

2018 KTM EXC TPI SPECIAL

www.rustsports.com

RUSTAR



THE FUTURE—NOW!

**THIS IS THE BIG STORY OF 2018
KTM'S FUEL-INJECTED TWO-STROKES
HAVE THE AUSTRIANS FINALLY CRACKED IT?**

www.rustsports.com

CONTENTS

3 EDITORIAL

Worth waiting for? You bet!

4 GALLERY

JB gets a rude awakening to find he isn't actually King of the Erzbergrodeo... Surprise!

5 GALLERY

The new TPI KTM's are out there winning races, just not this time... Read the caption and you'll get it...

8 THE FUTURE – NOW!

Charting the development of the new KTM's since the start way back in 2004...

12 FUEL INJECTION, THE JOURNEY

KTM off-road product manager Jochi Sauer takes us on that journey up to the present day...

14 WHAT'S NEW

The 2018 KTM 250/300 EXC TPI. What makes this new bike so special...

16 THE 2018 KTM ENDURO RANGE

All the updates to the rest of the KTM range...

20 STROKE OF GENIUS

KTM bring the first fuel-injected two-stroke enduro to the market. Is it any good? Hell yeah!

33 FI FYI

KTM are the first out of the blocks with fuel injection, but could others follow soon?

RUST 2018 KTM SPECIAL EDITION

www.rustsports.com 



WORTH WAITING FOR

IT SEEMS SUCH a waste to spoil the story, not to 'bury the hook' as we learned at journalist school. But these are modern times, where attention spans have found ever more breathtakingly short durations. Already this intro is too long. So, okay – the new fuel-injected EXCs from KTM are great! There, I said it.

By modern web metrics I should now be addressing just 5% of all that clicked on this page. Glad you're still with me; you know I'm not keen on these flighty types – no patience, no depth, no understanding, no soul.

So let's share this among our little group – yes, the new KTM EXC TPI models are great, possibly even amazing, although it's easy to get carried away with the excitement of all things new. After all, if the TPIs were so great then how is it Steve Holcombe just beat a bunch of them in EnduroGP with a comparatively old-tech (*carb'd*) Beta 300RR?

Well, that's because racing is not always the best measure, or rather shouldn't be the only measure. And because 99.99% of buyers won't be chasing world championships then there's more than performance to consider, matters like practicality, durability and reliabil-

ity are equally important. So while the TPIs are great and do, on first impression, offer a performance advantage I would wager it isn't that great. The TPIs do not render all other 250/300cc two-strokes redundant. The improvement in performance is incremental, 'just so much'.

The reason they are exciting, though, is on account of all the other benefits TPI brings to ownership. For a start these bikes probably are the first real plug-n-play two-stroke enduros. Add petrol (*add oil*), press button and ride. No premixing, no jetting issues, no oiled plugs – no matter where you are riding, hot/cold or high/low the TPIs will be ready to go. Then we can mention their frugality – who knew two-strokes could be so economic? Huge cash savings to come there, plus much less sweat on reaching the next

refuel. And finally a cleaner set of emissions – less smoke, less toxins – so, happy bureaucrats, happy planet.

But what really excites, the reason we should be impressed, is the packaging. KTM have made an emissions compliant two-stroke racer that retains the simplicity that we know and love about two-strokes. The complexity lies hidden, safe and out of harm's way in the EMS (*engine management*) unit, all the other components and assemblies (*throttle bodies, injectors, pumps and sensors*) are kept simple, robust and easy to work on. This is the KISS principle executed to perfection; it's why KTM have taken the best part of 14 years to come to the market with the technology.

So if we remember the month of May 2017 for anything – and sadly in a world gone mad, where there have been too many atrocities, where it's hard to reconnect with the enjoyment – then it was for the moment KTM propelled the two-stroke from the past into the future.



DREAM WEAVER

'And newcomer Jon Bentman crosses the line a full five minutes ahead of Johnny Walker and the rest of the field, truly an amazing feat considering he has never raced here at the Erzberg before!...'

'Jon, wake up mate, lunchtime's over and the boys are ready to take the limo back to the luxury hotel for dinner.'

Sadly neither of these scenarios are an accurate representation of the life of an off-road motorcycling journalist, but hey, we can dream can't we?

Image: KTM



GO GO GOMEZ!

Poo, we had the caption all lined up: *'TPI wins first time out'* – that kind of thing. But that didn't happen at the Extreme XL Lagares (in Portugal) at the end of May. No, Wade Young won on a Sherco and Johnny and Alfredo rode 2017 300EXCs to gain the remaining podium positions. It was left to the Austrian rider Lars Enockl (*winner of last year's Sea to Sky*) to bring home a TPI in 13th – and that's not really selling it, is it?

Image: Future 7 Media / KTM

BACK ISSUES

ISSUES 1-12

WWW.RUSTSPORTS.COM

To view our back issues (FOR FREE!) go to www.rustsports.com and scroll down through the issue list. Click on the icons for either a PDF download or to view a yumpu version.



All material appearing in RUST is copyright to Rust Sports Ltd and may not be reproduced in part or full (including electronically) without the express permission of the publishers.



ISSUE #1
Introduction to RUST Magazine. 2015 KTM 250EXC vs 2015 Yamaha WR250F shootout. Trail test of the Chinese made WK400 Trail and columns from Chris Evans, David Knight and Gary Freeman...



ISSUE #2
The 2016 Beta and KTM model ranges tested. Warren visits the 2016 Motocross of Nations. Pitgirl rounds up the 2015 EWC Season, plus columns from Si Melber and Rick Kemp...



ISSUE #3
THE 2016 Husqvarna model launch. The KTM 250XC-F tested. The Suzuki V-Strom 650 and Pitgirl's analysis of the 2015 EWC Season. Columns from Chris Evans, Gary Freeman and Si Melber...



ISSUE #4
Race test of 2015 250EXC and 2015 Husqvarna TE350 on the Grappe de Cyrano. Testing the Honda CB500X Adventure. Pitgirl on beating the off-season blues and columns from JB and Gary Freeman...



ISSUE #5
JB's Instant Factory Set-Up – Suspension for the amateur rider. TRF main-men Mario Costa Sa and Greg Villalobos interviewed, plus columns from Rick Kemp and Si Melber...



