

PERFORMANCE

ÖHLINS ADVANCED SUSPENSION TECHNOLOGY #4 2008



The Art of Dirt

Maybe this is one of the very last outposts of true love to the genuine motorsport. Few rules; scary engines, passionate teams and tricky chassis – Öhlins Racing is one of the major players in this spectacular sport.

MotoGP from the inside

This is it, the Top Gun of motorcycle racing. Only the best of the best get this far and to hang in for another season you have to renounce everything else but racing. Performance Magazine goes to Estoril to find out more about this elite division.



Dear reader...

It is once again time to launch another issue of PERFORMANCE Magazine, packed to the hilt with the latest product news, interviews and special features. This issue has a clear focus on Service & Support, one of the corner stones of our business philosophy.

Thanks to our great cooperation with some of the most talented riders/drivers and teams in the world, we get to test our products in the toughest possible circumstances and throughout the years we have become recognized as one of the most prestigious suspension brands in the world.

We have so far enjoyed several great victories with our contracted teams around the world, but some titles shine just a bit brighter. Valentino Rossi and Yamaha Racing just celebrated the victory in the MotoGP at Motegi in Japan. It hasn't been an easy year for this enormously talented rider, and the season didn't start the way he had anticipated. But like the Phoenix he rose up from the ashes and sealed the deal. Truly magnificent!

As a true MX fan I, of course, follow the championship series and the daredevils that put their lives at risk in every race! Female Kawasaki GPKR rider Livia Lancelot just grabbed her first ever Women's Motorcross World Championship title and for me that is an incredible achievement.

Another great happening this autumn is the new cooperation with SWRT in the World Rally Championship. We have had a prosperous cooperation in the Group N series, but to take the step into the most prestigious class is a great honour and a challenge. We will work hard to support the Subaru team in the best possible way, and hopefully we can celebrate together in the end of next season as champions.

In the beginning of 2008 we had a vision to turn another page in the Öhlins Racing history by introducing the Mechatronic revolution in the motorcycle segment. Electronics and suspension technology is a perfect match and we have a strong cooperation since long with Tenneco in the automotive sector, providing electronic suspension to some of the most well

“ MECHATRONICS WILL NOT BE AN ISOLATED TECHNIQUE FOR RACING ONLY, THESE ARE JUST OUR FIRST VIRGIN STEPS INTO THE WIDE AFTERMARKET SEGMENT BECAUSE, IN TIME, ALL RIDERS OUT THERE WILL FEEL THE DIFFERENCE.

renowned car manufacturers in the world such as VW, Mercedes, Alfa Romeo, AUDI, Volvo and Ford with over one million delivered CES valves in the end of 2008.

But we have taken our time to do our homework properly concerning the Mechatronic 2-wheel philosophy, and now we have found a stable

platform to work from. When Noriyuki Haga passed the finish line in the World Superbike race in Varelungga in late September as the winner in both races with our new electronically controlled system, TTX EC, installed on his Yamaha bike, I instantly knew that we were on the right track.

Mechatronics will not be an isolated technique for racing only, these are just our first virgin steps into the wide aftermarket segment because, in time, all riders out there will feel the difference. And if you want to know more about TTX EC, check out the special article in this issue of PERFORMANCE Magazine

Yours sincerely

Johnny Bräster
Vice President
Marketing & Sales



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SWRT choose Öhlns

It is one of the hardest, toughest and most roll-cage crunching motorsports in the World. WRC is the Crème de la Crème of rally racing and Öhlns has earned the trust to deliver suspension to one of the most respected teams.

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Days of Öhlns

NASCAR must be one of the most well renowned racing series in the world. It has been around for 60 years and it is still alive and kicking! Öhlns Racing has been a part of the game for more than 15 years and PERFORMANCE Magazine wanted to get updated on the phenomenon.

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One hour with the King of Quads

Bill Ballance, the Yamaha quad rider from the States, just grabbed his 9th consecutive GNCC title, making him nothing but a hero in the international ATV community. PERFORMANCE Magazine sat down with the King of Quads to find out why he probably is the best rider on Earth!

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The taste of perfection

The Ring... for some of you a great movie - but I can bet a buck that true speed freaks think of nothing but the Nürburgring! Öhlns Racing just opened up a service centre for its European customers in the heart of racing and legendary chronicler Jan Leek gave his thoughts about the event.

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MotoGP from the inside

PERFORMANCE Magazine is committed to write the truth and nothing but the truth to our readers. As a consequence we packed our bags and jetted down to Portugal to find out why the tiny Swedish suspension manufacturer is the No 1 brand on the grid!



YAMAHA

AMA'S PREMIER SUPERCROSS

INTERNATIONAL SUPERCROSS



YAMAHA



YCR



HOUR WITH THE KING OF QUADS

Written by Henrik Samuelson | Photos by Harlen Foley and Fredrik Ljungkvist

Old Macdonald had a farm, E-I-E-I-O... Yeah, so what! Bill Ballance has got one too, along with a private racing team, 7 race prepared state-of-the-art Yamaha GYTR 450 quads, a private 200 acres MX park in the backyard, 28 sponsors, a contract with Yamaha USA and 9 consecutive GNCC titles... beat that MacDonald!

I can't really hide the fact that I am looking forward to finally meeting Bill Ballance. Back home in Sweden where I live, the ATV sport is something really far off the chart and the only quads that you see around are a few skinny 250cc Chinese ATVs with cold, wet commuters saving some bucks escaping the congestion charges from passing through the central areas of Stockholm thanks to a loop hole in the regulations concerning pollution taxes in Sweden's capital city.

So when I finally get a minute or two to myself, I try to find a comfortable and peaceful place to sit down for a while and read the never ending stream of dedicated American all-quad magazines with tons of action pictures, funny articles and slick ads convincing me to get all sorts of practical accessories and cool gadgets. The question is pounding in my head... why... why do they have more fun over there and why is the sport so big?

It is not that hard to figure out the reaction when a colleague from the Offroad R&D department at Öhlins Rac-

Torkel Sintorn, Offroad R&D Racing Manager. I shake his hand and the only thing that I think of is that the coming interview better be good. This is an once-in-a-lifetime event and I don't want to mess things up. We sit down and I really want to know where it all started. When and why did you come up with the idea to become a quad pro? I just had to ask him.

Bill, how did it all begin?

- I was five years of age when I first rode on a quad. It was actually a three-

farm and I just had a great time pushing the quad to the max from breakfast to supper.

When I turned 15 a much older and more experienced quad racer came home to challenge me and I actually won! He was really thrilled and started to push me to go head to head with other riders in a proper race.

After a lot of convincing my parents finally let me go and my first ever race was in Brownsville, Kentucky. I came in second and I was hooked for life; Bill laughs.

“ WHEN I TURNED 15 A MUCH OLDER AND MORE EXPERIENCED QUAD RACER CAME HOME TO CHALLENGE ME AND I ACTUALLY WON! ”

ing AB headquarters came over to my office telling me that Bill Ballance was coming over to visit our facilities and test a homemade prototype piston for his TTX44 racing dampers for the coming 2008 season. Yippee!

Monday morning, the time is 9.37 am, seven minutes after schedule Bill Ballance takes the corner before the long straight down to my office. He is escorted by

wheeler in the beginning but I soon started to ride on a 4-wheel quad. I designed and built my own tracks on my family



Did you have any ATV heroes when you were young?

- Yeah, for sure. Barry Hawk, Bob Sloan and Gary Denton gave me a lot of energy and they sure made an impression.

You have been in the game for some 13 years now, what is the most positive trend that you have noticed and taken part of in the quad community?

Bill leans back in the chair in front of me. He lifts his cap, scratching his head and looks up at my dull, white-ish ceiling.

- That's a really good question. I would like to say the involvement from the quad manufacturers. They have fully understood the power of testing and trying out new technology together with us pros and it is a tremendous change the last couple of years.

Second of all I would like to say that it is possible for serious riders to make a decent living in the sport today.

I had to work full time on the family farm the first five years of my professional career before quad racing took off to become a serious respected sport with committed sponsors.

You mentioned the involvement from the manufacturers; can you see any positive trend within the quad segment in the coming years?

- The gap between a race quad and a standard aftermarket product is getting smaller and smaller. Today there are only a few things that differ from the standard quad and within the next year or two the gap will almost disappear.

I am actually in the process of finalizing the new 2009 450cc quad as a side project together with Yamaha.

We have been working very hard to present something really spectacular, but you have to wait for another 8 months or so - Bill smirks.



In Sweden everything is all about arena sports like hockey and soccer, close to the city centers. What is the trend in the US when it comes to outdoor sports like quad racing?

- Basketball, football and baseball are of course the major sports in the country but all sorts of motorsports are growing like crazy for the moment. Dirt bikes, ATVs, Enduro racing, MX... you name it.

I saw some statistics seven or eight months ago back home that the racing sports was actually the fastest growing segment in the US in comparison with the athletics sports such as baseball and football.

Why is that Bill?

- I think it is quite simple. 15 years ago we had like two decent quad magazines, no internet sites and no aired events. Today we have at least 7 great magazines, thousands of passionate quad sites on the internet and we actually have full coverage of all GNCC races, aired twice a week on Thursdays and Saturdays on national TV by Versus and ESPN2.

Your first encounter with an Öhlins shock, when did that happen?

- That was back way many years ago. When I was 15 years old one of my heroes, Gary Denton, actually rode on a set of modified Honda 250R MX shocks. That was the shock to have back then. Along came the competitors and Öhlins kind of disappeared. It almost felt like Öhlins pulled back from the segment.

After the first initial Öhlins era all-American brands took over the market such as Fox, Works Performance, PEP and Custom Axis. During the 90's the industry was really hot, developing almost every part on a quad.

Today I would like to say that Öhlins has reclaimed the position as the No.1 suspension to have. The pros know that the suspension is their biggest asset and they all want to have the best product on the market.

What is the general opinion on Öhlins suspension in the US?

- Öhlins is considered to be one of the best suspension components on the market. The products are really hard to

find and the service & support is very limited creating an exclusive image.

I am positive that a lot more pros out there would ride on Öhlins suspension if the products were easier to find and the R&D setup facilities were to grow in number.

Are there a lot of quad pros out there?

- Ohhh yeah... we have at least 35 pros in the GNCC pro class, there are 35

“ BUT I WILL BE STRAIGHT WITH YOU, I TEST ALMOST EVERY PRODUCT ON THE MARKET AT A REGULAR BASIS AND ÖHLINS IS ABOVE ALL OTHERS, ÖHLINS IS THE LEADER TODAY IN THE MARKET.

GNC MX pros, 15-20 Pro-desert riders with a clear focus on winning, some 20 pros in the WORCS West Coast Series and not to forget, there are 21 sub classes in the GNCC and at least 27 sub classes in the GNC. We had 900 participants in the last GNCC race last season. 5 years ago it was not even half that amount of riders.

Your first contract with Öhlins was back in 2006, am I right?

- Yep... I started out riding conventional shocks but in the end of 2006 the R&D guys at Öhlins started to talk about an all new shock based on the TTX technology.

The result was the new, powerful TTX30 shock combined with a TTX44 rear damper. I rode on it last season.

What is the major advantage riding on TTX30/TTX44? What's the buzz?

- The best thing is the wide adjustment range. Every track needs a unique setup and I get that functionality in the TTX30. I used to set my dampers to go really fast, compromising almost every little bit of riding comfort. Today, thanks to the TTX30, I have a much more comfortable ride and I still go as fast as ever. The setup is much easier and I don't have to dismantle the shock to change the overall personality.

