

# 21 Inch GS Front Rim Conversion

Wednesday, 28 July 2010 13:42      Todd Smith



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Well, I got sick of watching those KTM 9x0 pilots make the sand look easy so I bit the bullet and set about researching and subsequently getting the Old Girls front hoop upped to 21 inches. The process has been a long time in the planning stages and recently the "actual" doing has happened rather quickly. Firstly a big thanks to these patient people who have provided me with advice along the way:

Rob Turton from Tyres4Bikes in Brisvegas

Woody from Woddy's Wheel Works in the US

Mitch from Warners Wheels Kawana

Bruce from Ash's Wheel Works in Brisveags also

Once I found that I could get a front hub second hand from the US for a measly US\$50.00 I thought maybe it won't coast me a AU\$1000-AU\$1500 to do it! I set about badgering all those guys above for info on what the rim and lacing would cost and found that I could be able to have the whole thing done and dusted for AU\$800 including the tyre!!

Following are the things I had to decide on to get the spec right:

Rim choice.

The 1100GS has a 40 spoke wheel so that was a limiting factor.

21" rims could be had in 1.85 or 2.15 widths. Rob Turton came to the rescue here and advised the 2.15 is the go for tyre choice as fitted to the 9x0 KTM ADV's

Excel make a Takasago rim in a 21" 40 spoke with a 2.15 width. Problem sorted.

Lace pattern and spokes.

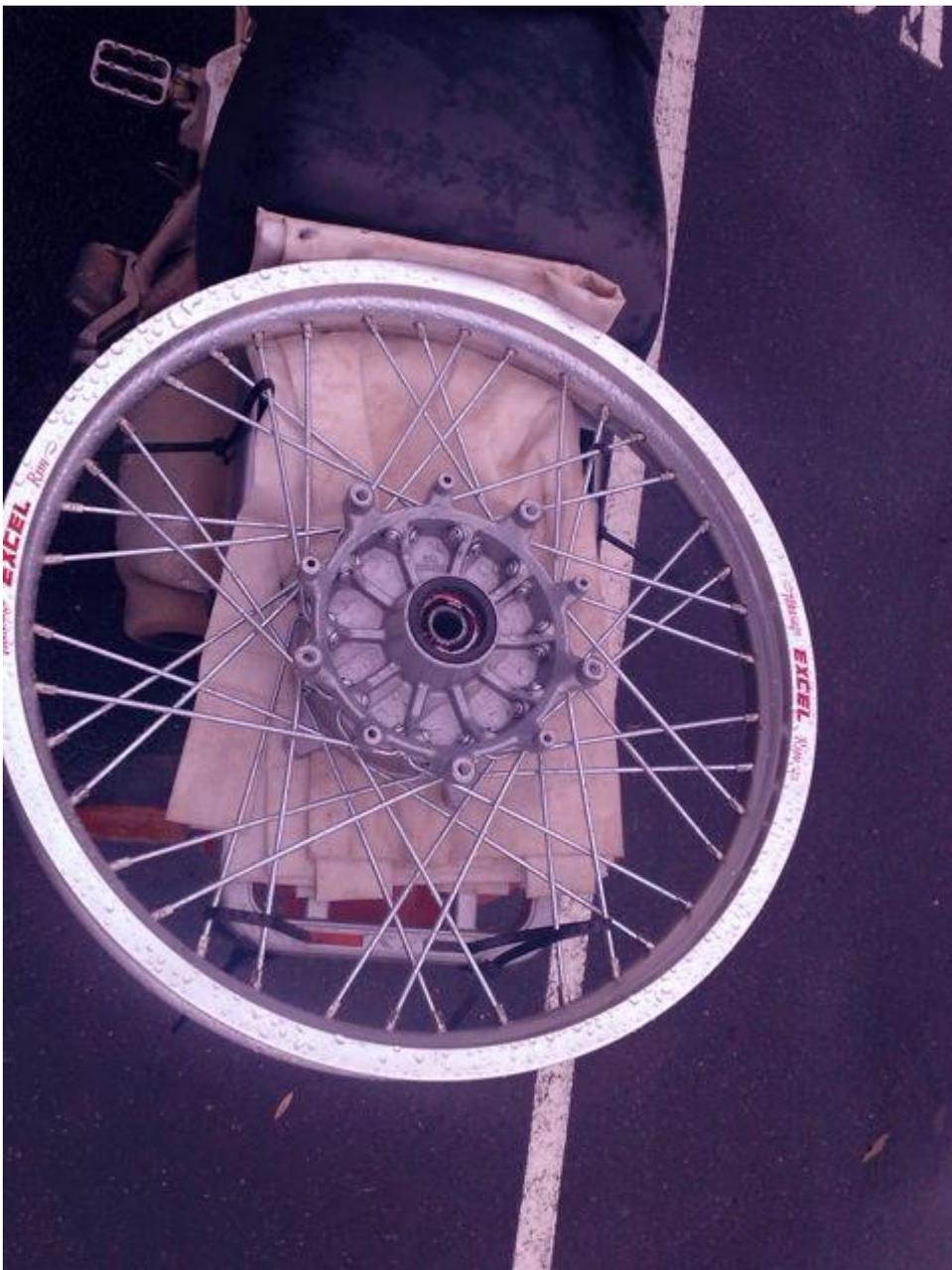
The BMW hub is not conventional and has the nipples in the hub not the rim. Basically exactly opposite to the norm.

