So you want to be an inspector?

Why?

So that I can service my own glider

Have you checked pilot-owner maintenance?

EASA Appendix VIII, reprinted as AMP 2-1

Pilot: Licence or equivalent for type (Bronze badge)

Owner: Sole or part owner of the glider, or

Club member designated to work on club gliders

The scope of pilot-owner maintenance is quite wide.

I want to go further

Annual inspection, minor repairs, changes….

You need to be an inspector to sign off such work

I want to issue ARCs

You need to be an experienced inspector with additional training

You can’t issue the ARC for your own glider!

What, exactly, is a BGA glider inspector?

EASA Part M provides for authorised organisations covering maintenance (sub-part F) and ARC issue (sub-part G)

CAA has authorised BGA under sub-parts F and G. This followed BGA submission of an Airworthiness Exposition – organisation, procedures…

An inspector is the holder of a BGA Maintenance Authorisation issued in compliance with the Exposition. It is valid only for BGA CAMO aircraft and has limits on work scope.

Inspector Ratings

- AF Glider Inspector, basic inspections and repairs
- SS, MG Add on engines and propellers
- CR, MR, WR Add on structural repairs
- CE [Chief Engineer] Can conduct ARC reviews

More Ratings

- TG Tug inspector. *Specific type approval*
- /A/ Senior Inspector. Covers major re-builds.

- EP Electric powerplant
- JP Jet powerplant
- EO Engine overhaul *Limited range of engines*
- RE Radio engineer
- CM Component maintenance
- DU Duplicate inspections *(only)*

PART 66L - Background

- In 2012 EASA proposed that all maintenance signatories should hold Part 66 licences.
- Part 66'L' licence proposed for light aircraft and balloons.
- Consultation ended January 2013.
- Plenty of rumours since then, but no hard facts…
- Could involve formal study/training and examinations
- A new Part 'M Light' and Part CAO are in preparation – may come in during 2018. The changes may be linked.

Part 66L – The EGU View

- The European Gliding Union view the proposed Part 66L licence with concern:

“We have never underestimated the likely impact of Part 66, even in its 66L form, on the effectiveness, and indeed motivation, of our engineers.”

EGU Newsletter 1/2016 March 2016

- In March 2016 EGU anticipated a transition to Part 66L mid-2018 to mid-2019

PART 66L – BGA Information

- 2016 Annual Report says *"implementation dates remain unclear. For the present we assume a two year implementation process over 2017 to 2019"*
- BGA have been seeking conversion rights for existing BGA inspectors. *"We anticipate that currently approved BGA inspectors will be empowered under the new code. We remain deeply concerned that the requirements for qualification of new engineers will lead to a shortage of new candidates."*
- BGA are continuing to run 'first step' Club Maintainer Courses

STILL WANT TO BE AN INSPECTOR?

Experience and Knowledge Required

Civil Aviation Authority:

CAP562

Civil Aircraft Airworthiness Information and Procedures

Leaflet H-40

Personnel Authorisation Systems for Sailplanes and Balloon Certifying Staff in Part M Subpart F Organisations

H-40 Experience

An applicant for an Authorisation shall have had the following minimum experience in the inspection, servicing and maintenance of sailplanes or balloons, as appropriate:

a) For the issue of Authorisation privileges for a sailplane or balloon in its entirety, at least:

i) four years of relevant maintenance experience; or

ii) two years if the applicant has satisfactorily completed an approved training course.

b) For the issue of a restricted Authorisation, a period of time agreed by the CAA that will enable a level of competency equivalent to that required by a) to be obtained, provided that this is not less than two years.

H-40 Knowledge

It shall be established by the organisation that applicants have an adequate knowledge of a relevant sample of the type(s) of sailplanes or balloons gained through a formalised training course including documented evidence of practical experience.

Formalised training courses may be replaced by demonstration of knowledge, by documented evidence of experience and by an assessment performed by a Part M Subpart F organisation in accordance with procedures agreed by the CAA.

This assessment shall include:

a) relevant parts of initial and continuing airworthiness regulations;

b) relevant parts of operational requirements and procedures, if applicable;

c) the organisation's maintenance organisation manual;

d) knowledge of a relevant sample of the type(s) of sailplanes/balloons/airships gained through training and/or work experience;

e) maintenance practices and techniques.

BGA Implementation of H-40 Rules

- The website is in flux and not currently very helpful
- Link on “Airworthiness” page goes to AMP Leaflet “BGA Inspector Authorisation and Ratings”
- AMP Leaflet refers you to Airworthiness Exposition for requirements
- Current (2016) Exposition refers you back to AMP for more (but non-existent) details.

Airworthiness Exposition, Iss.02, July 2016

4.5.1 BASIC EXPERIENCE REQUIREMENTS

Applicants must be able to demonstrate they have the following minimum experience:-

a) four years of relevant maintenance experience

b) reduced to two years if the applicant has satisfactorily completed an approved training course

Relevant experience must include assistance with the majority of maintenance activities including but not limited to:- Annual (C of A) inspections, rigging and de-rigging, repairs, replacements, electrical and instrument work including calibration, weighing and preparing reports for the BGA, CAA/EASA paperwork relevant to the approval or endorsement applied for. A Personal Experience Record (PER) will have to be submitted for approval.

