SLINGSBY ENGINEERING LIMITED
AIRCRAFT DIVISION

TECHNICAL INSTRUCTION

SEL

TITLE T65 'VEGA' Central Elevator Hinge on Tailplane, Elevator Tongue & Pivot Bearings for Elevator Rocker Arm.	T.I. No. 104/T65 Iss.1

CLASSIFICATION C.A.A. Mandatory

COMPLIANCE Inspection to be carried out before the next flight unless LTO 'Elevator & Canopy Jettison Mechanism', 20th August has been carried out.

OBJECTIVE To ensure structural integrity of the central elevator hinge on tailplane elevator drive tongue and to inspect the pivot bearings for the elevator rocker arm assy. Also to reinforce central elevator hinge on tailplane.

JUSTIFICATION Cracking and a lack of stiffness has occurred in the area 'A' (Fig 1), the cause of which is attributable to heavy landings and/or excessive bearing loads during elevator assembly.

APPLICABILITY

All Slingsby T65A, C, D gliders, including spare tailplane/elevators expanding on CAA Airworthiness Directive No.008-08-82. (LTO 'Elevator & Canopy Jettison Mechanism', 20th August).

CONSEQUENTIAL LIMITATIONS

If cracking is found on the tailplane central hinge the repair will require a new central tailplane rib (T65A-30-15) which must be fitted by S.A.L. or an approved repair shop before next flight.

ACTION - Inspection to be carried out as follows :

1.1 With the tailplane/elevator assembly removed from the aircraft examine the glass reinforced plastic operating tongue of the elevator which projects forwards into the tailplane. The lips of this channel shaped tongue must be unbroken and continuous to the point where it merges with the elevator proper. Check the tongue for lack of stiffness in the vertical sense by attempting to bend the tongue with the fingers. If any degree of cracking, damage or abnormal flexibility is found it must be rectified before further flight in accordance with a repair detailed in Section 2.

The preceding action must be carried out following a heavy landing or ground loop in addition to any other required inspections.

1.2 Inspect the pivot bearings (04 DU 04) for the elevator rocker arm assembly, on the top of the fin for wear. Any wear found in excess of 0.01" in the fwd & aft direction must be rectified before further flight. Fitting of the bearing is detailed in Section 3.

1.3 Inspect the tailplane centre hinge pin mounting rib at the section just forward of the hinge pin as detailed in Fig 6. If cracks or damage are found a repair entailing the fitting of a new 'reinforced' rib will be required. The repair scheme is detailed in Section 4 and should be undertaken by S.A.L. or an approved repair shop. If the section does not show signs of cracking a reinforcement cloth will be required as detailed in Section 5. Alternative means of repair for minor cracking may be carried out with the agreement of SAL.

Note - Use Epikote 162/Epikure 113 resin system throughout.

ISSUED BY: B Mellors	Date 22 nd Sept 82
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2.1 Rectification of lack of stiffness of the elevator tongue will be as follows :-

(a) Remove the tailplane/elevator assembly from the aircraft.

(b) With the elevator removed from the tailplane, abrade the tonque of the elevator over the area detailed in Fig 2.

(c) Layup 2 layers of woven roving cloth (2 x 92125) over the area detailed in Fig 2.

3.1 If the pivot bearing 04 DU 04 is worn it may be replaced as follows (refer Fig 3).

(a) Remove the tailplane/elevator assembly from the aircraft.

(b) Remove the split pin (Item 1) and washer from the central hinge of the actuator (located on top of fin).

(c) Remove pin (Item 2).

(d) Disconnect the pushrod on the fwd end of the actuator (similar to above).

(e) Drift the bush from the elevator actuator assembly and replace with new bush (04 DU 04), available from S.A.L.

(f) New split pins must be fitted when reassembling.

4.1 Replacement of the central tailplane rib with reinforced rib only available from S.A.L. will be carried out as follows (Refer Fig 4).