Today I just dismantle the shock one third as many times as before I started riding on Öhlins suspension.

Is there any great difference working with Swedish engineers and technicians?

- In the position that I am currently in I have the privilege of choosing the sponsors that I find interesting and dedicated. To be apart of my team you have to be focused on winning.

Öhlins have the best products and they are really determined, you don't find that everywhere. Believe me!

It is really easy to work with Tor-

kel, Terje (Öhlins race technician) and the rest of the boys. We are a perfect match.

Is the Öhlins damper at the far end of technological excellence... or do you still dream about other functionalities and maybe better performance?

Bill laughs and shoots out a positive no for an answer.

- We are not at the end station just yet. There is no stop when it comes to developing even better performance and the guys from Öhlins are actually always talking about what is next, they never sit back.

There is always something new, secret stuff going on in the R&D department.

But I will be straight with you, I test almost every product on the market at a regular basis and Öhlins is above all others, Öhlins is the leader today in the Market.



If you fall asleep and dream about the ultimate suspension, what would it look like?

Bill laughs at my question but then he gives me a crystal clear answer.

- I would like to have a suspension setup that could read my mind and adapt as I go along on the track. That would be a wild thing to have!

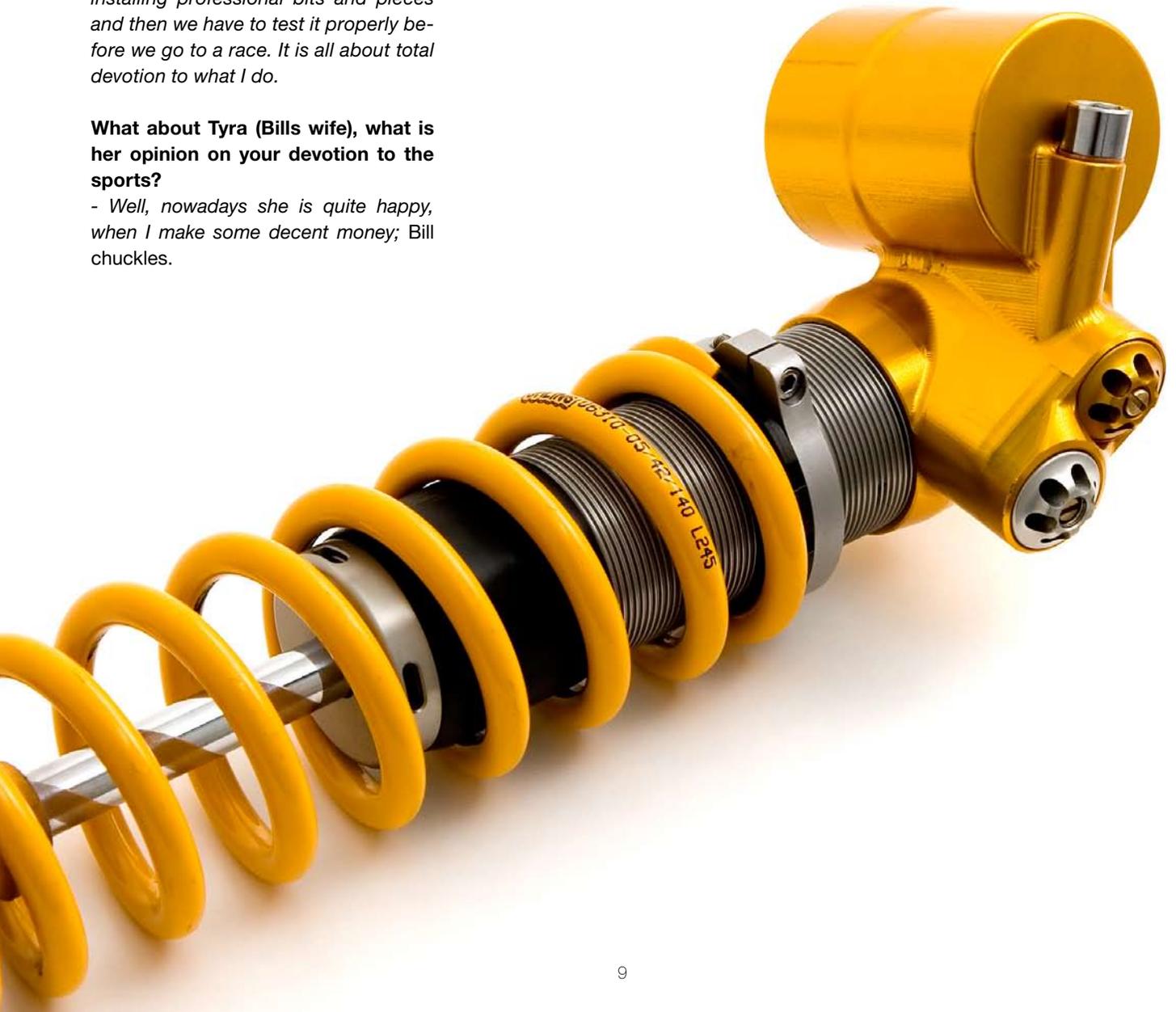
You have won the GNCC title 9 years in a row, the racing team consists of yourself and your technician Elliot Skaggs. You rebuild the quads, you make the suspension service on your own and fixing all the sponsorships... how do you manage?

- As you say, the quads come from Yamaha packed in boxes. I spend a lot of time getting them prepared for race.

We just about tear everything off, installing professional bits and pieces and then we have to test it properly before we go to a race. It is all about total devotion to what I do.

What about Tyra (Bills wife), what is her opinion on your devotion to the sports?

- Well, nowadays she is quite happy, when I make some decent money; Bill chuckles.





I did some research before this interview and I saw that your favourite track was Loretta Lynn's, I thought you would mention the Bill Balance Motocross Park back home?

- Loretta's is close to home and the track is really fast but I do train almost every day on my private track. It is a full size, 200 acres, MX track with an Enduro loop. My park is actually growing on its own, hosting 16 races in 2008, four of them being huge events with approximately 800 riders per race.

You are up for the 2008 season but

as I have understood this will be the final year of your Yamaha racing contract... what's next?

- I will race in 2008 but I am in the end of closing a new contract for the period 2009-2010 with Yamaha. We have still not agreed on the extent of racing that I will do, most of the time I will focus on Yamaha Race Team Management.

Hmm... I just have to ask the 8 time GNCC winner if it is possible to just quit racing just like that! Bill assures me that he will still do some serious racing and maybe he will do some more transat-

lantic flights to compete with pros in the European series as well.

- Yeah... that's right. I have got some invitations during the last couple of years from European series but they have all been in conflict with my GNCC schedule. It would be great fun to go to Europe to ride.

That would be really awesome... to see Bill Balance in close encounter with the European pros.

What about the European pros, are they any good or what?



“ I WOULD LIKE TO HAVE A SUSPENSION SETUP THAT COULD READ MY MIND AND ADAPT AS I GO ALONG ON THE TRACK.

- I follow the European pro circus quite well thanks to internet sites and ATV magazines. Some riders have joined in on GNCC races and they have done quite well. No wins but they are definitely competitive.

And now for the question that's been lurking for so long in my head... Why is the sport so big in the US? Why do you have so much fun over there?

- I don't really know. That is another tough question. Maybe the average GNCC track size of 600-700 acres is a rare slice of untouched land in crowded

Europe.

The amount of magazines, the power of the internet sites and very good coverage of the GNCC in national TV are all important factors why the US quad community is huge.

The interview is over, I shake Bill's hand and then I escort him back to the R&D department so that he can test his newly invented piston for the TTX44 shock.

I can't really grasp that such a humble and laidback guy can shoot it out with his 450cc quad, fighting with hundreds of dedicated riders in the most pres-

tigious championship series in the US, winning the title eight times in a row.

Good luck and may the TTX30/TTX44 and the new piston give you another great championship victory in 2008! *W*

THE ULTIMATE ATV PART

Written by Henrik Samuelson | Photos by Fredrik Ljungkvist

The TTX30 is a brand new product, developed from scratch by the Öhlins Offroad Rion, TTX44, is a modified MX Champion now entering the quad arena. As for all otment pace is relentless and the first virgin drawings were printed in May 2006.



PACKAGE

Racing R&D Dept. The companion MX products, the develop-

The R&D staff jumped on a flight with a set of smoking hot TTX shocks to meet up with Bill Ballance during the last two week break in September before the final GNCC race in the 2006 season.

During the 2007 season Bill Ballance rode on TTX30/TTX44 racing suspension and the end result is well known, he gunned down his 8th consecutive GNCC title.

WHO ARE THE LUCKY FEW?

The TTX30/TTX44 ATV Racing kits are sold in a limited edition to lucky pros in the US and European market. As a matter of fact the hottest ATV Racing community in the European Community is Great Britain, followed closely by France and Spain.

If all works out as planned, the Racing shocks will be available for aftermarket customers in the break of 2009. We just have to cross our fingers that the dream comes true.

WHY NOT TTX30 FRONT AND REAR?

The only reason why the TTX30 teams up with a TTX44 rear shock is the great difference in damping force. The two front shocks have a 30mm cylinder with a solid piston which is the optimum size on a front set of R&D racing shocks. The rear shock gets a fair share of beating and the only way of creating a high performance racing concept was to install a 44mm TTX shock with a shim stack on the main piston – the internal lubricant flow is just too massive to host a 30mm solid piston damper in the rear.

You really don't want to use TTX44 front



and rear depending on the relatively small damping forces on the front duo and the R&D Department wanted to keep the Kit as light as possible.

WHAT'S INSIDE THE BOX?

When you buy a TTX racing product you actually have to gather some basic information before you even make the order.

You need to know the total length and the stroke length of your quad shocks. The TTX30/TTX44 shocks are actually custom made from your data and in the end you will be able to mount them on your quad. Great stuff!

And hey... don't get intimidated by the fact that you will get the TTX30/TTX44 naked, without springs. Actually, this is a sign of quality and perfection. The spring package plays a major role in giving you the optimum racing performance so it would be devastating to deliver the shock with some sort of universal, fits-all spring. Instead Öh-

lins can provide a wide spectrum of springs for your special needs thanks to an Öhlins invented spring rate software.

And if you really want to go all in there is a titanium spring assortment as well, providing the ultimate lightweight solution. The Öhlins philosophy is actually to have two springs that generates triple action thanks to a progressive main spring. Talk to your local dealer and he will help you out if this sounds too weird.

The creation is topped of with the high performance Öhlins Offroad Racing Oil (Öhlins Racing art. no. 1303) which is a thin, high performance lubricant for extreme conditions.

Yummy! 

Subaru World Rally Team choose ÖHLINS suspension in 2009 WRC

Written by Henrik Samuelson | Photo from swrt.com

The World Rally Championship (WRC) is the crown jewel of rally racing and only the best of the best get the chance of supplying technology and expertise when the manufacturers choose their team members.

Öhlins Racing AB has been an intricate part of racing in over thirty years and with over two hundred World Championship titles under the belt the company has got a solid reputation in advanced suspension technology. It is with great pride that Öhlins Racing AB can now confirm that Subaru World Rally Team (SWRT) has chosen the Swedish suspension manufacturer to become Official Technical Partner in their fight to win the WRC title.