ISSUE #6
JB's first editorial. Interview with Jonny Walker. Dispatches – The TRF answers back. Profile of Patsy Quick, boss of Desert Rose Racing. RUST long-termers Pt1. Tested – Products for the Honda CRF250L. Gary Freeman column



ISSUE #7
Interview with David Knight OBE. What happened to the KTM 690 Adventure? Dispatches – In praise of the Honda CRF250L. The Michelin Anakee Wild adventure tyre. Chris Evans...



ISSUE #8
Yamaha's 'new' WR250 tested, the Royal Enfield Himalayan adventure bike, Iron Men – 3000 miles off-road on Harleys! The Adventure Motorcycling Handbook – 7th Edition.



ISSUE #9
Duel – Two riders, two KTMs, one title, Ivan Cervantes and Matt Phillips battle it out. The Yamaha IT490, 40 years on. Tested – Kit reviewed by Josh Snowden...



ISSUE #10
700KM on a KTM450EXC. Looking for Mexico with Thomas Wielecki. Tested – Warren and JB on the latest kit, plus a column by Chris Evans...



ISSUE #11
2017 KTM model range tested. EnduroGP the new face of World Enduro by Pitgirl. Gary Freeman with more MX insight...



ISSUE #12
Heritage – The BMW R nineT tested. Dispatches – Too light, too fast, too good looking? Travelling across the Alentejo region of Portugal on a KTM 450EXC...

BACK ISSUES

ISSUES 13-25

WWW.RUSTSPORTS.COM

To view our back issues (*FOR FREE!*) go to www.rustsports.com and scroll down through the issue list. Click on the icons for either a PDF download or to view a yumpu version online.



ISSUE #13
SWM returns! 10 reasons why you should buy a SuperTénéré. RUST do the Welsh – Part 1. Scott Prospect goggles, Chris Evans column and the first part of the Honda TLR project...



ISSUE #14
Yamaha WR450F finally tamed. SWM RS650R ridden and rated. RUST do the Welsh – Part 2. Knighter column - finally. July Behl adventure column. Alpinestars SX-1 knee guards...



ISSUE #15
2016 EnduroGP Round-Up. RUST did the Welsh! Finally... 2000km on the Road of Bones, Honda TLR 250 Project – Part 2, Gallery and Dispatches...



ISSUE #16
BMW R nineT Scrambler, Touratech's Adventure Country Tracks, Tom Sagar Profile, plus new models from Honda, KTM and Suzuki plus Galleries...



ISSUE #17
2016 ISDE from Spain, two new superlight trail-enduros from Fantic. Chris Evans In praise of the new CCM GP450 adventure bike plus products from Pirelli and Polisport...



ISSUE #18
2016 EICMA show from Milan, all the new models previewed, the Athens/Gibraltar Rally, A brief history of Acerbis and first report from Andy Dukes as he prepares for his RTW trip in 2017...



ISSUE #19
2017 Dakar race preview, the Wieleckis continue their search for America, Andy Dukes searches for the 'Perfect RTW Bike' and JB finds more nasty surprises on the Project TLR...



ISSUE #20
Part 2 of the 2017 Dakar preview, Part two of the Wieleckis US Odyssey, Andy Dukes is going solo RTW, Poole MCs Andy Sutton offers sage advice and Chris Evans is Dakar bound...



ISSUE #21
Exclusive first ride of Touratech's BMW R1200GS Rambler!!! 3 Plucky Brits tackle the Red Bull Sea to Sky, Warren M. takes on his first road book rally, and we test 100% goggles and the 6D ATR-1 helmet...



ISSUE #22
Is the new Sherco 300 SEF-R clubman friendly? RUST gets and exclusive ride on the Royal Enfield Himalayan, Andy Dukes gets some last-minute RTW tips, and we pick our fave clothing to keep us warm in winter...



ISSUE #23
Hawkstone Park, the first MX of the year, JB and Warren M. do round 1 of the R3 Rally Raid Series, the long term Husky TE300 and the WR 250F updated, products tested and part one of Best Western as six trail-mad Kiwis follow the Trans Am trail...



ISSUE #24
Forza Italia, is the Italian Enduro series the best in the world? We ride the new Fantic 250E Casa 4T. Best Western Part the six Kiwis continue their trip out West... RUST Products, a selection of trick parts, tried tested and rated...



ISSUE #25
We ride the new Gas Gas EC/EX 300 from the newly resurrected company. Portuguese trail heaven with Horizons Unlimited and updates on Chris Evans' WR250F and JB's now up-and-running Honda TLR250 trialler...

All material appearing in RUST is copyright to Rust Sports Ltd and may not be reproduced in part or full (including electronically) without the express permission of the publishers.

2018 KTM MODEL RANGE

RUST TECH



THE FUTURE NOW!

.....

This is the big story of the 2018 model year – KTM's fuel-injected two-strokes. The Austrians have cracked the nut that for so long looked impossible to break. Welcome to the world of fast, clean, fuel-efficient racing smokers...

.....

www.rustsports.com 

FIRST UP, KTM are not the first with fuel-injected two-strokes, not by a long shot. Purely on the basis of a quick memory test we can easily name earlier examples. For instance Honda's EXP-2 400cc desert racer of 1995. We can also name check Ossa and their more recent (2011) TR280i trials bike. Less successfully, there was the Bimota V-due 500 road bike back in 1997. And in the world of marine engines there are countless examples of mass-produced fuel-injected two-strokes, mostly outboards. But, for sure, KTM are the first with a large-scale serial-production fuel-injected two-stroke dirt bike of the racer kind.

Just recounting that history, Honda certainly had something with the EXP-2, their 'Activated Radical Combustion' motor realized the goals of cleaner emissions, greater fuel economy and easier riding – and the prototype racer was competitive, claiming fifth in the 1995 Dakar Rally. But the project stopped there, no efforts were made to turn project into production.

Ossa worked miracles for such a small firm. Their FI system doesn't lack sophistication; there are plenty of sensors (*for barometric pressure, air inlet temperature, coolant temperature and a throttle position sensor*) so in fact they achieved many of the much-needed benefits of FI too. But it wasn't quite the whole job, using (*you could say 'conventional'*) inlet port injection and requiring premixing of the fuel still – albeit at a wonderfully lean 100:1.