Mitch at Warner's Wheels did a fine job of making the custom spokes and nipples to fit. Basically nipples in both ends.

The spokes had to clear the brake calliper. Have to suck it and see.

Well I would just have to take a leap of faith and get it laced up to see if the calliper thing was going to be an issue. Woody said that 1 in 50 he does will need some of the brake calliper ground back to clear the spokes, so I thought well, so be it.

Got the wheel back from Warner's yesterday



Zip tied it to the back and headed for home, hoping that the brake calliper thing was just a big deal about nothing!!

I got home and started pulling the front out of the old girl, wondering what I would do if the spokes were too close to the calliper to grind enough away!! Well I need not have lost any sleep as it went in and clearance was fine 😊





Now all that remains is to fit a tire and see if I need to space up the Telelever Brace to accommodate the knobby or not. I was able to lay a round Castrol brake fluid bottle in the rim which would be about the same diameter as the tyre and it went through with the lower guard on!! That's good news as there is nearly 10mm extra clearance to the brace after the guard is removed. Might even fit the Rally Raid in there without spacer, just remove the lower guard. Intend to take it off anyway as they are good for nothing but clogging up with mud and clay out on the trail anyway.

So here it is (minus the Rally Raid)







Watch This Space....

Update 010810

Well got the Rally Raid on the hoop thanks to Rob Turton. Tanks mate, hope you get well soon.



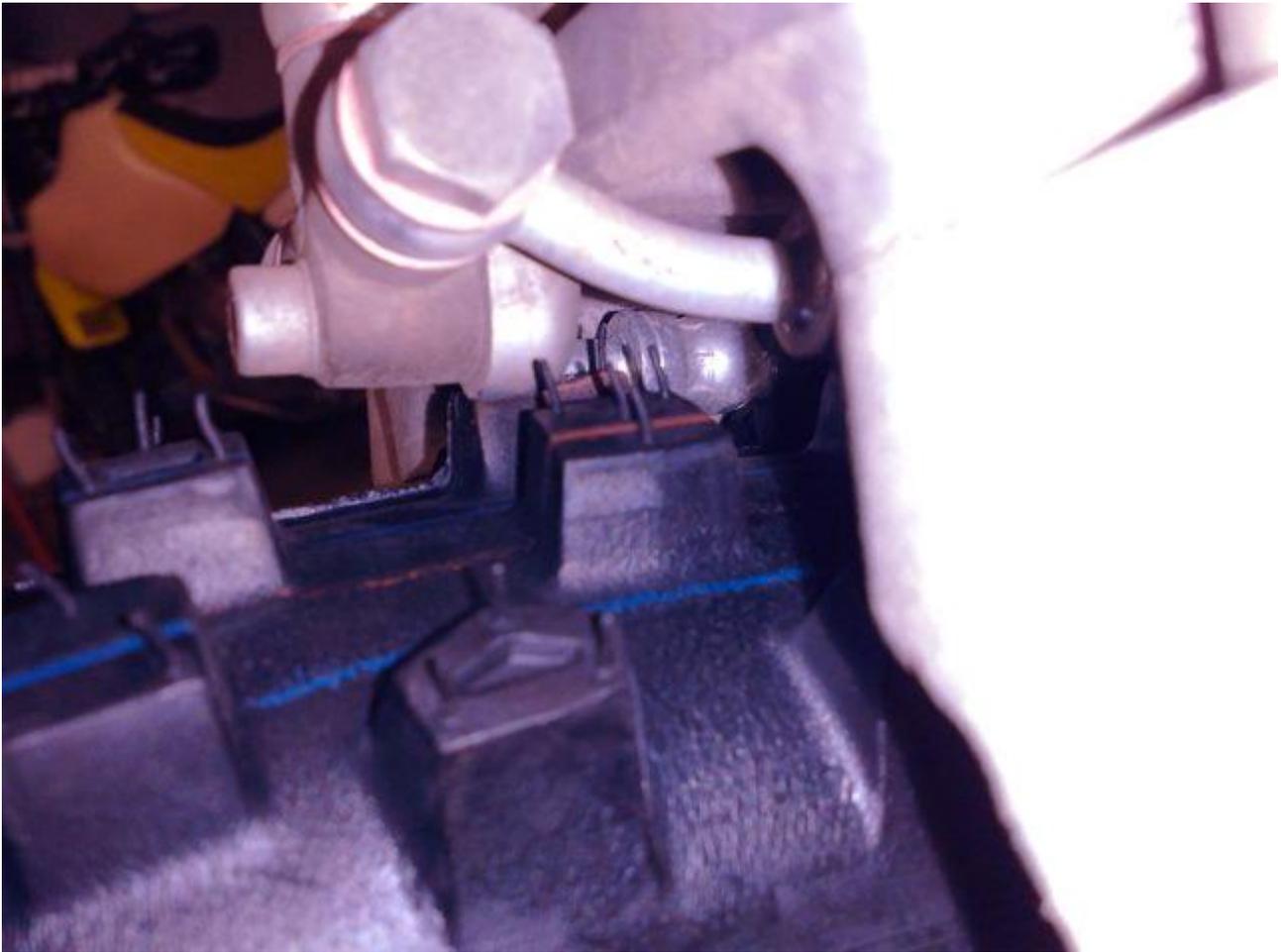
Not that much bigger than the 19" to look at side bay side



