BRITISH GLIDING ASSOCIATION

Engineering News

December 2014

Number 85

Engineering Support Visits from the CTO

Firstly, thank you to everyone who has made me feel so welcome in my new role.

I am going to try to visit as many club workshops as possible in the near future. This won't be an audit - just a friendly support visit! I want to meet and talk to as many BGA inspectors and club technical officers as possible in their own environment and discuss any issues they may have.

Engine Overhaul (EO) Inspector Ratings

After a lengthy process of compliance work with the CAA we will shortly again be able to work on the bottom-end of motorglider engines again. However, we have had to write new procedures in the AMP manual to do it. You will no longer be able to zero time (overhaul) engines, but you will be able to inspect and repair non-supported engines and inspect supported engines. Read the AMP Manual section very carefully when we publish it.

Having an engine overhaul rating that specifically does not allow overhauls is a nonsense, so as soon as the new procedures are in our AMP Manual and Exposition we will contact all current Engine Overhaul inspectors, inviting them to apply for an Engine Inspection and Repair rating (EIR). Current EO inspectors will have a telephone interview to make sure they understand the new procedures in the AMP manual and have the new rating issued.

Compliance

To meet your legal obligations, you have carry out work and inspections to a high quality. However, you also need to be able to prove that you have done this with auditable work packs. For instance, did you get a Complex Maintenance Application Form 277 approved by the BGA to perform a recover? Did you use approved data for a repair and can you prove it? If in doubt, check the AMP manual and then, if still not sure, ask.

Approved Repair Data

This item is particularly for complex maintenance applications (List 2 sites). When doing any repairs or recovers on supported gliders or motorgliders, you must use approved data to support the repair scheme if not using a factory approved scheme. This typically means the maintenance manual, repair manual, or approved drawings. Out of these you should be able

to pick out important information like material spec; is the bit you are repairing allowed to be repaired?; what are the required splice lengths?

Note that Schleicher wooden gliders are built with pine with a 20-1 splice for repairs http://www.alexander-schleicher.de/tm/allgTM/2005_TM02_E.pdf

http://www.scheibe-aircraft.de/TM%20LTA/TM%20uebers/pdf_tm/770-24-2.pdf On page 3 under “remarks” you need to get factory authorisation for major repairs. All welding must be gas not TIG.

http://www.schempp-hirth.com/fileadmin/Pdfs/Gen_TM/TN_Gen-5.pdf

http://www.dg-flugzeugbau.de/fileadmin/TM-LS/all-gliders/TNG-01-Repair-Instructions/TN%20DG-G-01.pdf

http://www.ltb-lindner.com/service-letter.html - Grob standard repairs.

Technical Notes and ADs for Supported Gliders

Whilst the BGA Compendium is a good place to start, it does not get updated often enough to be authoritative and it has almost no downloadable data. It often gives background information like BGA in-service issues with the glider that you cannot find anywhere else but reference to the manufacturer’s own website to check for the latest ADs and Technical Notes is always mandatory. You can download documents from these sites and have a look at them rather than just reading the headline.

For instance, if you are doing an ARC or Annual on an Astir, then you should go to the Lindner LTB website (http://www.ltb-lindner.com/) as the authoritative source for all Ads, Technical Notes and Service Bulletins. Do not simply rely on the BGA compendium

We are currently looking at ways of publishing ADs, TNs and manuals for non-supported gliders on the BGA website, as it is now getting very hard to find these anywhere online.

When Did You Last Fully Read the AMP or Exposition?

The online manual has been updated many times since 2008. Did you know that we have worksheets for transponder checks? These procedures and documents are the bread and butter of the regulations you should be obeying. When you are full of turkey and there is nothing on TV, think about spending some time revising it. Look at every drop down document in the menu and remind yourself of what is in the manual.
http://old.gliding.co.uk/bgainfo/technical/ampmanual.htm

Complex Repairs Compliance (non-List 1 Sites)

What is a complex repair? ***A complete recover of a component, any repair to a control surface that requires mass balancing afterwards, any hole bigger than 15cm before scarfing, most welding jobs and most things involving primary structure.*** The BGA document on the subject is at http://old.gliding.co.uk/bgainfo/technical/ampmanual/2-13.pdf

Since 2009, when you have had to fill out a Form 277 and pay a small fee, some inspectors have virtually stopped doing complex repairs. Upon questioning a few inspectors about this, most of them seem to resent the £45 charge and the additional form. This is a small price to pay to have an additional person check that your repair/overhaul scheme is compliant (some recent ones have not been!)