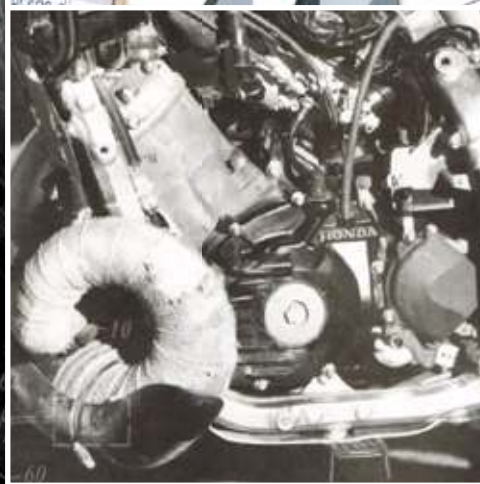
What KTM have done is the whole job. This is no prototype, no limited-numbers niche machine. They've created a mass-production competition two-stroke that fully complies with the stringent Euro 4 emissions requirements that became law on January 1, 2016.

Other two-stroke enduros are being made to meet this regulation – only to do that those models leave the showroom with mini-carburetors, strangling exhausts and all manner of ugly plumbing to deal with unburned gasses. They are strangled to the point you could get more performance from a kid's pedal tricycle. Only, of course, given that you ride a 'closed course competition' you're then allowed to remove all said gubbins, bolt on the correct carb and pipe and scream around on full power, throwing out all the nasty emissions you desire.

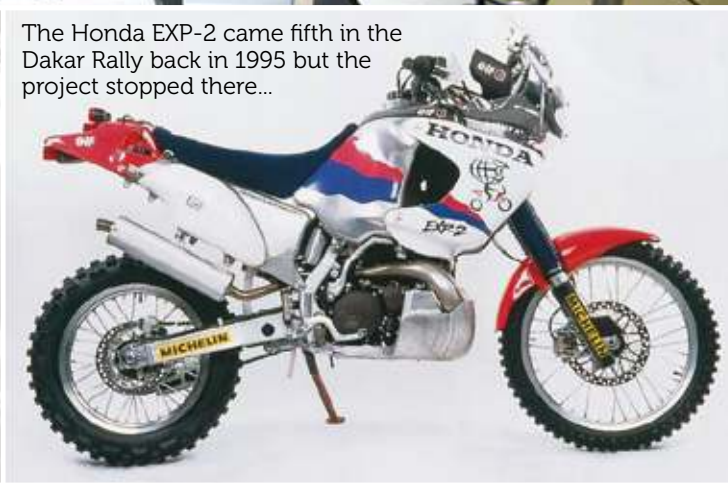
KTM's fuel injection, however, truly answers the desires of the legislators – we get full-power racers, but they get much cleaner emissions and more frugal fuel usage in all conditions. Proper greener racers. In fact a proper win-win.



Ossa's TR280i trials bike back in 2011



The Honda EXP-2 came fifth in the Dakar Rally back in 1995 but the project stopped there...



THE FUTURE – NOW!

RUST TECH

FUEL INJECTION

The **KTM** Way...

WE HAVE TO applaud KTM for getting this job done. If you read the short interview with Jochi Sauer you'll understand this was no 12-month project. Not even 12-years. This was a seriously long-term commitment. At the start the technology didn't even exist to reach the goal, so you can imagine the level of blue-sky thinking and sheer inventiveness required.

SO, WHAT'S TO KNOW?

Transfer Port Injection

TPI was the ultimate solution. It took over a decade to reach it. At the start, back in 2004, KTM were trying to make air-assisted direct injection work. It didn't. Then came a low-pressure direct injection system. That didn't work either. Then came inlet port injectors (*hint of Ossa with this one*), which was better, but not good enough, still. The breakthrough came a clear ten years after the project started, with (*rear*) transfer port injection (in 2014). This combined with the very latest in electronic engine management finally gave the performance that KTM were looking for.

TPI is a blessing in its simplicity, as it sees two injectors spraying finely modulated fuel into the rear transfer ports. Simple as that.

An intake pressure sensor also at the rear of the cylinder helps ensure the correct amount of fuel is injected.

Oil injection

Oil is no longer premixed into the fuel. Instead it's poured into a 750ml capacity oil tank that sits to the rear of the spine frame while a pump sprays the oil into the throttle body where it mixes with the inrush of air (*note the oil gets in first, the fuel second*). Engine speed and throttle position sensors ensure the correct amount of oil is injected, and it's not a lot, KTM say the average fuel:oil ratio is 80:1. Hence almost no smoke!

THE FUTURE – NOW!

Dell'Orto 39mm throttle body

Sharp-eyed readers will notice the throttle cable is now cables (*plural*) as the throttle valve requires two cables. The throttle body may have TPS but it still needs a manual pull-button for cold start assist.

Engine Management System

This is the command centre, and it would seem KTM have had external help here as the full name for this unit is the 'Synerject EMS' (*and if you recognise that name, then yes, that's because the French fuel injection specialists have also helped Sherco with their machines*).

The EMS is naturally all new, managing data collected from intake and ambient pressure sensors, throttle position and oil and water temperature sensors so as to best manage the ignition and fuel circuits. The EMS also looks after the task of compensations for altitude and air temperature. It also takes care of the operation of the radiator fan if you choose to fit one. And given the fitting of an optional map selection switch then it responds to your inputs there too. One damn intelligent piece of kit.

More powerful generator

All that intelligence needs extra power, so the generator has been upsized to a 196W unit, same as found on the four-strokes.

FUEL INJECTION

The benefits

- ★ More fuel efficient – greater range
- ★ No jetting – always optimal
- ★ Increased 'rideability'
- ★ Still cheaper than a four-stroke!
- ★ Easy to maintain
- ★ Reduced emissions
- ★ Smooth fuelling – no fuel stink during transportation
- ★ Less fuel evaporation
- ★ No premixing

RUST TECH



Fuel pump

Of course fuel injection requires a fuel pump to operate. Here KTM have a readymade solution in the fuel pumps already used in the four-stroke range, so it was a simple job to just transfer the kit.

TPI ON THE DYNO

Claimed max. performance figures from KTM:
250EXC TPI: 51hp
300EXC TPI: 54hp

THE FUTURE – NOW!

