

BGA Airworthiness and Maintenance Procedure	AMP 1-15
ACCEPTABLE MATERIALS AND PARTS	

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Overview

This AMP describes acceptable materials and parts and their use on Part 21 aircraft operating under the BGA airworthiness organisation. Note: this information is only applicable to ELA1 aircraft, i.e. a sailplane or powered sailplane of 1200 kg MTOM or less or an aeroplane with a maximum take-off mass (MTOM) of 1200 kg or less that is not classified as complex motor-powered aircraft.

In its most simplistic form maintenance involves the disassembly, inspection, cleaning correction, lubrication, replacement, and confirmation of correct function of all the component part of an airframe. When the condition of a part is unacceptable repair or replacement are further options. In accordance with CS-22 (Design Requirements for Sailplanes, see extract at appendix), the airframe, and all its components and parts are required to be of aeronautical quality, appropriate to the design and operating limitations, and function properly when installed. The TC holder is required to demonstrate this and document his justifications typically issuing a 'Form 1' appropriate to their (multi-) national authority

In any sailplane, equipment and components will have been sourced from not only the TC holder but his subcontracted providers and other commercial suppliers, possibly to standards developed for items in wider use. These will range from installed equipment items, such as release hooks, straps and instruments (issued with their own Form 1), through to connectors, bearing, and nuts and bolts, possibly with wider standard accreditations. Where a maintainer replaces an equipment, component or part he/she must ensure that this level of quality is maintained, and appropriate paperwork, often a CAA Form 1, issued by an approved organisation, is held in the airframe maintenance file.

Recognising the diverse demands of non-commercial, sport aviation, some parts and appliances are eligible to be embodied in type-certified ELA products without being accompanied by a CAA Form 1. In such cases, the installer should be in possession manufacturer's documentation that the part or equipment conforms to an appropriate, established industry standard, and seek the agreement of the owner. The regulations and CAA guidance on this topic are quite complex but are summarised in the following sections. For further clarity the relevant sections of Part MLight and Part M are cross referenced and should be consulted in detail if required. This document contains direct (but sometimes edited) quotations from these regulations raise in *italic type*.

Herein we first consider the categories of parts that can be used, and then the processes of embodiment and removal.

- 1- Raw materials such as glues and resins
- 2- Components and parts with a CAA Form 1, FAA 8130 or EASA form 1
- 3- Service Life Limited Components
- 4- 'Standard parts'
- 5- Parts and appliances that may not require a Form1
- 6- Owner accepted components and parts
- 7- Removed parts
- 8- Unserviceable parts

1 Raw materials

Ref: Part ML MA501(d) - MATERIAL – Classification and Installation

This section is applicable to glues, resins, wood, metal, glass fibre/carbon fibre/kevlar cloths and other raw materials. Consumable material is any material that is only used once such as lubricants, cements, compounds, paints, chemicals, dyes and sealants etc. These materials do not need a Form 1. In most cases, a Certificate of Conformity (CFC) is required. Some of the above used for structural purposes must be traceable to a batch or lot such as glass cloth, resins or structural adhesive. It should be noted that these materials often have specific temperature and humidity storage requirements and a shelf life and this should be included in the documentation and/or the material's packaging. In a workshop, these materials should be kept in bonded store. The shelf life, expiry or use by dates on materials must be observed.

Raw or consumable material shall only be used on an aircraft or component provided that:

(i) the aircraft or component manufacturer allows for the use of raw or consumable material in relevant maintenance data or as specified in the relevant rules.

(ii) such material meets the required material specification and has appropriate traceability.

(iii) such material is accompanied by documentation clearly relating to the particular material and containing a conformity-to-specification statement as well as the manufacturing and supplier source.

FURTHER CONSIDERATIONS: (see also Subpart F of Annex I (Part-M), Annex II (Part-145) or Annex Vd (Part-CAO)):

Some materials are subject to special conditions, such as storage conditions or life limitation, etc.,

Where aeronautical products are specified, these should be sourced with a Certificate of Conformity from aircraft parts and material suppliers or direct from manufacturers. However, in many cases on sailplanes and powered sailplanes as well as some ELA 1 aircraft, automotive products are specified.