Magnus Danek, R&D and Racing Manager for the Automotive business area at Öhlins Racing gives his thoughts about the new, thrilling project with SWRT:

What does the new SWRT contract really mean?

It is a cooperation with an initial testing period and then we have a two year contract period following the initial testing phase.

Who will drive with Öhlins suspension onboard?

Both Petter Solberg and Chris Atkinson will ride with Öhlins suspension in the SWRT.

Is this the first time in WRC?

No, we actually worked with Mitsubishi from 1991 to 1997 in the WRC, where we produced the suspension and had a partner that took care of the actual support during the season.

We also had a contract with Toyota from 1994 up to the end of their factory racing project in 1999. An interesting detail is that we actually had a very similar technique to the one that we have today in the TPX damper. It was of course less refined, but still.

When does this cooperation go live?

We will join SWRT in their tests in November/December and throughout the winter, but things will start to get really serious when we get close to the opening rounds of the WRC races in Cyprus and Portugal in March-April next year.

There are actually three types of tests and we are represented at them all. First, we have the Development tests where new technique is scrutinized; for example how a new differential is working or just different types of basic research. Öhlins will have a clear focus on these types of tests. Second, we have the Pre-Event tests where the team tries to find a "look alike" track somewhere before the upcoming event to get the car as ready as possible for the coming race.

The third type of tests is the final "shake-down" just days before the race and by then everything must be trimmed to perfection.

What can we learn from a WRC contract?

Let's put it like this, a Group N car get its fair share of rough treatment, but you can't really compare it to a WRC car in full speed. The WRC cars are driven in a completely

different way and the chassis is much more firm, and as a consequence the rigidity of the suspension will be tested to its maximum capacity.

To be able to better understand how a suspension unit works when hitting a stone in 150 kilometres per hour, you really have to work with the most professional racing teams in the world, preferably in the WRC where the limits are really tested to the max in all aspects of the car. This is something unique and very interesting.

Another great thing about this cooperation is the new, much higher intensity in R&D and all experience that we procure will eventually find its way to our other rally products.

How special is a WRC car compared to a Group N?

The Group N car is actually not that far from a standard car at the end of the day. Trailing arms, up-rights, spindles and wishbones are almost identical, just a bit reinforced.

The WRC cars, on the other hand, are completely built from scratch. The chassis must of course correspond to a certain extent to the original "design" and the attachments must be the same. Everything



else is more or less modified in one way or the other.

As an example the Group N car (N14) has got McPherson shocks in the front and conventional shocks in the back, but on the WRC it is McPherson front and rear.

Is it tricky to handle the rule book when developing new suspension in WRC?

Of course there are rules to be followed, as in all other motorsports, and there are chapters concerning the design and functionality of a shock absorber. The shocks can't be connected to each other in any way and electronic solutions aren't allowed.

The rulebook will actually become even tighter in 2010 to halt the high costs in the championship, and a concrete result of this is the ban on roller bearings in suspension which I know some competitors use today.

From a raw material point of view there are some restrictions, too, but the most traditional materials such as aluminium and steel are OK to use, and we have no intention of introducing other metals into our line of components.

What does it mean to you and your engineers to work with this WRC contract?

It is truly fantastic to be able to work with SWRT in the WRC. We already have a Group N contract and we know that it is a very professional group of people behind it all. They are all very structured and have a long experience in racing, and the engineers are really good too.

Another great thing about SWRT is their way of looking ahead and there is very little of stressful, last minute changes between races. They have the strength to look beyond the next race and try to find new techniques and perfection in every detail in a very controlled manner. This philosophy gives us the possibility of delivering the most optimal suspension technique, because we have time on our side.

Why Öhlins?

We have a very good basic function in our new rally shock absorber with almost no downsides. It has a very good dynamic response and it has a very good pressure control. Our intention from the start of this project was to design an understandable and uncomplicated hydraulic architec-

ture and during thousands of hours in our dynos we haven't seen any strange pressure drops or other odd behaviour. It is actually quite neat in the design, if I may say so.

Second, I think we have just the right size in terms of company structure. We are not a big enterprise with long delays from decision to action and we are not small enough to run into problems if we need to handle a problem on short notice. We are just enough in all aspects.

It doesn't hurt, either, that we have more than thirty years of racing experience and over two hundred World Championship titles to our name. SWRT will of course use this expertise in the best possible way and we are all here to help them out the best we can. 

ÖHLINS RACING DONATES



3 FPK KITS TO SPEED FREAKS

IMPROVE LIFE AND CHARACTER OF YOUR HYPERSPORT FRONT FORK

Written by Henrik Samuelson | Photo by Fredrik Ljungkvist



IN 1964 DR. JAMES HARDY MADE THE FIRST EVER HEART TRANSPLANT AT THE UNIVERSITY OF MISSISSIPPI MEDICAL CENTRE. 44 YEARS LATER ÖHLINS RACING PERFORMED THEIR FIRST EVER MODEL SPECIFIC FRONT FORK PISTON KIT (FPK) TRANSPLANTATION INTO A HYPERSPORT BIKE.

The company is certainly not the first company to bring such an organ to life, but unlike the monkey heart inserted back in 1964 this one has got World Superbike technology injected into its core.

The FPK kit is a completely new product line in the Öhlins front fork assortment and by introducing this unique invention the final gap is closed in the product range of this family. Now you can work your way up in your racing career, and budget, with front fork springs, the new FPK kit, the complete cartridge kit, at the top you have the road & track front fork and on the throne you have the massive FGR900 for World Superbike use.

Öhlins has been a bit conservative throughout the years, protecting its values to deliver optimal performance in every little detail, and up until now the company has chosen not to enter this segment.

But the engineers at the R&D department have been looking at a piston kit for quite a while and the moment has finally come to open up this segment because all tests have so far given tremendous results. You will definitely change the whole character of your front fork when you install the FPK kit.

And for all of you speed freaks out there that start tearing your hair off your skull not knowing if you are supposed to buy the new FPK kit or a whole Cartridge kit, I can assure you that they are quite different.

The Cartridge Kit, which has been around for a while, is almost a complete swap of your front fork. The outer and inner tubes and fork bottom is all that is left

and the entire core is exchanged. Changing everything but the outer tube gives you as much function and performance without having to buy yourself a complete front fork.

The FPK will certainly change the character of the front fork, at an extremely competitive price, but to boost your front fork to the max you have to head higher up in the Öhlins assortment.

Think of the FPK kit as an organ donation, it will improve life but the rest of the body is still the same. When you buy yourself a cartridge kit you change all organs, muscles and bones and when you decide to buy a completely new front fork you trade to an athlete's body, mind and soul.

Initially Öhlins will focus on 20 mm cartridge systems in the most recent 600 and 1000 cc hypersport models on the market. The assortment will widen considerably over time, so you don't have to bite your nails for that long.

The kit is quite cleverly constructed as the entire package is threaded upon a plastic stick. You just have to loosen the screw nut on the piston rod and slide over the kit onto your front fork. Really clever!

But before you thread on your kit you need to dismantle the front fork, so the best option is to make a visit to your local service centre, because otherwise something might go wrong... and you just don't want that to happen.

And if you are one of those riders contemplating improving your bikes "life" with an FPK kit, why not invest in a new front fork spring and a specially designed front fork fluid from Öhlins to top it all off? That investment will give you a tremendous increase in your bikes performance and character to a fraction of the cost of a completely new front fork.

Get yourself a FPK kit and scrub in! ❦

THE TASTE OF PERFECTION

Written by Jan Leek, photo by Thomas Mielke

Among the green hills of a desolate area in central Europe, Öhlins, in May 2008, opened up a service centre for its European customers. There are many reasons why the location is the perfect place for the new operation.



You can almost taste it, or at least smell the green forests stretching as far as the horizon in all directions. The greenery has a soft touch to it, a rich, undulating landscape, seemingly undisturbed by humans, a landscape better suited as a frame for some medieval tale of heroes, dragons and, yes, fittingly, a castle, which is to our left as we leave the building that is now home to Öhlins European distribution.

When the windows are open in the newly-erected building in the industrial area at Meuspath, in the middle of Germany, another element enters the picture, as the roar of a big car engine at high speed rushes past, shaking the trees on the other side of the public road. It is the final straight of the legendary racing circuit Nürburgring and one of the reasons that the Swedish chassis specialist chose this venue for their new operation.

When the Nürburgring company, with the help of local authorities some ten years ago, decided to open an industrial park nearby, one prerequisite was to make the various lots available exclusively to companies with close connections to the motor industry. This is the reason why so many of the super-modern buildings have blacked-out windows and some even lack major brand graphics on their façades. At various times of the year, these buildings house prototypes of future models, disguised cars, entering and leaving the testing ground made up of the legendary racing circuit which opened in 1927 for the

dual purpose of racing and testing.

The current offering of computer games is in no way pioneering laps of the Nordschleife – the northern loop, the 20.6km still existing of the hallowed ground. This role falls to the major car manufacturers, who decades ago developed the first simulations of a lap here, and later with the help of computers fine-tuned the system for laboratory tests at home. BMW, for instance, has one rig devoted only to car steering and front suspension, to allow the technicians to drive as many laps of the ‘Ring as they wish, at any speed they want.

When Öhlins decided to set up a European operational base, the area was more or less a foregone conclusion, being known to the marketing department in Upplands Väsby since the days of Yamaha’s Advanced Training courses, run here in the ‘90s.

The importance of a motor-friendly environment is another factor and also the synergies resulting from a neighbourhood dedicated to one thing only – development of future motoring. This synergy is made up of three factors: Germany is a big – and important – market, Nürburgring and the surrounding area is a geographical point with almost mythical qualities and it is all placed very central in continental Europe.

Dutchman Wim Peters is general manager of the German subsidiary and smiles when the subject of synergy comes up. “Synergy is not all, there is a bonus for everyone working here, which was not part of

“...THE PRODUCTS ARE HIGH-QUALITY ITEMS AND IN SOME CASES CARRY PRICE TAGS USUALLY FOUND IN FASHION SHOPS IN MILAN...”

the original plan”, he tells us and makes a gesture towards east, where in the distance the only thing sticking out of the landscape is a small white dot, possibly indicating a television mast. “The nature”, he adds. “The possibility we have here, not only of resting our eyes on a beautiful landscape, but actually taking our mountain bikes, if only for half an hour, and going for a ride. It simply gives us peace of mind.”

“Us”, in this case, is a staff of five, mostly coming from the German motorcycle branch, all of them well versed in anything to do with motorcycles, including the only lady in the house, Josy, having worked all her life in the same position in other companies, such as Ducati Germany. But there are more activities on the premises than just administration. The first visitors have already received their first information days, notably the car club Ring Runners from Sweden, a field where the Swedish company is gaining more acceptance





every year.

In stock there are over 3,000 parts for rebuilding the chassis components and the parts catalogue for complete products holds no less than 660 items. These are monitored by Marc, Michael, Klaus and Karsten, who handle sales, customer support and orders, dealing directly with service centres in ten European countries, an ideal situation due to Öhlins' central location in Europe. German and Austrian dealers can also shop directly from the warehouse in Meuspath.

And it is paying off – a truck arrives twice a week from the mother company in Sweden and very quickly deliveries hit the 200-unit mark per month. This may sound little to an untrained ear, but the products are high-quality items and in some cases carry price tags usually found in fashion shops in Milan and other centres of haute couture in Europe. The comparison is not far-fetched, as, to some extent, the Öhlins

shocks, front forks and other accessories sometimes play the same role for the whole machine, be it car or motorcycle, as a necklace or other jewellery will do to complement an evening gown. The final touch, so to speak.

