BRITISH GLIDING ASSOCIATION

Technical Newsheet. TNS 11/82

Part 1 Airworthiness "Aggro" (Please add to the 1982 Blue Pages.)

1.1 T.65 Series "Vega". S.E.L. T1.104/T65 (herewith) ELEVATOR installation. Remedial action is outlined, subsequent to BGA/CAA Notice sent to owners 20/8/82 (Ref. TNS 8/9/82).

1.2 T65 Series "Vega". S.E.L. T1.105/T65 (herewith) CANOPY Jettison system. Remedial action is outlined subsequent to BGA/CAA Notice sent to owners 20/8/82 (Ref. TNS 8/9/82).

1.3 Cirrus Series. Rudder Mass Balance. Cirrus Service Manual Revision of pages 27 and 28 (herewith), amplifies the requirements of T1 265-6 referred to in TNS 8/9/82. (Correction T1 265-6 was mailed only to VTC Cirrus owners by BGA on 8/9/82, because of the flutter/VNE speed restrictions implied therein). The revision permits increased ballast to restore the parachute facility.

1.4 KA8 - Seat Back structure may impair Escape by Parachute. The attached Note was circulated to all owners by BGA on 12/10/82.

1.5 Bergfake Series (and other Scheibe designs?) MAIN WING PIN Retention. (Ref. attached sketch). To ensure that main wing pin remains fully engaged in lower spar fittings, and that the parallel portion protrudes a safe distance, the safety-pin hole may have to be drilled closer to the top spar fittings. The redundant hole must then be rendered inoperative.
(Reported by Chris Batty - Cotswold Gliding Club.)

1.6 Kestrel - Excessive backlash in FLAP system.
Corrosion, to the extent of distruction of the control-rod ball-ends, probably due to water-ballast leakage, has been reported on one Kestrel by Doug Jones (Nympsfield). Diagnosis and location of the problem parts was by on-site X-ray, (ref. Paragraph 2.1).

1.7 ASK 21 Rear Canopy Locks. Three cases are on record of improper securing of the rear canopy. The lock mechanisms appear to be well engineered, and the port side lock is spring loaded. The escape drill certified for the type and detailed in the Flight Manual, must not be invalidated by modifications, which though making the canopy more secure, may impair the prospects of escape.

This modification philosophy applies to all types of gliders.

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1.8 Restricted Elevator Control caused by wheel-brake interconnection cable, when undercarriage was retracted.

After repair/replacement to interconnected systems, particularly on retracting-gear aeroplanes, checks for full and free movement may be necessary with gear retracted, to ensure that brake cable length and routing, do not "strangle" the flying control systems. (Reported on Nimbus 3.)

1.9 Tugs. PA-18 Fuel Gauges. Due to blockage of the entry into one of the Glass Tubes, the gauge failed to fall with the fuel level in the tank, and an unscheduled landing took place (with fuel remaining in the opposite tank)!

1.10 Tugs. PA-18 Undercarriage attachment lugs on the fuselage - cracks/failure. In addition to periodic replacement of the bolts (Ref. TNS/8/9/82). Serious damage has resulted from failure of the lugs attached to the fuselage. Periodic inspection and NDT is strongly recommended. (Reported by E. Sussex Gliding Club.)

1.11 BENDIX MAGNETOS - IMPULSE FAILURES.

The attached CAA LTO/526 and FAA A/D 82-20-01 could apply to magnetos fitted to both Tugs and Motor-Gliders. Failures in U.K. have been reported.

2.0 GENERAL MATTERS

2.1 X-ray (NDT) of Glider structures. Unit Inspection Limited (Mr. D. Grinson) Gloucester 34694, can arrange to X-ray gliders on site. This may prove to be cost-effective in specific cases. NDT facilities may also be available elsewhere. (Yellow pages?). The X-ray pictures will show where to cut access holes.(Reported by Doug Jones).

2.2 Motor-Glider C of A renewals. To aviod delay, please follow the advice given in the Supplement to TNS 8/9/82. In particular the hours flown in preceding years are required in paragraph 2.2 of CAA Form 202L. Owner/operators should ensure that log books are kept up-dated, so that relevant information on hours flown, scheduled inspections and repairs and replacements can be readily assessed. Likewise the L.A.M.S. (Blue Book) should be ammended, and the aircraft maintained to this schedule. BGA proforma maintenance schedule (BGA/TMG 50/100) is available from BGA office, as a means of recording this work.

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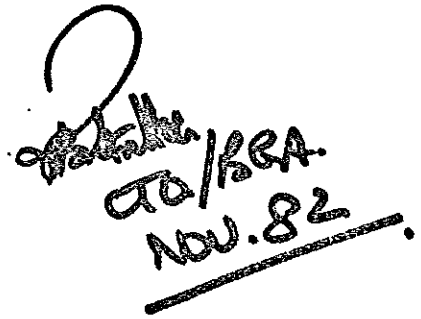
2.3 New types certificated by BGA (add to the list):

a) Centrair "Pegasus" 101 series.
b) Nimbus 3.
c) ASW 22.



