Bikes Thumpers Check your F650GS or Dakar Forks

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Page 12 of 17 <u>« First | ≤ | 2 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | > | Last » | ▼</u>

#166

01-05-2010, 02:19 PMdwayne



Silly Adventurer

Joined: Feb 2006 Location: wheelie in purgatory, Calgary Oddometer: 2,519

## Quote:

## Originally Posted by Eso Teric

Very true comment, although braking introduces a very minor stress it does however become a "consistant" stress in that it is always a constant and an un-measurable force and is also something a motorcyclist does very very often without even any thought, topped off with the fact that this exact force is focused at the same point on a fairly small area ALL of the time.

What i mean by that is: when i brake, be it very minor or very harsh (without including any ABS factors), the force applied to the brake on the LHS travels from the fork and down through the steel axle to the RHS fork, it then finds that other than the wheel itself, the excess energy has no where else to go but up through the RHS fork lug, it travels that way because it is 2 things, firstly: it is an aluminum structure that has been cast forged and is thus weaker than the the steel axle and secondly: because the excess energy will go the path of least resistance (ie: the RHS fork lug) because it does not have any opposing force traveling towards it. That therefore means there is also a LAG issue, the RHS is now lagging behind the LHS during braking in a small but very consistant way. The BMW GS is also quite a heavy bike so paralleling to the above mentioned is the fact that the bike itself will tend to "slide" rear wheel to the left under heavy braking, this is due to the fact that the rear brake is also on the LHS.

I'm sorry but it will now become a little more complicated because of the fact that G forces will also need to come into the equation.

Under braking or acceleration any vehcle will undergo certain G force's, this means that under acceleration a vehcle will suffer extra weight in the rear area and under braking it will suffer extra forward weight, with a bike that tends to go left at the rear wheel under heavy braking, it will also end up with 1 + 0.5 + possibly more, extra weight on the LHS.

What that all means is that while the **RHS fork lug** is trying to go forwards/outward under braking, the **RHS fork leg** is trying to go downwards and depending on how much front brake is being applied, upwards because most of the forces are on LHS.

Due to the angle of the forks i seriously have doubts that hitting an object or a pot hole would only effect just the one side, also the fact that hitting a pot hole or other would have an effect both sides, or would be fairly evenly spread between the 2, I also feel that the forks themselves are placed at just the right angle that any road force like pot holes have an up and inward effect.

Saying that though, it does lend itself to the "metal fatigue" issue, if you hit a pot hole, brake, brake again, hit a pot hole, brake etc etc, what i can see here is a RHS lug going from up and inward to outward/up with a LH pull.

My small amount of time spent doing NDT (non destructive testing) involved testing aircraft crank shafts and squirting metal dye on it and putting it through a magnetic chamber so it by no means makes me an expert, i do however feel that the fact the investigative authority didn't feel the need to physically touch and see and then test the actual failed product, seems a little odd to me, i think 'dwayne' (and others) would agree, without independant/internal testing the possibility of this failure occuring again is still the subject of conjecture, more importantly what will it take/cause before it becomes a subject of serious attention?

Whether BMW themselves have a case to answer or whether it really is a manufacturing fault i think that the

best outcome (and not just PR wise) is if BMW where to offer the fork replacements at cost price, even if they include a cause whereby any induvidual that wishes to utilise this offer must get their bike serviced at a BMW approved service outlet for the next year.

For all of us users of GS's built before the new forks it would mean peace of mind and a chance that we might purchace another BMW. Right now i am tossing up between the new 800Gs and the new 1050 Triumph tiger, at this point in time the tiger is winning and not just because it is cheaper.

I would be interested to read the thoughts of others in this regard, especially you dwayne, i think that with your background you amongst any of us could give light to this issue and maybe even your personal thoughts on how to fix it.

Eso

Wow, thats alot.

