February 2016

COMPLEX MAINTENANCE (AMP 2-13)

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1. Compliance with Part M and BCAR A8-24

a. Part M requires that complex maintenance tasks are released by a person authorised by a Part M subpart F maintenance organisation or alternatively for ELA 1 aircraft not used in commercial aviation, by a Part 66 Licensed Engineer. The BGA inspector authorisation is not equivalent to a Part 66 licence. Therefore subpart F authorisation is required.

b. This procedure applies to any complex maintenance task carried out on an Annex II powered aircraft under the BGA BCAR A8-24 approval (replacing M3).

2. Complex maintenance tasks.

a. Complex maintenance tasks are identified in Part M Appendix VII. A comparison table is provided below to assist inspectors in categorising a maintenance task as either complex or non-complex. Please note that t*he examples in Italics do not constitute a complete list and are provided as a guide.*

The modification, repair or replacement by riveting, bonding, laminating or welding of any of the following airframe parts:		**Complex Tasks** Part/task *Example in italics*	**Non Complex Tasks** Part/task *Example in italics*
A	Box Beam	Fuselage wing carry through structure and wing attachment *Replacement or repair of centre section member or frame*	Fairings, alignment guides. *Repair of secondary tubes or stiffening bulkheads not carrying primary structure*
B	Wing stringer or chord member	Wing stringer that has structural loads or supporting flying controls. *Composite or monocoque construction wing repair greater than 15cm in any direction before scarfing*	Stringers and formers that are used for carrying fabric or skin. *Small non primary structure repairs.*
C	Spar	Wing main spar, rear spar, auxiliary spar. *Broken or damaged spar repairs. Repair of spar web.*	False spar, trailing edge. Spar repairs on wooden structure wings that do not require the use of an alignment fixture or jig. *Minor spar repairs outboard of the aileron cut out*
D	Spar flange	Spar upper or lower flange or attachment or location. *Repair of spar joint or spigot*	*Spar flange repairs outboard of the aileron cut out*
E	Member of a truss type beam	Framework and supporting structure. *Repair of wing support, landing gear support, empennage support, engine support*	Member used to support fabric, or fairings. *Repair of cowling or fairing supports.*

		structures.	
F	Web of a beam	Web of a spar or rib that is primary structure. *Repair of a tail plane mounting rib. Repair of a spar extension*	Minor reinforcements. *Aileron cut out reinforcement repair*
G	Keel or chine of a flying boat hull or float	Not applicable	
H	Corrugated sheet compression member in a wing or tail surface	Not applicable	
I	Main wing rib	Ribs used to support flying controls or attachment points. *Composite or monocoque construction wing repair more than 15 cm in any direction or involving a structural member*	Ribs used to support fabric, skin or profile. *Repair of a wooden wing rib. Repair of a GRP end rib not used for wing location*
J	Wing or tail brace strut	Brace strut or wire *Replacement of load bearing end fitting*	Fairings and attachment brackets not forming main load path *Replacement of cable guide or fairing bracket*
K	Engine mount	Mount, pylon, brace struts, attachment points, extension structure, pivot points. *Repair of pylon*	Accessory and fairing mountings *Repair of exhaust or ancillary equipment mounting*
L	Fuselage longeron or frame	Main longeron, keel tube. Composite or monocoque construction repair more than 15 cm in any direction or involving a structural member *Major fuselage repair*	Longeron, fabric or skin supports. Secondary non primary structure. *Repair to fuselage secondary tube. Minor fuselage GRP repair*
M	Member of a side truss, horizontal truss or bulkhead	Load carrying bulkhead or frame *Fuselage stiffening bulkhead repair*	Non load bearing formers. *Repair of non primary structural bulkheads and equipment shelves* *Repair of instrument panels.*
N	Seat support brace or bracket	Main seat fixings, harness attachments. *Repair of seat harness attachment mounting points*	Seat pan or back support, fairings or panels, secondary seat backs/bases *Repair of seat harness guide and location attachments*
O	Seat rail replacement	Seat attachment rails *Repair of seat attachment rails*	Seat base or back locations. *Repair of peg location holes or adjustment slots*
P	Landing gear strut or brace strut	Frame and mounting structure. *Repair of landing gear load bearing mounting.*	Door or brake attachment, fairing attachments. *Repair of u/c doors and hinges.*
Q	Axle	Main wheel, nose/tail wheel axle *Weld repair of main wheel axle.*	Wing tip wheels *Repair of wing tip wheel axle location points*
R	Wheel	Main wheel, nose/tail wheel *Weld repair of a wheel*	Wing tip wheels *Any repairs*
S	Ski or ski pedestal	Not applicable	