The British Gliding Association Ltd.
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Administrator and Secretary: Barry Rolfe

Kimberley House, Vaughan Way, Leicester
Telephone 0533 531051

British Gliding Association

12th October, 1982

TO: ALL ASK 8 OWNER/OPERATORS
(Ref: B.G.A. TNS 10/82)

ASK 8 - ESCAPE BY PARACHUTE

1.0. Investigation following an accident has shown that the possibility exists of certain types of escape parachute snagging on the steel frame seat back. This could seriously impede/delay escape from the glider.

2.0. All types of parachutes used by KA 8 operators must be tested in the glider as soon as possible.

3.0. The B.G.A. strongly recommends the introduction of a seat-back panel permanently secured into each glider, clipped into place behind the rear edge of the seat pan, and over the top main cross tube.

R. B. STRATTON
CHIEF TECHNICAL OFFICER

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

for and on behalf of SLINGSBY ENGINEERING LIMITED

Kirkbymoorside, York YO6 6EZ, England. Tel.0751 31751 Telex 57911

Date 22nd Sept 82

TITLE: T65 'VEGA' Central Elevator Hinge & Pivot Bearings For Elevator Rocker Arm.

T.I. No. 104/T65 Issue 1

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 92125XX) 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.

Cont'd ...

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TITLE T65 'VEGA' Central Elevator Hinge & Pivot Bearings For Elevator Rocker Arm.

T.I. No. 104/T65 Issue 1

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 $^{+24^{o}}_{-16.5^{o}}$ $\pm$ 1° 30'

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

(f) Cure for 8 hours at 56°C.

FIG 1 Area of Cracking on Vega T-Plane

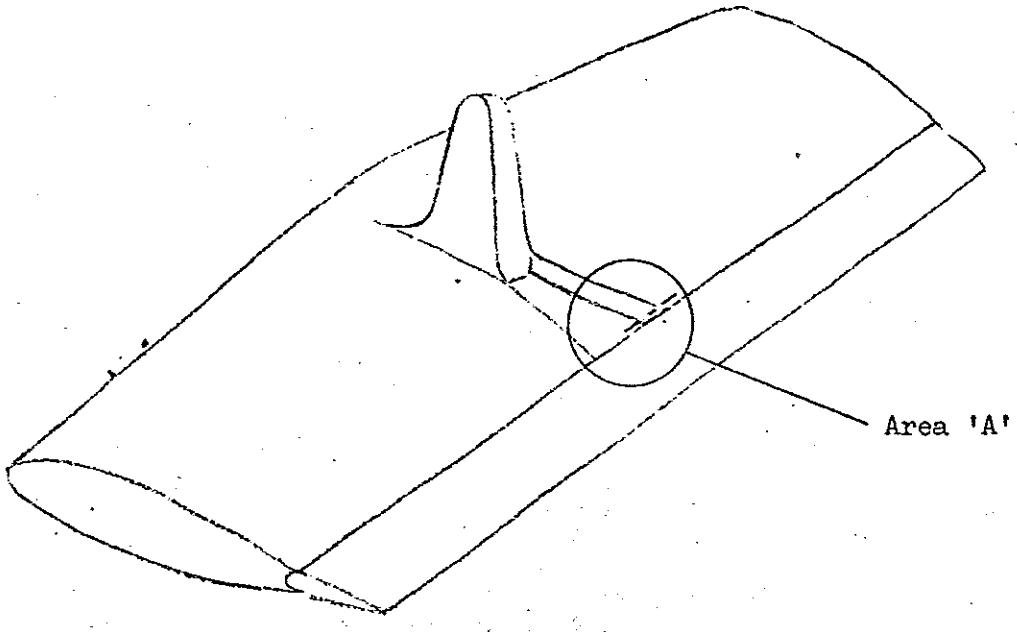
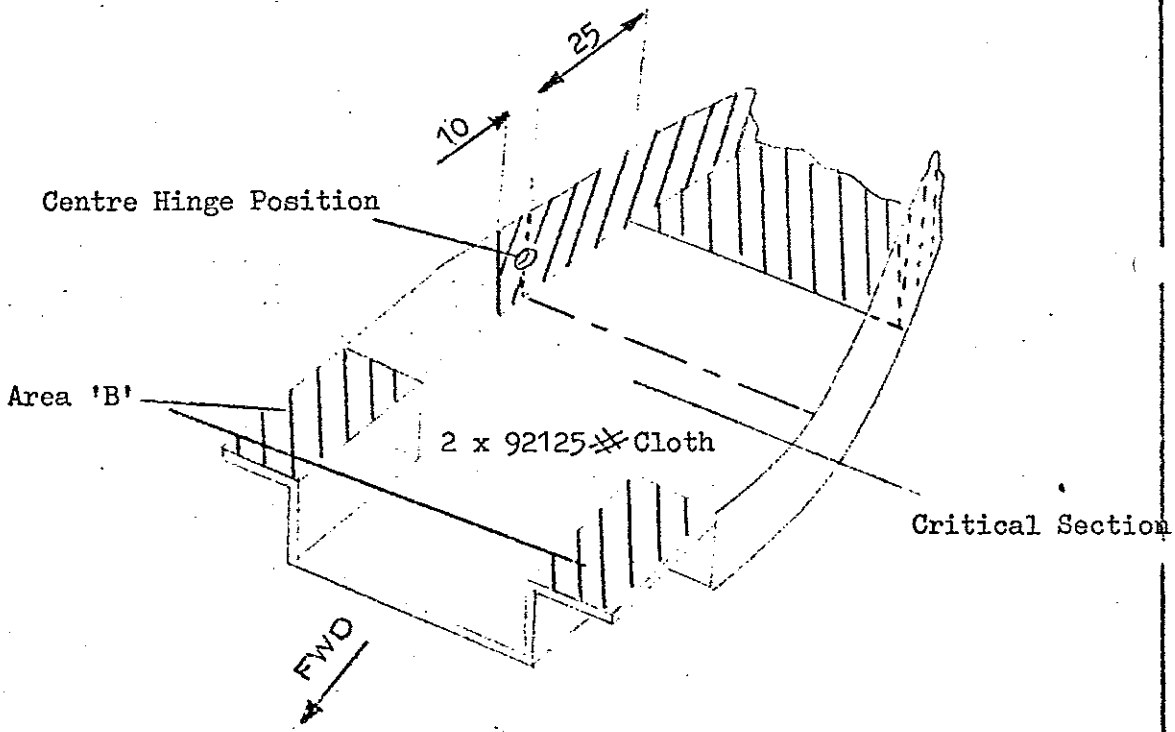


