock oil was warm by then, any residual wallow could be blamed on too little low-speed compression damping, so we gave it two more clicks of that to match the extra rebound damping. It says a lot for Nitron that we had to do so little to their shock out of the box.

## HOW IT FEELS

Kev Smith says: 'Straight off, the Nitron felt good. Perhaps because the spring was new and less tired than the original; the bike felt taller and the front end more stable. Where it had been kicking the bars with the old shock I now had the confidence to hold more corner speed and even stayed in a higher gear in the faster turns.'

'There was a little bit of wallowing that a little more rebound damping (to slow the rate of return) took care of. The extra preload seemed to make things more choppy and the front a little lively.'

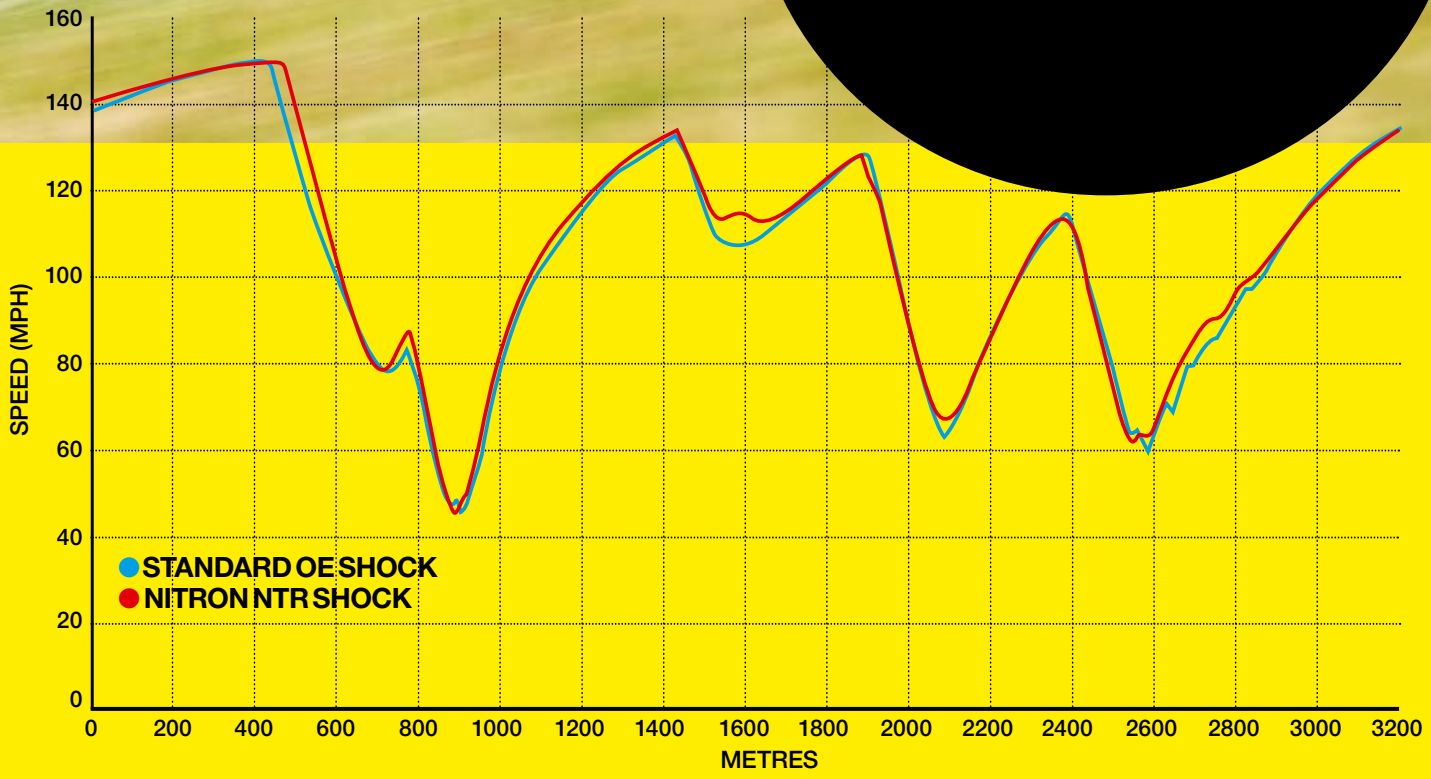
'With the preload backed off again and a little more low-speed compression damping, the bike felt well balanced front to rear and very stable all round the lap. The Nitron shock made an instant impression and really boosted confidence. It's seriously good value.' 

## THANKS TO

*Nitron and HPS for sorting us out with a shock at about five minutes' notice. Cheers guys.*



# WHAT **DIFFERENCE** DOES IT MAKE?



Around Bruntingthorpe's two-mile handling circuit with its one-mile straight, the Nitron NTR race shaved 1.2s off the lap time (1:12.8s from 1:14.0s). But that's only a small part of the story. The big news is the additional corner speed the shock allowed Kev to carry. Through the hairpin he held 47.46mph

(46.99mph), the fast sweeper 113.37mph (111.2mph) and mid chicane a whopping 78.36mph (69.19mph). If that isn't confidence we don't know what is. Speed at the end of the straight was 150mph at best on both shocks, where you might expect a higher terminal speed because of faster entry onto the straight with

the second shock. However, a tail wind on the earlier run probably accounts for that. A litre bike would have made up more time on the straight. On a theoretical lap of a shorter, twistier circuit, (without long straights), the new shock would have made a bigger improvement on the CBR600RR.