I suppose the differing forces theory could have some merit, but the problem does not exist on anything approching the majority of bikes, so it seems the part was engineered to withstand these stresses. Something else has happened that allowed these design parameters to be compromised. That's really the thrust of why I think you may be overthinking this. The statistics just do not bear out a fatigue failure.

The fact that the problem exists in a small number of parts leads me to belive that there was a process problem, that only occured on a small number of parts, that for one reason or another proved to be the initiation point (or stress riser) for the catastrophic failures that we have seen.

This is only my theory. We do seem to have information that the crack started on or near the outside surface of the part, which seems to go against my theory and agree with what BMW has to say. But I'm pretty sure that's far away from the whole story. For the moment I will hold to my theory.

How to fix it? Determining the probablity of cracking is a huge and expensive undertaking, so IMHO that's not practical. Testing the forks, while much less expensive, is still about equal to the price of new sliders, and the tricky thing with testing is the best that can be determined is that there are no defects present that are detectable by the utilsed test method(s), but the kicker is that you cannot predict if it will or will not fail in the future. The newer design seems to have beefier mounting points that either compensate for the weekness introduced by the odd flaw that happened in the old design, or more likely the actual change in geometry greatly reduces (or even eliminates) the chance of the flaw occuring. Either way, replacing the slider seems to be the way to go, if you want to stay stock. If you look at the picures of the newer sliders the areas of geometric change around the lugs not only have more material, they also reduce the amount of really abrupt changes. In castings especially areas of abupt geometrical change are especially subject to casting flaws, including localized hardening.

I fitted WP 50mm Extreme conventional forks and got better suspention and the knowledge that these forks won't crack. That's my solution.

I suspect that unless BMW explicity owns up to the failures, or BMW, or some other party is found at fault in either an investigation or in court, we will never be able to definitivly assign blame. It's pretty hard to accurately asses the conditions while, or just before the failure. IMHO BMW is not gaining allot of consumer confidence in the way they are handling this, and are looking to be at fault by blaming the rider.

Rum Runners Yukon, NWT & Alaska Roads and Ruins Scotland Kinbasket Lake Golden B.C. A "Day" of Dirt Biking Rockies East Slopes High and Dry Colorado and Utah

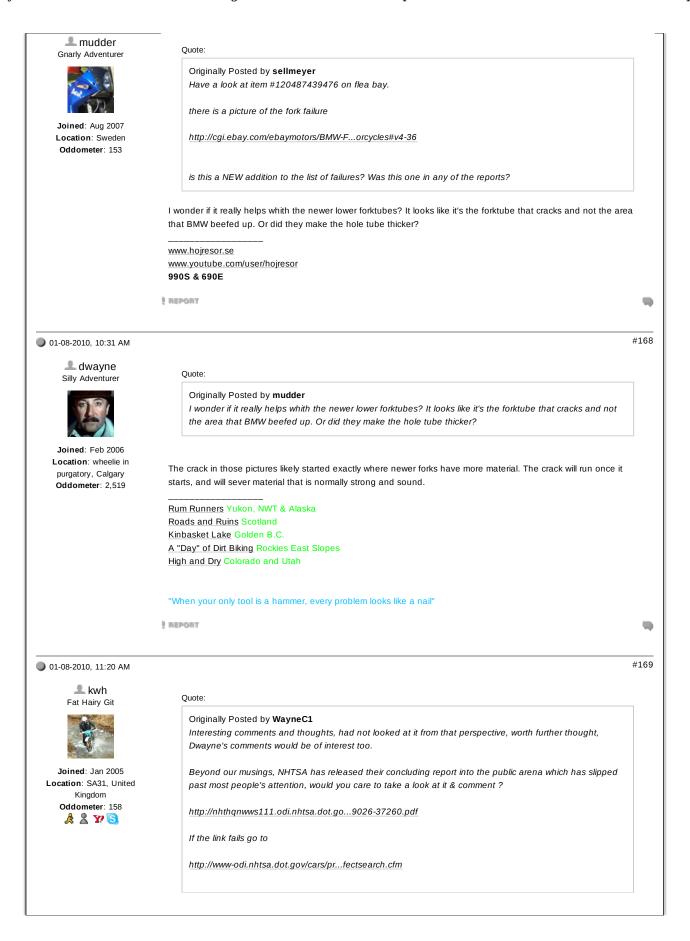
"When your only tool is a hammer, every problem looks like a nail"