OTHER GUIDANCE DOCUMENTS

Previously issued BGA documents:

BGA Inspector Guidance *Laws and Rules, 1 Sept 16*

Notes on Becoming a BGA Inspector *02/2013*

- Notes (1 page)
- Specific Experience Tasks for Inspector Authorisations (6 pages)
- Flow Chart

BGA Airworthiness Exposition 2008

Examination Syllabus and Knowledge Requirements *2001*

EXPERIENCE REQUIRED - 1

Basic rules are consistent. February 2013 version is probably the clearest!

With all categories of aircraft other than Tugs, no formal training is required. To qualify as an applicant you will need to be at least 18 years of age and have a minimum four years suitable on the job training and experience relevant to the particular authorisations you are seeking. In most cases where the applicant is gaining experience in their spare time, evenings and weekends, it could take considerably longer than four years to gain sufficient experience. Any training courses attended or qualifications achieved would be regarded as a bonus and may in some cases reduce some of the requirements for on the job training. However suitable applicable experience will be required in all applications.

EXPERIENCE REQUIRED - 2

Refer to “Specific Experience Tasks…” list.

Wide range of tasks from placards to control mass balancing, gap seals to glider weighing and balance, compass installation to wheel brakes.

“These are the general experience requirements for the issue of a BGA Inspector authorisation. Not all inspectors will achieve all the tasks below but a good percentage will be required to achieve a minimum standard.”

CTO will decide if you have adequate experience

EXPERIENCE REQUIRED - 3

Note further requirements in 2001 version:

Candidates will be expected to demonstrate **general** knowledge in the following subjects:

a) **Terms used in aeroplane construction**. The function of each component. Primary and secondary structures. Placarding.

b) **Simple Aerodynamics**. Centre of pressure, centre of gravity and various axes, forces acting on the aircraft during take off, in flight, landing and on the ground. Effect of C of G shift. Friction and backlash in control systems. Flutter.

c) **Structures**. General principles of construction, wooden, metal tube, composite, monocoque, stressed skin. Main load carrying paths for flight and ground loads. Assembly techniques including gluing, welding, bonding, bolting and use of special fasteners. Loads on canopies, methods of securing, opening, and jettisoning maintenance of canopies and transparencies. Recognition of various types of corrosion, protective treatments and corrosion inhibiting. Duplicate inspections of critical points.

d) **Fabric**. Types of materials, fabrics, adhesives, tapes and reinforcements. Advantages and disadvantages of natural and synthetic materials. Attachment methods, stitching, blanket and envelope methods. Dopes, painting UV protection. Maintenance inspection and repair.

KNOWLEDGE REQUIRED

- Understand how gliders are built and fly!
- Be familiar with relevant publications:

BGA Airworthiness Exposition

BGA Airworthiness & Procedures Manual

EASA Part M

BGA Laws and Rules

BGA Compendium

Standard Repairs to Gliders

FAA Advisory Circular AC 43.13-1B,-2A *Acceptable methods, techniques, and practices – aircraft inspection and repair*

Glider Flight, Maintenance, and Repair Manuals (+ Parts Catalogue)

- Update yourself before working on an unfamiliar glider!

WHY THE EMPHASIS ON EXPERIENCE?

- Have you read a glider Maintenance Manual?
- Detail design practices vary considerably
- Designs have evolved
- Materials used have changed

Keep records of your experience!

Notebook or diary recommended

Copies of Form 267s, worksheets may be useful

Take photographs

APPLYING FOR INSPECTOR AUTHORISATION

THE APPLICATION PROCESS

- Gain necessary experience – *may not be easy!*
- Compile PER – Personal Experience Record *Start early on this task*
- Fill in application form (BGA Form 221) Get signatures on application and PER – *may not be easy!* Send to BGA office
- BGA Chief Technical Officer assesses the application. May reject and advise what additional experience is needed. If accepted…
- Interview with CTO or a RTO. Decision may be made at interview

WHAT WILL “AF” LET YOU DO?

- Currently this is not defined!
- Airworthiness exposition 2008 lists:

Maintenance of airframes – replace parts, service and lubricate, hour/time checks up to Annual

Minor (non-structural) repairs, minor fabric repairs (not critical)

Certify duplicate inspections of airframes

Compass compensation and adjustment

Installation of radios and “soaring equipment”

GOING FURTHER? A recap

- SS and MG are additions to the basic AF rating for gliders with engines
- CR, MR, WR are in addition to AF. Cover damage assessments and structural repairs not involving jigging or alignment checks … BUT refer to AMP 2-13 for rules on “Complex Maintenance”
- CE requires 5 years experience, a training course, and a practical examination. Can only issue ARC up to limits of underlying maintenance rating.

RENEWING YOUR AUTHORISATION

- Renewed annually. BGA fee is payable (primarily to cover liability insurance)
- You must be active in maintenance “six months applicable maintenance experience in past two years”
- Continuation training required (read TNS etc) plus a formal update course every 5 years
- Chief Engineers must carry out at least two ARC renewals every two years

Any Questions?