That final touch is often proudly displayed with the help of stickers on motorcycles congregating at the parking lot up at the entrance to the old Nürburgring – with the café with the almost intimidating name “Die Grüne Hölle” – the Green Hell. Those are strong images, the name Green Hell having been introduced by Jackie Stewart after one particularly hard race in the times when F1 still had to negotiate the 170 corners (depending on how you count) around the hills of the Eifel. An equally strong impact comes from the Öhlins sticker in the national Swedish colours blue and yellow, a tribal confession to the search for perfection.

You can almost taste it. 

High-tech environments are usually found in sterile surroundings, but this is an area rich in tradition and history. It was burned down in the thirty-year war in the 17th century, flattened by French armies a century later and hit by drought and famine in the early 20th century, bringing about what is now a national symbol more than a race track – the Nürburgring. Local politicians involved in motor racing in 1925 plotted to have a race and testing circuit carved out of the hills in the undulating landscape once formed by a volcanic eruption some 8,000 years before Christ. The difference in altitude on the track alone, opened in 1927, is over 300 metres and the highest point in the area, the nearby mountain top Hohe Acht, is over 700 metres above sea level. Its direct neighbour, and in view of it, is the basalt tip harbouring the castle that gave the track its name.

It was once taken by Swedish troops and one corner on the old circuit is called Schwedenkreuz – Swedish cross – relating to a less honourable incident in Swedish martial history. Similar castles abound in the area and in the nearby Mosel valley, known for its wines. The popularity of the Eifel mountains is growing and the area now has an abundance of small and large facilities for tourism of all kinds. One growing sector is biking and hiking, apart from the annual wine festivals on both sides of the ‘Ring, complemented by the little Ahr valley to the north, some 30kms from Nürburg.

More info from: www.eifel.de
www.wohlsein.365de

DAYS OF

Written by Henrik Samuelson



degasuperspec



Photo: Chris Graythen/Getty Images



For all of you motor freaks, and of course all girls with a crush on Tom Cruise, who remember the very special moment when main character Cole Trickle enters the scene in the blockbuster movie *Days of Thunder*, riding in on an all-American Harley Davidson, to take his virgin laps in antagonist Rowdy Burns (Michael Rooker) #51 EXXON car, and you just know this is going to be a great film filled with burnt rubber, gasoline and spectacular crashes.

Today, 18 years down the road from the film premiere, NASCAR (The National Association for Stock Car Auto Racing, Inc.) is thriving and actually celebrates its 60th anniversary as the sanctioning body for the NASCAR Sprint Cup Series, Nationwide Series and Craftsman's Truck Series.

Together with some other, regional series and a grassroots' division the NASCAR organisation sanctions more than 1,200 races at 100 tracks in more than 30 U.S. states – to sum it all up the NASCAR Sprint Cup series is monumental in terms of money, spectators, sponsors, drivers and last

but not least: the rulebook that needs to be followed down to the very letter.

Öhlins Racing has actually been a part of the NASCAR series for more than 15 years. Back in the beginning the series had another title sponsor, Winston Cup, and the adventure started with a R&D contract with Ricky Rudd, the "Ironman" of NASCAR, holding the record for most consecutive starts in the series.

Ricky Rudd started his own team in 1994, Rudd Performance Motorsports, and drove the #10 Ford Thunderbird but

before setting up his own team he drove the #5 Levi Garrett Chevrolet Lumina for Hendrick Motorsports, the team that actually supplied the cars to the movie *Days of Thunder*!

In 2001 Joe Gibbs Racing started to cooperate with Öhlins Racing subsidiary company in Hendersonville/North Carolina, mainly to do race simulations on the new 7-post shake rig. The collaboration ended in 2004 and during that period the team won two championship titles with Tony Stewart, in 2002 and 2005.

THE CAR

The rules of the Sprint Cup series stipulate that vehicles that compete in NASCAR must be based on American vehicles – today Dodge, Ford and Chevrolet are represented in the series. However, in 2007 millions of fans were upset by the fact that Toyota entered the Sprint Cup Series but when you start to look at the facts it makes sense.

The Toyota Camry, which is the platform of the 2008 race car, is manufactured in Georgetown, Kentucky. The Toyota Camry has been the best-selling car for years in the US and the good old traditional American brands actually have quite a few factories in Mexico and Canada.

The guys at Toyota also did their homework really thorough by slowly moving upward in the American race car hierarchy, all the way from Toyota's first-ever factory-backed professional program with rac-

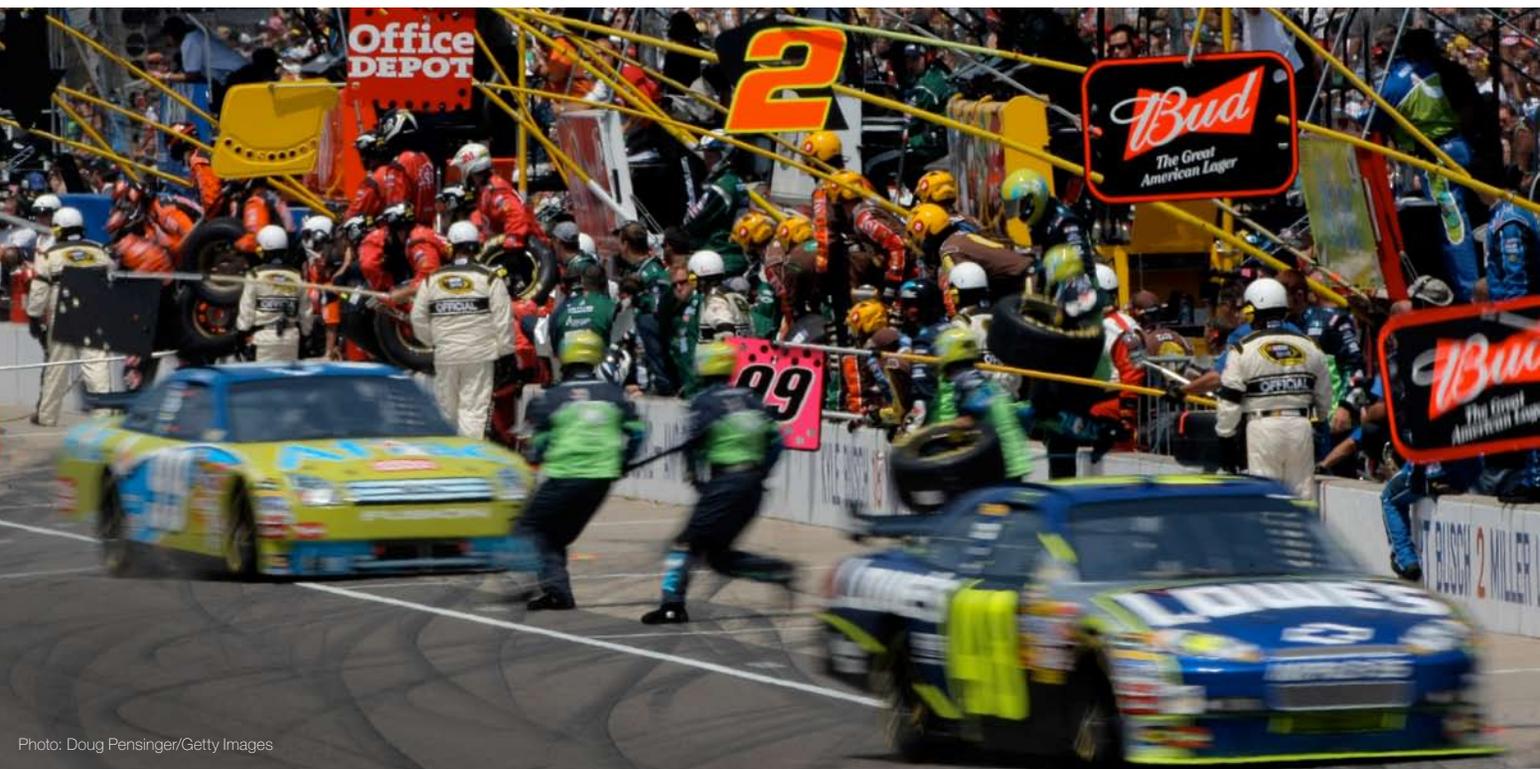




Photo: Matthew Stockman/Getty Images

ing legend Dan Gurney and All American Racers (AAR) to run Celicas in IMSA road racing competition in 1983. Moving on to ChampCar in 1996 they started to head to the top with IRL in 2003 and in 2004 Toyota entered into one of NASCAR's top three levels of racing when they entered the Craftsman Truck Series.

The former Öhlins Racing customer Joe Gibbs Racing actually partnered up with Toyota to campaign in the Sprint Cup and Nationwide Series in the 2008 season with Tony Stewart (#20 The Home Depot Camry), Denny Hamlin (#11 FedEx Camry) and Kyle Busch (#18 M&M Camry).

OK, enough about the brands – lets get serious about the cars. All cars are based upon a genuine model. Ford is competing on the Fusion, Chevrolet the Impala

SS, Dodge the Charger and Toyota on the Camry.

The chassis are almost identical on all brands, apart from small details such as the grid-iron, roof section lights and, of course, all stickers and logos. The chassis actually needs to slip through very precisely shaped templates before every race so that all cars on the grid are as like as possible.

The body of the car hides a substantial roll cage structure to protect the driver in case of a crash.

A 850 hp (@ 9000 rpm), 5,87 litre cast iron V8 engine growls in the dark under the bonnet of a Sprint Cup car like a Jurassic beast. It boasts with 745 Nm @ 7,500 rpm and the compression ratio is 12:1. The engine is based upon a 358 cubic inch V8-engine design that was introduced back

in the 1960s with the same cylinder bore centrelines, the same number of cylinders, the same base displacement and yes... they only have one traditional 4B Holley carburetor. The valves are driven by push-rods, just like in the original version and the racing fuel is Sunoco 260 GTX unleaded and the car can carry up to 67,2 litres. The total weight of the car, without driver, is set to 1565 kilos.

THE SUSPENSION

The rules concerning the suspension technique are very strict and the only types of damper to be used are single adjustable non-coilover shocks (separate spring and shock attachments in the chassis). No external reservoirs are allowed and all manufacturers that want to become a supplier must be approved by NASCAR.



Photo: Fustly, Jarrett/Getty Images for NASCAR

In 1995 Öhlins Racing introduced the WCJ damper that quickly became the flavour of the month and over the years the Swedish suspension manufacturer has delivered thousands of dampers to the teams of the NASCAR series.

The massive amount of delivered WCJ dampers throughout the years is a consequence of the strict rules in NASCAR. The teams have hundreds of sets of shocks with different setups for every possible track and condition. Almost all teams have shake rigs of their own to trim their cars to perfection before each race and you try heaps of sets before the final four shock absorbers are chosen.

The single adjuster shock simply can't handle all types of tracks and therefore you need a lot of shocks. It is tedious work to find the right setup, not to mention the cost

and weight of transporting everything all across America.

THE TTX40SC

Today the WCJ damper is far from the most advanced suspension technology that Öhlins Racing offers its customers around the world. It is still a very high quality product but the range of adjustments is very limited.

