BGA TECHNICAL NEWSHEET

TNS 3/4/85

PART 1. AIRWORTHINESS "AGGRO" - (Please add to the 1985 Green Pages)

1.1 SLINGSBY T.51. DART SERIES Special inspection for damage to longerons at Frame 6. The enclosed notice was mailed to owners 11/2/85.

1.2 CENTRAIR 101 SERIES "PEGASE" Service Bulletin 101-6 (herewith) requires immediate inspection of Fuselage Frames.

1.3 CENTRAIR ASW 20F - ASW 20FL Serial Numbers as listed. Service Bulletin 4/5 (herewith) requires survey of Mass-Balance and back-lash in flap and aileron controls to avoid FLUTTER.

1.4 CENTRAIR ASW 20F - 20FL AND CENTRAIR 101 SERIES Service Bulletin 8 (herewith) requires check for correct assembly of TOW RELEASE guiding fittings.

1.5 LS4/LS4A POSSIBLE JAMMING OF AIR BRAKES FAA A/D 85-03-02 refers to Tech Bulletin 4020 dated 1/9/83 (not received by BGA), and requires the installation of a speed-brake stop.

1.6 T.61 (ATC "VENTURE") Cracks at the bottom of the fin where the shroud blocks are glued to the rear face of the rear spar in the area of the attachment fittings, Inspect a.s.a.p. (Reported by HQ Air Cadets to Slingsbys)

1.7 GAP SEALING TAPE restricts ELEVATOR control movement from 50mm to 24mm. Found on Pegasus 101 after change of tape. Non-heat stable tape applied to top surfaces will shrink, and restrict control deflections. SEALING TAPES should be as specified by Manufacturer, and applied to prevent restrictions. (Reported by John Scott)

1.8 HOFFMAN PROPELLERS APPLIED TO LIMBACH 2000 ENGINES LBA A/D 83-150/4 (herewith) requires action to prevent fatigue failure of fixing bolts at critical RPM Range 2950-3250.

1.9 DEFECTS IN GLIDERS - GENERALLY The following have been reported:

KA-13 Aileron push-rods corroded (unpainted).
Canopy Jettison pins corroded.
Front Rudder Pedals distorted.

"Vega")
"Open Cirrus") Excessive back-lash in elevator circuits could lead to FLUTTER

"Swallow" Compression break in Longeron after a heavy landing incident!

1.10 OPEN CIRRUS - Speed-brake Rod Failure. Tech Note 265-8 amplifies the failure reported in TNS 1/85 (copy herewith).

1.11 SCHWEITZER (latch-over-type) Tug Tow Hooks This type of banner towing hook has been found to have very high release loads when the tow rope loads are also high. Alan Urwin, Borders GC has developed a product improvement (minor) modification to introduce a sealed ball race over the latch. Copies of CAA Minor Mod Application Form with details are available from BGA office. STRONGLY recommended.

1.12 WINCH (AUTO-TOW) HANG-UPS HQ Air Cadets have reported two cases on two Grob 103 "ACCRO's" (ATC VIKING), of failure to release on demand, but satisfactory back release. (Conditions very cold, snow, slush etc). No fault found. Where two hook installations are coupled to release knobs in front and rear cockpits, a "two-stage" pull force may become evident. Please report such incidents to BGA Office.

1.13 EXTRACTS FROM AIB BULLETIN (enclosed). The Factual Report on Fatal Towing Accident should be displayed on Club Noticeboards, and action taken on tow-ropes and hook installations as referred to therein.

1.14 EXTRACTS FROM GENERAL AVIATION SAFETY INFORMATION LEAFLETS

a) Fuel Tank Drains (J3 Cub) In tail down attitude, tank drains will not remove water. Could apply to other types.

b) Live Magnetos/Hand Swinging Accidents. Extracts from GASIL/3/85 attached (for Notice boards)

c) Wilga - Hand swinging accident at Coventry GC. Causes serious injuries.

1.15 KA 18's Reference para 1.13 above, KA 18's may be fitted with nose hooks, details from London Sailplanes.

1.16 KA 18's (Ballast) These gliders should be aerotowed at forward c.g.

1.17 WEIGHT AND BALANCE INACCURACIES Wherever the handling characteristics demonstrate a lack of stability and control, the weight and balance should be checked, and the placard limitations updated.

