

SLINGSBY TECHNICAL INSTRUCTION No. 19.EXAMINATION OF EAGLE MAIN SPARS
AND EMBODIMENT OF EAGLE MOD. No. 5.

The following inspection has been agreed in consultation with the British Gliding Association Technical Committee and calls for the opening of the Eagle outboard wing to examine the condition of the main spar between ribs 13 and 17. A modification to the packings on the top and bottom of the main spar in the region of ribs 13 to 17 is also to be incorporated at the time of this inspection. This modification is Eagle Modification Number 5.

A report on the external and internal condition of the outboard wing, and the centre section, is to be made to the B.G.A. Technical Committee. A special form is attached to this leaflet which should be used for this report.

The purpose of the inspection is to detect any cracks which may have appeared in the wing skin, and then to find if the internal structure, in particular the spar booms, have been effected by these external cracks. It is emphasised that the type of crack likely to be found in ply skins, and the type of damage that may be present in the spar boom, is very difficult to detect and will only be found by the most careful examination. With this in mind it is recommended that the examination be only carried out under good work shop conditions where adequate lighting is available. The Technical Committee has ruled that the examination and report must be made by a B.G.A. Approved Senior Inspector.

It is emphasised that the present action is only regarded as interim so that Eagles can be cleared for flight. It is hoped that no further modification action will be required and that eventually Eagles will be restored to their full semi-aerobatic category clearance. It is however possible, as the result of further investigation, that additional mod. action may be required before full clearance can be granted to the type.

PROCEDURE FOR INSPECTION.

1. Remove outer wings and lay on tressles.
2. Examine upper and lower surfaces of wing for any kind of surface cracking or other damage or deterioration. Report findings on the accompanying form.
3. Refer to Drawing No. SK 42-100/181. Part A. and mark out area on wing to be opened up. This is four areas in all comprising the top and bottom surfaces of the port and starboard wings.
4. Remove the plywood skin in the appropriate areas taking great care not to damage any internal structure below the skin.
5. Examine interior structure revealed. Note condition of the intercostal packing members (the small members running between the ribs) and the spar surfaces. Particularly look for cracks in the intercostals and the spar upper ends adjacent to the wing ribs.
6. Refer to Drawing No. SK 42-100/181. Part B. and mark on the top and bottom face of the spar and the rib booms the shape of the new spruce packing to be fitted on top of the spar.
7. Taking care not to damage the top or bottom face of the spar boom carefully remove the intercostals and the rib booms within the area marked to be covered by the new packing.

8. Examine the top and bottom surface of the spar boom and as much of the faces of the booms as can be seen. Particularly look for compression shakes in the booms which will be shown as fine lines running across the length of the boom, and for small cracks in the boom which will be shown as fine lines running along the length of the booms.

These shakes or cracks can be made obvious if the inspector lies under the wing and gets an assistant to apply a bending load to the wing while it is resting on the tressles.

Compression shakes may be located adjacent to the sticks in the ribs on the front or rear faces of the spar. Close examination of these areas should be made, and if there is any doubt the ribs themselves should be detached from the spar and moved side ways to allow closer examination.

The internal condition of the spar found on this examination should be reported on the attached form.

If damage to the spar boom is found full details should be sent to the Technical Office of Slingsby Sailplanes Limited who will forward an approved repair scheme.

9. If no interior damage is found to wing structure, proceed to close up areas effected as shown on Part B of Drawing. Packing members are fixed under the edges of the nose box skin to take the splices from the new panels. The intercostal between ribs 13 and 17 is replaced by a continuous member. The additional packing with the tapered ends is fixed forward of the continuous packing member referred to above. The ply skin should be fixed in position, note that an additional bay aft of the main spar is plyed. On certain later aircraft this panel may be already plyed on the wing. Finally make good external treatment.
10. Remove centre section from aircraft and set on tressles for external examination. Again, as on outer wings, look for signs of cracks in surface skin or other damage. Report on the accompanying form.
11. If the examination of the structure shows it to be satisfactory and after the completion of the modification and repair, a new flying limitation label, supplied with this leaflet, must be fitted in the cockpit.
12. On completion of all inspection and work make an entry in the aircraft log book to show that Slingsby Sailplanes Technical Instruction No. 19 and Eagle Modification No. 5 have been incorporated. A brief summary giving the findings of the examination should also be made in the log book.

It is important that the attached Report Sheet should be filled in and sent to the E.G.A. Office as early as possible after the completion of this inspection. This information is required to assist in the present investigations, and also to decide if further modification action is required to the type.