Over the years Öhlins engineers have worked side by side with NASCAR teams and witnessed the time consuming testing phase to find the perfect suspension setup. As a consequence the Stockcar group at Öhlins Racing started to develop a unique testing shock absorber based on the newly developed TTX technology with high- and low speed compression and rebound adjusters in a cavitation free, twin tube system. For all of you TTX fans with

in-depth knowledge of the technique I can add that the TTX40SC does not have a through-rod because of the longer stroke used in Sprint Cup.

The pure brilliance of the TTX40SC is the time saving effect that is generated for all NASCAR teams during testing. Instead of changing maybe twenty to thirty sets of dampers to find the right combination you just have to click your 4-way adjustable TTX damper to get everything tuned and then you just have to find the set of dampers with the right combination. Time saved is money saved.

The TTX40SC (SprintCup) was born into the FORD organisation as Öhlins Racing had a contract with the manufacturer in the former ChampCar series. FORD liked the product and bought the idea and let their



teams test it. In Sprint Cup the Roush Fenway Racing team has used the new TTX technique during testing.

In mid December 2008 the shock absorber will be properly introduced when Öhlins Racing unfolds the wrapping at the Performance Racing Industry Show in Florida and from 1 January 2009 all NASCAR teams that want to cut precious time can get a hold of the TTX shock.

Unfortunately the TTX technology is out of bounds regulation-wise but hopefully there will be a change in the regulations sometime in the future. Theoretically three of the adjustments could be sealed off but this is not the right way in the long run.

If a majority of the teams get a hold of the TTX40SC and then saves a lot of time and precious money they might persuade the NASCAR organisation to open up for

a multi-adjustable shock absorber in the future. Until then the TTX40SC remains in the series strictly as a testing tool for the teams in Sprint Cup.

On a test a couple of months ago one Öhlins engineer from the Stockcar group joined in on a shake rig test with FORD and the entire low- and high speed testing program was done in approximately two and a half hours; two to three times less hours spent with the exact same procedure with regular single adjusted shocks with different shim stacks.

OTHER AREAS OF USE

The TTX40SC is primarily a tool for the Sprint Cup series but other racing departments at Öhlins Racing Headquarters outside Stockholm have tuned in to the new shock absorber. The slim design with 4-

way adjustable features without a through-rod makes it a slam dunk for other types of tight chassis such as the Australian V8 Supercar Championship Series and not just for testing – the rules do not mention anything about the amount of adjusters.

And another great thing about the new TTX40SC is that it is really easy to alter in size and length to adapt it to a plethora of chassis.

And what better end to this article than to quote Rowdy Burns opening line in Days of Thunder after parking his #51 EXXON race car:

***“Shocks are alright...
don't change a thing buddy!” ❖❖***

THE ART



Maybe this is one of the very last outposts of true love to the genuine motorsport. Few rules, scary engines, passionate teams and tricky chassis – all this combined on a track made of compacted mud. And if you get the silly idea of showing up at a race wearing your favourite pair of loafers you would most probably be laughed at and there is a strict bonus system depending on where on the track a scrimmage between teams occurs.

Have you ever heard of the Dirt Late Models? Most probably not! But if you are an American citizen, or a true speed freak, you quite probably have heard of it, or have even witnessed this phenomenon.

The Dirt Late Model is actually a myriad of classes and subdivisions, and it would be pointless for me to even start to line up the complete list because there are hundreds of local tracks, rules, series and classes on the American continent.

One of the biggest and most renowned classes is the World of Outlaws Late Model Series and Öhlins Racing happens to be one of the really big suspension brands in this segment.

Thanks to Öhlins Racing's subsidiary company in Hendersonville, North Carolina, a team of professionals is visiting all races in the premium divisions, providing setup expertise to almost every team on the track – and they sure need it because it isn't easy to handle the extremely powerful

cars when there is an absence of engine regulations.

The only limitation of power is that of nature, and there is a point when power is lost between the tyres and the compact mud track. Just as a professional wine connoisseur chooses wine to go with a special dish, the driver and mechanics choose from a wide variety of engines to find the optimal setup for a specific racetrack.

Either you pick a small block engine, with a range from 4,2 to 6,5 litre engines, or if you really want to go all in on a race you pick a cherry from the big block shelf with a range from 6,5 litre engines up to the massive 8,2 litre monsters. The big block engines are preferred on the big tracks and the cars can pack 900 horsepower to a

WORLD OF DIRTY



Öhlins Racing is currently working with Scott Bloomquist, one of the major players in the World of Outlaws series. Scott himself is a very talented driver and an exceptionally competent chassis builder, and throughout the years Öhlins Racing has gotten an in-depth knowledge of the complicated race cars. The results of this experience have now been poured into the new LMP damper.

THE NEW LMP DAMPER

Öhlins Racing is a well established brand on the market and in some elite divisions half of the cars on the entry list have Öhlins shocks.

The new LMP damper is a natural evolution for Öhlins to be able to offer high quality shocks in the coming season. The shock has fewer components and no hose which will make it much easier to remove from the car. The new piggy back design makes the shock more responsive thanks to a shorter flow distance for the oil in the internal system. A newly designed compression valve in combination with larger internal oil passages makes the LMP shock a perfect choice for a Dirt car owner.

TTX technology has to wait a bit before an entry into this market, because the challenges are many and the long stroke length is a tough nut to crack at this point. The LMP is the ultimate weapon for now in the Öhlins Racing dirt model arsenal.

So if you have some time off on your next business trip or holiday in the US, try to find the nearest Dirt Late Model race track and take a seat. You will probably have the experience of a lifetime. But hey- don't forget to leave your fancy shoes in the car.

See ya'll there! ❦

weight of just over 1,000 kilograms. That is just scary!

The chassis is actually more advanced than a NASCAR Sprint Cup car, with a really slender tube chassis with a body of aluminium. The hood and sides of the car are almost flat, it doesn't have any windows and the rear is fitted with a giant wing made of Perspex.

The rear axle is attached to the chassis in several points and up to five dampers are installed in the rear to handle the forces on the axle. Some of them work while the car is accelerating, some when the car is hitting the brakes, and another one handles the torque from the engine. The Dirt Late Model cars always drive on a left turn track and as a consequence the chassis

manufacturers deliberately design in rear axle steer, causing the whole car to steer in the turn.

This is an ingenious design, but there is a really wide gap between an engineer and a race mechanic in the Dirt series. The mechanics and chassis builders are often born into the sport and due to their immense experience they just know what to do when the car is not acting the way they want.

As an engineer, desperately trying to find out the dynamics of all the moving and interlinked parts is nothing but a nightmare.

To become a trusty partner you just have to have a man inside the ranks to fully understand and communicate with the teams. Öhlins Racing is no exception.





research motogp

estoril circuit 2008

Written by Henrik Samuelson, photos by Fredrik Ljungkvist and by permission from Yamaha, Ducati and Suzuki.

This is it: the Top Gun of motorcycle racing. Only the best of the best get this far and to hang in for another season you have to renounce everything else but racing. You have to eat it, sleep it and every second of your time awake you have to focus on all the little things that make your bike go faster, your mind a bit more determined and your team members a bit more willing to sacrifice everything else but the job they have to do, however small it is... all the way from the tasty catering menu for the powerful sponsors to the setting of your racing suspension on the day of competition. Everything counts in the MotoGP.

PERFORMANCE Magazine got the chance of a lifetime - to spend a full weekend at the Estoril Circuit with Media accreditation as well as Premium Paddock passes to really get the full flavour of the most spectacular motorcycle series in the world.



On the track

The Autodromo Fernanda Pires Da Silva just outside Estoril is perhaps the best racetrack to cover as a suspension freak.

The track won respect by hosting the colossal Portuguese Formula 1 Grand Prix in the mid-eighties [and when the Formula 1 circus moved elsewhere] the track cast its skin into a MotoGP homologised track with a total length of 4,182 meters with four left turns and nine right turns. The longest straight is the massive 986 meter strip, but despite this the track is actually one of the slowest in the MotoGP calendar.

Tricky curves, unpredictable weather and turbulent winds pushed inland from the Atlantic sea, really makes the affair quite difficult, and it is a massive step from the slowest corner speeds at 60 km/h to the 325 km/h slingshot on the 0,62 miles straight just after the Parabolica Ayrton Senna Corner.

The Aussie rider Garry McCoy won the first 500cc GP race held at the Estoril circuit, but since then it has been an all-Italian affair. The "Doctor", Valentino Rossi, has dominated the track with an amazing four-in-a-row victory campaign.

So, what's the thrill of being a suspension freak in Estoril? Well, the thing is the great challenge to trim the front fork in the best possible way considering the high speeds on the straight and the heavy braking just before attacking the corners, not to mention the decrease in speed just before curve no. six, the Parabolica Interior.

As for the shock absorber the challenge is pretty much the same with high speed sections and slow, bumpy sections causing the suspension technician to sweat. A hard spring would make the whole bike more rigid in the high speed sections, but the slower, bumpier parts of the track would suit a softer spring set-up instead.

My first impression of the track consists of sounds... and odours. After quite an adventure finding a parking spot close to the circuit, I get out of the car to find myself swarmed by a cacophony of engine noise and a compact smell of race petrol and burnt rubber.

It is quite empty on the parking lot, except from the small rental cars with media stickers on the wind screen. My colleagues from all over the world are all here to witness another MotoGP and I will soon join them in the Media Centre, alongside the

famous straight.

I have a lot of things going on in my mind. I will meet some of the most respected team managers in the motorcycle industry and I have tons of questions that I want to get some answers to. Most of the questions are actually personal ones, to be answered by no one else but myself.

To be honest this is my first ever MotoGP and I have absolutely no idea of how things work. I have got strong recommendations from back home to look out when I am in the pit lane, because everybody assumes that you have complete control and the riders don't bother to be polite.

It is a tight little family in the MotoGP world and I am not accustomed to all the routines and small but important acts that will grant me access and respect.

I have done a lot of research back home to find the essence of the MotoGP phenomenon, and my mission is to somehow reflect my experiences back to the readers of this article.

I am on a mission to find out why the MotoGP is so popular and why Öhlins Racing is the most popular suspension supplier by far on the grid of the 800cc, 250cc and 125cc.

My questions will hopefully be answered by the persons that I have scheduled meetings with... I open up my calendar and once again I try to memorize the names of the persons I will meet up with: Daniele Romagnoli (Team Manager for Jorge Lorenzo), Davide Brivio (Team Manager for Valentino Rossi), Paul Denning (Team manager for the Suzuki Rizla Team), Crishian Pupulin (Technical Team Coordinator for Ducati Corse) and Mats Larsson (Racing Manager at Öhlins Racing)... my god what a line-up.

In the pit box

I feel just like on the first day of school. Everything is new and I stick very close to my chaperone for the day... and what a chaperone it is.

It's like being escorted by Gandalf himself when I walk with Mats Larsson, Racing Manager at Öhlins Racing. Wherever he goes people bow or salute him with a big smile, and he guides me around the pit boxes, introducing me to some of the most influential team members in the motorsport today.

The word that first comes into mind is Perfection when I enter the paddocks. Every single detail has been studied and optimized, not just on the bikes but on the tools, the clothes and even on the colour-matched ashtrays just outside the paddock.

I feel like a huge elephant in the paddock despite the fact that I have moved up against the wall, hardly breathing at all.

It's like a professional dance ensemble, but instead of soft music and lifting tiny girls in tights these guys carry racing tyres, wrenches, suspension parts and other tricky tools that I don't know either the name or function of in their hands. And the sound is that from hell.