FIG 2 Reinforcement of Elevator-Tongue



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

FIG 3 Actuator Pivot Bearing

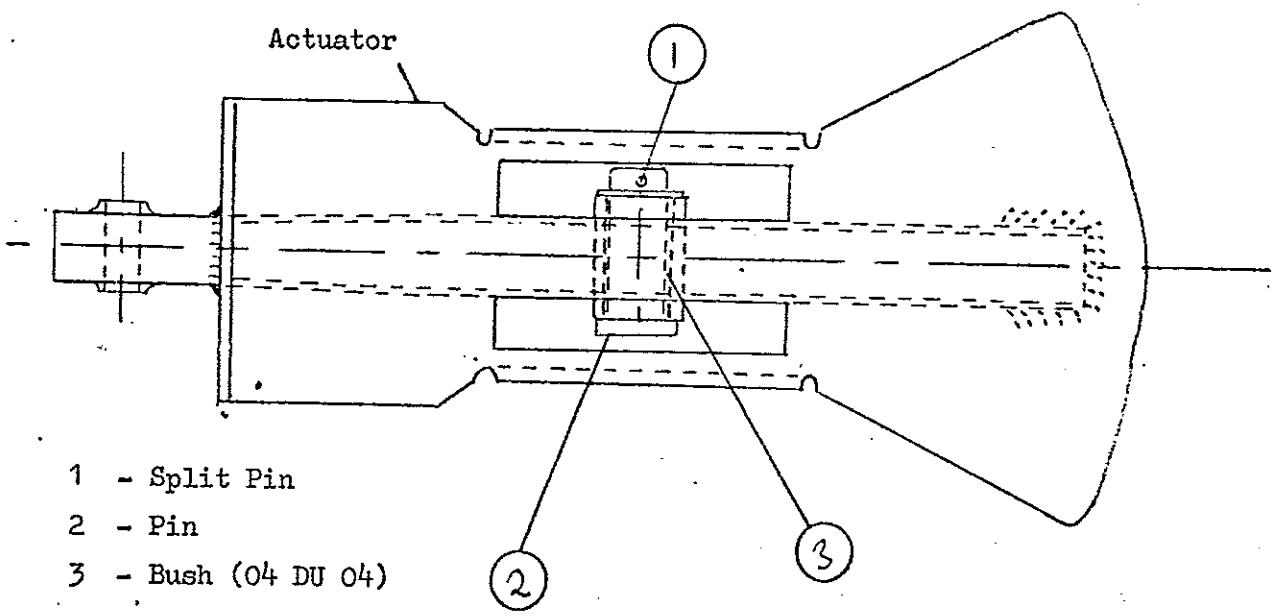


FIG 4 View of Central Section of T.Plane with the top skin removed.

