



THE RATCLIFFE SPITFIRE P9503

Supported by The Leonard Stillwell Bursary and The Spitfire Society

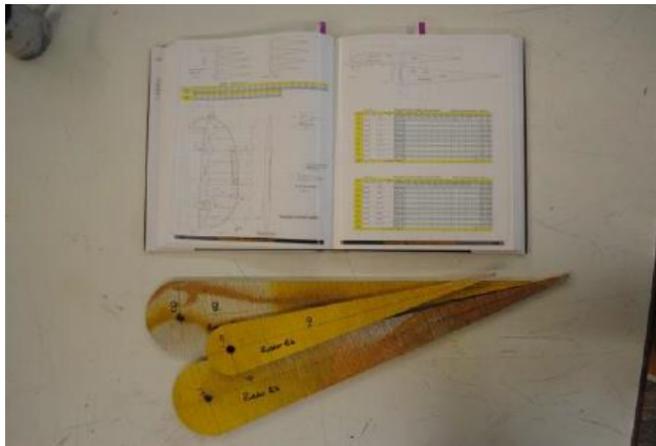
March 2013

Dominic JH Berry

3

The New Academic Year

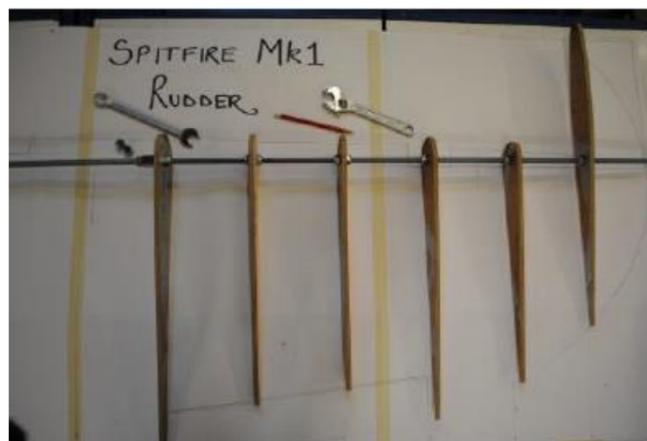
With the start of the academic year we have welcomed a new influx of interested students. The progress on the fuselage frames has been postponed until our permanent workshop can be established. When this has been secured we will be



able to continue building the frames and be able to fix them permanently to the lower and upper longerons in their jig. The fuselage should then come together, albeit in skeletal form, quite quickly. Until that time we have focused on more manageable tasks, namely the rudder. Working from the fabulous book, 'Spitfire Mk. IX & XVI Engineered' written by Paul H.

Monforton and donated to us by Virgin airline pilot, and Old Ratcliffian Steve Clark (OR '79), we have drawn out the rudder ribs onto plywood and begun its construction.

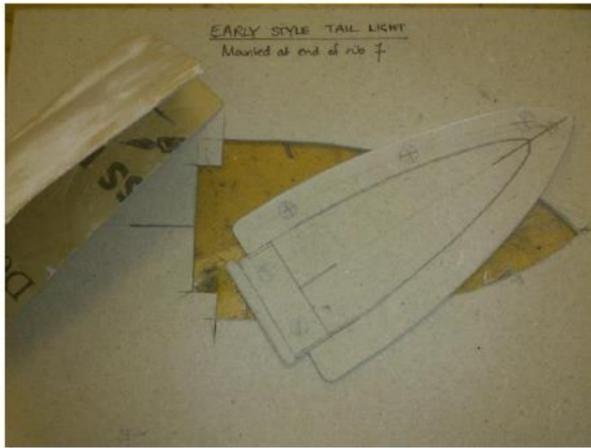
A full-sized drawing of the rudder was made onto paper and was used to check our dimensions against. It is amazing to discover how many differing radii there are on something like this; but, when drawn out accurately it suddenly comes to life! Using two meters of M12 threaded bar and a bag of nylon locking nuts (they take a long time to



thread on believe me!), we have fitted all the ribs, and working on top of the drawing we can micro-adjust each rib into its final position before tightening them in place.

The rudder is, however, not as simple as that. There are numerous detailed parts that need to be made in order to complete it; and that is before it even gets covered. So we have also been working on the rudder Trim Tab, the Trim Tab Fairing and the Tail light. The original fairing and light surround were of course made of pressed aluminium, but we have gone with vacuum-formed plastic for ours. There is no reason why this should not last just as long as aluminium, and they are a lot easier for us to make. Again, working from the dimensions in the book, (accurate to 1/100th millimetre), we have built up plugs and moulded and cast them in plaster, before taking to the vac-forming machine with 1.5mm styrene. The results are excellent and will look great when fixed in place. Details like screw heads and rivets will be added later.





Mk 1 Canopy

The earliest Spitfire canopies were flat-sided and flat-topped, these were quickly replaced with a bubble-top to allow for taller pilots and better visibility, and the majority of Spitfires that started the war had these flat-sided versions. At some time towards the end of 1940 the full bubble canopy was brought in to service, this becoming the iconic Spitfire canopy but it is the middle one we need for our Spitfire. Unfortunately, detailed information for the flat-sided, bubble-topped canopy has not yet become available to us, even so, we have no means by which to make such a large blown-perspex unit. I have spoken to a specialist who makes Spitfire canopies, but he also does not have information for this particular style. Off the shelf later canopies are available for £2500, but that is nearly three times our total budget for the build, and would also render our Mk1a a less authentic aircraft; the chances are



extremely high that R6631, our Spitfire, carried the flat-sided canopy. One of the distinguishing features of this earlier canopy is the knock-out Perspex panel on the port side. This design feature was there to allow the pilot to punch it out whilst in flight so to equalise the air pressure before jettisoning the canopy prior to bailing out. A flat-sided canopy can therefore be spotted quite easily in pictures because of this oval shaped panel, and can be seen in the picture of the newly restored Mk1 at Duxford below.



Timeframe

The 75th anniversary of the Battle of Britain will take place in 2015, so our deadline must be September 2015. I feel certain that throughout that month there will be a tremendous amount of publicity surrounding what will surely be many nationwide events, and it would be fitting for us to be ready to exploit those opportunities. With the impending provision by the school of a dedicated Ratcliffe Spitfire workshop,



this deadline should be achievable. Future weekend building workshops have already begun to go into the school calendar, and further extra-curricular time will be devoted to it during school time.

This ambitious project will only reach its conclusion through the generosity from individuals and organisations. All contributors will be named in the press releases, and their names/logos will appear on a brass plaque to be unveiled when the project is completed. I am very happy to show the project off, and talk it through. I would love to hear from you if you are able to offer any help, be it financial or material. Please contact me, Mr Dominic Berry, Head of Art and Design: dberry@ratcliffe.leics.sch.uk or 01509 817000 if you would like to know more.