(a) Remove the tailplane/elevator assembly from the aircraft.

(b) Cut away the central part of the rib taking care not to damage the skin or the main spar.

(c) Grind the remainder of the rib with a rotary file, again using extreme caution so as not to damage the skin or main spar.

(d) Abrade all surfaces where the rib is to be positioned.

(e) Coat the rib with glassflock and initially position the rib to the dimensions detailed in Fig 4.

(f) Position the tailplane in tresles as shown in Fig 5.

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4.1 (g) Fit the elevators checking the split pin hole is accessible. The rib should now be correctly positioned.

(h) Carefully remove the elevators and apply the cleat cloths as detailed in Fig 4.

(i) The elevators should now be repositioned to ensure the rib is still located in the correct position. The elevators should be pushed fully home again ensuring the split pin hole is accessible. Position wedges as shown in Fig 5 to hold the elevators in the neutral position.

(j) When fitting the tailplane elevator assembly ensure the elevator tongue seats correctly on the actuator. If there is a clearance between the tongue and actuator the tongue must be built up in the Area 'B' detailed in Fig 2. If there is a foul between the tongue and actuator, the tongue must be trimmed (refer Area 'B' Fig 2) to seat properly on the actuator. Build up the cloth under the flanges and around the web to compensate for any cloth removed.

(k) Cure for 8 hours at 56°C.

5.1 If the central elevator hinge on the tailplane is not cracked, reinforcement will be added as follows :-

(a) Remove the tailplane/elevator assembly from the aircraft.

(b) When the elevator is removed from the tailplane, lightly abrade the area shown in Fig 6.

(c) Wrap a 10mm strip of 92110 # woven roving cloth 6 times around the area detailed.

(d) When cured trim any rough edges.

(e) Trim the elevator cutout to enable maximum deflection of the elevator $^{+24^{\circ}}_{-16.5^{\circ}}$ $\pm 1^{\circ}\ 30'$

(Note - the cutout may now be visable when full deflection of the elevator is applied.)

(f) Cure for 8 hours at 56°C.