The modification or repair of any of the following parts:		**Complex Tasks** Part/task *Example in italics*	**Non-Complex Tasks** Part/task *Example in italics*
A	Aircraft skin or the skin of a float if the work requires the use of a support, jig or fixture	Any work that requires the use of an alignment jig or fixture, broken wings, broken fuselage, broken tail plane. *Major structural repairs on fabric/wooden skin aircraft involving the use of a alignment jig or fixture.* *Repair of control surfaces where mass balancing is required*	Repair work to aircraft skin or frame that does not require alignment of the aircraft. *Non primary structure repairs.* *Minor repairs to the skin or trailing edge of a control surface where mass balancing is not required.*
B	Aircraft skin that is subject to pressurisation loads	Not applicable	
C	Load bearing part of a control system including control column. Pedal, shaft, quadrant, bell crank, torque tube, control horn and forged or cast brackets, but excluding (i) the swaging of a repair splice or cable fitting (ii) the replacement of a push-pull tube end fitting that is attached by riveting	Including control system mountings and moving parts. *Primary control system repairs*	*Repair of control cables.* *Replacement of control rod fittings by riveting or bolting.* *Secondary control system repairs*
D	Any other structure not listed above that the manufacturer has identified as primary structure in its maintenance manual, structural repair manual or instructions for continued airworthiness	As identified in the manufacturers manuals or Technical Notes (SB) or Airworthiness Directives Any repairs identified by the manufacturer as a Major repair.	Any repair identified as a minor repair by the manufacturer and not listed above
E	BGA additional requirements applicable to EASA aircraft as the requirements do not consider GRP/FRP composite structures.	*Substantial repair or re-gelling/re finishing of a GRP/FRP aircraft, fuselage, wing or tail plane where the old gel or surface finish is to be substantially or completely removed on inner/lower 2/3 of a aerofoil/stabiliser section or fuselage between the wing and tail intersections.* *Lower fuselage repairs involving significant structural damage* *In case of doubt please contact the BGA QM or CTO for guidance.*	*Refinishing not requiring the removal of all the old gel or surface finish.* *A wing minor repair or re-gel outboard of the aileron cut out.* *Fin or tail plane minor repair or re-gel on outer/upper 1/3.* *Fuselage minor repair or refinish forward of the wing or aft/ below the fin intersections or in the lower fuselage section (wheels up landing type damage, tail or nose wheel heavy landing damage without significant structural damage and not adjacent to a structural intersection)*

Notes:

a) 'Complexity' is associated with 'modification, repair or replacement by riveting, bonding, laminating or welding'. Replacement by 'normal' processes such as bolting is unlikely to be determined as a complex task.
b) The certifier in each case must hold the appropriate BGA authorisation or a Part 66 licence
c) Duplicate or second inspection requirements apply as normal, for example where involving an item of sensitive maintenance, control system, critical bolted joint e.g. engine mount, landing gear mount, wing attachment (if not designed for disassembly after flight).

3. Authority to carry out complex maintenance tasks

a. As Part M (M.A.801) requires that complex maintenance tasks are released by a BGA inspector authorised by the BGA subpart F maintenance organisation, it follows that the BGA subpart F organisation must have sight of complex maintenance tasks that may be required to be released by a BGA inspector.

b. Any complex maintenance task that is intended for release by a BGA inspector must be authorised by the BGA subpart F organisation. There are two ways to be issued with authorisation:

   i. List 1 Approved Complex Maintenance sites
   Inclusion in the BGA Airworthiness Exposition under "List 1". "Approval to carry out complex tasks". This is designed for professional maintainers who carry out complex maintenance tasks on a regular basis. The approval involves a formal application process and CAA audit and oversight. For details of how to apply and costs please contact the BGA.

   ii. List 2 maintenance sites (un-listed)
   BGA Internal application process. This is designed for all other then List 1 site inspectors who wish to carry out complex maintenance tasks but on an ad-hoc basis probably only a few occasions each year. The application process and requirements are described below. These inspectors will be under BGA Quality Group oversight.

