

B.G.A. TECHNICAL COMMITTEE

TECHNICAL NEWSHEET

TNS 9/10/88

- PART 1 AIRWORTHINESS "AGGRO" (Please add to the 1988 Red Pages)
- 1.1. G.103 TWIN/ASTIR/ACCRO TM 315-36 Replacement of Wing-Root Spigots, and TM 315-37 re-enforcement by welding of control systems should have been completed by the Grob Working Party, on all G.103 aircraft. Forms 267 at next C. of A. renewal must record that these modifications have been embodied. (copy of TM 315-17 herewith). LBA AD/88-175 refers.
 - 1.2. Ka7 Ka 13 Speed Brake Lever failure Fractures around the rivet holes. (Sketch by Ken Douglas West Wales G.C. attached herewith).
 - 1.3. Bocian Rudder Pedal failure at the pivot attachment. The enclosed report and sketch was mailed to all registered owners 31.8.88 (Reported by Stephen Young. Highland G.C.)
 - 1.4. SF 34 LBA AD/88-162 (herewith) was mailed to owners 9.8.88. Scheibe are not too sure what the LBA are trying to say!
 - 1.5. SF 34 Tailplane Repair Scheme proposed by Tim Macfadyen, Cotswold G.C., and approved by B.G.A., is copied herewith.
 - 1.6. SF 34 - Nose-wheel structure A repair scheme to strengthen the nose-wheel structure, is available from Tim Macfadyen Cotswold G.C.
 - 1.7. Puchatz - Bulletin BK 33/50-3/87 (Herewith) Concerns Securing the MAIN WING Pin
 - 1.8. Centrair 201 Series SB 201-06 (herewith in French) requires inspection of the tailplane leading-edge for disbonding!
 - 1.9. LS6/LS6A T.B. 6015 Weight calculations and TM 6017 Limits of Radial play (0.5mm) in upper rudder hinge, are available from U.K. agents.
 - 1.10. D.G. Airworthiness Directives Copy of C.A.A. Vol III (herewith) is the latest update. (dated July 1988).
 - 1.11. Hoffman H.36 Dimona. Airworthiness Directives Copy of C.A.A. Vol III (July 1988) herewith, is the latest update.
 - 1.12. Over Taughtening of Fabric A.A.I.B. Bulletin 9/88 in respect of the in-flight break-up of a Jodel D.120A, (copied herewith) draws attention to several aspects of wooden aircraft construction, including the possibility of over taughtening heat shrink fabric.
 - 1.13. Aeroquip hoses Bulletin 002 (herewith), may apply to motor-glidlers or tugs and requires replacement of suspect hoses.
 - 1.14. Oxygen Bottles too, can endanger your health, if they are so installed that they will impact upon the occupants. Likewise regulators should not inflict injury, or impede escape from the cockpit.

- 1.15. ASW 19/ASW 20/ASW 21 Extension of life beyond 3000 hrs. The Schleicher Inspection Programme is available from R & D Aviation, acting for the Agents.

PART 2 GENERAL MATTERS

- 2.1. Stamo Engines Replacement engines are available from PIEPER MOTOREN BAU, POSTFACH 1229, 495 MINDEN, WEST GERMANY at about £2,500. (Reported by John Salt, Channel G.C.)
- 2.2. Grob Engines (G.109B) Conversion from Slick to Bendix Magneto's Grob modification 817-Bendix - 4601 leaflet is available from Chiltern Sailplanes.
- 2.3. Scheibe SF 25E Accident Report Extract from A.A.I.B. Bulletin 8/88 (herewith) has the A.A.I.B.'s new telephone number (01-276-6000) on the reverse!
- 2.4. Lycoming Engines Loss of Torque on Crankcase thru'bolts Loss of torque, may result in crankcases becoming cracked beyond repair. Why not have them check tightened, and save yourself £3000(new crankcase).
- 2.5. Lycoming Engines Break-up of a single camshaft - follower will put enough debris into orbit, to destroy every component within the crankcase. Several cases have occurred to glider tugs in recent years. Have these replaced at overhaul and save yourself \$5400, the cost of your engine as core deposit on a replacement.
- 2.6. Weak-Links B.G.A. TNS/5/6/86 and 7/8/86 listed, to the best of our knowledge, the weak link ratings for a range of gliders.
- 2.7. "Quiet" 4 Blade Propeller Approvals A Hoffman propeller is now approved for Pawnee 235. Trials have been completed on Robin DR 300/400, and Rallye 180T. Approval is imminent.
- 2.8. JANUS CM Tech Note 809-6 introduces Hoffman HO-IIH-HM-158-BI27 propeller, to improve the harmony of the engine propeller combination.

R.B. STRATTON
CHIEF TECHNICAL OFFICER
1st October 1988.

G. 103

TWS 19/10/88



Service Bulletin
TM 315-37

GROB
G 103 TWIN II
G 103 A TWIN
II ACRO

Instructions:

Instruction 1: Inspection of the control system parts for prior damages

- 1.1 The control system parts concerned are visually inspected for any signs of cracks..
- 1.2 If there are no damages, instruction 1 does not have to be repeated until the reinforcement of the control system parts according to instruction 2.
- 1.3 In case of any damages, instruction 2 has to be carried out prior to the next take-off.

Instruction 2: Reinforcement of the control system parts

The control system parts have to be reinforced according to the repair instructions to TM 315-37 by 31 March 1989.

Material:

The material and the repair instructions to TM 315-37 are to be procured from the manufacturer.

Weight and Balance: No effect

Remarks:

- 1. Instruction 1 can be carried out by a competent person and has to be certified in the log-book.
- 2. Instruction 2 may only be carried out by an approved aviation welder with a corresponding authorization. The proper execution has to be certified in the log-book by an authorized inspector class 3.
- 3. For the execution of the servive bulletin
 - a) the required parts may be dismantled and sent to the manufacturer for reinforcement
 - or b) the material and the repair instructions may be ordered with the attached purchase order.

Mattsies, 22 July 1988

signed i.A. R. Rischer

LBA approved on:

26 July 1988

L.B.A. 17/88-175

Datum	ersetzt Ausgabe vom	Bearbeitung	Musterprüfer	Seite 2
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Service Bulletin
TM 315-37

GROB
G 103 TWIN II
G 103 A TWIN
II ACRO

Subject: Inspection and reinforcement of welded parts in the flight control system of the gliders GROB G 103 TWIN II and G 103 A TWIN II ACRO. The following welded parts will be reinforced:

Item	old p/n		new p/n
1	103B-4253	Elev. tab pushrod I	-4253/1
2	103B-4355	Bracket	-4356
10	102C3-4225	Aileron lever I	-4225/1
11	102C3-4351	Aileron pushrod I	-4351/1
12	103B-4405	Airbrake/trim unit front	-4405/1
13	103B-4412	Airbrake/trim unit rear	-4412/1
14	103B-4426	Pedal lever front	-4426/1
15	103B-4427	Pedal lever rear	-4427/1
16	103B-4433	Airbrake rev. lever	-4433/1
17	103B-4435	Aileron lever	-4435/1
18	103B-4436	Lever	-4436/1
19	103B-4451	Airbrake lever	-4451/1
20	103B-4454	Aileron lever	-4454/1
21	103B-4461	Elevator lever	-4461/1
22	103B-4553	Aileron pushrod III	-4553/1
23	103B-4586	Rudder pushrod I	-4586/1
24	103B-4779	Slide	-4779/1