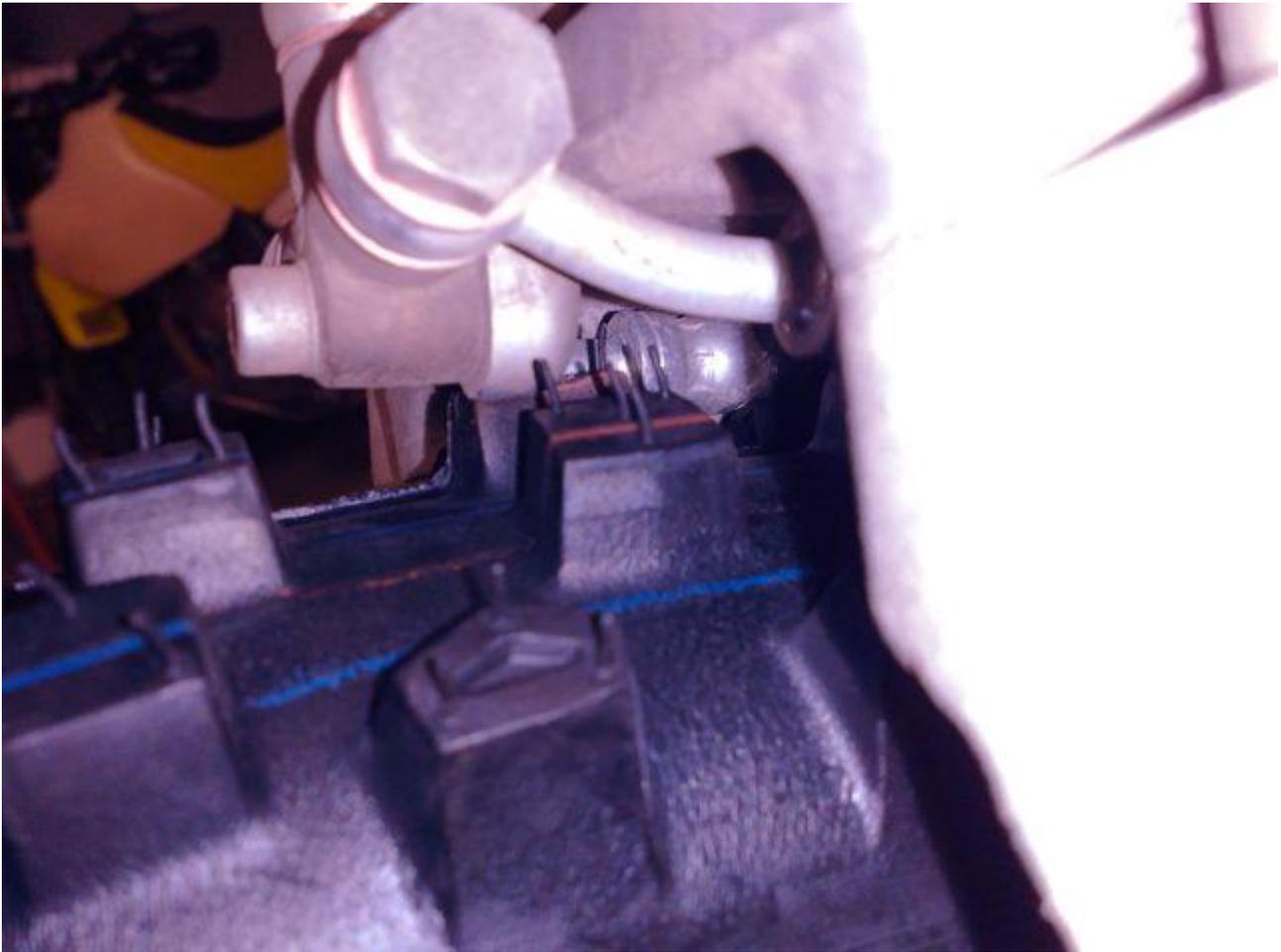
anyway, threw it in, or tried to and alas found that there is not enough room for the wheel+Tyre!! Oh well, sort of expected that. easier to work around than the spokes hitting the callipers which thankfully did not happen.