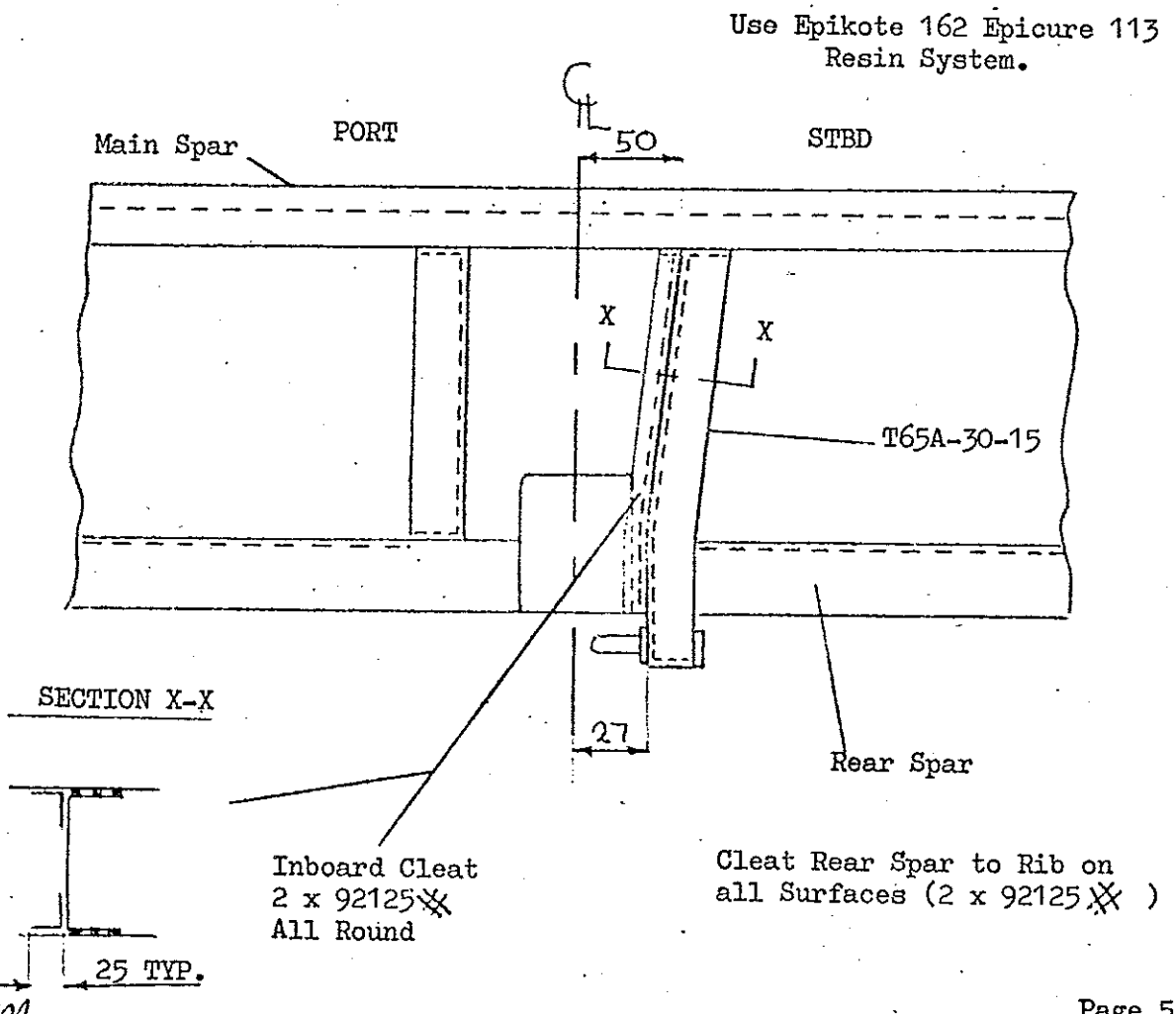


FIG 5 Positioning of Elevators

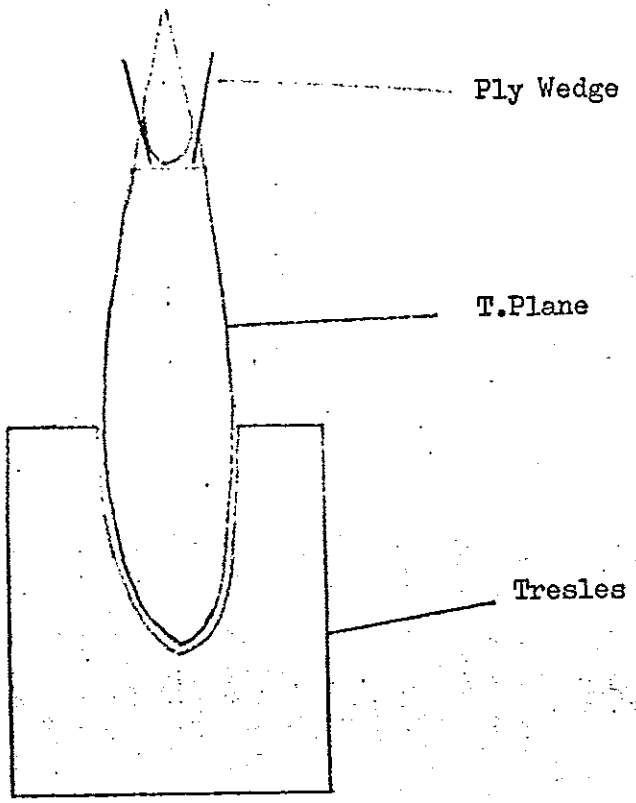
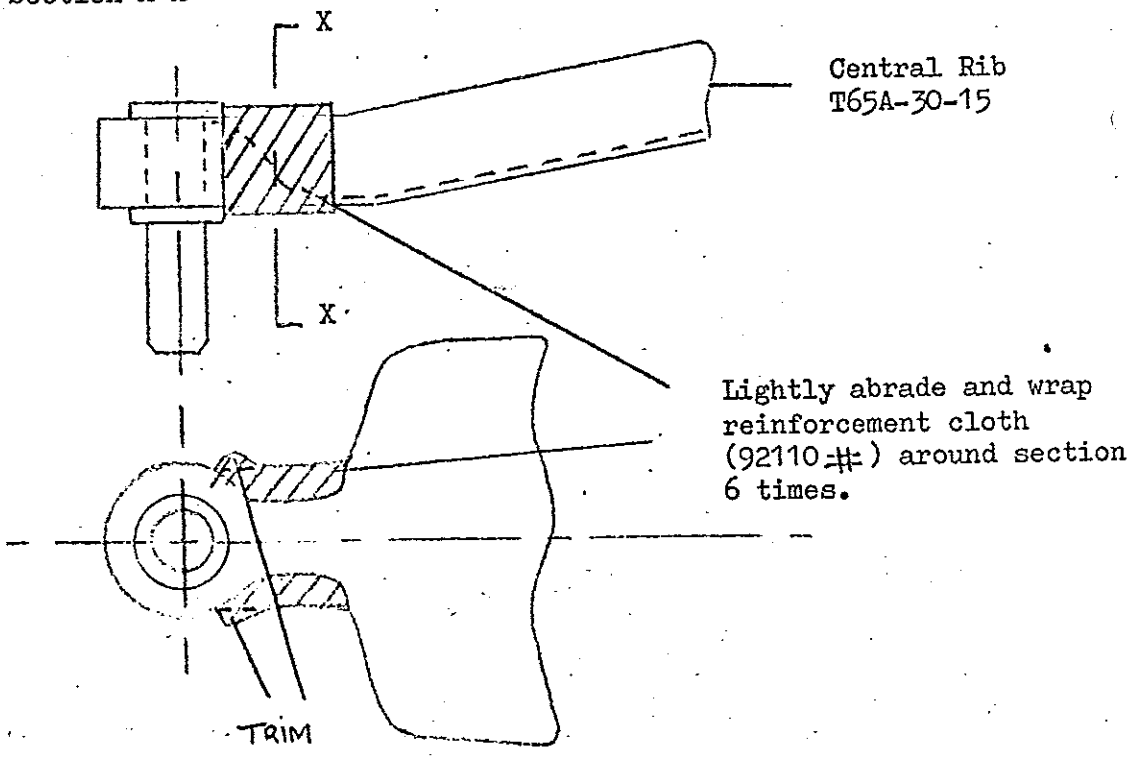


FIG 6 Reinforcement Cloth on the Centre Tailplane Hinge

Inspect Section X-X



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SLINGSBY ENGINEERING LIMITED
AIRCRAFT DIVISION

TECHNICAL INSTRUCTION

SEL

TITLE: T65 'VEGA' Canopy Jettison Mechanism	T.I. No. 105/T65
CLASSIFICATION	C.A.A. Mandatory
COMPLIANCE	Inspection to be carried out before next flight, unless LTO 'Elevator & Canopy Jettison Mechanism', 20th August has been carried out.
OBJECTIVE	To ensure the canopy will jettison during flight if required.
JUSTIFICATION	A malfunction of the canopy emergency jettison mechanism during flight prevented the pilot from abandoning the aircraft.
APPLICABILITY	All Slingsby T65A, C, D gliders, expanding on CAA Airworthiness Directive No. 006-09-82 (LTO 'Elevator & Canopy Jettison Mechanism', 20th Aug).
CONSEQUENTIAL LIMITATIONS	

ACTION

Inspection must be carried out on receipt of this T.I.

1.1 Remove the canopy from the fuselage.

1.2 Ensure the two bolts (indicated in Fig 1, Item 2) are tight.