RUST TECH

FUEL INJECTION, THE JOURNEY

With **Jochi Sauer**, off-road
product manager, **KTM**

“**W**e started in 2004 with fuel injection although we had already been developing our ideas. I remember back in 1989 we knew then that there would be new emission rules and at this time we saw the solution being in fuel injection.

“So we already had talks with the University of Graz, and a big automotive company, about fuel injection, but at that time the solution wasn't feasible as you'd need special pumps, special injectors and for the quantity we needed this wasn't feasible.

“Another project we started with Orbital (the Australian-based engine specialists) would have been too complex, you'd have needed a super high pressure pump and these things didn't exist, and again as we'd need to develop these in small quantities it was not possible. You'd have needed an air compressor, and oil pump, everything would have been so complex, and you'd have needed a new design of engine, with all these things integrated into the engine.

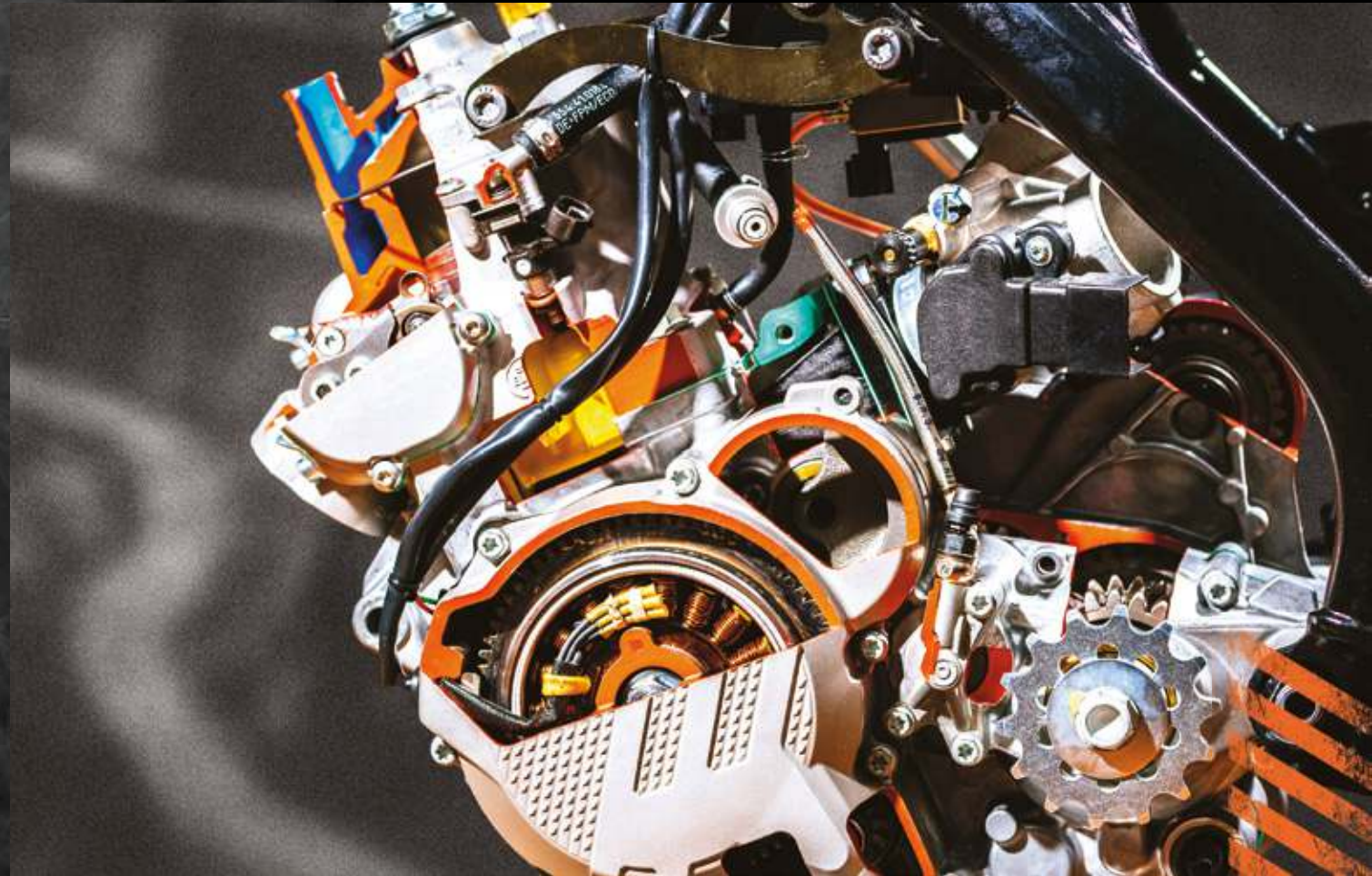


"It was a clear lesson, the Orbital system was a no-go because it was far, far too complex – we needed a system that fits the two-stroke. The bike should stay simple, it should be like rocket technology! And the version we have now is much easier, you can see the base engine, it is untouched."

"The key thing is fuel injecting a two-stroke is so much more complex than for a four-stroke. The two-stroke is a very simple device but the combustion process is a complex system and there are anomalies, like pinking, like flameouts, which you can't predict, whereas every cycle is the same on the four-stroke – the actuation of the valves ensures this. This is not a predictable machine like a four-stroke."

"So you can imagine the complexity in the engine management system that's needed to deal with the added variables. But at last we have the solution and we have made the systems easy to work with, with dealer-based diagnostics if a problem needs further investigation. And we've retained the simplistic essence of the two-stroke."

"We have still the same options. On this bike you can work with the spring of the power valve still – the three options – then there will be different engine maps available in the future. And different types of pipes, like power pipes from FMF. The 300, I think, is a still real powerful engine anyway, so we won't be delivering solutions offering 10 horses more. I remember when Taddy (Blazusiak) rode the 250 and 300 last year he immediately decided to race the Erzberg on the 250 because the 300 was too much for him!"



2018 KTM 250/300 EXC TPI

RUST ENDURO

WHAT'S NEW



New 'EMS' engine management

750ml oil tank with pump

New graphics

New, stronger radiator guards

Dell'Orto 39mm throttle body

Fuel pump within 9-litre tank



THE 2018 KTM ENDURO RANGE

KTM 2018 – The changes...