Effectivity: G 103 TWIN II including ACRO s/n

- item 1 and 2 3501 - 3729
- item 10 through 24 3730 - 3878
- item 10 through 20 and 22 through 24 33879 - 34078

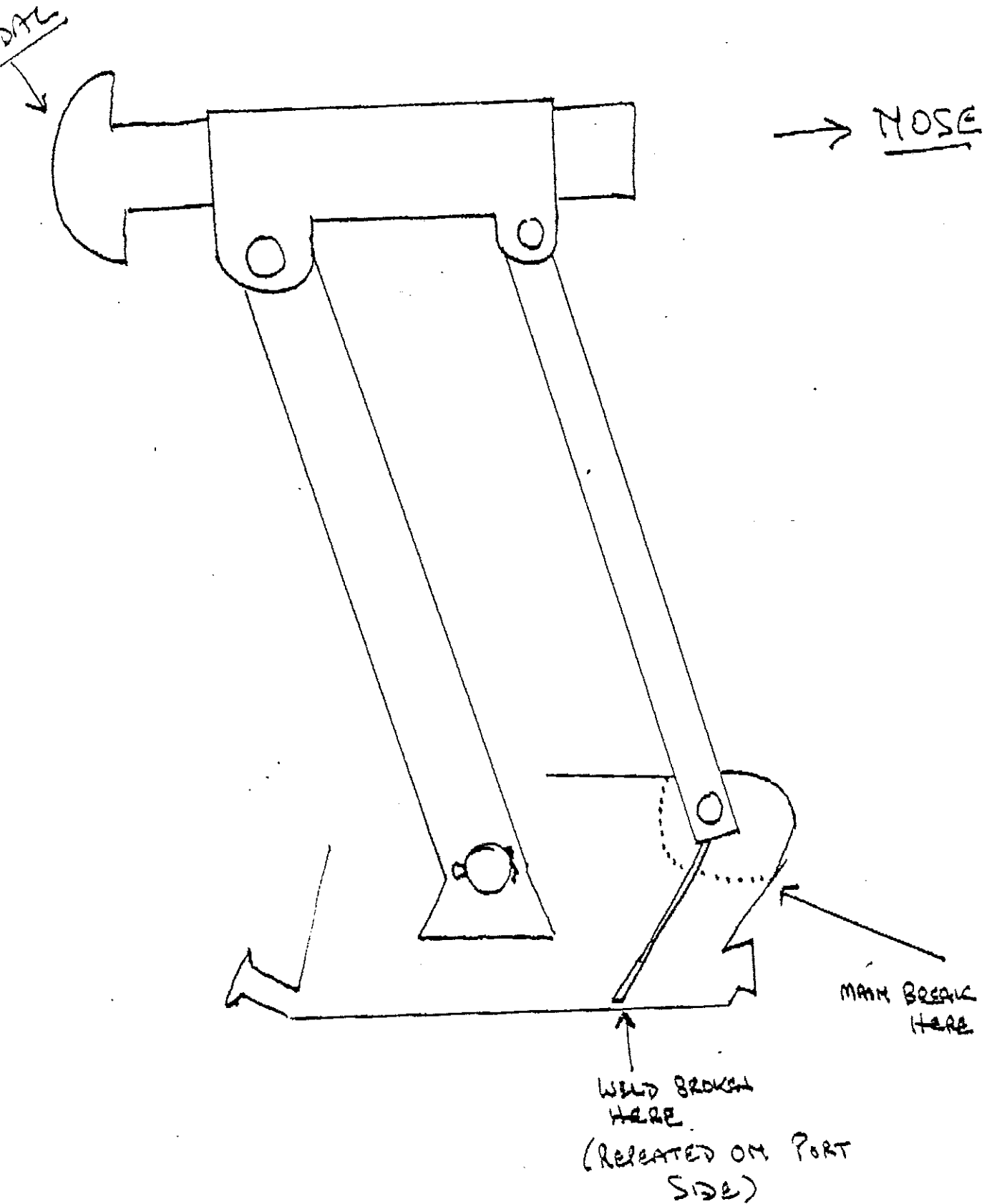
Accomplishment:

- Instruction 1 prior to the next take-off
- Instruction 2 by 31 March 1989

Reason: Malfunctions now and then on welded control system parts in TWIN II gliders with the above s/n were the reason for the service bulletin. First, cracks appear in the area of the welds which may lead to a failure in an advanced stage. Therefore, all endangered control system parts will be reinforced through additional gussets as a precaution.

Datum	ersetzt Ausgabe vom	Bearbeitung	Musterprüfer	Seite 1
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BOCIAN IE RUDDER PEDAL ASSEMBLY



Bocian Rudder Pedals.

BEATNS/9/10/88 ④

Technical Report from Stephen Young, 25 Forteach Avenue,
Elgin, IV30 1TF, Technical Officer, Highland Gliding Club.

Failure of steel web carrying front rudder pedal angle actuating rods on Bocian 1E and subsequent failure of bracing straps and timber frame.

At C of A it was noticed that the steel web (see accompanying drawing) carrying the two rods which are coupled to the rudder pedals and adjust the pedal angle as the pedals are depressed had broken, allowing the rods to "float". The bracing straps, which also hold this assembly, had fretted at the point where they were welded to the fitting. One of the welds had failed and the other was holding by only about a third of its width.

Had this second strap failed the two rods, still connected at their base, would have been free to move backwards, or forwards, from their upper pivot points.

The breaking of the second bracing strap was simulated with results which could have proved dangerous had this occurred at a critical point of flight. The immediate effect would have been that both pedals would have assumed an extreme angle under the feet, either up or down, having pivoted freely without the restraint.

A further consequence could have been the free rods fouling the frame to the front of the pedal assembly, restricting the range of movement.

After removal of the pedal assembly it was apparent that the wooden frame which carried it had also fractured, possibly as a result of the stresses caused by the abnormal movements occurring.

Mailed to Bocian owners 31/8/88.

SA

Stephen M. Young
29/8/88

Luftfahrt-Bundesamt

33 BRAUNSCHWEIG, den 21. Juli 1988
Flughafen

I 63-303.61 /88-162

SF. 34

Hinweis:

Durch diese Mitteilung unterrichtet Sie das LBA vorab über den Inhalt einer beabsichtigten Lufttüchtigkeitsanweisung (LTA), deren endgültiger Text demnächst in den Nachrichten für Luftfahrer, Teil II (NfL II) rechtsverbindlich bekanntgemacht werden wird.

LUFTTÜCHTIGKEITSANWEISUNG

Nach § 14 der Betriebsordnung für Luftfahrtgerät wird nachstehende Lufttüchtigkeitsanweisung (LTA) erlassen.
Ein durch sie betroffenes Luftfahrtgerät darf nach dem in der LTA angegebenen Termin, außer für Zwecke der Nachprüfung nur in Betrieb genommen werden, wenn die angeordneten Maßnahmen ordnungsgemäß durchgeführt worden sind.

88-162 Scheibe

Datum der Ausgabe:
21. Juli 1988

Betroffene Segelflugzeuge:
Geräte-Nr. 336
SF 34 und SF 34 B
Werknummern 5102 bis einschließlich 5131

Anlaß/Grund:
Aufgrund eines Flugunfalls besteht der Verdacht eines Strukturmangels.

