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## **1. Introduction**

When a maintenance task judged to be critical, it usually requires an independent inspection to verify it has been connected and adjusted correctly.

These are known as independent inspections. In non-Part 21 regulation, this was often called a duplicate inspection. This document gives advice on how this works in the BGA environment and background law.

## **2. Basic Principals**

This based on CAA Part 21 Part ML law, associated acceptable means of compliance and the BGA exposition.

### **CRITICAL MAINTENANCE TASKS & INDEPENDENT INSPECTIONS**

A Critical Maintenance Task is defined as follows and any task meeting the below criteria will be subject to an independent inspection:

1. Tasks that may affect the control of the aircraft's flight path and attitude such as the installation, rigging and adjustment of flight controls.
2. Tasks that may affect the aircraft stability control systems.
3. Tasks that may affect the propulsive force of the aircraft, including the installation of aircraft engines, propeller, and rotors.
4. The overhaul, calibration or rigging of engines, propellers, transmissions, and gearboxes.

In addition, critical bolted joints on:

- a) Wing structure.
- b) Fuselage structure.
- c) Tail plane structure.
- d) Engine mounting.
- e) Landing gear structure.

In the case of any of the above items being located within an enclosed structure the independent inspection must be carried out before the structure is closed for the final time. After the performance of a critical maintenance task, an independent inspection will be called up by the certifying personnel inspecting the work.

The independent inspection will ensure:

1. All those parts of the system that have been disconnected or disturbed are inspected for their correct assembly and locking.
2. The system as a whole is inspected for full and free movement over the complete range.
3. The cables are correctly tensioned with adequate clearance at secondary stops.
4. The operation of the control system as a whole is observed to ensure that controls operate in the correct sense.
- 5.

Where controls are interconnected, all other interactions should be checked through the full range of the applicable controls.

6. Software that is part of a critical maintenance task is checked e.g., for version and compatibility with the aircraft configuration. The completed task is performed or supervised and signed off by the authorised person, who assumes full responsibility for the task. An entry is made recording the full details of the work performed and the task is signed off in the normal way. At this point an entry is made in the work pack requiring an independent inspection referring to the task that has been completed.

That reference must also include detail of what has been checked. The independent inspection attests to the satisfactory completion of the task and is completed by the independent qualified person and signed off prior to the CRS for the aircraft or component being issued.

### **3. Personnel authorised to perform independent inspections for Part 21 aircraft**

1. Certifying personnel with scope to cover the applicable aircraft.
2. Staff authorised by the BGA Chief Technical Officer after training, assessment and recording of that person's experience and competence. This authorisation only allows the holder to perform the second inspection and provides no CRS responsibilities. This authorisation is subject to renewal annually. Note that regarding item 2, the training will take the form of on-the-job training supervised by the BGA Chief Technical Officer or a suitably authorised person nominated by him.

Normally independent inspections are completed independently of each other but in the case of critical bolted joints the independent inspection should be simultaneous with the initial inspection to verify bolt torque, etc.

Inspections shall check for correct assembly and function, adjustment, torque, tension, free play, friction, stops, locking, safety, range of movement, full and free movement, and sense of operation as appropriate to the item. Interactive systems, i.e., control mixers, should be checked in all modes of operation. In the case of control systems, the entire system should be checked. Adjustable systems such as rudder pedal position shall be checked at each extreme position to ensure full and unobstructed travel is available.

Best practice for work packs is to photograph all critical joints and include the image in the work pack.

### **4. Personnel authorised to perform independent inspections for non-Part 21 aircraft**

For sailplanes with a BGA Airworthiness Certificate the following people are authorised to conduct duplicate inspections.

- a) Glider Inspector - any airframe inspections but second inspection only on SSS engine.
- b) SSS inspector - any airframe inspection or SSS engine inspection.
- c) Motor Glider Inspector - any inspection.
- d) Tug inspector - any inspection.
- e) Licensed Aircraft Engineer - any inspection.
- f) An experienced sailplane or motor glider pilot - second inspection only to the limit of the pilot's licence held.
- g) A person authorised by the BGA Chief Technical Officer for the purpose.

## 5. Documenting independent/duplicate inspections using example BGA 205 Task sheets

Below is an example of how a duplicate/independent inspection is documented on a worksheet.

The names of the people performing these tasks must be very clearly legible, the BGA inspector number (because it is authorised by the BGA CAO approval) or CAA Part 66 license number only if the 2<sup>nd</sup> inspector is not a BGA inspector must all be very clearly legible (and traceable).



### Rectification Worksheet

This worksheet may be used for Gliders, Motor Gliders and BGA Tugs.

Reg: G-ABCD		Type: G103	File Ref: 1234-A	
Date: 25/04/23		Check/Zone: defect	Sheet: 1 of 1	
No.	Defect	Action	Completed	
1	Aileron stop on starboard side of stick, found to be unlocked.	Stop re locked, ailerons movement check and unchanged in accordance with maintenance manual after above inspection.  <b>1<sup>st</sup> inspection</b> Inspected for fit, security, sense, and full and free movement. Satisfactory	<i>JB</i>  <i>JB</i> <i>I/A/007</i> <i>25.4.2023</i>	
2	Item 1 above requires independent inspection	<b>2<sup>nd</sup> inspection.</b> Independent inspection carried out of aileron control stop. Inspected for fit, security, sense, and full and free movement. Satisfactory	<i>JS</i> <i>John Smith</i> <i>I/C/009</i> <i>25.4.2023</i>	
3	Image of locked control stop after completion of independent inspections for records.		<i>JB</i>	
<p><b>Non-Part 21 aircraft (formally known as Annex II Aircraft)</b>  # <input type="checkbox"/> The work recorded above has been carried out i.a.w. BGA Airworthiness Exposition supplement UK CAA BCAR APPROVAL: DAI/8378/73</p> <p><b>Part 21 aircraft (formally known as EASA Aircraft)</b>  <u>BGA Inspector or Part 66 Engineers Certificate of Release to Service ML.A.801(e) CAA Approval No. UK.CAO.0025</u>  # <input checked="" type="checkbox"/> Certifies that the work specified, except as otherwise specified, was carried out in accordance with Part-ML, and in respect to that work, the aircraft is considered ready for release to service</p> <p><u>Pilot-Owner Certificate of Release to Service (ref ML.A.801(e) ML.A.201(c), ML.A.801 and ML.A.803)</u>  # <input type="checkbox"/> Certifies that the limited pilot-owner maintenance specified, except as otherwise specified, was carried out in accordance with Part-ML, and in respect to that work, the aircraft is considered ready for release to service</p>				
Signed: <i>J Bloggs</i>		BGA Authorisation/pilot No: <i>I/A/007</i>	Date: 25/04/23	
#Tick appropriate box				

## 6. Sources of information

The FAA publication AC 43.13-1B Acceptable Methods, Techniques, and Practices Aircraft Inspection and Repair is free download on the FAA website.

The most relevant part is Chapter 7. Aircraft Hardware, Control Cables, And Turnbuckles, Section 7-Safetying.