Friday morning. It's ten o'clock and the one-hour training session for the MotoGP riders is just about to start. I am currently in Rossi's box and all of a sudden everybody starts working in a hysterical tempo and they roll out his bike, and photographers, spectators and team members all gather around the paddock... despite the fact that it is a cold, rainy training session two full days before the actual race! This guy is a living legend. You can feel the ambiance in the paddock when he enters for a quick





sit-down on his small chair in the corner, neatly topped with an embroidered seat cushion with a 46 on it.

The engine comes to life and my immediate response is fear. The engine hums with such a powerful resonance that my chest vibrates and the noise is beyond anything I have ever heard before.

Rossi stands up and walks over to the very edge of the Yamaha-blue rug with his toes just touching the asphalt. He stops and bows his head. Everybody gets real quiet in the paddock. After just a few seconds he comes back from whatever place he mentally took of to and then he takes two steps over to the bike and once again stops to crouch in front of it. It feels like I am in the middle of some kind of religious act that I am not familiar with...and never will be, for that matter.

In a second he is on the bike and before you know it he takes off.

I run across the paddock area and find myself just a couple of feet from the long finishing straight. I can never, ever explain in words the feeling of seeing and hearing the bikes as Hayden, Rossi, Lorenzo and the rest of the boys pass me in speeds exceeding 300 km/h. Unbelievable... just unbelievable.

The second feeling that comes into mind is pride... great pride. These guys depend completely on the components they ride on that need to function in total harmony. This is not a game! If something goes wrong it goes really wrong. Taking a fall in 300 km/h is not something you would want to try, and to be a member of the company that supplies suspension parts to some of the teams makes me immensely proud!

On my way back to the hotel room, driving my dull, slow Peugeot 306 rental car, I can't help reflecting over the fact that my day is over, but for the mechanics and drivers it is nowhere near finished.

Engine mapping, suspension set-ups, telemetric analysis, tyre controls and a myriad of other technical aspects must be scrutinized. And while I am eating a nice dinner at a fish restaurant down in the charming fishing village of Cascais together with my photographer, the riders retire to their mobile homes just next to the paddocks. I just have to accept the fact that I

don't belong to that world, and

will never be a part of the very special family of the MotoGP caravan.

Day of competition

I am a privileged man, no doubt about that. Dorna Sports, the exclusive holder of all commercial and TV rights of the MotoGP World Championship since 1992, has given me one of the desirable Media passes so that I can make my way to the inner circle amongst all trailers (I counted them, of course, and there were 58 trailers in a single, straight line!).

In the media centre I have a close encounter with the MotoGP nomads that constantly feed the outside world with every little happening in the MotoGP circus. Photographers are shuttled out to various photo positions around the track in small buses, but I soon find out that the really professional ones have their own scooters to be able to cover more interesting sections during the race.

Another funny thing is that a handful of radio reporters actually sit up in the media centre, reporting "live" to their home country by watching Eurosport on one of the screens that hangs down from the ceiling. It feels a bit strange to hear the race report in several different languages at the same time.

I grab a bottle of free water on my way out and the first thing I do when I pass through the doors from the media centre is to plug my ears. The sound is massive and it cuts like a knife in your head. The old hands of the circus have long since stopped using them, so once again I am an easy target for those who like to spend their time spotting newbies on the grid.

I spend the following hour trying to find a good spot from where to view the race. When this is done I make my way to the hospitality area, and for all of you that have never been in such an area I will do my best to describe the phenomenon.

All teams are more or less dependent of their sponsors and as a payback all serious teams provide hospitality areas for the sponsors and guests that come along to the events. As we are a long time friend of Yamaha Racing I get to spend a really nice time sitting in their mobile restaurant, ordering from a wide variety of pastas and

other Italian dishes. The service is impeccable and the food is first class. The view is one-of-a-kind with Rossi doing an interview two tables away, Collin Edwards rushing by saying hello to me in his characteristic texan dialect and Lorenzo says something funny that makes the entire table next to me laugh. I am in heaven. Could someone please pinch my arm?

Don't forget this is an ordinary trailer with some special features. Two days later the whole shebang is gone.

Stuffed with risotto, parmesan cheese and Pellegrino I walk off to my secret spot, just at the end of the massive straight before curve number one. I can see the heat vibrate over the riders and suddenly the monstrous sound of 18 MotoGP bikes at full throttle cuts through the air and in a second they have all passed me in a colourful blur.

After approximately one and a half minutes they all come by again and I am lost, totally lost. I can see who is in the lead, but it is a nightmare trying to sort out the rest of the field. My brain is working in a slow, couch mode and I find myself despairing at not having all the lap times and slow motion angles served by Eurosport back home.

But then I suddenly realise why all these fans come all this way. It is not to witness the best lap time or to get the perfect view of a spectacular crash. They are all here because they love the phenomenon. They are passionate about the brands they ride and they just love the smell and the colossal sound of the 800cc engines.

I turn my back to the track, now studying the spectators instead, and the parallel to the movie Gladiator is striking. The audience stands up every time the modern gladiators pass the sections and the crowd cheers, calling out the riders' names. From now on I will remember these moments every time I look at Eurosport back home, and from this moment on I will be able to enjoy the race reports in stereo, not in mono, if you know what I mean. I seriously recommend all serious enthusiasts to save up some money and go visit a MotoGP close to you. It is time to go from mono to stereo in your Eurosport Sunday couch.



“ THIS IS NOT A REGULAR JOB, NOR A HOBBY... ACTUALLY NOT EVEN A DREAM JOB. THIS IS PURE PASSION.

The Öhlins racing technician team is already at work when you wake up in the morning, and when you spend some well deserved time off on a Saturday morning with a nice breakfast with your family they probably just landed on a remote circuit on the other side of the globe with state-of-the-art suspension for an impatient team.

To become a technical partner in the premiere racing league is not just hard- it's almost impossible. First of all you need a cutting edge product and second of all you need dedicated staff ready to travel to the other side of the world just to solve a problem.

To get a job at Öhlins Racing department you need to be a speed freak, most probably a former racer yourself, and you're not the kind of guy that switches of your com-

puter at 5 pm sharp and rushes home to pick up your kids at day care. Toss in an engineering degree and you've got a re-

ally good chance at getting the job.

But first you have to pass the interview with Mats Larsson, Racing Manager at Öhlins Racing.

How it all started

On the 16th of February 1984 a young man entered the Öhlins Racing factory full of ideas and visions. He was a decent motocross rider from the northern part of Sweden that wanted to get closer to all the races that were held in the area around Stockholm, some 1,300 km from his hometown- it was a "make it or break it" career move.

To work with Öhlins suspension was a great way of spending time on the MX track and at the same time having a job at a growing company with high-end suspension products.

It didn't take long before Öhlins Racing pulled the longest straw and Mats soon paid his full attention on helping others to win.

Mats Larsson is one of the old school

employees that worked his way up inside the company walls, and today Mats is in charge of 25 race technicians with prestigious contracts with Yamaha Factory Racing, Ducati Corse, Kawasaki and Suzuki Rizzla in the MotoGP along with almost the entire line-up in 250cc and 125cc MotoGP, as well.

AMA and World Superbike teams are also on the list of paying customers that are in a constant quest to be at the top of the podium.

Nowadays most of the time is spent to oversee that all customers get their tricky parts in time and to control that the future development is going in the right direction. As much as 75% of all racing technology eventually finds its way to the aftermarket, and Mats is a vital link between the departments.

But at the end of the day, Mats still finds that the most thrilling and amusing chore is to sit in front of the CAD, pondering a technical problem that needs to be fixed.

To get the full insight into Öhlins' total racing commitment you just have to spend some time with Mats, and PERFORMANCE Magazine took the opportunity to make a visit to the R&D Department in the heart of operation outside Stockholm.

Mats, why does Öhlins Racing have such a crystal clear focus on high-end racing services?

Think of it as the ultimate challenge for our products. If our stuff works well under these conditions you just know that it is good enough for all of our aftermarket customers around the world.

On this level of racing everything is "no compromise" and when you take the

prominent step into the world of racing you soon find out that everything is very undemocratic. Everybody thinks alike – can we use this or not? Can we cut a second or not? Either you're in or you're out.

Second of all we cherish the fact that we can work side by side with the most professional team technicians in the world, and a lot of development is actually made together with our customers. A serious racing team always strives to find the ultimate performance and they are all used to develop new things.

As a bonus we can use all the vast amount of high-end technical equipment from the teams such as telemetric data that helps us in our search for the perfect suspension setup.

Why us – a tiny manufacturer in the cold north?

I actually got the exact same question something like 15 years ago when I sat in a Kawasaki top executive meeting in Japan, surrounded by the top brass racing directors. One man stood up and said to me:

- Mr Larsson, one thing... why is Ohlins so good? A far away country long way from Japan... making very good suspension. Many Japanese manufacturers try to copy, but no one have managed."

And the very simple explanation is the fact that my team of technicians is no regular 9 to 5 workers. To be honest Öhlins Racing is just a small molecule in the big perspective in the world of suspension manufactures, and it is nothing but a true miracle that we can host a premium racing department.

Every single guy in my team has a colossal passion for racing; they all love to ride fast on their time off, and during all these years they have built up an amazing understanding of how a bike works. We do not have any freshly baked engineers straight from prestigious universities with an academic approach.

The working morale is sky high and all my team members are former riders which, of course, equals a bunch of individualists. To be honest they are a bunch of bloody troublemakers and it is my duty to herd the flock in the same direction, Mats laughs.

They are all bad losers that do not accept a second position. If, for some reason, their team does not win they go straight home and ponder on how to win the next race.

Apart from our very special working spirit I think that teams such as Yamaha, Ducati and Suzuki appreciate us because we never ever sit down. We are not the kind of people that settles down in our favourite couch back home the day after we have handed over a new product.

You can't fly over to a customer and just drop a new product in their lap and go home. We continue our commitment with 365 days per year service and we are just a phone call away 24/7. They all get our complete and full attention.

There are, of course serious teams that do not work with us, but at the end of the day when these guys stand on the other side of the globe in a hot, humid pit box in Malaysia or Phillip Island there are not that many suppliers in sight. This is the moment when you separate the sheep from the goats. Öhlins is ALWAYS there and this



most certainly affects the decision process when

teams decide what brand will supply their parts.

We actually put a price tag on our service and support, which is very rare in a world where every manufacturer on Earth is willing to give away stuff for free along with a decent chunk of money.

To us it is very important to be an actual cost for the team, because this means that we have a serious commitment and you simply can't behave inappropriate towards a paying customer – an entirely different set up of morale and ethics is interlaced with such a contract. When you put a price on your product the customer feels that a certain value is added.

The companies that give away their products for free just have a different attitude towards the teams they support, and the follow up after races and quick support is not the same. It is as simple as this.

Are there just technicians in your team?

All of my guys are very technical to start with, but not all have engineering degrees. You actually have to have a mixture of personalities and backgrounds to form an elite racing department.

My personal recipe is to have a spoon full of "goers" that push the department to move fast forward, then you need to have pinch of really cool and laidback characters that need to think and calculate on an idea so that we can concretize our crazy ideas, and to top off the dish you just need to have some inventors that wake up at 3 o'clock in the morning, writing down a marvellous idea on the backside of a telephone catalogue.

It is really tricky to get all these different kinds of people to work in consensus, and it doesn't take long before things get really dopey if no one is in charge.

But at the end of the day we all have something in common, we all want to dazzle the world with the most advanced suspension products on the planet every time we hand over a new gadget to our teams.