dwayne screwed with this post 01-05-2010 at 02:36 PM

REPORT

01-08-2010, 04:48 AM

<sup>‡</sup>167



Do a search on PE09026 then a document search & it brings up the list of publically available documents

As to the solution to the problem? replace the forks, WP from a KTM are appealing & there is the YZF conversion thread here on advider

So, just to clarify then, if you completely discount the perceptions of the riders who believe that their front wheel detaching was the cause of their crash, and just go with the statement from BMW about forces imparted to the front axle lug when the bike is slammed to full lock in a crash...

...then are BMW and the NHTSA both (not actually) saying that if you manage to get into a proper lock to lock tankslapper then your front wheel may well come off, but that's not a safety related defect? After all, if you've ever seen the forces involved in a proper thumb-busting tank slapper, perfectly capable of smashing the lockstops on a bike, compared with those from 'a minor fall offroad', you might have pause for thought... I've had extreme bar-deflection offroad at low speed without falling off caused by riding over some unfriendly bit of terrain.

If BMW admit that whacking the lockstops hard enough can cause the front wheel to fall off, then they surely also have to explain to the TSA why whacking the lockstops that hard can only possibly happen in a crash.

I'd also muse that if you rode over a set of slippery railway tracks slightly leant over and lost the front momentarily, you could easily get a momentary front end tuck, followed by the tyre gripping again and the lockstops taking a hit or two. You'd hope that once the bars had waggled and scared the crap out of you, the bars would settle down and you could ride home to find some new underwear. Unless the front wheel has already fallen off.

Thing is, if that is a possible wheel detachment mechanism, it should be possible to rig up an early F650GS on a rolling road and provoke a proper tank slapper to see if the front wheel does fall off or not. Obviously, with a video camera running...

Ken Haylock BMW K1200GT SE & Triumph TT600 http://www.cix.co.uk/~kwh

REPORT

01-08-2010, 11:27 AM

#170

-

\_ WayneC1 Gnarly Adventurer Joined: Oct 2008 Location: Sydney, Australia Oddometer: 232

Interesting analysis by Eso Teric & may have some merit

The original forks had quite a sharp curve around the centre of the axle mount where it attached to the fork. The newer design is well supported around this area. The original did not seem to have much in the way of lateral support against any twisting forces (as in braking) as a result of the shape around the axle centre

Whilst the pictures of the ebay failure are not the best resolution it is clear more of the lower area has broken out than on some others. You can also make out on the inner edge a raised area at the top suggesting it has peeled open to the left with the failure starting on the RHS axle mount edge where the sharp unsupported area is.

It would be good to see some higher res images of that failure

! REPORT

#171

-

01-30-2010, 02:15 AM

\_\_\_vortex\_ now snow snow :(



Joined: Jun 2006 Location: Twin Cities, MN Oddometer: 873 Quote:

## Originally Posted by WayneC1

What we do know however is that BMW attempted to limit the scope of the investigation to only failures which occured on US soil & only machines owned by US citizens. This was rejected by NHTSA and all failures on US soil or associated with US citizens were listed for investigation, hence the 4 failures listed. These are PE10252808, PE10238415, PE10245369 & one other whose details are not publically disclosed.

The odd part in the sudden conclusion to the investigation is that NHTSA had arranged to meet the 2 people who suffered failures in 2008 and collect their broken forks for inspection and or testing. These appointments were abandoned at short notice with a reason given in only one case of "something has come up".