So you see, if I went up 25mm IE the extra radius not considering the difference in profile of the RR, I would be a back to square 1. I am thinking of making a plate that mounts here (above) on the front mount where the brake line splitter is mounted and pick up on the rear mount for the low guard. That way I can leave the brakes alone and protect the banjo's and lines that are fairly exposed without the low guard:



Had a chat to Rob about that while I was up there and he suggested making the plate into both a guard AND a mud skimmer. That way it will help stop the mud building up too far in the first place. Some kind of blade arrangement that has some ridges on the back

Anyhow, the spacers will just have to be a couple of bits of structural hardness alloy plate cut to shape and a couple of holes. I think I'll get 10mm and 20 mm ones to see how that goes, less is more !!

In the meantime, here is the old girl with low guard off, 21" in place and a calliper on for good measure, I hardly recognise her:



and one with the 19" \back on 'till the spacers are done:



Update:

A friend of mine is a rigger. I was talking to him yesterday about an unrelated thing and eventually we spoke about how this was going. I mentioned the spacer thing and he said as he spun around and walked of "Wait here". I did. He came back with a piece of plastic about 15cmx8cmx20mm. He said it was a spacer or packer they use to sit the big tilt slab panels on that our shopping centres are built form these days. They pack the panels up with these spacers that come in many thicknesses. When it's level, they fix it in place and they sit on these packers until the grout and bolts are set. He said this plastic plate will hold 20 ton panels!! Its hard and easy to work, IE drill and cut. So I'm going to use this material to shape these spacers that I need. The material should be strong enough for prototyping. Probably be OK to ride on but I won't push my luck 😊

This means that I will be able to experiment with the thickness of the spacers AND get the guard/scraper plate made (by me) before going to the engineering works to say "Can you make me 2 alloy versions of these please?" Should be able to get started on this on the weekend 7/-8/0810.

Watch this space:

Well guys I finally got it done. Just in time too as we're heading off to try and get to Birdsville and as many corners as we can.

The local engineering shop did a great job of the spacers:



