

Aircraft - General

AD/GENERAL/29

**Wooden Aircraft - Airframe
Structural Inspection**

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Applicability: All aeroplanes and rotorcraft having wooden stressed shell structures or wooden box spars, except Proctor and Vega Gull series.

Note: This does not apply to wings with routed laminated or solid spars and fabric coverings.

- Requirement:
1. Preparation: Prepare the aeroplane for inspection by removing all removable equipment, cabin linings, seats, inspection and access panels, fairings, fabric patches, tape sealing and sufficient fabric and secondary structure to enable an inspection of the airframe in accordance with these requirements.
 2. Inspection Procedure:
 - 2.1 Inspect all fabricated structural components such as box spars, wooden ribs, stringer struts and braces, and all glued connections between these components for the following defects:
 - (a) Cracks, cuts, splits, bruises, compression shakes, warping, contamination by foreign matter, attack by fungus in the wood, shrinkage of the timber at bolt holes.
 - (b) Separation or sponginess in the glued joints and plywood. A 0.10 mm or 0.005 in. feeler gauge should be used to determine separation of glued joints and the depth of glue failure.
 - 2.2 Inspect all plywood skin for the following defects:
 - (a) Cracks, splits, cuts, bruises and shakes in the surface of the wood, deterioration and contamination by foreign matter.
 - (b) Separation of the glue where skin connects to the skeletal structure beneath.

Note: Load carrying wooden skin becomes inefficient and the complete structure loses strength when adhesion to the structure beneath has failed. Consequently, all structural connections and joints must be thoroughly inspected for deterioration and defects. In carrying out an inspection the following notes may prove helpful in detecting defects. Separation from the structure is often detectable from the exterior in several ways. It is likely to appear as a local discontinuity in the skin contour which can be pressed down without the immediate firm resistance anticipated. When the structure is flexed the skin will tend to take up waves. If these waves do not pass across lines of gluing to the structure beneath, adhesion may be taken as sound. Oblique lighting of the surface will be found helpful in studying surface waves and contour discontinuities. Timber shakes appear as thin lines across the timber of the

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varnish layer. By sponging ink on the varnish and subsequently wiping it off, a line where a shake exists should show. Where there are signs of failure in the protective coating on surfaces it should be removed to inspect the wood beneath. Special attention is to be paid to points in the structure where the lodgement of liquids is possible. Wherever possible the inspection should be made from the interior. However, in wings initial inspection may have to be made from the exterior. When inspecting the interior structure of the wings it may be necessary to cut holes in load carrying covering. In such instances reference should be made to the Authority for an approved scheme of inspection holes.

3. Repairs:

Any repairs necessary are to be carried out in accordance with the methods laid down in structural repair manuals or by a method approved by the Authority.

or A.N.O. 105.1.0.2.17.

Compliance: Before issue of C of A and thereafter at intervals not exceeding 3 years.