The findings are firstly that there have been "infrequent, sporadic, and random" failures in pre October 2002 F650GS forks. So the failures and the individuals involved are confirmed as real.

The failures on each machine occured at 1400 miles, 5000 miles, 10,000 miles, 30,000 miles

The investigation (without inspecting or testing broken forks) has concluded the failures were a "forced" failure not fatigue related. ie The strength of the fork leg was exceeded

The NHTSA statement "There is no data conclusively establishing that the subject fork lugs are separating before an alleged crash occurs" fails to take into account the photo's of an oil trail on the road back to the start of the accident in 2 cases investigated and the verbal accounts from failure victims in other cases who reported an inability to steer into comers prior to crashing.

BMW has apparently stated to the investigators that the forks were redesigned to prevent axle lug detachment "during" accidents. This is a far cry from the previous BMW claims of being unaware of any failures & that the fork redesign was a "product enhancement".

The announcement does not provide any peace of mind for those of us who were hoping the investigation would provide some clarity as to the cause of the failures & hence whether fork legs should be replaced.

I don't mean to derail this excellent thread. But it is really sad that is appears that the NHTSA has become nothing more than a coverup tool for the manufacturers.

If you want to be depressed - read about how they bent over backwards to help Toyota cover their ass: http://www.latimes.com/news/local/la...257,full.story

-vortex

? REPORT

#172

01-30-2010, 03:27 AM

Cdnabn49
Gnarly Adventurer



Joined: Jan 2005 Oddometer: 345 2 cents worth... the road was normal Alberta balck top... tar snakes / weathering / pockmarked... the failure sent the bike in the ditch bending and twisted (noticibly) the lower triple tree - which wobbled and leaned so much it was funny - if you've ever hefted one you know how stout these things are / rear subframe / faining bracket / handlebars / snapped the stock fork bridge / bent the brake pedal / bent both upper fork tubes - clearly snapped the one lower and the other was fine / bent the axle so there was a noticeable bend / bend the front rotor / pinched the radiator / broke mirror / levers / signal lights... the list of minor stuff goes on... needless to say it was pretty much a right off - except I rebuilt - wrenching time for me - my first project... and what a project, a labour of love to once again move my soul...

the F650GS moves my soul in the way that no other bike has... I thoroughly love riding this bike so much more then any other that I have owned or ridden, I just couldn't discard it and move on...