Notes:

a. Inspectors in List 2 who frequently carry out complex maintenance may be asked to apply for List 1 approval.
b. An inspector not on list 1 is automatically included in list 2.
c. If a task involves a substantial major repair probably involving jugging or alignment of the aircraft fuselage, wing, tail plane or powerplant, a BGA Senior Inspector is required to certify these tasks. Authority to carry out a complex maintenance task does not in itself grant senior inspector privileges.
d. If a complex maintenance task develops beyond that originally described on application, a further complex maintenance task authorisation application is to be made.
e. When the complex maintenance task is complete, the BGA require a copy of the workpack to be held at the BGA head office. Only when a compliant workpack is received can we complete the complex maintenance review.
f. *Authorisation for a complex maintenance task does not substitute any responsibility on the person carrying out the complex maintenance to do so correctly using approved data*, including for example:
   i. a repair scheme published in the maintenance or repair manual
   ii. a generic repair manual if specified by the aircraft type certificate holder as approved data
   iii. a DOA approved repair scheme
   iv. technical notes or service bulletins from the TCDS holder allowing major repairs

4. Application for complex maintenance task authorisation

a. List 2 BGA inspectors may apply for complex maintenance task authorisation using a form BGA 277.
b. The BGA 277 should be completed in full. Where an item not applicable, the inspector must state why.
c. Information required in the BGA 277 application includes:
    i. A description of the facilities including any special environmental requirements such as heat, dust extraction, humidity control etc. that will be available for the repair/work
    ii. Description of equipment and tools to support the work
    iii. Data to be used including modification instructions, repair manuals, specific repair schemes, etc as applicable
d. The completed application should be sent to the BGA office where it will be forwarded to an appropriate person for review.
e. Please note that the review identified in d above may result in specific requirements being attached to the authorisation, eg;
    i. the process may require site visits eg prior to the work starting, during work in progress and at completion
    ii. a copy of the complex task work pack may be required to be presented prior to release certification
f. The fee charged will depend on the degree of oversight required. Details are published on the BGA website.
g. Authorisation will be provided by email. Queries should be made to the BGA office.

5 Example complex maintenance application form (277) below

February 2016

BGA ref no:

Complex Maintenance Application

This form is used for BGA inspectors at non approved maintenance sites (List 2) to apply for specific authorisation to carry out a complex maintenance task on aircraft under BGA maintenance control.

Applicable aircraft; Sailplanes, Self Sustaining Sailplanes, Powered Sailplanes and Motor gliders, Annex II powered aircraft.
For a definition of complex tasks and how to apply for approval see AMP 2-13.

Note: all complex tasks will require completion approval prior to releasing aircraft. This application is not a repair scheme approval. This application is the approval of facilities for the task and for quality oversight in accordance with Part M, subpart F.

BGA Number: 1234	Registration: G-ABCD	Make & Type: ASK 13	
Serial/works number: 13000	Description of work (title): Recover of the fuselage		
Location where work is to be accomplished: xxx Club main workshop			
Name and address of certifying BGA inspector: J Bloggs		Inspector number: I/A000	Contact telephone number: 12345678910
		Contact email: email@anywhere	Name of Senior Inspector (if applicable):
Date work is due to be started: 01 April 2015		Expected completion date (if known): 01 April 2015	
Details of the work to be carried out: Recover of fuselage including the fin & rudder.			
Description of facility to be used for the work: Gliding Club main workshop with heating, lighting, extractor fan in area used for spraying.			
Description of tools and equipment to support work: All tools required for fabric work i.e pinking shears, iron, brushes, spray equipment.			
Details of the approved repair scheme including drawings, manual references and no technical objections that the work will be certified to: Work to be carried out IAW Schleicher Gen TN 2/2005, FAA approved model list (AML) No. SA4503NM and the Ceconite Manual			

Please use continuation sheets as necessary.

BGA Use only:

Initial Approval:

Assessment date:_____ Initial Visit required ☐ Initial visit not required ☐ Follow up visits required ☐

Assessment and Initial visit comments:_____

Approval to start work Date:_____ Signed:_____

Follow up visits: Date:_____ Comments:_____

Date:_____ Comments:_____

Completion review:

Review date:_____ Visit required ☐ No visit required ☐

Comments:_____

Complex maintenance task closed: Signed_____ Date:_____