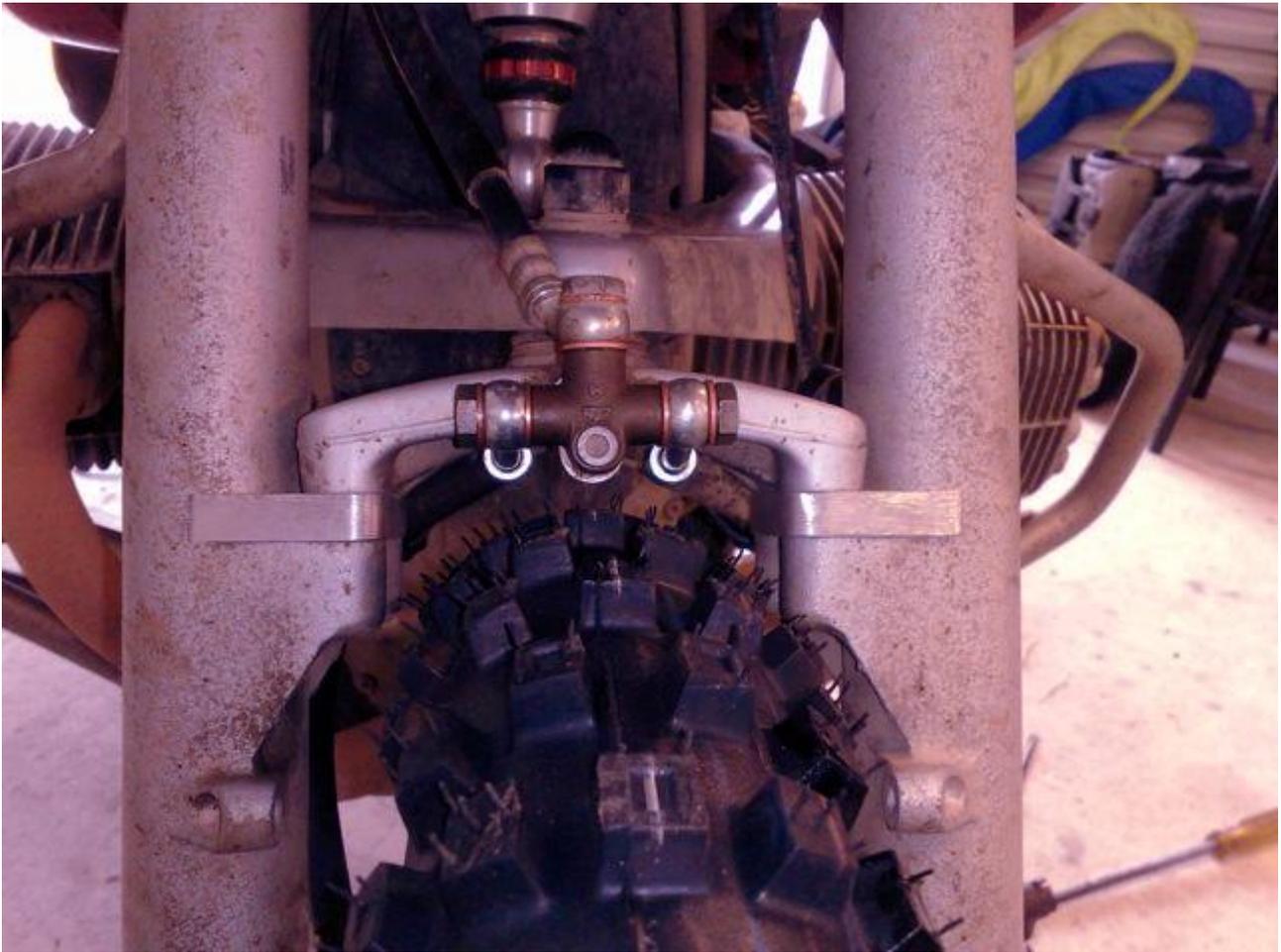
They sit in nice and tight against the machined face on the sliders and wrap around so they should be able to withstand the shear stresses they will have to transfer:





With the wheel in there is enough clearance to the tyre:

I tried to reverse the brake hoses but mine are re-manufactured and whilst the slight difference from stock is OK for the normal position, there was not enough clearance offered in the reversed position so I have left the hoses as stock. Should be OK I hope. When I get back I'll get some new bottom hoses made to suite the new setup.



And here she is with her "Big Wheel":



I have had a quick blast around the paddock and it feels great, the new Rally Raid might be responsible for a lot of that but it turns better and feels more stable on the dirt. Highway feel is good, I can tell there is much less rubber on the road but nothing too serious. Turning is slower as I expected but she is still a GS and handles on the tarmac quite nicely.

Anyway just a quick update, I will have more to say after 2 weeks away.

Well after the trials and tribulations of the Birdsville trip which you can see [here](#) I am sure you will concede that the 21" front wheel is of great benefit on the loose and muddy stuff. I have no doubt that without the big wheel I would have faired much worse on the Cordillo Rd than I did and probably turned back sooner, which, when you think of it, would not have been such a bad idea 😊 The run was a good shakedown for the setup and it came up trumps. At certain points along the way I was carrying 20L of fuel in the Jerry on the back (Pretty high but that's the way it had to be as it was empty most of the time) and 10L of water plus all the other gear. A quick addition of all the weights surprised me as with me on-board, a full tank of fuel and the 20L Jerry, Water and luggage we were 500kg rolling!! That's half a ton! So if there was a setup that was going to highlight the handling and weight carrying shortcomings this was it.....Verdict..... No problems. In all but the fastest sections the setup behaves nicely. It steered a little slowly as in under steer at speed with the full fluids load, but other than that I am as happy as a pig in the proverbial!!

I did however have to take the wheel back to Mitch at Warner's Wheels to get a good ding rolled out of it but that was my fault and the impact that caused it was so hard I nearly lost my grip on the bars so I couldn't expect it to come through unscathed. Obviously it was not bad enough to unseat the tyre/tube so all was good. This is what she looked like when she finally arrived in Birdsville.....on the back of a cruiser!



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