Are all contracts set for a period of 12 months?

I am sure that almost all of our teams want us to stay for a longer period of time. I honestly think that it is solely a question of ju-

ridical and budgeting principals.

We prefer working straight towards the factories because we have a much better cooperation, they tend to have a stronger economy and they have always a long-term focus.

Private teams tend to live on a day-to-day basis and very often there is a lack of strategy. There is, of course, a gentlemen's agreement that you stay together in good times and bad times, but from time to time you bump into teams that threaten to shred a contract every time things go bad. This is really bad for business because we spend a lot of time with all teams and to be kicked out or getting negative impulses all the time is really bad for the morale.

Do you really have to come up with brilliant ideas all the time?

In the MotoGP there are two divisions. One division has access to all of our tricky, "standard" top-of-the-line material and they are quite happy with this. The other division has much higher demands. We support these teams on an almost weekly basis and there is a never-ending flow of refinements.

The teams that choose our "light" version come along on all of our major new technological developments, but they miss out on all of our very small but extremely crucial micro changes that pop up in between the major technical shifts. These small changes are actually very important and all together they just might be the difference between winning and losing.

Isn't it hard to get any consistency when new stuff pops up all the time?

10 years ago we were all hotheads, coming up with all sorts of crazy inventions that we packed into our bags and flew off with to remote testing grounds. Sometimes we had made something really great, but we had some really lousy things as well.

Today we are very often a very small part of a huge testing line-up. A myriad of tyre combinations are tested, different engine mappings must be reviewed and at the end of the day the riders tend to be very grumpy. That is definitely not the moment to bring out all sorts of funky stuff for the riders to test. We need to be dead certain that our new developed feature works and we need to convince the rider and team that we can cut lap time. The riders must come back after less than 30 minutes with

a big smile on their face if we are to make the change or not.

This is why we do the majority of testing back home with our own test riders in Sweden. We have a Superbike specification R1 and a really good test rider that can really bend the bones on all crazy stuff that we invent. Often we have six or seven different prototypes that we want to test, but at the end of the day we might have one or two pieces at the most that we might consider to test with our teams.

We need to hurry in a very controlled manner and be able to sort out what is good and what is bad. As time goes by we have become much better at finding new technologies and we tend to know what our teams are in search of. We have MotoGP teams that order for the next season before they have actually tested the components. That is a definite proof of our reputation.

We are always present at the last MotoGP race of the year with completely new front forks and rear suspension ready to do some serious testing with the riders.

How big is the difference between your racing stuff and Öhlins' aftermarket assortment?

To be honest there are not that many differences between regular street products and racing stuff. Our FGR800 and TTX36 are spin offs from the MotoGP techniques, so you can really buy state-of-the-art technology for your personal bike back home. Most of our MotoGP products are hand-crafted, but that is often because the bikes are one-of-a-kind. The teams have all sorts of chassis and you can never use a racing product straight onto an aftermarket bike, because they do not look alike.

Sometimes we tend to use other lightweight materials but these materials are not to be used on aftermarket products as the safety features must be much higher on vehicles used in ordinary traffic. We do not have to consider problems such as corrosion and long-run tests.

Our parts come off after every race and a dedicated service technician is never more than a couple of meters from our racing products – ready to serve it to perfection.

Thank you Mats for the interview, good luck in the future! No problem!



RIZLA SUZUKI  **Loris Capirossi** **RIZLA SUZUKI**

RIZLA SUZUKI

ÜHLINS

TIMBERLACK
BRIDGESTONE

RIZLA SUZUKI

TRUSSARDI

RIZLA SUZUKI

RIZLA SUZUKI
Motogp
OFFICIAL TECHNICAL PARTNER

davide brivio

team manager, yamaha factory racing - valentino rossi



The single most important factor why you chose Öhlins?

Well, there is a long partnership between Yamaha and Öhlins and we have worked very close together for many years and we know each other very well. Every year there is a development and improvement of the Öhlins products and this is good and very important.

Another thing is that the Yamaha factory is in direct contact with Öhlins' engineers, so there is a very good exchange of experience and feedback. To have Öhlins' technicians working in our team on the race weekends is fantastic and they bring back feedback which means a continuous development. This means that the engineers back in the factory have a very good knowledge of what we need and how we can improve the full package.

We have won quite a few championships in the past so it seems to work.

Is it hard to be a team manager with so many eager suppliers that constantly come up with new technologies? Any problems keeping the performance stability?

All new products are presented and evaluated back in the Yamaha Racing factory. Normally they give requests to the Öhlins engineers of the areas where we need to improve the suspension and we also have an exchange of opinion.

There is a lot of synergy and interaction between the two companies and normally we start to test the new prototypes in the end of the season after the last race.

Most of the time we have special tests concerning the suspension area so we test new forks, new shocks or new inside systems depending on the development phase and the ongoing process.

During the winter season, which is very important, we evaluate whether the new technology works or if we decide to use the old suspension setup.

Normally we are in constant progress and the comments from the riders are very important too.

What would you like to see more of when it comes to Öhlins and the suspension that is on your bikes? Any dreams that you want Öhlins to deliver for you?

I will not go into a complicated technical discussion because I am not the right person, but I am sure that our development engineers have some dreams, and I am

certain that they have an ongoing discussion with the Öhlins engineer and that Öhlins will deliver whatever they need.

This year is particularly difficult because we have Valentino Rossi and now also Jorge Lorenzo – the two biggest, talented riders, and they both want to win and they have a lot of needs and requests, so in order to give them the package which would enable them to win all the components must be at the maximum. This, of course, covers the suspension as well.

Such talented riders with such a winning spirit keep all the technicians under a constant pressure. First of all they push Yamaha to develop but of course the suspension, the brakes and all other suppliers need to progress and deliver top products.

Our dream is that Öhlins will always have the answer.

Could you give all bikers that will read this article the three most important parts of a bike that would increase the quality of the ride the most when changed? (Feel free to mention whatever parts it might be, Öhlins is not a must!)

It depends on the owner of the bike and what they are looking for. Maybe they are looking for performance, maybe they look for styling or feeling and sensation. To me these are the three most important areas.

If you want to get more performance you normally tune your engine, for example by changing the exhaust, which is the easiest component to change.

Styling is of course important and you can try to personalize it with particular stickers or maybe change the colour.

And when it comes to the feeling of the bike the suspension is one of the most important things. It is kind of a luxury dream to buy better suspension, because they are quite expensive. To put a good suspension on your street bike is a good investment and the owners usually look very proud when they have bought new suspension.

Do you have a bike back home?

No personal bike... but I of course like bikes. Since I am getting old the one that I use the most is a T-max scooter, because it is good and convenient in the summer when I go to the beach. It is fast too if you want to ride on the highway, so it is a very good compromise.

Sometimes we take a dirt bike and go

to ride motocross on easy tracks.

What is the greatest thing about being a technical Team Manager for Yamaha Racing?

The thing I like the most is the race... the 45 minute race on Sunday... from 2 o'clock to 3 o'clock. This hour is the key... it is full of emotions. Either you win or you lose. At the end of the day we are here for those eighteen 45 minute races to win the championship in the end of the season. Those 45 minutes is the thing that I like the most.

How is it like working with the Öhlins technicians? Are they any different?

I have always worked with Yamaha and Öhlins so I actually have nothing to compare with. We are very happy with Öhlins' technicians and I have very good experience from my 11 years in Superbike and now 7 years in MotoGP and they have all been nice people.

I personally do not find my way around the pit box but I have understood that telemetry is a huge help for you to evaluate a race... but how many decisions are still based on the riders' own feelings?

Yes, there are more and more computer systems today on the bikes, but at the end of the day the rider's opinion is the most important. As technician you can see and get the feeling of a certain moment and you can also identify a problem, but you need the confirmation from and opinion of the riders.

You need the riders' agreement to change something that you might see in the data recording.

So the computers are very good at identifying a problem, but to solve the problem you still need manpower. The engineers and technicians still need the human mind thinking and deciding. The computer is a very important tool but it is of course not enough.. the computer is stupid and just does what you tell it to do. The rider and human mind can make the solution that is suitable for the situation.

daniele romagnoli
interview
team manager, yamaha factory racing - jorge lorenzo



The single most important factor why you chose Öhlins?

First of all, Öhlins is a part of Yamaha since a long time ago, actually I remember very well when we started this cooperation. This cooperation is a very important factor because you design and build the bike with all the components that are around it, so for me the suspension is a very important component on the bike.

What I like especially with Öhlins is also that the technicians are very professional, we can have precise information and if we need some sort of modification they can act very quickly.

I personally do not find my way around the pit box but I have understood that telemetry is a huge help for you to evaluate a race... but how many decisions are still based on the riders' own feelings?

Both are very important. With data recording you can analyse all the parameters of the bike and find problems in specific areas, but you can't get the feeling of the bike like the riders have. So we first listen to the rider and when a rider says that he has a problem in some corner, area or in a specific moment, then you go to analyse the data and try to understand what he needs.

Especially when it comes to the suspension we can get some parameters from the data recording such as stroke and the speed of the suspension, but here the rider's comments are particularly important.

Is it hard to be a team manager with so many eager suppliers that constantly come up with new technologies? Any problems keeping the performance stability?

This is not a problem; we have a good working order in our team and often we are actually asking for evolution and new components, but we always choose when to try new parts. Often the best time is after the race.

It is very important for the riders to decide what their priority is, because if you really think that a new item can give you a really big benefit then maybe you can take the risk to try.

What would you like to see more of when it comes to Öhlins and the suspension that is on your bikes? Any dreams that you want Öhlins to deliver for you?

The ideas are many but some sort of elec-

tronic aid would be very interesting. To get electronics and technology in the suspension would be a big improvement.

Could you give all bikers that will read this article the three most important parts of a bike that would increase the quality of the ride the most when changed? (Feel free to mention whatever parts it might be, Öhlins is not a must!)

The people that want to go a little bit faster on the streets need to buy better suspension because the quality is so much higher. Higher quality gives a much better feeling and the range of settings allows a wider region of use for the bike.

Then you have to work on the power delivery of your engine and finally you need some really good front brakes.

Do you have a bike back home?

Honestly I like motorcycles very much, but I only have a T-max that I like to ride because it is easy to ride on the streets.

What is the greatest thing about being a technical Team Manager for Yamaha Racing?

To win a race is the best thing with my job... all the problems that you might have disappear when you win a race. When the rider passes the line and they wave the chequered flag... that is the best part of my job.

Paul denning interview

team manager, team rizla suzuki



The single most important factor why you chose Öhlins?

I think it was back in 1998-1999 when Kenny Roberts JR joined the team and his father (who rode on Öhlins) was really keen on trying with Öhlins suspension on his son's 2-stroke 500cc GP bike. The first tests that were made showed at least as good results as the components that were already on at the moment.

The laptimes got a bit better and from that moment on our team used Öhlins for both the 2-stroke and the 4-stroke MotoGP bikes.

Technically it is very hard for me to say what is better or worse with a Öhlins product compared to the competitors, but I can say from a reaction point of view that Öhlins is a very big help to us. If one of our engineers comes up with a good idea the Öhlins guys listen and consider and sometimes they will do some changes inside a suspension unit that we would like to try, other times the Öhlins guys comes up with their own material.

The balance is quite good and they are very open minded and they like to progress as quickly as possible but always with a referencepoint of performance. All that we can say is that every year something better comes. We always use new stuff, not because the old stuff is worn out, but there are always some new improvements made..

