

# SAILPLANE EXAMINATION AND MAINTENANCE TECHNIQUES

*Periodic sailplane inspection, besides being required by law, is a matter of most urgent interest to all active pilots. To assist in carrying out such inspections in a thorough and methodical manner we are pleased to present the following guide lines, developed by the Schleicher Aircraft Company for aircraft of their manufacture, and translated from the German by Rudy Mozer. Although most sailplane pilots will want to make changes, additions and deletions to the list we feel it is both broad and precise enough to be published as a guide to all individuals concerned with the maintenance and airworthiness of their gliders.*

## ITEMS TO BE EXAMINED

- 1 Airworthiness license and aircraft log book.
- 2 Double check previous repairs.
- 3 Incorporate all current Airworthiness Directive notes issued by the FAA.
- 4 General condition and proper identification.
- 5 Posting of the proper placards for trim and speed to fly.
- 6 Check for any surface defects by means of a visual once-over.
- 7 Weight and Balance (only when major repairs are necessary).
- 8 Compare angle of incidence of wings and elevators and maximum control deflections to original values.
- 9 Compare wing-warpage oscillation rate to original value. A significant drop indicates structural damage has occurred.
- 10 Shake wings, elevator and rudder to determine any loose fittings.
- 11 Check instruments, pitot tube and capacitors, in flight if necessary. When in doubt, send in to manufacturer or qualified repair station.
- 12 Check safety harness for damage and corrosion.
- 13 Check status of finish. In fabric-covered areas no ringworm should occur when pressing with your finger.
- 14 Check fabric cover for age and rotting (puncture test). Also check stitching and glue lap joints.
- 15 If damage is suspected under fabric-covered areas, remove fabric.
- 16 Test all ribs underneath fabric for breaks and cracks by pressing down by hand.
- 17 Check all hardware fittings for perfect attachment to spars, bulkheads, etc., also for cracks in the metal itself.
- 18 Check D-Tube and other ply covered areas for cracks, dry rot and loose glue joints. (If top testing with small hammer use caution on synthetic resin glue joints!)
- 19 Recondition tow hooks according to manufacturers instructions. If necessary, send to manufacturer.
- 20 Check firm attachment of trim weights, if any.
- 21 Check all cable systems and splices for wear. Renew if necessary.
- 22 Check pulleys for cracks, lubrication and alignment.
- 23 Check complete control system for ease of handling. This includes tow release and trim mechanism.
- 24 Check cockpit canopy for proper seat and locking, as well as cracks in the perspex, blind spots and, last but not least, jettisonability.
- 25 Remove seat panel and check control mechanism, push-pull rods, their couplings and bell cranks. Also check their respective attachment to fuselage.
- 26 Dismantle, if necessary, all push-pull controls. Check for damage, excessive play, jammed bearings etc. Cleanse all bearings properly.
- 27 Recondition dive-brake mechanism as per item 26
- 28 Remove and doublecheck landing skid and/or running wheel for wear, breaks and loosened fittings.
- 29 Remove and check spring systems, if any, as per item 26.
- 30 Remove tailskid. After cleaning spring leaves, tail spoon or tail wheel, check for wear.
- 31 If fabric cover does not have to be renewed, check well to get at spots by removing a sufficient amount of fabric (watch steel tubing for indication of corrosion).
- 32 Check interior of fuselage for dry rot, loose glue joints, firm attachment of fittings and proper conservation of wood and metal. Remove corroded areas carefully in order to properly judge the weakening of the structure. Check for torsion, compression and stretch failures, buckled stringers, cracks in weld joints and worn out fittings.
- 33 Clean all wing, aileron, rudder and elevator attachment points and check for deformities, cracks, looseness etc. Remove paint if necessary.
- 34 Doublecheck struts, if any, as in item 33.
- 35 Check wings, elevator and rudder for loose corner blocks, stiffeners, gussets, etc. Check proper conservation, dryness and proper ventilation.
- 36 Remove corroded areas. Check surrounding areas and replace doubtful parts.
- 37 Check bearings, guide blocks and bellcranks for perfect attachment to wingspar, wing rigs, etc.
- 38 Check push-pull rods in wings for kinks, deformities, loose fittings. Also check for easy movement.
- 39 Check all rudder fittings for proper attachment, excessive play and cracks in metal.
- 40 Clean and lubricate all control fittings.

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