Not many changes this year, apart from TPI on the 250/300EXCs

Changes common to the range:

- ★ The WP Xplor 48 USD forks get new outer tubes to improve sensitivity, plus a new 'slightly stiffer basic setup'
- ★ New radiator protectors, stronger with improved self-cleaning
- ★ Revised graphics ('BNG'!)

RUST ENDURO

2018 KTM 150XC-W



2018 KTM 125XC-W



2018 KTM 250/300EXC TPI



RUST ENDURO

2018 KTM 250EXC-F



2018 KTM 450EXC-F



2018 KTM 350EXC-F



2018 KTM 500EXC-F



THE SIX DAYS MODEL UPGRADES

- ★ Silencers with Six Days logo
- ★ Skid plate
- ★ Carbon protector on two-stroke exhaust
- ★ Front axle puller
- ★ Supersprox rear sprocket
- ★ Radiator fan on four-strokes
- ★ Handlebars with Six Day logo
- ★ Solid rear disc



2018 KTM 350EXC-F SIX DAYS

- ★ Orange-painted frame
- ★ CNC triple clamps, orange anodized
- ★ Floating front brake disc
- ★ Six Days graphics
- ★ Orange-coloured chain guide
- ★ Six Days seat
- ★ Map select switch
- ★ Preload adjuster on the WP Xplor forks

From **€670** (2 days) including full board

Contact us for more details

Fleet of 10 new 2016/7 KTM's all with preloaded tracks on GPS

(ride at your own pace)

Support vehicle with guide and sweepers

OFFROAD PORTUGAL MOROCCO

Off road guided tour calendar: <http://horizonadventures.pt/calendar/offroad>

TOURING

From **€1500**
(7 days)

Guided (max 8 riders)
and self guided tours all year round
Fleet of BMW GS' 700 – 1200cc
Guided tours feature luxury
accommodation and support
vehicle for luggage

PORTUGAL
SPAIN
MOROCCO
ICELAND
SOUTHERN AFRICA

HORIZON ADVENTURES



Fly and ride from
just **€840**
– full package

RALLYRAID
PORTUGAL
NOVICE TO EXPERT

(including accommodation and event entry)
Road book orientation + support vehicle
Or bring your own bike

Calendar

15-17 September 2017 - Mação

10-12 November 2017 - Faro

Contact us for more details



+351 912 235 241 +351 913 674 085

pedro@horizonadventures.pt

joao@horizonadventures.pt

www.horizonadventures.pt

Whats the next adventure on your horizon?

Cofinanciado por:



2018 KTM 250/300 EXC TPI

RUST TESTED

Words: Jon Bentman
Images: Marco Campelli &
Sebas Romero

STROKE OF GENIUS

If anything could define the might, the muscle, of KTM, then bringing the first fuel-injected two-stroke enduro to the market is it. But does it need muscle to ride it? With the launch taking place at the infamous Erzberg iron mine you just might think so...

www.rustsports.com 

THE KTM 300EXC TPI felt entirely normal. Press the start button, blip the throttle a few times, pull in the clutch, select first, ride away. First-second-third – brap, brap, brap – all normal. Wheelspin. Skid. Wheelie. Normal.

Normal, eh? Yet these TPI models are the big news of 2017. It's taken KTM 14 years to get here. Fuel injection in four-strokes was comparatively easy, for two-strokes it's taken over a decade longer to master. This is a remarkable feat that KTM have achieved – not quite putting man on the moon stuff, but for so long creating the fuel-injected two-stroke dirt bike been so near impossible. So it's a bit curious that the feeling is 'normal', yet I'm almost certain KTM are celebrating that very fact.

BECAUSE NORMAL IS EXTRAORDINARY


Erzberg, the launch venue, is of course not normal. It's something huge. A mountain eaten alive, rock-by-rock, given man's hunger for iron ore – to make steel, to make stuff like these KTMs. This is also a place of legend, only not for the prodigious quantities of iron ore extracted, but for its brutal reputation for crushing men and machines. In the form of the Erzberg Rodeo extreme enduro this giant mine wreaks its revenge – most of the world's population will at some point have seen film footage of enduro bikes, and riders, falling end-over-end down its precipitous slopes.

KTM have brought us to Erzberg because for all of its fearsomeness this is their playground, their two-stroke enduros have built a reputation based on being able to conquer this pitiless terrain. Prove that the TPI equipped EXCs can thrive here and we can pretty much be assured they'll be good anywhere.

Only I'm not so sure, as a clubman level rider, I'm quite as well equipped.

Fortunately, as I said before, when it comes to this new fuel-injected EXC, I have something of a magic parachute. As ever the 300EXC can deal with stuff other enduros can't. The motor is absolutely amazing, the chassis just so well balanced. Normal 300EXC practice.

It's only when given time to breathe (*between mind-buzzingly huge hill climbs and descents*) that you get to realize this is the new normal not the old normal. For the KTM EXC TPI experience is the same as the old EXC experience, only a little bit better.



'This is a remarkable feat KTM have achieved – not quite man on the moon stuff, but it's taken them 14 years to get here...'

RUST TESTED





SMOOTH

For instance when you start a TPI model, it starts easy and it starts clean. From the off the fuelling is crisp, there's no blubbering until you clean it out with a few prolonged revs, you can just quietly give it a few blips of the throttle, allow the piston and rings and the cylinder bore to find their optimal interface temperature – and then go. And the ride – smooth is the adjective that comes to mind. Again and again.

The KTM EXCs found their smooth last year (*2017MY*) with the counter balancer. In fact at this launch KTM's Jochi Sauer described those 2017s as '*2018 models without the TPI*' – and that's fair comment as but-for a fork tube mod and radiator guards (*aside from TPI*) they are identical to this year's bikes (*BNGs also aside*). Only in the TPI bikes that smoothness feels even more apparent. Fuel injection makes for clean linear fuelling from start to finish, and that combined with the counter balancer makes the experience complete. These engines are smooth operators.