Maßnahmen und Fristen:
Bis zur Bekanntgabe von korrektiven Maßnahmen dürfen alle oben genannten SF 34 und SF 34 B Segelflugzeuge ab sofort nicht mehr betrieben werden.

AIRWORTHINESS DIRECTIVE

To: SF. 34 OWNERS 9/8/88

88-162 Scheibe

Date of issue:
July 21, 1988

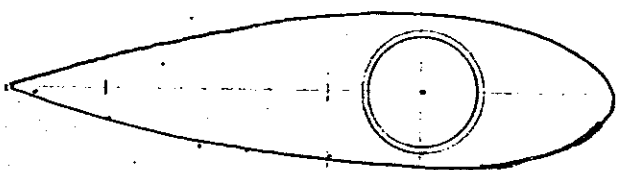
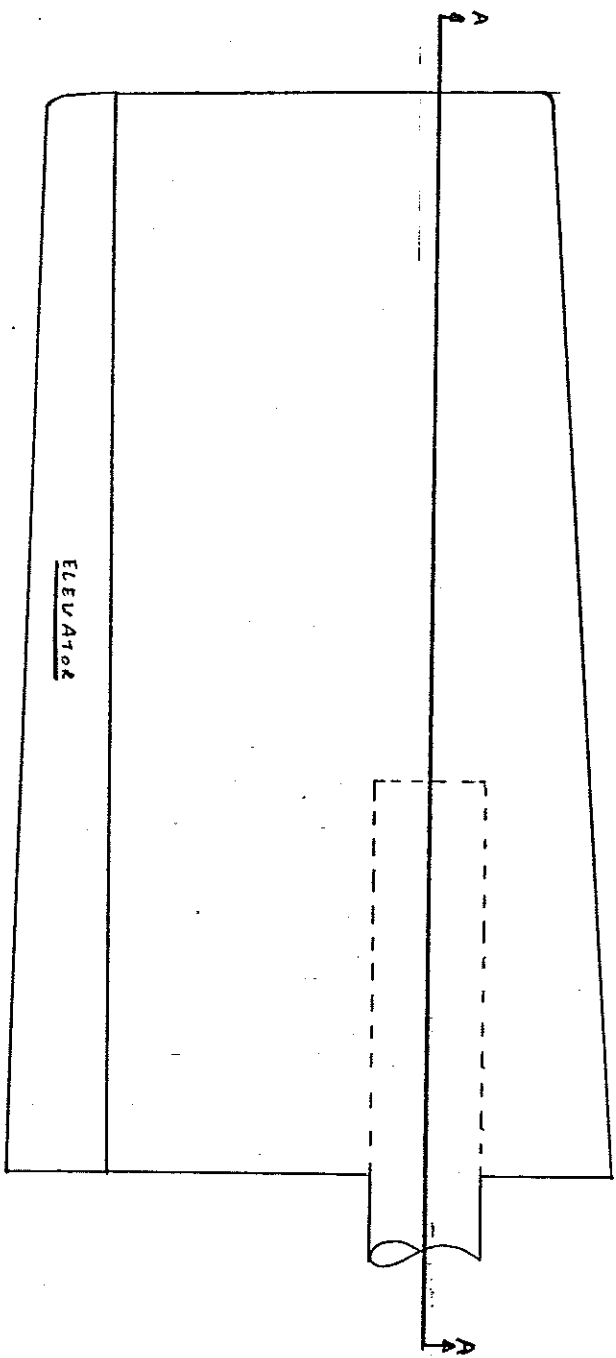
Affected sailplane:
German Type Certificate No. 336
SF 34 and SF 34 B
serial no. 5102 up to 5131 inclusive

Reason:
Due to a possible fatigue damage discovered after an inflight accident, there is urgent reason to assume insufficient residual strength.

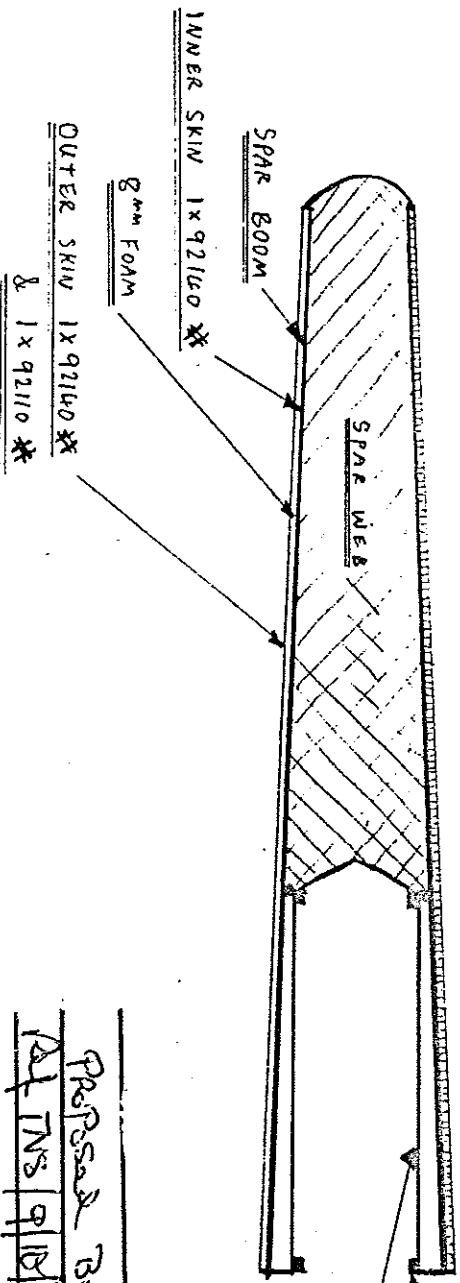
Action and compliance:
Until notice of further corrective actions operation of the SF 34 and SF 34 B sailplanes is prohibited.

B.R.A. Note. It is difficult to know what they mean. You may wish to consult Scheibe?
D. K. Straßer

DIAGRAMATIC SKETCH OF SF 34 TAIL PLANE



SECTION 'A-A' THROUGH SPAR



MOUNTING BUSHES BOTH ENDS OF TUBE

GLASS TUBE 2x921140 * GLUED TO INNER SKIN TOP & BOTTOM, BADLY BROKEN AT BOTH SIDES.

PROPOSED TO REPAIR 921140 & ADD 6x92125.