~Nemo Me Impune Lacessit~ http://adsmc.ca/

REPORT

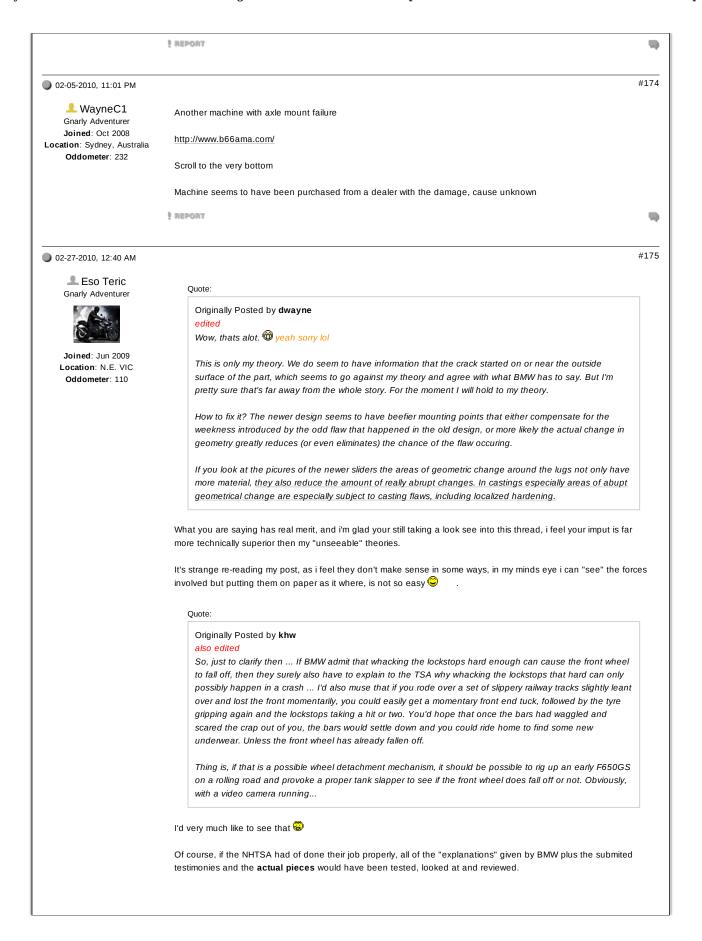
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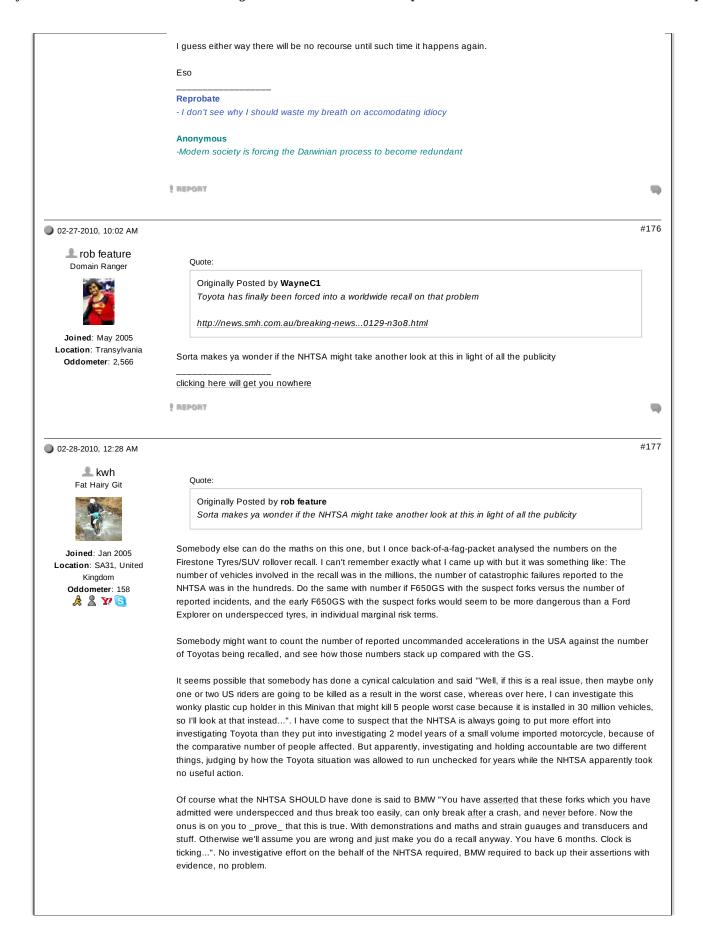
**01-30-2010**, 09:50 AM

♣ WayneC1 Gnarly Adventurer Joined: Oct 2008 Location: Sydney, Australia Oddometer: 232