Being a clubman-level rider it was immediately apparent how easy to ride the TPI machines are. Neither the 250 nor the 300 want for extra power, but the delivery is certainly as tamed as I've ever found. The rev-build is even and predictable – you're never taken by surprise – so much so that the option of a soft map (*the test bikes came with the optional engine mapping switch*) felt superfluous, the ride was easy enough already. I'm sure expert riders will want for more bark, although I'm equally sure the engineers will argue that they don't actually need that – an easy-to-ride bike is a fast bike. But as the KTM engineers assured, if you want more snap in your ride you can still play with the power valve springs (*three options as before*).

NATURAL

KTM's are so much in the majority in enduro paddocks these days that their ergonomics have become the norm. A few years back we might have discussed handlebars that were too low or too flat, PDS making the rear feel too high, that kind of stuff. This year, as it has been for a while, you jump on a KTM and you are instantly at home. Either KTM have gently swung to our suggestions, or we've become entirely adapted to them. In any case, but for the slightest adjustment on the handlebar levers I didn't need to adjust anything on this test. The seat felt slim and flat, front to back. The bars were just right, the radiator panels weren't too wide. Everything was where it should be. Now I do recall our Warren M. being upset with the footrests feeling too high on the 2017s, but they felt

RUST TESTED



2018 KTM 250/300 EXC TPI – Jochi Sauer explains...
www.youtube.com/watch?v=z6KdM5w8GW0

fine on this occasion (*although, hey, it would be interesting to try lower pegs, just to see*). No, the bikes are, for me, immediately comfortable.

Handling and suspension were just fine for this clubman rider, too. For sure, with time to work through sag, spring settings etc, the ride would be improved even more – at 100kg in ride kit I'd probably be better off with firmer springs – but as a base to start from the setup feels spot on. The steering is predictable and secure, the forks felt fine and given a day riding up and down this iron giant of a mine I was impressed that neither of my palms cut up. I'm sure those new screw-on ODI grips (*as first fitted last year*) make a big difference.

REVVY OR MELLOW?

We always come to that same question when we ride a 250 and 300 together – which is the better? That's almost too difficult to answer. As always it depends on the kind of rider you are. This year the 250 felt to be the raspier more racy of the two, a traditional E2 flier. The 300 meanwhile was again the extreme terrain king. The only time I didn't make it up those legendary Erzberg climbs was when I was riding the 250, coming up a foot short having misjudged the momentum needed to make the summit. I'd sprung over the same climb just minutes before on the 300, no sweat, but with the 250 just a little more attention was needed (*obviously*). The trade-off is the 250 feels that little more nimble through the trees and can be thrashed that little harder without fear of it getting too animal. Racers generally love the 250s, lazy lard-asses like me (*and conversely ninja extreme riders*) prefer the low rev never-fail dependability of the 300. Nothing's changed there.

IT'S NOT IN THE RIDING...

Riding the 2018 TPIs then, it's just like riding the 2017s only with better forks and even smoother power delivery. TPI is like a little honey over your favourite breakfast, it's just so, so sweet.

And that would be reason enough to buy a 2018 EXC TPI, but actually it's the rest of the TPI story that really tips the balance. I like that KTM have managed to totally complete the packaging. FI needs a fuel pump. And so KTM found they could just raid the EXC-F stores cupboard and there's a lovely unit, fully fail-tested, ready to go – just drop it into the bottom of the translucent fuel tank. FI also calls for oil injection, and again a neat little 750ml tank sits in an easy location under the backbone frame, again with a neat little fully integrated pump and easy filling via a



RUST TESTED



The throttle body and the fuel pump were no problem, they just went to the spares cupboard... The head scratching really started when it came to adding in the oil...

www.rustsports.com



RUST TESTED

'Racers generally love the 250s,
lazy lard-asses like me
(*and conversely ninja extreme
riders*) prefer low rev never-fail
dependability of the the 300.
Nothing's changed there... '



filler cap just behind the headstock. The fuel injectors appear as a pair of modest plug-in units on each the side of the cylinder, with two short pipes and T-piece to the fuel pump.

It's all so super-tidy, neat little sub-systems that can be detached and reattached in just minutes, there's nothing that the reasonably competent home mechanic can't deal with. The worse case scenario is possibly having to take a sub-assembly to a dealer for checking out. If drawing a complete blank then the EMS unit allows a computer diagnostics check at the dealer, too.



2018 KTM 250/300 EXC TPI – Ride along with JB...
www.youtube.com/watch?v=4v6IoSJl4jM

RUST TESTED



RUST'S QUICK CHECK

	2017 250/300EXC	2018 250/300EXCTPI
Fuelling	Mikuni TMX38	Synerject TPI/ Dell'Orto 39mm throttle body
Dry weight	100kg	103kg
Seat height	960mm	960mm
Fuel	9.5 litres	9 litres
Wheelbase	1482mm	1482mm
Steering angle	63.5°	63.5°
Ground clearance	370mm	370mm



But as well it's the ease of use in every way that is so impressive. Premixing is an arse of a job, and so doing away with that is cool by me. The fact that TPI has also vastly improved the fuel efficiency is another boon for the owner. It's ridiculous just how little these two bikes drink. And that goes for oil as well. KTM were talking 20-30% greater fuel range and that looked conservative when I was checking the fuel tanks after the morning and afternoon ride sessions, these bikes look to be approaching 250F fuel consumption rates. Cross-country racers especially are going to rave about this advantage, for sure.

BETTER

KTM stressed just how long and difficult a road it was to get to this point. For years they've teased us with 'maybe next year' to the eternal 'when?' question over FI. Now it is next year and it was worth the wait. KTM have made the switch, but not too soon. This is one thoroughly sorted product; tested, improved, simplified, right. And, as it turns out, better.



RUST TESTED

RIDING ERZBERG

'The Erzberg is just nuts, if the TT comes with a mathematical chance of disaster, Erzberg is a mathematical certainty. There is a 100% chance if I rode the Erzberg I'd get hurt...'

NO PART OF me wants to ride the Erzberg Rodeo. Some forms of madness I can countenance – the Isle of Man TT for instance, yes I could do that, given enough time to memorise the course and get up to speed (*I used to road race*). But Erzberg is just nuts, if the TT comes with a mathematical chance of disaster, Erzberg is a mathematical certainty. There's a 100% chance if I rode Erzberg I'd get hurt. It's that brutal and in the company of 500 complete nutters if the course didn't murder me then one of them would.

