

phi010

Joined: 02 Jul 2004  
Posts: 4

Posted: Sun Aug 07, 2005 10:42 pm Post subject: Vintage Super Front Forks

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I've got quite worried about all the news of breaking front fork stems in this month's 'Yowl'.  
I have the big front brake on my 1927 Super, and a previous owner used it with a sidecar.  
So I need to do something. I guess I'll make a new piece out of a bit of good steel (heat treated EN24?), but how is it attached to the fork yoke?  
What is the best way of removing the old one  
Has anyone got a drawing so I could make one before dismantling it?  
Any other tips/ideas?  
Paul Hiron

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Joined: 02 Jul 2004  
Posts: 4

Posted: Fri Nov 18, 2005 11:41 pm Post subject:

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I have made a new spindle out of EN24.  
However when an engineering friend removed the old one there was a crack down the front of the yoke in front of the spindle.  
I will be brazing a reinforcement plate over it when putting it all together.  
I am beginning to think that the only sensible thing to do is change to webbs.  
I like originality, but I want to stay alive to appreciate it!!

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Roger Moss

Joined: 31 May 2004  
Posts: 242

Location: Leicester UK

Posted: Sat Nov 19, 2005 12:51 pm Post subject: Super forks

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The concept of these forks has always frightened me and I have been surprised that they lasted as long as they have.  
I raced Clive Waye's bike a couple of times and was very conscious of the possible consequences of a breakage.  
They must all now be suffering from stress fatigue, this is monitored on airframes but not road vehicles. Forks, cranks, same problem.  
We were recently brought a set of these forks and will be making a good study and will formulate the design of an appropriate repair.  
The main difficulty is not whether it can be done, but what margin of safety is prudent and what cost implications are acceptable.  
If I were to do it for myself, I would make the stem from 300M VAR (S155) which

Forks Vintage Super.txt

is what we use for cranks and is what, I understand, Airbus now use for their landing gear legs. This must be at least 300% stronger than the original steel with a higher fatigue resistance. The inner expanding section that locks the bars, would be taken down to the bottom with a good fit, to further reinforce the whole lower stem section.

Now we come to the yolk! Remove the paint and examine and most will have cracks here. Considering the leverage and bursting loads, especially considering the use over years, it would be very surprising if there were not. You might make a repair by brazing on a plate, as long as it is wide, but I tell you honestly, I would not do it for myself if I were to contemplate spirited riding, significant potholes or emergency stops.

I would be happier to remake the whole yolk out of a suitable high tensile steel blank.

Perhaps make the stem hole in the yolk tapered with its larger end at the bottom. The stem would have a matching taper and would be driven in and secured.

We had considered a malleable iron casting for the yolk as originally done, but until we had enough data to be sure that the material gave a sufficient margin of improvement, it would remain a subject for investigation, rather than a recommendation.

Conclusion. There is no engineering problem that cannot be solved, but there are solutions that are unrealistic in cost terms, depending on the owner's personal circumstances and dedication to retain Alfred's original design.

It's all about cost!

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