1.3 Inspect the front portion of the release pushrod (Fig 1, Item 1) and ensure the pushrod is not bent. The release pushrod should slide easily through the guides by pulling on the canopy jettison handle.

1.4 Inspect the pitot tube for damage where the tube is routed under the channel sectioned arm of the canopy. If damage is apparent replace the pitot tube and re-rout the tube on the outer surface of the channel securing the tube as previously (refer Fig 3).

2. Before further flight modify, and check the operation of the canopy release mechanism as follows :-

2.1 Cut the tube on the release pushrod to a height of 15mm (refer Fig 1).

2.2 Paint a white line on the canopy arm marking the position of the tube (Fig 1) on the release pushrod in the locked position.

PARTS REQUIRED

ISSUED BY: B Mellers

Date 22 Sept 82

for and on behalf of SLINGSBY ENGINEERING LIMITED

Kirkbymoorside, York YO6 6EZ, England. Tel.0751 31751 Telex 57911

TITLE: T65 'VEGA' Canopy Jettison Mechanism

T.I. No. 105/T65

2.3 For the canopy to jettison, the pitot tube must disconnect relatively easily from the instrument panel. Therefore the connector must not have the tubes wired or retained in any manner, but only have the pitot tubes pushed into position, utilising a connector similar to that shown in Fig 2.