Insurance and Inspectors

The BGA holds liability insurance limited to third party property damage or bodily injury in connection with airworthiness certification by the BGA and its airworthiness inspectors. Commercial risks and issues such as damaging a glider in the workshop are not covered by this policy. It is important that inspectors consider the scope of their activities and any associated liabilities and, in doing so, ensure that they are satisfied that they are suitably insured for the risks that they expose themselves to.

For the insurance to be valid the work done has to be compliant. Everything a BGA inspector does must have a paper trail, usually in the form of a workpack, be in compliance with the BGA AMP manual and be fully auditable afterwards. The inspector must be working within the limits of his/her rating.

Lifed Items and Workpacks

Between ARCs and annuals, it is the responsibility of aircraft owners to make sure that any lifed items are monitored. It doesn't help owners to remain compliant if, after doing a meticulous annual and ARC, with all the correct paperwork on a glider with only 100 hours airframe life left available, you then give the glider back without telling the owner that he has to monitor the life before it expires.

In the last 2 years a few established glider workshops have ceased trading. So every entry in the log book that says "*fuselage snapped in half, refer work pack**** held at workshop*" is no use to anybody. Please, after every job, give the owner a copy of the workpack just in case you unexpectedly have a flood, fire, cease trading or simply drop dead! These have all really happened!

Kaurit Glue Longevity in Wooden Aircraft.

The two papers (2nd link you will have to copy and paste) are about stress testing old urea-formaldehyde **(**Kaurit **–** WHK 220) glue joints. They back up my 30 years of professional experience of fixing gliders with Kaurit. The message is simple: Kaurit does not last forever. Make sure your glue inspections are very thorough.

http://www.scalesoaring.co.uk/Articles/Articles/AgeingAdhesives/Adhesives-ageing.htm

http://www.researchgate.net/publication/239450519_Durability_of_wood_adhesives_in_50_year_old_aircraft_and_glider_constructions

Experimental Aircraft Consultation (E Conditions)

If any of you have ever thought you have the skills to design, modify, build and fly your own motorglider/SLMG, then it might shortly become a lot easier. The BGA are very much involved in this CAA consultation. However the proposed regulations only cover the proof of concept stage. Once your design is proven to work (or not!) then you have to certify it in the normal way, albeit with all the data supporting your design having been proven in flight. The consultation closes on 17Th January and full details are at http://www.caa.co.uk/default.aspx?catid=1350&pagetype=90&pageid=16533

Educational Glider Engineering Videos

Here are some links that you might find interesting. If you have any others that you want to share, please send them to me.

1. Astir tailplane after suspected ground loop. Broken casting. Beyond economic repair https://www.dropbox.com/s/i3ey3qcuncjy8rp/IMG_1939.MOV?dl=0

   https://www.dropbox.com/s/en152o99ibq4lq0/IMG_1938.MOV?dl=0

2. Complex repair to fuselage snapped off on Arcus by Service Centre Terlet http://vimeo.com/60497114

3. Rotax 912 factory build https://www.youtube.com/watch?v=1Vx4cYj6nsQ

4. Spruce spar build part 1 https://www.youtube.com/watch?v=lRR5DOQiw4I

5. Spruce spar build part 2 https://www.youtube.com/watch?v=Dv-kKDyPkVw

6. For true insomniacs engine rebuild in real time! https://www.youtube.com/watch?v=Jo42bgf97Ok

Job Opportunity at London Gliding Club

After 28 years of service with London Gliding Club, George Jackson moving on to a new career. LGC is therefore seeking an ARC signatory with good skills in composite repair work to maintain their fleet of 13 Gliders. LGC has no fixed views on the basis of such employment and would be happy to consider options. If you are interested please contact Andrew Roch on 01582 663419.

Finally, Gordon MacDonald and all the team that support airworthiness in the BGA would like to wish you all a very happy Christmas and all the best wishes for a good, safe New Year.