Toyota has finally been forced into a worldwide recall on that problem

http://news.smh.com.au/breaking-news...0129-n308.html





I'm all for stopping people making a fast buck at the expense of hard working others with frivolous legal action and spurious complaints, but on the other hand if you need a decade of carnage and then recorded 911 call commentary on TV from people in the middle of fatal accidents before anything serious gets done about potentially dangerously defective vehicles, then the regulatory agency that is supposed to be on top of this stuff is clearly not earning its Ken Haylock BMW K1200GT SE & Triumph TT600 http://www.cix.co.uk/~kwh REPORT -03-05-2010, 12:21 AM Eso Teric Quote: Gnarly Adventurer Originally Posted by kwh Paraphrased I can't remember exactly what I came up with but it was something like: The number of vehicles involved in the recall was in the millions, the number of catastrophic failures reported to the NHTSA was in the Joined: Jun 2009 hundreds. Do the same with number if F650GS with the suspect forks versus the number of reported incidents, and the early F650GS with the suspect forks would seem to be more dangerous than a Ford Oddometer: 110 Explorer on underspecced tyres, in individual marginal risk terms. Somebody might want to count the number of reported uncommanded accelerations in the USA against the number of Toyotas being recalled, and see how those numbers stack up compared with the GS. Nice one and well said. E<sub>so</sub> Reprobate - I don't see why I should waste my breath on accomodating idiocy -Modern society is forcing the Darwinian process to become redundant ? REPORT #179 05-24-2010, 02:16 AM 🔔 Mith After reading this thread I have a couple of guestions bout the accidents and the re-design of the fork sliders. Swedish Did BMW know of any accidents at the time when they re-designed the forks? Joined: Mar 2010 From what I understand they re-designed them 2002, or rather they were in production late 2002; which means that Location: Sweden they must have re-designed them early 2002. Oddometer: 23 According to the NHTSA report the first accident happened in 2002, don't know what month. Could it be that BMW 2 re-designed the forks even though there had not been an accident at that time? I'm not trying to defend BMW, I'm just trying to ease my mind since I have a 2001 Dakar. I've also been in contact with the BMW representatives in Sweden with this matter and, of course, they assure me that I have nothing to worry about. The person I were in contact with claims that the 5 incidents he knows of were caused by either prior crashes and/or a heavily over loaded bike combined with a rather nasty pot hole. I also asked him if there was any point in swapping to the re-designed forks to which he replied, -Swapping to the newer forks will of course make our spare part department very happy but it is completely unnecessary. I'm aware of that he couldn't have given me any other response than the one he gave me, but could there be any

truth to his explanation? Maybe I just get the newer forks just to ease my mind. Hope I was able to made myself understood despite the fact that English is not my primary language. REPORT #180 05-24-2010, 03:36 AM mpanther I can understand your english just fine. KotW - Just Ride! While that maybe possible, I doubt very much it is Likely. There have been some failures before then, but it took awhile before word got to the internet and for people to hear of it happening to someone else. Joined: Apr 2008 I don't know about who knew what when, but any possibility of this kind of failure is to much chance for me. Location: Las Wages Oddometer: 991 Have you considered doing the Yamaha fork swap? http://www.advrider.com/forums/showthread.php?t=399113 When we find a F650 for milady, we will be doing this modification. I think it would be worth it just for the better handling and ride quality. the extra safety makes it required for me. But that is just my opinion. Welcome to ADV & best of luck with your travels. Quote: Originally Posted by Mith After reading this thread I have a couple of questions bout the accidents and the re-design of the fork Did BMW know of any accidents at the time when they re-designed the forks? From what I understand they re-designed them 2002, or rather they were in production late 2002; which means that they must have re-designed them early 2002. According to the NHTSA report the first accident happened in 2002, don't know what month. Could it be that BMW re-designed the forks even though there had not been an accident at that time? I'm not trying to defend BMW, I'm just trying to ease my mind since I have a 2001 Dakar. I've also been in contact with the BMW representatives in Sweden with this matter and, of course, they assure me that I have nothing to worry about. The person I were in contact with claims that the 5 incidents he knows of were caused by either prior crashes and/or a heavily over loaded bike combined with a rather nasty pot hole. I also asked him if there was any point in swapping to the re-designed forks to which he replied, -Swapping to the newer forks will of course make our spare part department very happy but it is completely unnecessary. I'm aware of that he couldn't have given me any other response than the one he gave me, but could there be any truth to his explanation? Maybe I just get the newer forks just to ease my mind. Hope I was able to made myself understood despite the fact that English is not my primary language. Peace in your heart & Light on your soul. >^..^<

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10 of 10

http://www.advrider.com/forums/showthread.php?...

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07/13/2011 06:22 PM