2.4 The canopy hinge beam may require the area 'A' (Fig 1 & Fig 3) to be filed away giving a smooth radiused profile to prevent a foul occuring when the canopy is jettisoned.

2.5 With the canopy in the closed position and locked, pull the canopy jettison handle and simultaneously lift the canopy at the fwd end. The canopy should now lift off hinging about the aft latching point.

FIG 1 T65 Canopy Jettison Mechanism

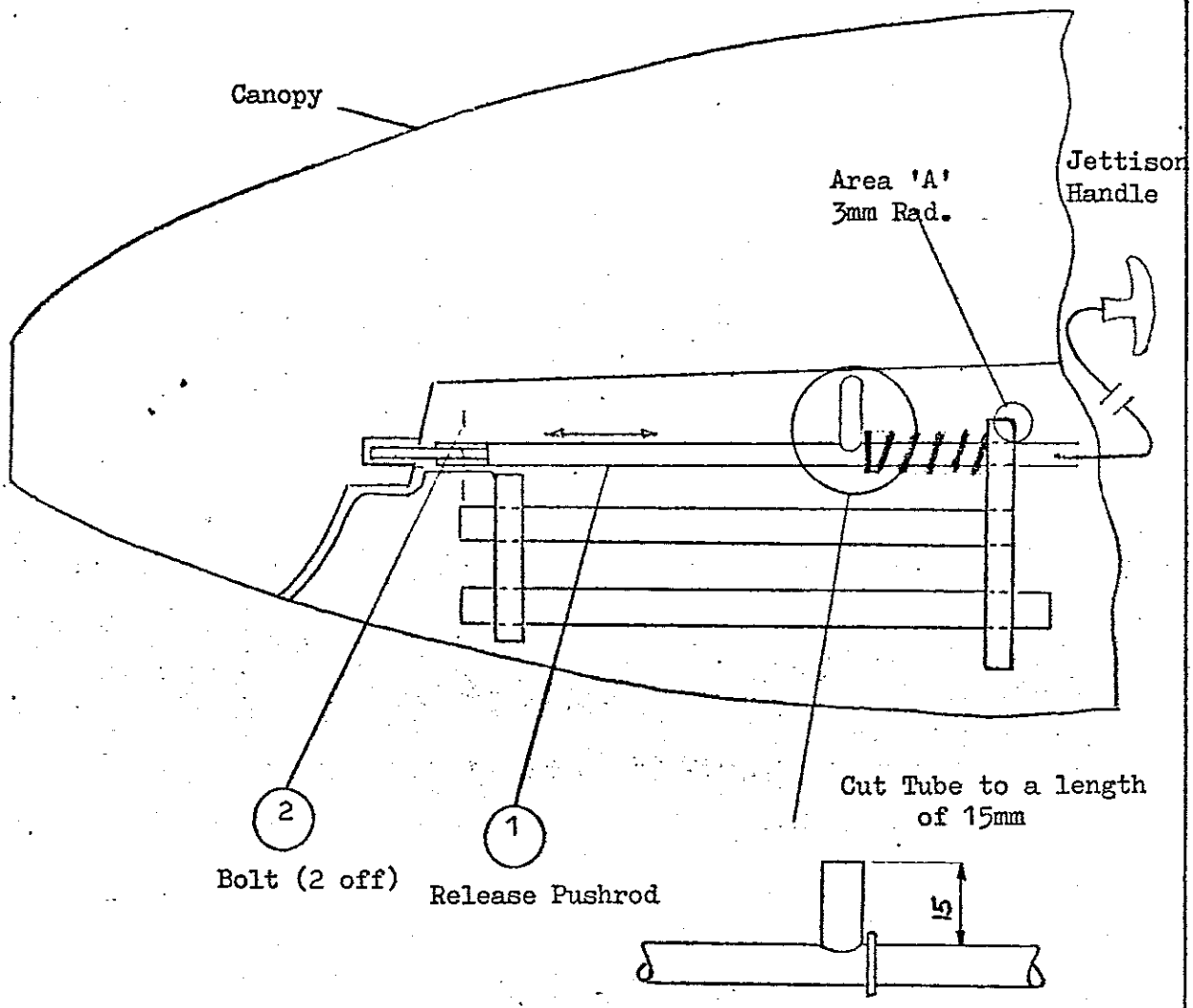

FIG 2

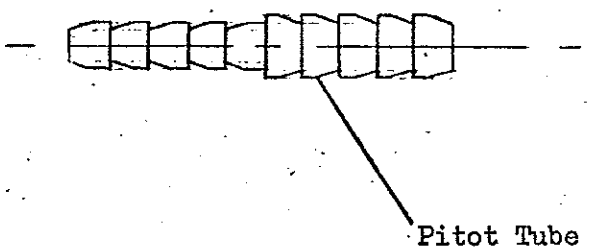

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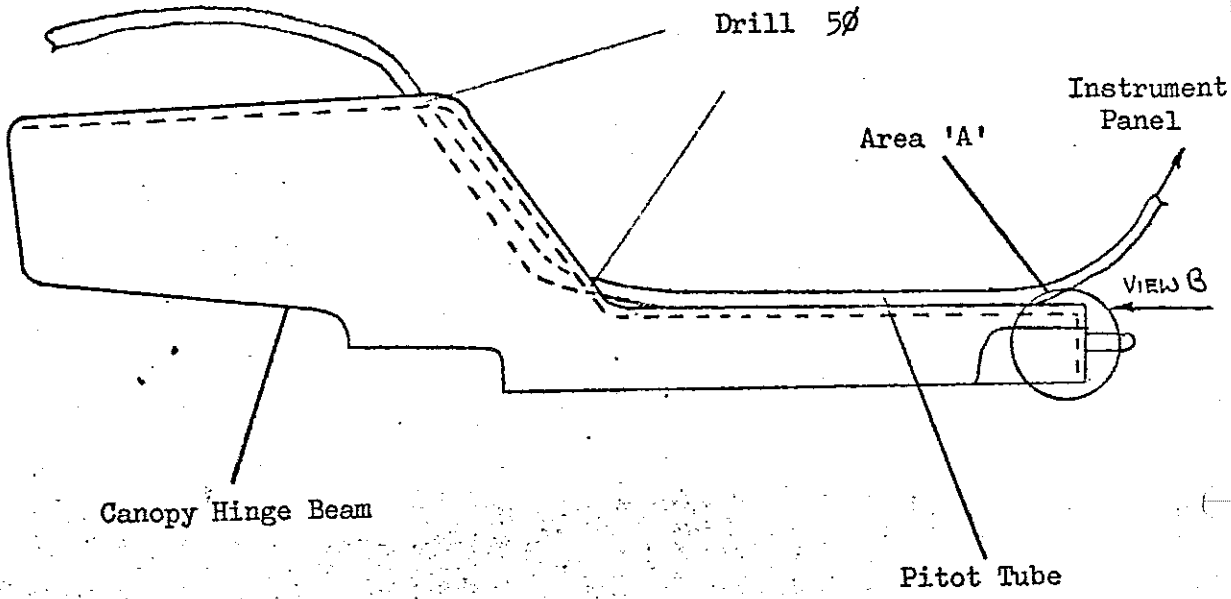
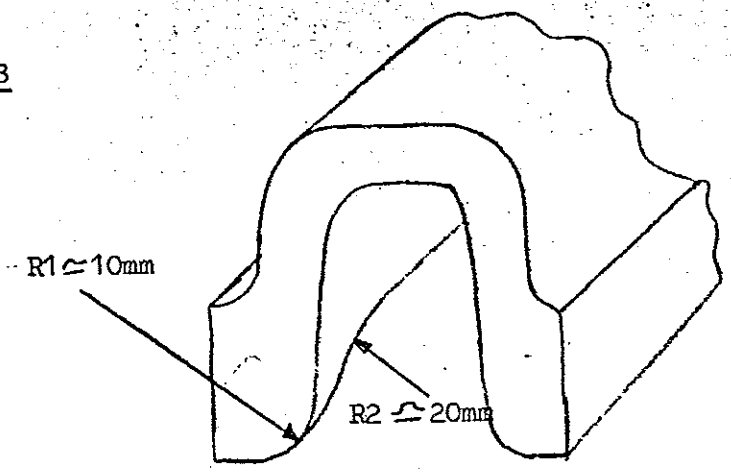
FIG 3



VIEW B



Radius the corners (R1 & R2)