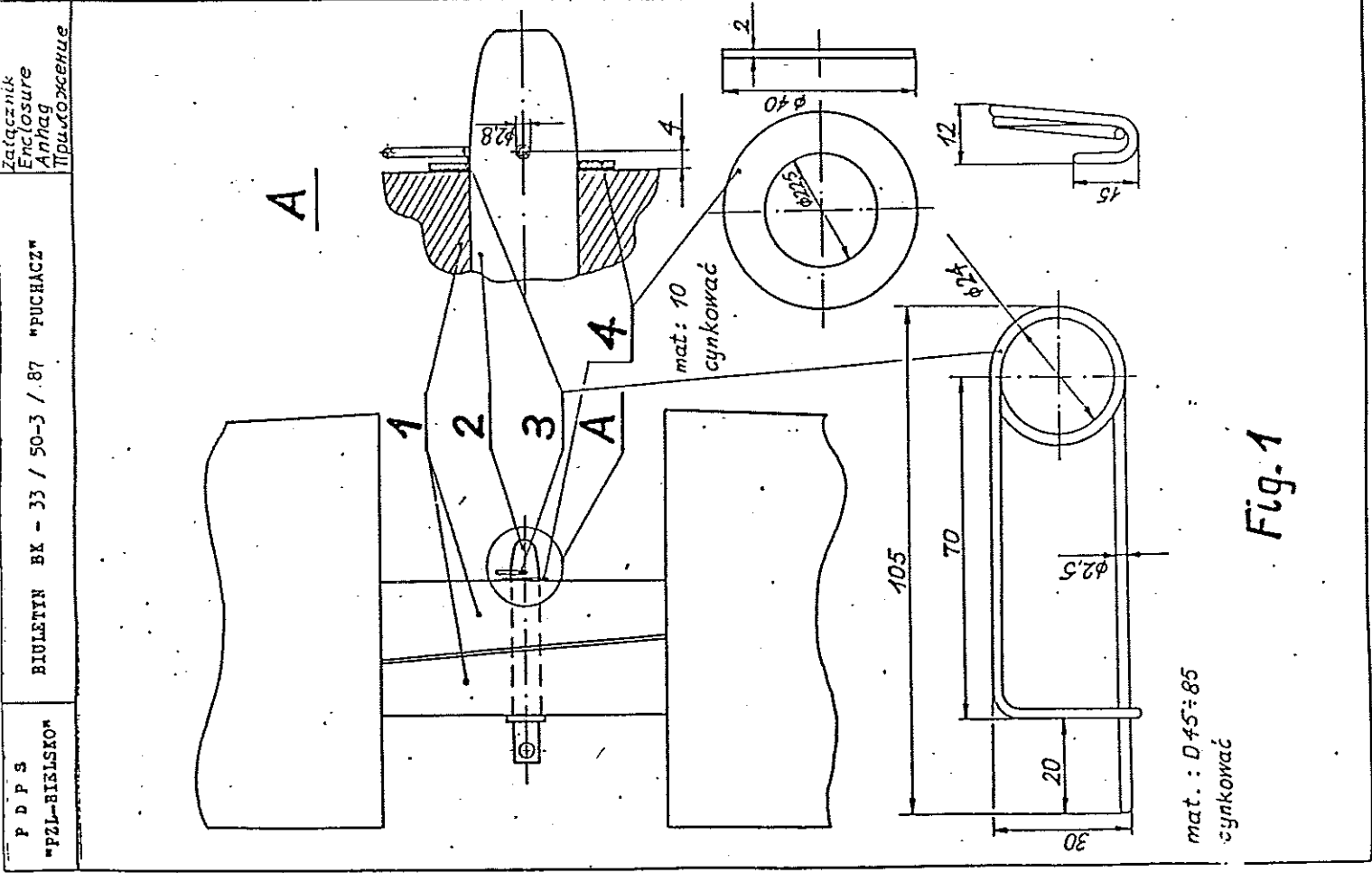
SF 34 TAIL PLANE REPAIR.

PROPOSED BY TIM MACFARLANDEN.

DATE: 9/10/88.

APPROVED BY BSA.

DATE: 24/8/88.



PDPS "PZL-BIELSKO"	BULLETIN BK-33/50-3/87 "PUCHACZ"	Page: 1 of: 1
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BGA-TNS 9/10/88

BULLETIN No BK-33/50-3/87 "PUCHACZ"

Ref: Securing of the pin connecting the spars to avoid the shifting out of the joint.

Way of introducing: obligatory when this Bulletin is obtained

1987-05-05

Director of PDPS "PZL-BIELSKO"
[Signature]
Jerzy DZIEŚLA, B.Sc.

This is the translation of the original Polish text approved by CACA.

Translated by
Wiesław Stafiej, D. Sc.

6

1. GROUNDING FOR INTRODUCING THIS BULLETIN

This Bulletin is introduced to secure the pin connecting the spars to avoid the shifting out of the joint.

2. LIST OF GLIDER FACT. NOS COVERED WITH THIS BULLETIN

The changes of this Bulletin are valid for all the gliders of "PUCHACZ" type of Fact Nos: from X-127 to X-129 and from B-903 to B-1613.

3. DESCRIPTION OF THE INTRODUCED CHANGES

The change depends on the securing of the pin connecting both the spars against the possibility of shifting-out, by means of safety pin with washer, made according to the sketch "Fig. 1" and revision in the "Technical Service Manual, Issue III, Sept. 1980 and Issue III revised, May 1986".

4. LIST OF ENCLOSURES

To this Bulletin are enclosed:

- 4.1. Sketch Fig. 1
- 4.2. New pages to "Technical Service Manual"
 - sketch Fig. 2a
 - explanation to Fig. 2a
 - page No 3a for Issue May 1986
 - page No 3c for Issue Sept. 1980

5. TECHNOLOGY PROCEDURES FOR THE CHANGES AND REVISIONS DESCRIBED IN THIS BULLETIN (detail marking acc. to sketch Fig. 1)

5.1. Changes on the glider

5.1.1. On the assembled glider mark the location of the $\emptyset 2,8$ hole on the pin el. 2 joining two spars el. 1 acc. to the dimensions on the sketch Fig. 1.

5.1.2. Remove the pin el. 2 out of the joint.

5.1.3. In the place marked acc. to item 5.1.1. drill the hole $\emptyset 2,8$ in the pin el. 2.

5.1.4. Reassemble the pin el.2 on the glider.

5.1.5. Acc. to the sketch Fig. 1 put on the washer el.4 and close the safety pin el.3.

5.2. Revisions in "Technical Service Manual, Issue III, Sept. 1980 and Issue III revised, May 1986

5.2.1. In Issue III Sept. 1980:

- on page 10, line 13 it should be read:
"..." secure it with safety pins 11 and 15 with washer 16"
- replace the page: Fig. 2 into Fig 2a,

- replace the explanation for Fig 2 into the explanation for Fig 2a.

- replace the LIST OF REVISIONS page 3c

In Issue III revised, May 1986

- on page 9 line 13 it should be read:

"... central portion secure it with safety pins 11 and 15 with washer 16".

- replace the page: Fig 2 into Fig 2a

- replace the explanation for Fig 2 into the explanation for Fig 2a.

- replace the LIST OF REVISIONS page 3

6. FINAL STATEMENTS

6.1. The producer supplies together with this Bulletin:

6.1.1. Safety pin - el. 3 Fig 1 1 piece

6.1.2. Washer el. 4 Fig. 1 1 piece

6.1.3. New pages for "Technical Service Manual":

- sketch Fig 2a
- explanations to Fig 2a
- pages 3c and 3 (respectively for Issue III Sept. 1980 and Issue III revised, May 1986)