In the case of engine oils and lubricants, usually an automotive specification is required for powered sailplanes. Oil for these types should be sourced from reputable suppliers and be of good quality. Engine oils will have the various specifications marked on the container; this could be a VW or SAE specification). Always refer to the engine handbook for details of the correct grade and specification. Aviation grade oils and lubricants should be sourced with a C of C.

Other consumables such as cleaners, sealants, compounds and polishes may be sourced from automotive suppliers but care must be taken to ensure there is no adverse effect on the aircraft. Particular attention should be paid to avoid silicone polish on glass structures and fabric and caustic products on aluminium.

2. Components and Parts with a CAA Form 1, an FAA 8130 or an EASA Form 1

Any parts with a CAA Form 1 need no further input from the owner.

FAA 8130 (with Dual release) is a FAA issued document that comes from a UK/USA bilateral agreement that allows CAA aircraft to use them. They will be used in American manufactured aircraft (like the PA25 Pawnee) and Lycoming engines. These need no input from the owner.

EASA Form 1 needs no further input from the owner provided the CAA continues to exempt their use. This topic remains open to discussion with UK national authority.

3. Service Life Limited Components

Ref: Part ML MA.503

Service Life Limited Components are rare on pure sailplane airframes, being usually confined to sub components such as release hooks and pilots' harnesses. The BGA's maintenance approval (CAO.025) does not extend to deep maintenance or indeed overhaul, ie. return to zero-time status, of such items.

Some control system components may be subject of periodic tests, where failure usually requires replacement: eg gas struts, brake discs etc., but these too are usually capable of being sourced from a distributor or manufacturer's sub-contractor. Service Life limited components are more likely to be encountered on motor gliders and SS sailplanes.

(a) The term 'service life-limited components' contains the following:

(1) components subject to a certified life limit after which the components should be retired, and;

(2) components subject to a service life limit after which the components shall undergo maintenance to restore their serviceability.

(b) Installed service-life-limited components shall not exceed the approved service life limit as specified in the AMP and ADs, unless certified limits have been extended or a repair solution has been approved in accordance with point ML.A.504(c).

(c) The approved service life is expressed in calendar time, flight hours, landings or cycles, as appropriate.

(d) At the end of the approved service life limit, the component must be removed from the aircraft for maintenance, or for disposal in the case of components with a certified life limit (see Sections 7&8 herein).

4. Standard parts

This section is applicable where parts that were originally fitted by the aircraft manufacture, that have been sourced from outside suppliers and have not been subsequently modified. They can be nuts, bolts, bearings and many other parts. An example would be a ASK21 wheel bearing. It has a part number and was built to a known and recognised standard. You can buy the same part from any supplier, but the standard part must be accepted by the aircraft owner. The owner accepted standard parts should come with a Certificate of Conformity (CfC) and should be listed on the BGA 286 form. See below excerpts from various CAA publications.

Part M, AMC1 M.A.501(a)(4) (modified by CAA ORS9 Decision No. 1) defines standard parts as 'parts that are manufactured in complete compliance with an established industry, CAA, or other government specification which include design, manufacturing, test and acceptance criteria, and uniform identification requirements. The specification should include all the information that is necessary to produce and verify conformity of the part. It should be published so that any party may manufacture the part. Examples of such specifications are National Aerospace Standards (NAS), Army-Navy Aeronautical Standard (AN), Society of Automotive Engineers (SAE), SAE Sematec, Joint Electron Device Engineering Council, Joint Electron Tube Engineering Council, and American National Standards Institute (ANSI), EN Specifications, etc. A CAA Form 1 or equivalent is not normally issued and, therefore, none should be expected.