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Date 14th Sept 82

FIG 1 Area of Cracking on Vega T-Plane

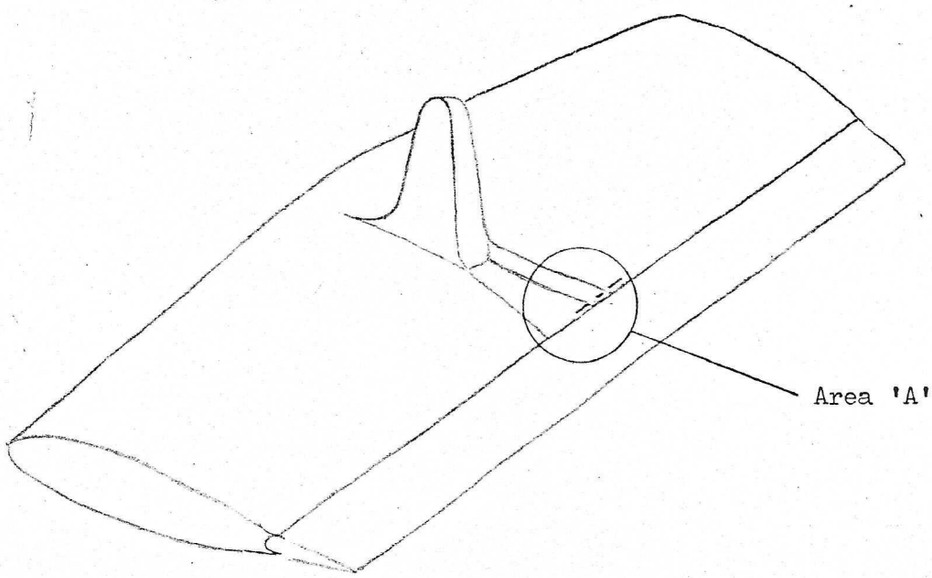
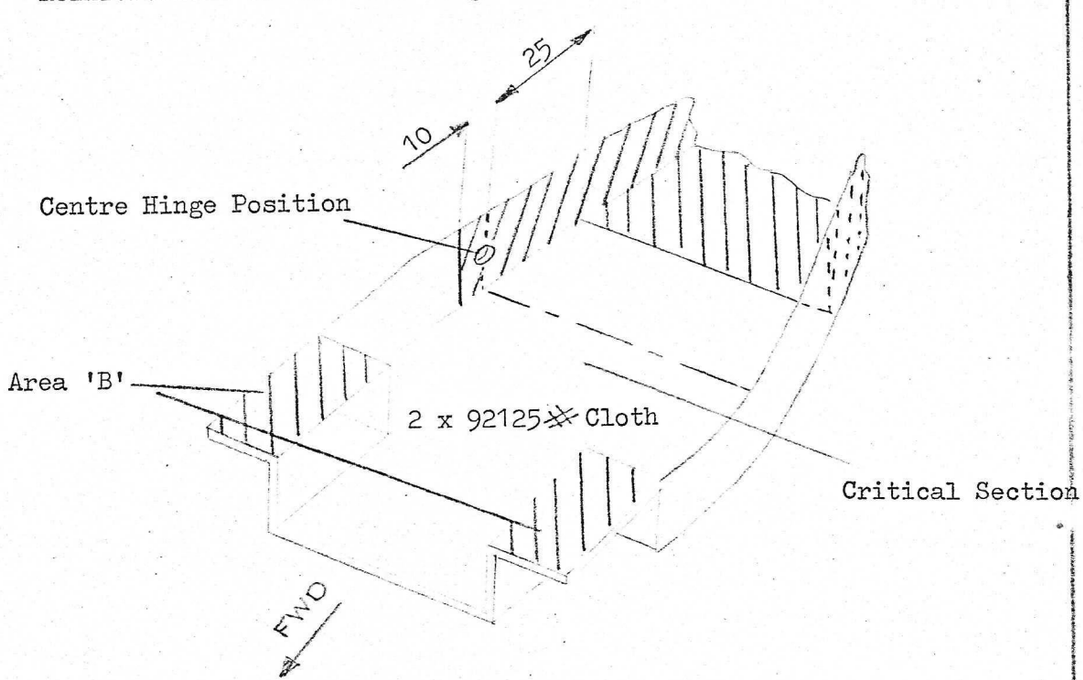


FIG 2 Reinforcement of Elevator-Tongue



Only layup cloth on the inside of the tongue on the area NOT shaded.