6.2. The changes are to be performed by the user himself

6.3. The changes introduced should be notified in the glider technical documents with the reference to this Bulletin No.

- T H E E N D -

CENTRAIR 201

OBJET : EMPENNAGE ET DERIVE
=====

APPLICABILITE : TOUT N° DE SERIE
=====

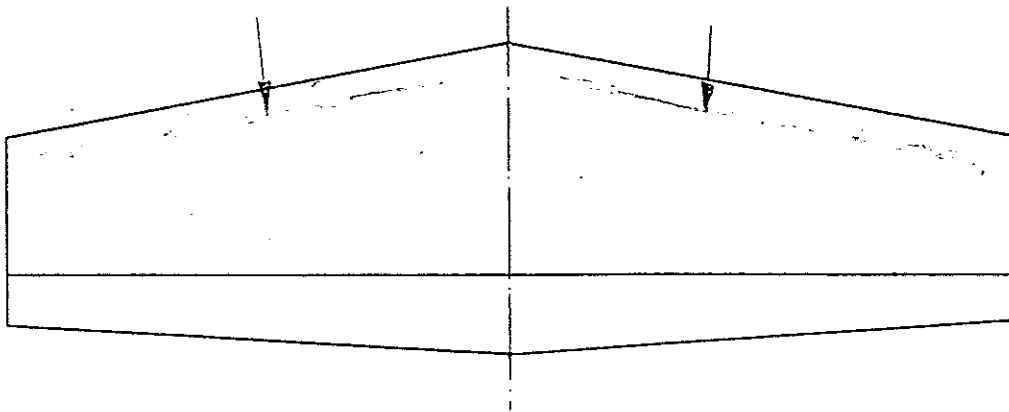
DELAI D'APPLICATION : DES QUE POSSIBLE , DANS LES 25
===== PROCHAINES HEURES DE VOL

Deux cas de décollement de l'intrados du plan fixe horizontal côté droit ont été signalés. Ils peuvent avoir été provoqués par une manoeuvre malhabile.

Il est rappelé aux utilisateurs que la manutention des planeurs en matériaux composites doit être faite avec précaution ; notamment, l'installation dans les remorques des ailes et plans fixes, et lors de leur montage sur le fuselage. De même, pour la manutention au sol, les planeurs doivent être pris par le fuselage et non par le plan fixe horizontal.

En conséquence, nous recommandons d'exécuter l'inspection suivante :

- A) 1) Sur l'intrados du plan fixe horizontal, en particulier aux endroits définis par le croquis ci-dessous, vérifier l'absence de décollement tissus (voir manuel d'entretien page 5.11. bis).



2) Vérifier l'absence de trace de chocs sur le bord de fuite de la gouverne de direction qui auraient pu provoquer des décollements de celui-ci.

3) L'aspect du collage sur extradados de plan fixe horizontal de l'insert de fixation en bord d'attache du PFH sur la dérive .

Informez la Société Nouvelle CENTRAIR des anomalies qui pourraient être constatées.

B) Introduire dans le programme d'entretien la révision ci-jointe : p. 5.4, 5.4 Bis, 5.11, 5.11 Bis rév. 5 du manuel d'entretien.

GLASER-DIRKS DG-400 SERIES MOTOR GLIDER

<u>CAA AD No.</u>	<u>Associated Material</u>	<u>Description</u>	<u>Applicability - Compliance - Requirement</u>
<u>PART 1 - LUFTFAHRT-BUNDESAMT AIRWORTHINESS DIRECTIVES</u>			
83-171		Flexible wing fuel tanks.	Applicable to DG-400 Serial Nos as detailed in Airworthiness Directive. Compliance required as detailed in Airworthiness Directive. Glaser-Dirks Technical Note 826/3 also refers.
84-155		Rotax 505 engine, canopy jettison device; DEI, towing cable release mechanism.	Applicable to DG-400 Serial Nos 4-1 to 4-87. Compliance required as detailed in Airworthiness Directive. Glaser-Dirks Technical Note 826/6 also refers.
84-157		Power plant, vibration cracks.	Applicable to DG-400 all Serial Nos. Compliance required as detailed in Airworthiness Directive. Glaser-Dirks Technical Note 826/11 also refers.
85-219		Replacement of fuel shut off valve gaskets.	Applicable to DG-400 Serial Nos 4-1 to 4-140. Compliance required as detailed in Airworthiness Directive. Glaser-Dirks Technical Note 826/14 also refers.
85-223		Powerplant - cable guides - inspection to prevent possible fouling of engine extension.	Applicable to DG-400 Serial Nos 4-1 to 4-140. Compliance required as detailed in Airworthiness Directive. Glaser-Dirks Technical Note 826/15 also refers.

<u>CAA AD No</u>	<u>Associated Material</u>	<u>Description</u>	<u>Applicability - Compliance - Requirement</u>
86-138		Improved marking of canopy emergency release and re-location of ventilation placard.	Applicable to DG-400 Serial Nos 4-1 to 4-176. Compliance required as detailed in Airworthiness Directive. Glaser-Dirks Technical Note 826/16 also refers.
87-108		Inspection/Modification of engine extension/retraction drive.	Applicable to DG-400 Serial Nos 4-1 to 4-188. Compliance required as detailed in Airworthiness Directive. Glaser-Dirks Technical Note 826/18 also refers.
87-109		Inspection/Modification of engine wiring.	Applicable to DG-400 Serial Nos 4-1 to 4-178. Compliance required as detailed in Airworthiness Directive. Glaser-Dirks Technical Note 826/19 also refers.
88-99		Empty weight CG range, plugged piece of hose at the pneumatic fuel pump, manual revisions and locking pins on wing tips.	Applicable to DG-400 Serial Nos 4-1 to 4-228. Compliance required as detailed in Airworthiness Directive. Glaser-Dirks Technical Note 826/20 also refers.

HOFFMANN H36 DIMONA MOTOR GLIDER

<u>CAA AD No.</u>	<u>Associated Material</u>	<u>Description</u>	<u>Applicability - Compliance - Requirement</u>
<u>PART 1 - LUFTFAHRT-BUNDESAMT AIRWORTHINESS DIRECTIVES</u>			
82-236		Aileron, elevator and wings - Possibility of water accumulating.	Applicable to aircraft serial numbers up to and including 3619. Compliance required as detailed in AD. Hoffmann Technical Notice 2 also refers.
82-237/2		Inspection of composite skin on the wings.	Applicable to aircraft serial numbers as detailed in AD. Compliance required as detailed in AD. Hoffmann Technical Notice 3 issue 2 also refers.
83-156		Fuel tank - Ascertain cubic capacity.	Applicable to aircraft serial numbers as detailed in AD. Compliance required as detailed in AD. Hoffmann Technical Notice 6 also refers.
83-157/2		Inspection and modification of engine brackets.	Applicable to aircraft serial numbers as detailed in AD. Compliance required as detailed in AD. Hoffmann Technical Notice 7 issue 2 also refers.
84-205		Fuel system - Engine failure due to formation of vapour bubbles in the fuel pump, filter and lines at an ambient temperature of 25°C.	Applicable to aircraft serial numbers up to and including 36143 and 3539. Compliance required as detailed in AD. Hoffmann Technical Notice 11 also refers.

<u>CAA AD No.</u>	<u>Associated Material</u>	<u>Description</u>	<u>Applicability - Compliance - Requirement</u>
85-34		Prohibition of aerobatics including spins.	Applicable to all aircraft serial numbers. Compliance required as detailed in AD. Hoffmann Technical Notice 12 also refers.
85-128		Fuel tank - Restriction of fuel feed to engine by deposits in the fuel tank.	Applicable to all aircraft serial numbers up to and including construction year 1984. Compliance required as detailed in AD. Hoffmann Technical Notice 13 also refers.
86-177/3		Wings - Fuselage joint additional bracing.	Applicable to aircraft serial numbers as detailed in AD. Compliance required as detailed in AD. Hoffmann Technical Notice 19 also refers.
87-93		Inspection of front fixing of the horizontal tail/elevator unit.	Applicable to all aircraft serial numbers. Compliance required as detailed in AD. Hoffmann Technical Notice 15 also refers.
87-94		Inspection of shoulder harness fastenings.	Applicable to aircraft serial numbers 3501 to 3539 and 3601 to 36143. Compliance required as detailed in AD. Hoffmann Technical Notice 17 also refers.
88-108		Wings - Measurement differences in the main bolt area.	Applicable to all aircraft serial numbers up to 36268. Compliance required as detailed in AD. Hoffmann Technical Notice 24 also refers.