Riding it, or rather select parts of it, on a launch was easier. And having the 2018 KTM EXC TPIs made it whole lot easier still. On my own, or as part of the Rodeo, nothing would make me want to tackle the Erzberg slopes, they are that big, that intimidating. But at a launch and given the luxury of a one-by-one attack up the hills, and given the



stimulus of not being seen to be the weakest link, it was do-able. Terrifying, for a clubman rider, but do-able. In fact coming down was scarier than going up, you'd kick rocks loose and whereas they fall behind you on a climb, on a descent they come after you, maybe even kicking up and whistling past your ears. And besides, trying to go too slow on those slopes was to invite disaster again, best to let it roll a little faster than you'd like and try not to scream.

I managed the distinction of falling from the very top of one climb (*oh, for a whiff more throttle mid-climb*) and it was an exciting fall, through air, then scrabbling like mad as I connected with the scree slope, trying to kick my boots into the loose stuff to slow the descent without flipping myself over, fingers like claws dragging over the rock. All the time wondering just where the bike was – hopefully not coming after me. Then, when everything at last settled, came the joy of sorting the bike and riding back down from the hallway up/down point I'd ended up at (*with Letti – Andreas Lettenbichler, extreme enduro professional – on my case there was no bulldogging down, no, it was ride down and give it another go...*).

Yes, Erzberg was everything it's made out to be. Big, ugly, mean. It's actually something of a sad sight, being a huge quarry that's desecrating an otherwise pristine alpine environment, but in this instance nature's loss is an extreme enduro rider's gain. Heaven or Hell? Maybe a bit of both.



FIFTY

So KTM are first out of the blocks with fuel injection. But could others follow soon? We think so! Check out this piece from the archives of TBM 224, April 2014 that looks into the resources and intentions at Gas Gas before the 2015 collapse. Now with a new owner and more funding could we see an FI Gasser within two seasons?

TWO'S COMPANY

What's really exciting us, is the potential for a new breed of Gas Gas two-strokes. Clearly Gas Gas aren't looking to use the outdated technology from Husky's existing two-stroke 250/300cc WR models, given that the design was already exceptionally long-in-the-tooth. No, what the Spanish will be looking to utilise is the two-stroke technology that Husqvarna were busy developing prior to their acquisition by KTM, but which has yet to see the light of day.

Because it was well known that Husqvarna and BMW were working together on a new generation of fuel-injected 250 and 300cc engines for the WRs. What we didn't know was just how close they were to production...

'The direct injection engine...? It was finished', commented a source within the Italian factory, 'It'd been ridden and was ready for pre-production testing. Then it was canned because it was as heavy as the four-strokes!' he told us.

As disappointing as this sounds, it's widely accepted within the industry that an EFI-equipped, electric start two-stroke is always likely to weigh more than a carb-fed, kick-only machine. There's no getting around the fact that EFI requires a fuel-pump and the necessary fuel metering, which in turn means additional electronic complexity.

But ten extra kilos of mass is hardly something to crow about in your new bike's marketing, and when the competition is both considerably lighter and technologically simpler, you're better off waiting until the playing field's been levelled by emissions regs and everyone is forced into showing their hand.



Will we see a fuel-injected Gas Gas stroker in the near future?
Watch this space...

Of course, it could just be that BMW knew they were going to let Husky go, and pulled the funding. Or alternatively that they were waiting until legislation demanded direct-injection two-strokes.

Whatever the reasoning, it sounds like the hardest work has already been done so all Gas Gas has to do is to get the engine more-or-less market-ready and launch it when necessary. In one fell swoop the Spanish company will have updated their entire enduro range without the need for costly, starting-from-scratch, R&D.

Then we come to the third element, the Ossa Enduro - certainly the most radical, or at least most ambitious, two-stroke enduro bike we've seen to date. Utilising the same principals they applied to their 'customer' trials machines, Ossa's prototype featured a reverse intake (*with the expansion chamber coiled under the seat like a sleeping python*), twin injector EFI, electronic powervalve, rearward slanting cylinder and a fuel tank nestling behind the frame downtube. That was back in 2011 and, despite talk of taking their prototype racing, Ossa have been noticeably quiet about the new Enduro bikes recently.

Back in 2011 Ossa produced a prototype enduro bike with twin injector EFI, rear slanting cylinder and serpentine exhaust system...

There's no doubt that the bike doesn't need to be such a departure from the 'established' norm to function as a competent off-roader, but then the same could be said for the 70-degree Husaberg engines, and we absolutely loved the way they rode. And whilst aspects such as the underseat expansion chamber brings with it inherent problems which will need to be addressed (*in this case heat dissipation*), there's also some clear benefits (*an end to dinged pipes...*).

Could we see elements of that bike AND the Italian design being used together? Certainly anything's possible. Or perhaps the bike will be rolled-out with the Husky engine in place of Ossa's version. Rumours we've been hearing recently suggest that Ossa have put their EFI enduro motor on the backburner and are going to fit the current Gas Gas EC engines in their bikes. In the short-term this will help the brand gain a foothold in the market and recoup some money, so it will be interesting to see which path the factory decides to take.





RUST

WWW.RUSTSPORTS.COM

Visit www.rustsports.com for the latest video content, social media feeds and issues...

To view any of these videos just click on the link below the thumbnail to go direct to the Rust Sports youtube channel...



www.youtube.com/watch?v=z6KdM5w8GWO

2018 KTM 250/300 EXC TPI FUEL-INJECTED TWO STROKES

Jochi Sauer KTM of-road product development manager explains the story behind the development of these revolutionary two-strokes...



www.youtube.com/watch?v=4v6loSJl4jM

2018 KTM 250/300 EXC TPI FUEL-INJECTED TWO STROKES

Ride along with JB on the latest KTM TPI machines and hear his verdict on these Euro Stage 4 compliant motorcycles...



www.youtube.com/watch?v=8516kr_og58

NEW FOR 2018 GAS GAS EC300 RIDDEN AND RATED IN GIRONA

JB rides the latest offering from the recently resurrected Gas Gas company with new frame and suspension and many more upgrades...



www.youtube.com/watch?v=SEjSqECe6sA

FIRST RIDE OF THE BRAND NEW FANTIC 250 CASA

JB takes a spin aboard the new 250 Casa from Fantic and speaks to Dean Clements the UK Fantic importer about future plans and other new models...



www.youtube.com/watch?v=gJPCcPFgXT8

WE TALK TO SAM SUNDERLAND 2017 DAKAR RALLY WINNER!