Part M AMC further advises that the TC holder may issue a standard parts manual accepted by the CAA of the original TC holder or may make reference in the parts catalogue to the specification to be met by the standard part. Documentation that accompanies standard parts should clearly relate to the parts and contain a conformity statement plus both the manufacturing and supplier source.

5. Parts and appliances that may be eligible for fitment without a Form 1

Ref: Part 21 A307, PML MA502, UK SI No.588/2023 and CS-STAN

The parts and appliances listed below are eligible for installation in a type-certified airframe without being accompanied by a CAA Form 1, provided that the installer holds a document issued by the person or organisation that manufactured the part or appliance, which declares the name of the part or appliance, the part number, and the conformity of the part of appliance with its design data, and which contains the issuance date.

a. a standard part;

b. in the case of ELA1 or ELA2, a part or appliance that is:

(i) not life limited, nor part of the primary structure, nor part of the flight controls;

(ii) identified for installation in the specific aircraft;

(iii) to be installed in an aircraft whose owner has verified compliance with the applicable conditions in (i) and (ii), and has accepted responsibility for this compliance;

c. A part or appliance for which the consequences of a non-conformity with its approved design data has a negligible safety effect on the product and which is identified as such by the holder of the design approval in the instructions for continued airworthiness. In order to determine the safety effects of a non-conforming part or appliance, the design approval holder may establish in the instructions for continued airworthiness specific verification activities to be conducted by the installer of the part or appliance on the product;

d. In the case of the embodiment of a standard change for which the consequences of a non-conformity with its design data have a negligible safety effect on the product, and which is identified as such in the certification specifications for standard changes and standard repair. **‘Certification Standard – Standard Changes and Repairs’ (CS-STAN)**, is issued by the agency, includes acceptable methods, techniques and practices for carrying out and identifying Standard Changes/ Repairs noting associated instructions for continuing airworthiness. - and - not conflicting with TC Holders data. This CS is particularly useful and contains numerous cases that are specifically orientated towards sailplanes.

In order to determine the safety effects of a non-conforming part or appliance, specific verification activities to be conducted by the installer of the part or appliance on the product may be established in CS-STAN among others.

e). a part or appliance exempted from an airworthiness approval under Commission Regulation (EU) No 965/2012; and

f). a part or appliance that is an item of a higher assembly identified in points (1) to (5).

6. Owner accepted components

In these cases (Section 5), other than 'a', being 'standard parts', it is a requirement that the owner is informed of the introduction of new items on his airframe. At the practical level new additions to an airframe generally arise from two situations

- Replacement of parts or components that were originally issued with a Form 1 but now require repair or overhaul, for example by a manufacturer who may no longer have permission to issue an EASA Form 1, or who outsourced the component at manufacture.
- New equipment requiring installation, generally at the request of the owner. Typically, this would apply to specialist soaring on nav/comms equipment. In these cases, the maintenance of those

components must be released with a “declaration of maintenance accomplished” issued by the person or organisation that performed the maintenance.

Ref: GM1 ML.A.502(c) Component maintenance and CAA ORS9 Decision No.38

The ‘declaration of maintenance accomplished’ is a certificate prepared in any shape/form by the aircraft rated maintenance organisation that performed any maintenance on the component covered by the certificate under the conditions of Section 3 above. This person or organisation does not need an approval to perform maintenance in accordance with UK Regulation (EU) No 1321/2014. For a component to be eligible for installation as an owner accepted component, a ‘declaration of maintenance accomplished’ is required. This declaration, together with other records, should make it clear that an existing component was first installed as ‘new’ (as in Section 3 above). Such a component should not be installed in an aircraft if there is information on the certificate which is not readable or not understandable or states that the component is not in a satisfactory condition for operation.

Information on the certificate must include:

- 1-Details of maintenance (not too vague)
- 2-The date the maintenance was completed
- 3-The identification of the person that issued the certificate (the certifying engineer)
- 4- The components original Form 1 or other certificate (for example prior to EASA Form 1’s, a JAR Form 1 or LBA equivalent) which must be readable.