No: 9/88

Ref: EW/C1063

Category: 1c

Aircraft Type and Registration: Jodel D 120A, G-AZXE

No & Type of Engines: 1 Rolls-Royce Continental C90 12F piston engine

Year of Manufacture: 1965 (Wassmer built)

Date and Time (UTC): 28 March 1988 at 1805 hrs

Location: near Cotgrave, Nottinghamshire

Type of Flight: Private (pleasure)

Persons on Board: Crew - 1 Passengers - None

Injuries: Crew: - 1(Fatal) Passengers - N/A

Nature of Damage: Aircraft totally destroyed

Commander's Licence: Private Pilot's Licence

Commander's Age: 29 years

Commander's Total Flying Experience: 189 hours (of which 86 were on type)

Information Source: AAIB Field Investigation

The pilot, who was a member of a group which owned and operated G-AZXE from the airfield at Hucknall, had flown four times the previous day, twice with another member of the group. These flights were unremarkable.

On the day of the accident, the aircraft was refuelled with 12 gallons of AVGAS and later took off (between 1830 and 1840 hrs) to fly to Peterborough. It carried out several low passes over the airfield and adjacent roads, each culminating in a wing-over or stall turn manoeuvre, before departing the area in a south easterly direction. At approximately 1850 hrs, a light aircraft was seen overflying the Sherwood district of Nottingham, in a south-easterly direction. Three witnesses, who lived near the top of the hill at Mapperly, saw a light aircraft perform a single "looping" manoeuvre before continuing on in the same direction.

The aircraft was next seen 5 km south-east of Nottingham Airport, and south-west of Owthorpe village, flying in a westerly direction at an estimated 200 feet agl and in a slight climb. One witness, who was indoors at the time, described the aircraft as doing a series of "up to three" rolls. Another witness stated that the aircraft had been "rocking its wings" whilst flying over Cotgrave forest at 100 ft agl and in a slight climb, before it dived into the ground. Of ten witnesses, three heard a "crack" (or "bang") before the aircraft pitched nose-down. It then momentarily recovered, before diving into the ground at a steep angle. One of these witnesses was about 100 metres from the impact site and saw a roughly semi-circular hole in the trailing edge of one wing, and was aware of a sound like a "flapping tarpaulin on a moving lorry". Most witnesses to the final dive recalled some sort of rotational movement of the aircraft.

There was no recorded telephone or RTF contact with Peterborough (Sibson) or Conington airfield, or RTF contact with East Midland or Nottingham Airports, although the aircraft's radio was selected to the latter's frequency. The weather was generally fine with good visibility. The wind was 250°/08 kts.

The pilot was killed instantly by impact forces and there was no fire. Police and emergency vehicles attended at the site within 5-10 minutes.

The subsequent post-mortem examination of the pilot revealed no physical impairment or disease which might have contributed to the accident. Toxicological and drug screening were negative.

The aircraft had crashed just to the south of the village of Cotgrave, into a flat cultivated field on the top of some local high ground. Analysis of the wreckage and accident site indicated that the aircraft had struck the ground in a "left wing-low" and nose-down attitude of some 45 degrees, whilst rotating to the left. Its forward speed had been very low, whilst its rate of descent had been relatively high. At the time of impact, the propeller was either stationary or had been producing very little power. There was no fire, but evidence was apparent at the site that fuel had been present in the aircraft's single fuel tank.

Wreckage examination, both on site and at the AAIB facility at Farnborough, failed to reveal any pre-existing defects in the aircraft's flying control systems, but it was established that a failure had occurred in the left wing structure whilst the aircraft was airborne. This was later confirmed by the discovery of a trail of light wood and fabric debris across the ground, for approximately 1 km, slightly downwind of the aircraft's final flight path.

A reconstruction of the left and right wings showed the right wing to have been intact prior to impact, whilst the left wing showed evidence of failures having occurred in the centre wing rib structures, aft of the spar, and their associated trailing edge section (see figure 1). The spar itself had been intact at impact. The upper surface fabric covering this left wing had become detached in flight from the structure around all of the trailing edge. In addition, an area of lower surface fabric had also become detached at the trailing edge around the centre of this inner wing. Only some of the fabric and trailing edge section from this region of the wing was recovered from the wreckage trail.

Detailed macro and microscopic examination of some of the ribs and trailing edge from the left wing was carried out by the Wood Section of the Building Research Advisory Service. From their examination the following conclusions were drawn.

- Failure of the joints occurred, with few exceptions, through the timber, with no evidence to suggest any fault in the application or performance of the glue.
- There was no evidence of fungal attack or water ingress.
- Considerable similarity was noted in the fractures present in the two centre ribs of the left wing, *ie* L3 and L4.
- Two fractures in rib L4 were associated with "sloping grain". This would have reduced the bending strength by 20%, although it was considered unlikely that this would have been sufficient to initiate the major failure. However, it was considered that it may well have been a contributory factor in the failure.
- There was some evidence of previous crack growth in rib L3, next to the trailing edge. There was also evidence of "rubbing together" of the fracture surfaces of one failure, in both ribs. There was considerable and consistent evidence that the rib members had been subjected to high compressive stresses and that these, because of their distribution, had not occurred at the time of the major break-up of the wing. It would appear, therefore, that the wing had been subjected to high compressive stressing before the final break-up. Two possible sources of such stressing were considered:-



a) An over-taut fabric covering

While it was not possible to eliminate this source completely as the major cause, it seemed unlikely in the absence of compression damage at some distance from the actual fracture surfaces, assuming an even distribution of stress. However, if the effects of fabric shrinkage were concentrated around critical areas near the joints, the fracture pattern would be similar to that observed.