JB asks Sam to show us around his KTM 450 Rally giving some insight into the workings of a modern long distance rally bike...



www.youtube.com/watch?v=ul7_ebar560

WE GET TO RIDE THE 2017 SHERCO 300 SEF-R

Join JB for a ride on board the Sherco 300 SEF-R to find out if the EnduroGP winning model is actually clubman friendly or a bit of a handful...



www.youtube.com/watch?v=6Sy-azHjAKM

THE FINAL ROUND OF THE 2016 R3 RALLY RAID CHAMPIONSHIP

Our intrepid reporter Warren M. tackles the last round of the R3 championship in Portugal, and finds the Algarve a little moister than usual...



www.youtube.com/watch?v=xH0E2Ra1TL4

2016 Welsh Two Day Enduro THE MOVIE

– RUST rode the Welsh and lived to tell the tale... just. The trials and the tribulations all here, in glorious colour. Enjoy...



www.youtube.com/watch?v=7_EGuentg3s

2017 HUSQVARNA Range Launch

The 2017 Husqvarna enduro bikes, ridden and rated by RUST's Jon Bentman... Check out the 2017 Husqvarna Special Edition at rustsports.com.



www.youtube.com/watch?v=RwK49cZ4yvs

2017 BETA Range Launch

The 2017 Beta enduro bikes, ridden and rated by RUST's Jon Bentman... Check out the full review in the 2017 Beta Special Edition at rustsports.com.



www.youtube.com/watch?v=a0K02x9reLQ

2017 KTM Range Launch

Warren Malschinger and Josh Snowden go to Portugal to ride the extensively redesigned 2017 KTM enduro range...



www.youtube.com/watch?v=mVYqp3biTnc

2016 BMW GS TROPHY THAILAND

Montage of scenes from the South-East Asia GS Trophy featuring comments from Kurt Yaeger, Tom Wolf and our man Jon Bentman...



www.youtube.com/watch?v=HQBN2qbfpY

THE TRAIL RIDERS FELLOWSHIP

Read the story behind the ethos of the Trail Riders Fellowship in RUST Magazine Issue 5 available FREE on the website www.rustsports.com



www.youtube.com/watch?v=L8ePyI2E4M

2016 V-STROM 650XT

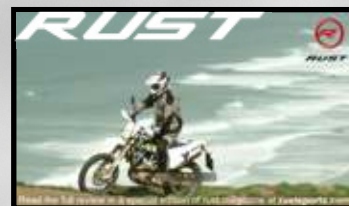
Seve Hackett explains the revisions to the Suzuki 650 V-Strom in order to make it more suitable for all-out adventure riding...



www.youtube.com/watch?v=yriJw_FU910

2016 YAMAHA WR450F

JB tests the new Yamaha WR450F in the hills of Andalusia and finds that it's packing some heat and demands a good deal of respect...



www.youtube.com/watch?v=8l54XQQYoPo

2016 HUSQVARNA 701

Testing the new Husky 701 Enduro and the 701 Supermoto on the road and on the track...



www.youtube.com/watch?v=9oHMTpB0RNw

2016 HONDA AFRICA TWIN

Exclusive first test of the new Honda CRF1000L Africa Twin... Read the story in the RUST Magazine Special Edition at www.rustsports.com



www.youtube.com/watch?v=ntK07l63tUa

HONDA CB500X ADVENTURE

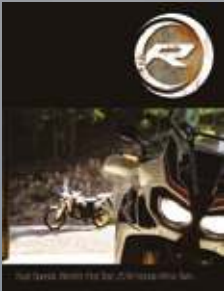
Jon gets an exclusive ride on the Rally Raid Products latest adaptation of the CB500X for the adventure riders out there...

WWW.RUSTSPORTS.COM

Subscribe for free at www.rustsports.com
and we'll e-mail you every time a new issue comes out...



All material appearing in RUST is copyright to Rust Sports Ltd and may not be reproduced in part or full (including electronically) without the express permission of the publishers.



HONDA CRF1000L AFRICA TWIN SPECIAL EDITION
RUST gets the exclusive world's first test of the new Honda CRF1000L Africa Twin!



HUSQVARNA 701 ENDURO/SM SPECIAL EDITION
Test of the new Husqvarna 701 Enduro and 701 Supermoto



YAMAHA WR450F SPECIAL EDITION
RUST tests the all-new Yamaha WR450F in the hills of Andalusia, Southern Spain...



2016 BMW GS TROPHY SPECIAL EDITION
RUST joins the GS Trophy riding across Northern Thailand on board the latest BMW R1200GS



2017 BETA RANGE SPECIAL EDITION
JB braved the heat and went to Beta's home town just outside Florence to test ride all the latest 2017 models...



MADAGASCAR SPECIAL EDITION
JB joins the Touratech United People of Adventure expedition to the island of Madagascar...



2017 HUSQVARNA SPECIAL EDITION
Full test of the 2017 Husqvarna model range, with New for 2017, some history and the final conclusions on JB's favourites...



TOURATECH BMW R1200GS RAMBLER
First full test of Touratech's 200kg, 125hp Enduro R1200 GS Rambler in the Azores!



RUST TOURATECH AUSTRALIA SPECIAL
JB embarks on an adventure into The Outback and returns humbled by the experience...



CONTACT

RUSTS SPORTS LTD

www.rustsports.com
Warwick House
The Grange
St Peter Port
Guernsey
GY1 2PX

Editor: Jonathan Bentman
editor@rustsports.com

Designer: Andy Riley

Industry & Advertising Liaison:
Alex Waters
alex.waters@rustsports.com

Commercial Manager: James Linane
james.linane@rustsports.com

Managing Director: Warren Malschinger

Copyright: Rust Sports Ltd.
All rights reserved.

Thanks to:

All the boys and girls at KTM for putting
on an amazing launch!

Reproduction of any part of RUST is prohibited
without the express permission of Rust Sports Ltd.



Image: KTM