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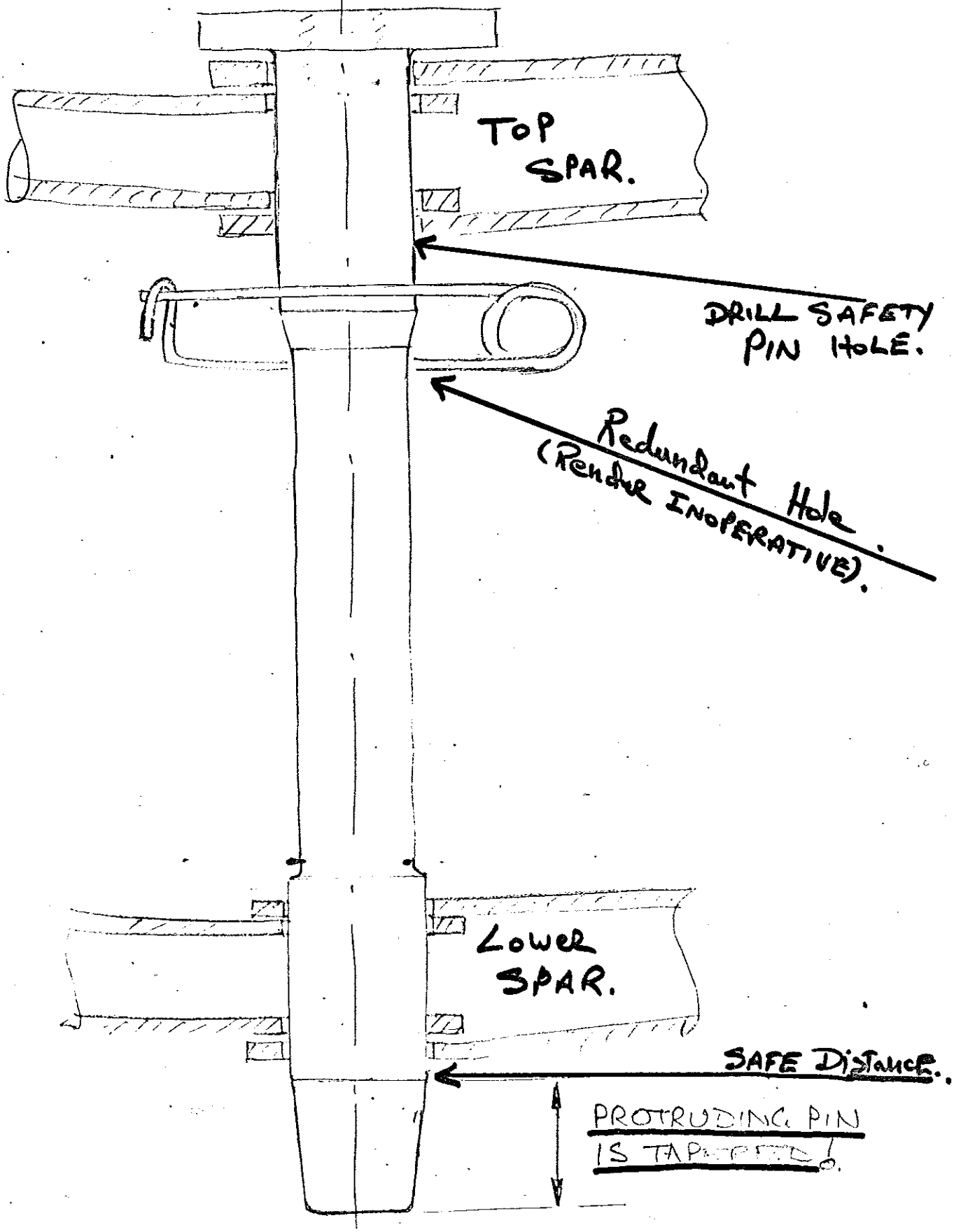
BERGFALKE SERIES.

MAIN WING PIN.



B. FALKE 4. GLIDER.

REPORTED BY CHRIS BALTY. COTSWOLD G.C.
TNS 11/82.

Hinge moments and weights

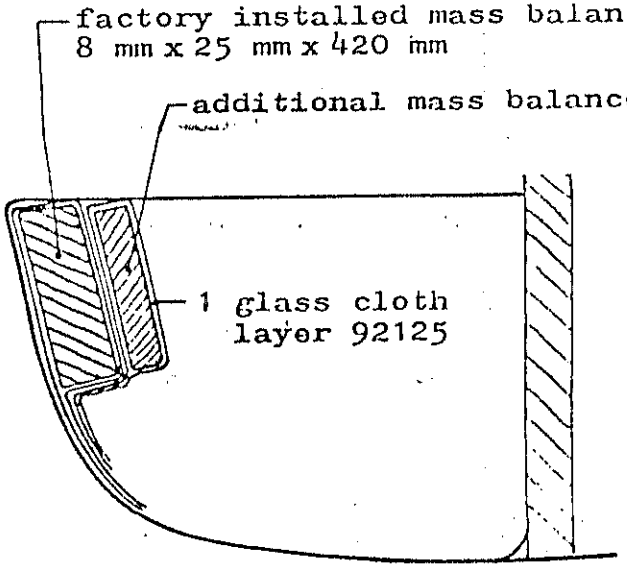
The following values must not be exceeded:

Control surface	Weight kg	Weight lb.	Hinge moment cmkg	Hinge moment in.lb.
① Rudder with tail chute	7.2	15.9	38	33
① Rudder with tail chute & additional mass balance	8.7	19.2	38	33
② One elevator without mass balance	0.9	2.0	4.5	3.9
③ One elevator				
ⓐ with approx. 200 g mass balance	1.3	2.9	2.2-2.9	1.9-2.5
ⓑ with approx. 300 g mass balance	1.55	3.4	2.2-2.9	1.9-2.5

① If the values for the rudder are exceeded the tail parachute must be removed, or an additional mass balance (lead strip) must be attached to the already factory installed mass balance on the lower part of the rudder nose. (See page 28).

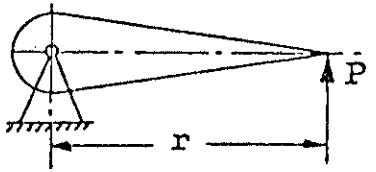
② If the values for one elevator without mass balance are exceeded, a mass balance must be installed so that the values with mass balance ③ (ⓐ or ⓑ) are observed.
See Technical Note No. 265-6.

Additional mass balance on the rudder nose



The hinge moments must be determined on the disassembled control surfaces.

$$M = P \cdot r$$



The control surface should be supported at its hinge axis.

The force P is to be measured by means of a letter or spring balance.

After the installation of additional mass balance, the control surface movements are to be checked for their unlimited travel.

BGA TN3 1/11/82