b) Overstressing in use

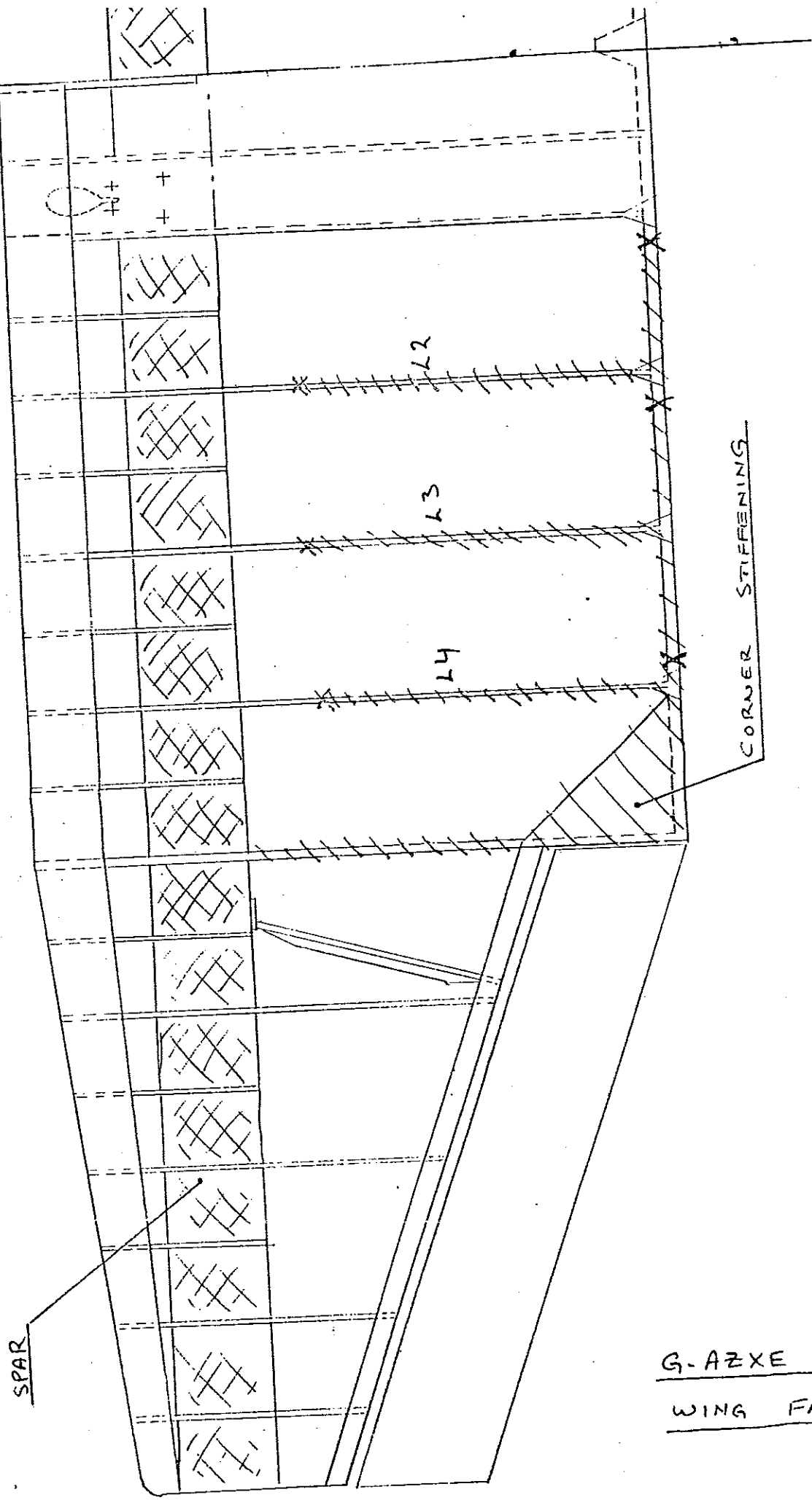
While it was not possible to eliminate the possibility that separation and abrasion of the surfaces of one fracture in each rib occurred during the major break-up of the wing, it was likely from the extent of the abrasion that separation occurred at some time before the major break-up. In particular, the discolouration associated with one of the fractures would indicate that a considerable time elapsed (several months) between the generation of the crack along induced compression creases (in the wood fibres) and the final break-up of the wing. These findings would be consistent with overstressing of the wing at some earlier date.

The wing design dates from the late 1950's and this particular example was factory-built in 1965, in France. Four years ago, the wing was re-covered with a modern man-made polyester fabric. The main advantage of this material compared to linen type fabrics, is that it is virtually "rot-proof". One characteristic difference between such fabrics is that tautness is achieved through shrinkage with the modern material. This is induced by the application of heat, typically using a thermostatically controlled iron set at about 120°C. All French and British airworthiness documentation examined relating to this type of covering contain warnings to the effect that care is necessary to prevent the application of excessive heat, as this may cause excessive shrinkage of the covering and distort the underlying structure. The wing of G-AZXE had been modified, in common with other re-covered Jodel wings examined, by the addition of a three dimensional "gusset", stiffening the structure at the outboard aft corner of the centre wing. This modification is designed to resist local deflections of the wooden structure, when the wing is covered with polyester fabric. It is thus evident that this material can induce higher static loads into this design of wing than were contemplated when it was originally designed.

The original French and British airworthiness documentation for the D120A aircraft quotes the following:-

Load factors in manoeuvres	n = +3.8g	n = -1.5g
Never exceed speed	250 km/h	(134 kts)
Max operating speed	215 km/h	(115 kts)

Aerobatics, including spins, are not permitted.



/// = WING STRUCTURE FAILED IN FLIGHT.

G-AZXE LEFT
WING FAILURE

HOFFMANN H36 DIMONA MOTOR GLIDER
Page 3

Issue 4
June 1987

<u>CAA AD No.</u>	<u>Associated Material</u>	<u>Description</u>	<u>Applicability - Compliance - Requirement</u>
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PART 2 - ADDITIONAL ITEMS CLASSIFIED AS MANDATORY BY THE CAA

002-08-85	CAA Letter ref. 9/97/CtAw/119 dated 31 July 1985	Stabilisers - Inspection of the forward tailplane attachment rod end.	Applicable to all aircraft. Before further flight then at intervals not exceeding 50 flight hours. INSPECT in accordance with procedure detailed in AD.
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010-08-85	CAA Letter ref. 9/97/CtAw/119 dated 23 August 1985	Flight controls - Check of the elevator control system for correct connection.	Applicable to all aircraft. Before further flight and at each rigging of the tailplane.
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008-09-86	CAA Letter ref. 9/97/CtAw/119 dated 26 September 1986	Flight limitations - Variation of the requirements of LBA AD 86-177/2.	Cancelled and superseded by LBA AD 86-177/3.
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INS 7/8/87

KA7 - KA13. SPEED-BRAKE LEVER. (3)

ORIGINAL LEVER

PLACEMENT AIRBRAKE
SER.

DIMENSIONS AS
ORIGINAL.

SERIAL
NUMBER
SER.
MOUNTING
POSITIONS.
(5)

.5mm

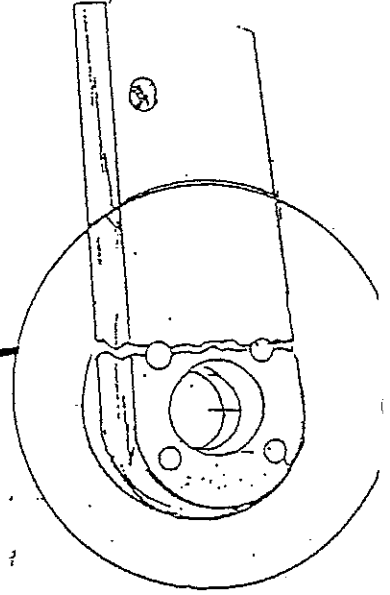
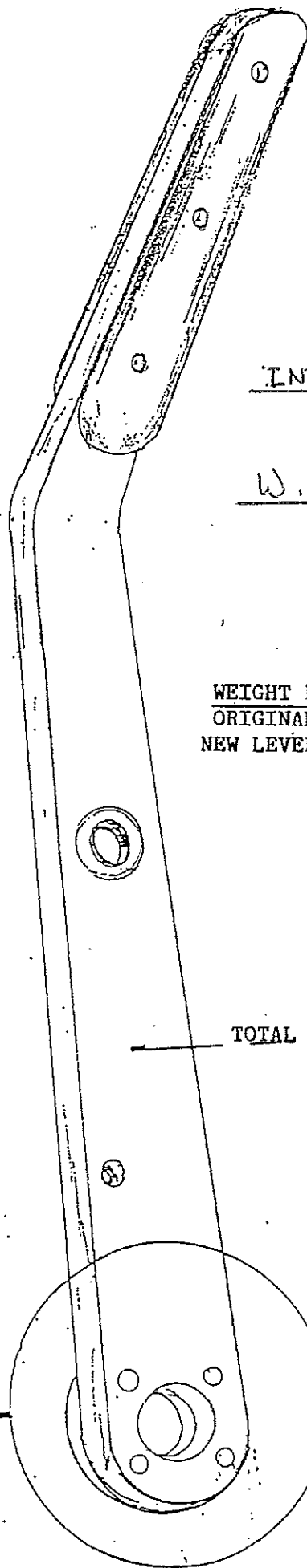
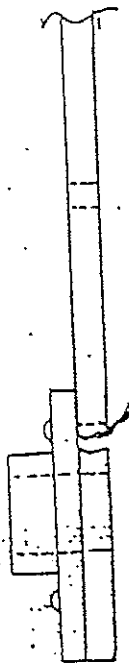
IN FLIGHT FAILURE.