The BGA 286, at Appendix 1, is offered as a template, within which the owner accepted components may be listed. It is to be considered a maintenance record and similar to a CAA Form 1 in respect of the maintained component.

Ref: ML.A.502 Component maintenance and UK SI No. 588/2023

(a) Components accepted by the owner in accordance with section 5 of this AMP (above) shall be maintained by accredited BGA inspectors, subject to reacceptance by the owner. This maintenance is not eligible for the issuance of a CAA Form 1, and shall be subject to the aircraft release requirements.

(b) The following table defines the release conditions for various components, including engine and propeller components. This identifies those components that can be released by a BGA inspector under the BGA Aircraft rated maintenance organisation approval (herein referred to formally as a MLA 801, third column) using appropriate worksheet and log book entries: and those requiring a separate release document from an Engine rated or component rates organisation with an associated Form 1 (second column).

	Released using a CAA Form 1 (as set out in Appendix II of Annex I (Part-M))	Released at aircraft level per point ML.A.801 (not possible to issue a CAA Form 1)
Components maintained in accordance with component maintenance data (data issued by the component manufacturer)		
Maintenance other than overhaul	Engine-rated (for engine) or component-rated (for other components) maintenance organisations	(i) Aircraft-rated maintenance organisations; and/or (ii) independent certifying staff
Overhaul of components other than engines and propellers	Component-rated maintenance organisations	Not possible
Overhaul of engines and propellers for CS-VLA, CS-22 and LSA aircraft	Engine-rated (for engine) or component-rated (for propeller) maintenance organisations	(iii) Aircraft-rated maintenance organisations; and/or (iv) independent certifying staff
Overhaul of engines and propellers for other than CS-VLA, CS-22 and LSA aircraft	Engine-rated (for engine) or component-rated (for propeller) maintenance organisations	Not possible
Components maintained in accordance with aircraft maintenance data (data issued by the aircraft manufacturer)		
All components and all types of maintenance	Engine-rated (for engine) or component-rated (for other components) maintenance organisations	— Aircraft-rated maintenance organisations; and/or — independent certifying staff

7. Removed parts

Maintenance necessarily implies that parts will be removed and disassembled for servicing. In the simplest case these will be serviced on site and reassembled onto the airframe. The reasons for removal of a part are diverse and include removal of a serviceable part for access and maintenance of a second, obscured part. Should a part be removed geographically from the airframe or for a significant period of time it must retain circumstances appropriate to its status as an aeronautical component

Components Maintained 'On the Wing'

"On wing" means component maintenance carried out within the vicinity of the aircraft where it may be appropriate to remove the component for maintenance and refit on completion. For component maintenance "on wing" final certification is covered by a Part ML.A.801 Certificate of Release to Service.

Appropriate certification will be made initially on a worksheet bearing the BGA authorised inspector's details and signature. Worksheets are to be retained in the aircraft records. A reference to the worksheets shall also be made in the aircraft logbook.

Component Maintenance 'Away from Aircraft'

Component maintenance away from the aircraft is deemed acceptable and to have taken place in instances where the component is removed and transported to another repair facility.

Components removed and retained for repair without leaving the BGA system

Components removed for maintenance remaining within the BGA system must be maintained in accordance with approved data and certified by an appropriately rated BGA inspector. These components should be released to service by issuing a Part- ML.A.801 Certificate of Release to Service on the appropriate work sheets or logbook entry. These components are normally refitted to the same aircraft. If the component is fitted to another BGA aircraft the repair details (work pack) are retained in the recipient aircraft records.

Swapping of Serviceable components between Aircraft

Parts transferring between aircraft in the BGA CAO may be transferred using a BGACRS Part (being an ML.A.801 CRS). The work done to verify the serviceability, origin, life used and details of any other work done must be recorded on worksheets, also verifying that any maintenance due has been completed and alignment with the recipient aircraft maintenance programme must be established.