The relationship is very strong and if we have something to improve on our bike right now it is definitely not the suspension, we have other things to focus on.

Is it hard to be a team manager with so many eager suppliers that constantly come up with new technologies? Any problems keeping the performance stability?

No, the factory controls that very carefully, they never start racing on new stuff until they have compared it carefully to the old stuff. We actually had the complete 2007 setup on our bikes in our tests in Qatar in the beginning of this season just to compare with the new 2008 suspension setup, just to make sure. Now we are all confirmed on the new stuff and all of the old stuff is gone.

I personally do not find my way around the pit box but I have understood that telemetry is a huge help for you to evaluate a race...

but how many decisions are still based on the riders own feelings?

Data is data but rider comments are more important. The confidence of the motorcycle rider is so important, they have the feeling and the knowledge to give detailed information, so the information from them is at least as important as telemetrics.

What would you like to see more of when it comes to Öhlins and the suspension that is on your bikes? Any dreams that you want Öhlins to deliver for you?

Apart from free suspension parts for my private motocross bike (Paul laughs) I think that constant evolution, reduction of weight and an increase in performance are some of the most important wishes. The new 800cc chassis have changed the rigidity of the fork and the riders are looking for the right feeling and we need to work together on that.

As I said, what we request from Öhlins is continued evolution and to continue the partnership on an engineering level to support our engineers on the track because keeping that consistency with Öhlins technician Graeme Irvine is very important. He has almost become like a third crew chief. He understands the bike, he understands the riders well and he understands the way the crew chief works and he has become a very important part of the team. That is why consistency is so important.

Could you give all bikers that will read this article the three most important parts of a bike that would increase the quality of the ride the most when changed?

The three things that are most important to increase the performance of a normal street bike would be in no particular order (1.) tyres, (2.) suspension and (3.) engine mapping. You're not looking for more power when you change the mapping of the engine but to get smoother power and better throttle response. Some of the fuel injected bikes are not as good as others and you can make an improvement by a combination of exhaust and a good settings guy with a dyno, and you can improve the initial response quite a lot which is important for smoother riding and throttle connection.

Tyres are tyres and of course you can improve the grip, but in terms of benefits against costs improving is the suspension is the best alternative.

Today the bikes are built very cost ef-

ficient and the standard suspension is normally very good, but as an accessory part a fork internal kit and a rear shock replacement can make quite a big step up in grip and feedback, and if you like to ride on the track the suspension is even more important than power.

What is the greatest thing about being a team manager for Suzuki Rizzla?

Somebody said to me years ago that racing is such hard work that the only thing that justifies it is to win. Anything else but winning is no good.

The best thing for me is to see the satisfaction in the faces of the engineers, riders and the rest of the crew and everybody else in the team when we get a good result. It doesn't always need to be a race result, it can just as well be a test result or taking a bad situation and turning it into a competitive situation. We have a group of talented and hard working people in the team and they need results in their job. The job is just too hard to justify without results.

Do you have a bike back home?

A GSXR 750. I actually have a Suzuki shop back in England, so there is absolutely no problem in riding bikes.

What is it like working with the Öhlins technicians? Are they any different?

As I mentioned before, our Öhlins technician Graeme Irvine is very special because he is very deeply involved in our team and he knows everything about the machine and the riders, so I think that he is an important part of the team. On the development side the guys are very open and serious about improving the bike, and it is quite interesting to see how the MotoGP technique is getting fed into the production shocks and forks after just one year or two, giving the customer access quite quickly. Great technique makes sense to the Öhlins investments in racing.

crishian puputin **interview**
technical coordinator, team ducati corse



The single most important factor why you chose Öhlins?

We work in general with the overall equilibrium of the bike and one of the most important things is the position of the centre of the weight – the overall geometry of the bike.

We always test these things when we arrive at the circuit. When this is finished we start working on the spring rate and when this is OK we try to get the hydraulics right on the suspension.

But normally we have a lot of work to do on the overall geometry, electronics and the engine management.

When all these things are OK we start to work on the suspension.

I personally do not find my way around the pit box but I have understood that telemetry is a huge help for you to evaluate a race... but how many decisions are still based on the riders' own feelings?

Especially regarding the hydraulics of the suspension it is difficult to see changes in the telemetric data when you change something on the hydraulics. It is more something that you hear from the feeling of the rider, so the opinion of the rider is very important... not the telemetry data.

We analys a lot of telemetric data for the electronic engine management of the bike, but when it comes to the suspension we follow the opinion of the rider.

Is it hard to be a team manager with so many eager suppliers that constantly come up with new technologies? Any problems keeping the performance stability?

Sometimes yes. We cannot test all the things that we actually can get. A lot of time we have to turn down new parts because we do not have the time to test.

How is it like working with the Öhlins technicians? Are they any different?

It is difficult to say since I haven't worked directly with the Öhlins technician. He is just like the other members of the the team... he works very good and we don't have any particular problems with the guy.

What would you like to see more of when it comes to Öhlins and the suspension that is on your bikes? Any dreams that you want Öhlins to deliver for you?

For me it would be very interesting to work on the electronics in the suspension. In the

future I think that we have to do this. Some sort of electronic system that controls the bike. Active dampers and active steering dampers. It would be interesting to upgrade the suspension to the computers.

Could you give all bikers that will read this article the three most important parts of a bike that would increase the quality of the ride the most when changed? (Feel free to mention whatever parts it might be, Öhlins is not a must!)

The equilibrium of the bike is one of the most important things. It's no use having a lot of power if you can't use the engine properly, and then you have to have very good suspension.

What is the greatest thing about being a technical Team coordinator for Ducati Corse?

I never have a normal day, every day is different. I am used to this type of life, now, and I think coming back to a normal office and doing the same things every day would be very difficult.

Do you have a bike back home?

Yes, but now I don't have the time because I have a family and I work a lot. But I have two bikes at home. It is one Ducati and a homemade Kawasaki that I built from different bikes. ❧

Mechatronics

(or *Mechanical and Electronics Engineering*) is the combination of mechanical engineering, electronic engineering and Computer engineering. The purpose of this interdisciplinary engineering field is the study of automata from an engineering perspective and serves the purposes of controlling advanced hybrid systems. The word itself is a portmanteau of 'Mechanics' and 'Electronics'.

Written by Henrik Samuelson | Photo by Fredrik Ljungkvist

Once in a while Öhlins Racing takes a monumental step into a new chapter in terms of advanced suspension technology. When the Swedish suspension manufacturer introduced the TTX technology in the beginning of the 21st century it was a major move into a completely new direction of suspension design and function. 2008 will be remembered as the year when Öhlins Racing took the step into the Mechatronic era.

A DREAM COMES TRUE

Already in 1984 Öhlins Racing got its first patent concerning electronically controlled suspension and it took just about twenty years before the technique was accepted and introduced in the premium automotive segment with car manufacturers such as Audi, Ford, Mercedes, Volvo, VW and BMW.

A limited series of electronically controlled suspension was introduced in the beginning of the 21st century on the Yamaha RX 10 snowmobile and some BMW touring bikes have also been installed with electronically maneuvered suspension but only in a very limited edition.

But in the hallways of the R&D department the word mechatronics was hot and Öhlins Racing had a goal to introduce this new technique before the end of 2008, a task that was accomplished when rider Noriyuki Haga took a double podium win in World Superbike at Vallelunga on the 21st of September, riding on the new

mechatronic system that goes under the name TTX EC.

TTX EC

The technique is quite brilliant and the R&D Department has put a lot of thought into the new TTX EC parts. One of the initial challenges was to build a system that can be retrofitted onto all TTX street shocks.

You can actually remove the standard valves from a TTX shock and insert the small stepper engines that will alter the clicker settings electronically in fixed steps maneuvered from a panel, or automatically via a continuous feed of information from a CPU.

"There is no end to the possibilities and the range of use is extremely wide", Öhlins Racing Vice President Johnny Bräster declares when PERFORMANCE Magazine visits the HQ outside Stockholm.

"This is not a separate business area but a completely new technology to be used in all areas where this function can assist and improve the quality and comfort for our customers", Johnny then adds.

Motorcycle Product manager Magnus Eriksson assures us that this new technique will be available on the aftermarket, but that it will take a while before it becomes a bargain for the rider on the street. *"First of all I would like to say that our initial tests clearly gives an improved riding experience, and you do not need to be Haga or Rossi to feel the difference. As in all of Öhlins Racing's earlier technological advancements we start off in the premium racing divisions and shortly after we move into the aftermarket segment with a very limited production. The products will increase in volume and the price will fall as a consequence and that will snowball the price cuts and in the end we can offer a state-of-*

the-art product for the man on the street to a competitive price". When I ask him about the timeline Magnus is a bit vague, but it is clearly not easy to give a precise answer just days after the first initial testing phase with Yamaha World Superbike. I just have to get back and ask him in a later issue of the magazine.

One thing is for sure though, which I come to understand just minutes into the interviews, and that is the fact that this new technology is not a stand-alone project for race teams and millionaires with a passion for expensive motorcycle gadgets.

Öhlins Racing has found something really interesting and the company has already constructed the TTX EC system to retrofit all TTX shocks. A hunch tells me that this new era will spread like fire in a dried out forest.

WHO MAKES THE TTX EC PACKAGE?

Well, I obviously had to pop that question to Magnus Eriksson because I sure know that the factory outside Stockholm is focused on traditional suspension manufacturing, but I am surprised by the quick answer that comes back in no time at all.

All components of the TTX EC are produced here and as long as the quantities are relatively small we build everything under this roof by hand– the CPU, the stepper engines and the most important thing of all, the single most valuable component: the algorithms.

"The electronics are all easy to replicate in some way but the real asset is more than thirty years of racing experience and suspension set-up that we have procured. We are now taking the step from shim stacks to algorithms but the end result will remain



the same – top function and performance”, Magnus declares, not without a hint of pride and I can’t blame the man.

WILL TTX EC REPLACE CES IN THE FUTURE?

Magnus leans back and needs a couple of seconds to find the right words.

-“TTX EC and CES are actually two completely different techniques. To describe it in a really easy way the TTX EC works as a remote control that regulates the compression and rebound settings on your shock absorber or your front fork in fixed steps just as your regular mechanical valves. You can either have stepper engines or a CES valve connected to the TTX EC unit to do the job instead.

A CES system on the other hand is

based on a solenoid technique with a magnetic field that controls a bleed valve via a never ending flow of information from a CPU. The flow of the lubrication fluid can be altered within milliseconds and the CES valve has a very wide setting area. The TTX EC on the other hand reacts much slower (0,5 seconds reaction time) and the area of use is within the traditional clicker settings. So the answer is that they will live on side by side.”

ÖHLINS IN 2013... ?

Give me your opinion on the TTX EC technique in five years time, Johnny!

- “In five years time we have a wide range of applications within all business areas where the technique really helps the customer.

The mechatronic solution works really well with the TTX technology today because the twin tube design creates a lot of suspension fluid that flows through the valves, and as a consequence the result will be more apparent when the TTX EC unit is installed. Already today we are courted by manufacturers that want to learn more and we will soon have some sort of cooperation with strong brands that will help us push up the production volumes and that will affect the retail price in the end”.

Mechatronics is a word to remember. The future of electronically controlled suspension is here and PERFORMANCE Magazine will keep you updated with the latest news in coming editions. **W**

LOTTE



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