W. Wales G.C. 1988.

WEIGHT DIFFERENCE	
ORIGINAL	129.5 gm
NEW LEVER	286.0 "
	<u>156.5 "</u>

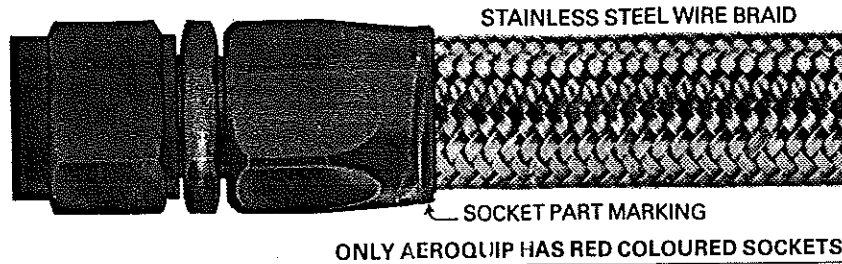
TOTAL WEIGHT 129.5 g

FRACTURE





**GENERAL AVIATION ALERT SERVICE BULLETIN
 FOR RECALL OF AEROQUIP 601 STYLE HOSE**



EFFECTIVITY

1. This Alert Service Bulletin is applicable to all Aeroquip type 601 hose used in fuel or oil systems with red sockets marked 516-X, 516-XX or 516-XXX or covered in fire sleeve marked AE102/624 or AE102G. The affected hoses will have a manufacture date, on the identity tag, of April 1984 through to May 1988.

2. Most 601 type hose assemblies are identified with one of the following Aeroquip part numbers.

601000	601053	601181	620107	620118
601001	601054	601378	620108	620119
601002	601055	601490	620109	620120
601003	601056	601497	620110	620121
601005	601057	620100	620111	620122
601017	601066	620102	620112	620123
601019	601086	620103	620113	620124
601032	601126	620104	620115	620125
601040	601173	620105	620116	620126
601051	601180	620106	620117	620144

The above numbers will be suffixed with either -x-xxxx or -xx-xxxx

3. All hose assemblies identified with an AE701 xxxx()xxxx part number are **not** suspect and should **not** be removed unless, upon inspection and/or performance of routine maintenance, a problem with the hose is identified.

4. If the hose assembly has no band or it is illegible and can be identified as an Aeroquip hose, the hose assembly should be removed and replaced if it was installed from April 1984 through to May 1988.

5. This notice **does not** apply to Gulfstream Aircraft, Bell Helicopter or McDonnell Douglas Helicopter Model 500. Separate service bulletins will be issued for operators of Gulfstream Aircraft, Bell Helicopter and McDonnell Douglas Helicopter 500.

REASON

Possible premature ageing resulting in leakage through the hose material. Undetected fuel or oil leakage may result in a fire hazard or system loss.

DESCRIPTION

This Service Bulletin accomplishes the following:-

1. Provides for inspection of all fuel and oil hose assemblies to determine whether the hoses fall within effectivity of above.
2. Replaces all suspect hose assemblies.

COMPLIANCE

1. As soon as practicable, but within a maximum period of one month from receipt of this Bulletin, identify and inspect all suspect hoses assemblies.
2. As soon as practicable, but within six months of receipt of this Bulletin, replace all suspect hose assemblies.
3. Repeat inspections at maximum intervals of one month should be made until the terminating action in (2) has been completed.

APPROVAL OF BULLETIN

This Bulletin is approved by Aeroquip Limited, Aerospace Division and its contents are approved under the authority of Civil Aviation Authority Approval reference number DAI/8994/85.

MANPOWER

According to application.

MATERIAL

Replacement hose assemblies.

TOOLING

Nil.

WEIGHT AND BALANCE

Not affected.

REFERENCE

Maintenance Manuals or Service Instructions as applicable.

PUBLICATIONS AFFECTED

None.

ACCOMPLISHMENT INSTRUCTIONS

1. Identify and inspect all Aeroquip hose assemblies, which fall into category described in Effectivity above.
2. According to condition take appropriate action in accordance with the manufacturers' published information.
3. Contact the authorised Aeroquip Distributor or Aeroquip, as identified below, providing the following information:-
 - Owner's Name
 - Address
 - Phone number
 - Aircraft Registration Number
 - Hose assembly, Part number or Description
4. Upon receipt of this information Aeroquip, or the Distributor will supply a replacement hose assembly and details of how and where to return the suspect hose assembly.
5. You will be billed for the replacement hose and upon receipt of the validated suspect hose you will be credited the full cost of the replacement.
6. This offer of no-charge replacement hoses expires on 31st July 1989.

Aeroquip Distributor:-

R.F. Saywell Limited
Industrial Estate
Brookside Avenue
Rustington
Littlehampton
SUSSEX BN16 3LF

Telephone Number 0903 774221

Aeroquip Limited/Aerospace Division:-

Aeroquip Limited
Aerospace Division
Broad Ground Road
Lakeside
Redditch
WORCESTERSHIRE B98 8YS

Telephone Number 0527 517555

No: 8/88

Ref: EW/G88/06/03

Category: 1c

Aircraft Type and Registration: Scheibe SF25E, G-BFHN

No & Type of Engines: 1 Limbach SL1700-EAI piston engine

Year of Manufacture: 1977

Date and Time (UTC): 7 June 1988 at 1530 hrs

Location: Wycombe (Booker) Air Park, near Marlow, Bucks

Type of Flight: Private (pleasure)

Persons on Board: Crew - 1 Passengers -None

Injuries: Crew - None Passengers - N/A

Nature of Damage: Substantial damage to forward fuselage, engine mountings and wings

Commander's Licence: Private Pilot's Licence

Commander's Age: 63 years

Commander's Total Flying Experience: 654 hours (of which 52 were on type)

Information Source: Aircraft Accident Report Form submitted by the pilot

The aircraft was returning to land after soaring with the engine stopped for some 45 minutes. On final to land the pilot realised that the headwind was stronger than he had anticipated. He tried to start the engine but, in the heat of the moment, he forgot to use the choke. The engine failed to start and the aircraft collided with the boundary hedge.

CHANGE OF AIRCRAFT ACCIDENT REPORTING NUMBER

The AAIB number for reporting aircraft accidents has been changed to:

01-276-6000

Calls to the old number will receive a recorded message.