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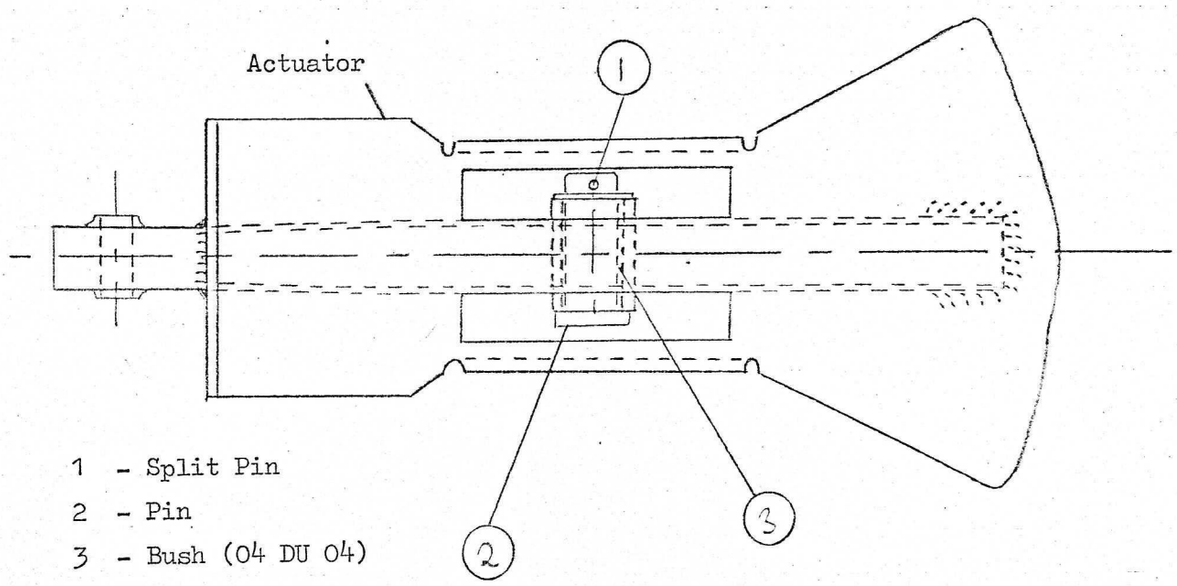
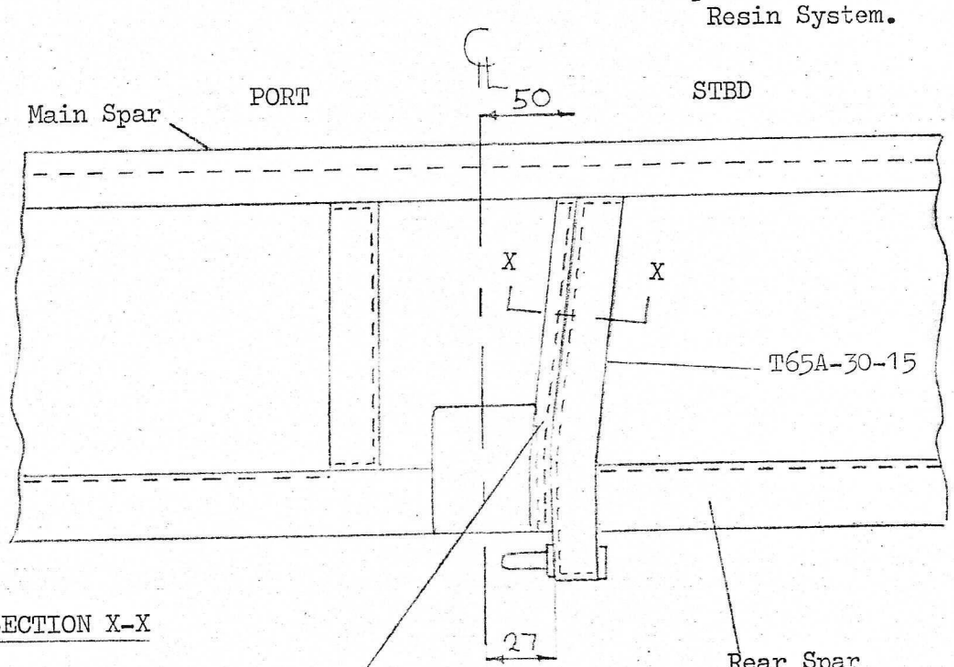
FIG 3 Actuator Pivot Bearing



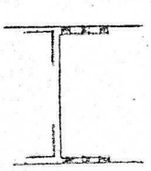
1 - Split Pin
2 - Pin
3 - Bush (04 DU 04)

FIG 4 View of Central Section of T.Plane with the top skin removed.

Use Epikote 162 Epicure 113
Resin System.