Components removed from an Aircraft and sent to a Third Party outside the BGA System

Components removed from an aircraft and sent to another organisation outside the BGA approval system will require release back into service with an EASA Form 1/CAA Form 1.

Components removed from an aircraft to overhaul

With the exception of sporting equipment and sailplane standard parts, component overhaul is NOT within the BGA scope of approval. The BGA inspector must satisfy himself that component overhaul is carried out by an organisation appropriately approved for this function usually expected to be the original manufacturer, if in existence, or an approved supplier.

Overhaul of sailplane sporting equipment and sailplane standard parts is released to service by issuance of a Certificate of Conformity.

Non-Type Certified engine overhaul

BGA inspectors are not approved to overhaul engines as their approval is limited to inspection and repair only. Engine overhaul can only be carried out by appropriately approved external organisations and release back into service will be by EASA Form 1 (as in section 3) or CAA Form 1 certification.

8. Unserviceable parts

When a part is NO LONGER SERVICEABLE, by being found to be out of service life (eg. Tost hook or set of straps) or through any other condition of wear or damage, the removal of the part must be controlled so that its unserviceable condition and cause be identified

Ref: GM1 M.A.501(a)(2) Classification and installation modified by CAA ORS9 Decision No. 1

A component shall be considered unserviceable in any of the following circumstances:

- (1) expiry of the component's service life limit as defined in the AMP;*
- (2) non-compliance with the applicable ADs and other continued-airworthiness requirement mandated by the CAA;*
- (3) absence of the necessary information to determine the airworthiness status of the component or its eligibility for installation;*
- (4) evidence of component defects or malfunctions;*
- (5) component involvement in an incident or accident likely to affect its serviceability.*

Component Identification and Disposition

Unserviceable components shall be identified by tagging and storage in a quarantine store until a decision is made on the future status of such components. Where a significant number of unserviceable components is expected, the use of a register is required to trace the components and methods of repair or disposal.

Forward and reverse traceability is required on any salvaged component that re-enters the airworthiness system following rectification. Initially, an entry in the quarantine register will indicate the start of the rectification process. Subsequent in-process inspection and final inspection activities will lead to the generation of a batch number. The batch number shall be referenced in the relevant work pack. Components salvaged via external overhaul/repair are to be received under cover of an EASA Form 1 (see section 3) or CAA Form 1. This shall be referenced in the work pack upon fitting the component to aircraft.

Component Disposal

Where an item is deemed to be unserviceable, it will be processed using one of the methods below:

1. Returned to the supplier if received defective or with questionable paperwork.
2. Quarantined in the Quarantine Store to allow further investigation or to give time to determine the next steps.
3. Returned to the owner (a record needs to be made of this).
4. Routed to an appropriately approved workshop, either internally or externally.
5. Destruction or mutilation.

The preferred approach is that unserviceable components are returned to the aircraft owner, as it is the responsibility of the owner to ensure the components are not released into service without

appropriate overhaul, repair or maintenance being completed. If ownership changes the responsibility also transfers to the new owner.

However, note the following detailed requirements in specific circumstances:

Components that have reached their certified life limit or contain a non-repairable defect shall be classified as unsalvageable and shall not be permitted to re-enter the component supply system, unless certified life limits have been extended or an approved repair solution has been promulgated. They are to be marked as such, returned to the owner responsible for the airworthiness of the aircraft and an entry made in the continuing airworthiness records to that effect.

Parts removed from the aircraft and / or replaced as part of routine servicing defects (e.g., rod ends, spark plugs) will be retained in case of dispute with the aircraft owner and destroyed / disposed of when advised by the Inspector.

Unsalvageable components shall be **mutilated** in a manner that ensures that they are beyond economic salvage or repair before relinquishing responsibility for such components.

Where the Type Certificate holder specifies, critical component data plates should be returned to the manufacturer with final disposition advice and history of the component.

Where an item removed from the aircraft is subject to an investigation (e.g., MOR or AAIB action), the part will not be disposed of and will be quarantined as detailed above.