SECTION X-X



Inboard Cleat
2 x 92125※
All Round

Cleat Rear Spar to Rib on
all Surfaces (2 x 92125※)

25 TYP.

BJM

FIG 5 Positioning of Elevators

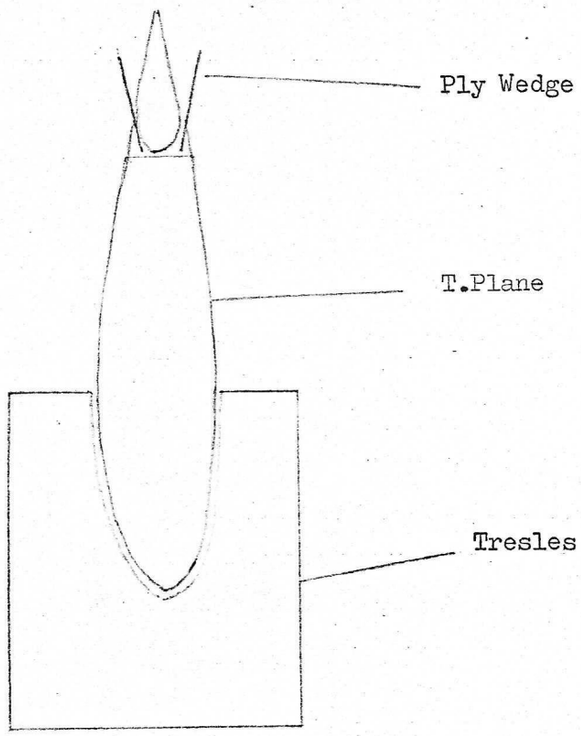
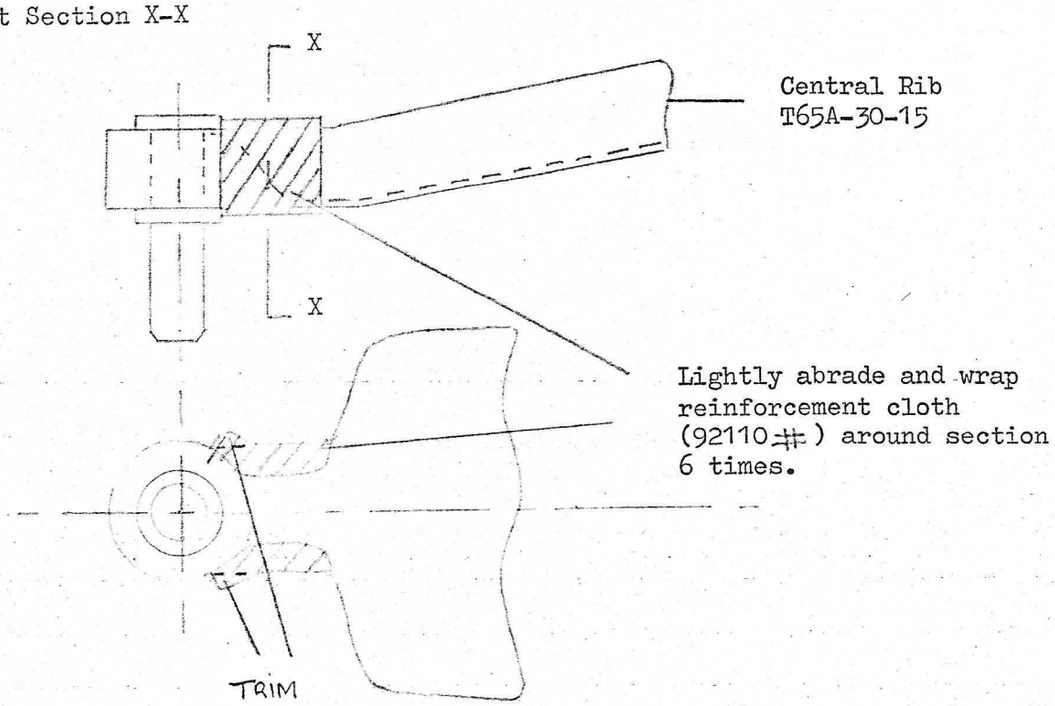


FIG 6 Reinforcement Cloth on the Centre Tailplane Hinge

Inspect Section X-X



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