PART 2. GENERAL MATTERS

2.1 WINCH/AUTO-TOW WEAK LINKS . Where the Flight Manual (Certification) of the glider type permits, the BGA Technical Committee have agreed the introduction of a higher rated weak-link not exceeding 1600 lbs, to be known and identified as the RED weak-link. Astley & Sons (0203/20771) have produced the "MITIER LINK" with selectable fuses, to meet this new requirement .

2.2 ASW20, 20L, 20B, 20C, 20CL, 20BL SERIES Flight Limitations. Technical Data Sheet 314 dated 11/12/84 from London Sailplanes up-dates the certification limitations which should also be included in current Flight Manuals, and are acceptable to BGA.

2.3 NOSE RELATED TOW-HOOK INSTALLATIONS. The BGA will not make these mandatory, but strongly recommend their embodiment in new gliders and rebuilds, where the option is practicable.

2.4 CAA CHARGES FOR TUG AND MOTOR-GLIDER CERTIFICATION (CAA Notice No 25 effective 1st April 1985). These have been raised to £28 per 500 kgs (or part thereof), per year of validity (3 years). The surcharge for initial issue is now £42.

PLEASE REMIT THE CORRECT SUM to BGA with your M-G Renewals.

2.5 CHANGES TO THE AIR NAVIGATION ORDER. CAA Engine, Airframe and Propeller Log Books (CAP 398/399/400). The attached notice should be inserted in all log books - available from CAA offices and Maintenance organisations.

LOG BOOKS – CAP 398/399/400 DATED JUNE 1977

IMPORTANT NOTE

1 Any reference to a Certificate of Compliance in this Log Book shall be construed as a Certificate of Release to Service.

2 The certification statement at the top of each page in Part A of this Log Book is superseded by the following statement:

> The work recorded below has been carried out in accordance with the requirements of the Air Navigation Order for the time being in force and in that respect the aircraft/equipment is considered fit for release to service.

3 The effective date of the above change is 21 December 1984.

4 Please affix this sticker to the inside front cover of Log Books CAP 398/399/400 dated June 1977.

2.6 BLANIK UNDERCARRIAGE MOUNTING BRACKET REPAIR SCHEME. Mr R E Wooller, Blackpool and Fylde GC, has produced the above repair which is approved by the BGA. Ref BGA/Blanik/1/85. Copies from the CTO/BGA Office.

2.7 "MOON-BOOTS" CAN ENDANGER YOUR HEALTH particularly if they prevent you from escaping from your aircraft by parachute, should the need arise. There may well be other medical implications, not the prerogative of the BGA!

RBS, CTO/BGA

1/4/85

The British Gliding Association Ltd.
Registered No. 422605 England
Registered Office as address

Administrator and Secretary: Barry Rolfe

Kimberley House, Vaughan Way, Leicester
Telephone 0533 531051

British Gliding Association

BGA.TN5/3/85.

11th February, 1985.

TO ALL OWNERS OF T.51 DARTS

SPECIAL INSPECTION FOR DAMAGE TO LONGERONS AT FRAME 6

The Accident Investigation Dept. of the Dept.of Trade and Industry, have concluded that the in-flight break up of a T.51 Dart in the U.K. in 1984, was probably caused by the failure of the longerons at Frame 6, (abeam the trailing edge of the wings).

The glider in question had been involved in a serious accident, followed by a prolonged rebuild. The failed longerons were original, and had not been either repaired or replaced. The damage was accumulative, in an area difficult to inspect. Cracks in the adjacent plywood had not been regarded as significant. Such cracks are now believed to be evidence of failed longerons with subsequent transfer of load to the plywood.

Darts which at any time may have been involved in accidents resulting in major repairs, may have "hidden" damage in the area of Frame 6, and should be inspected a.s.a.p.

A log book entry should be made to that effect.

R.B. STRATTON
CHIEF TECHNICAL OFFICER

c.c. Slingsby Aircraft Ltd.,
C.A.A. (A.L. Bevan Esq.)

CENTRAIR

AERODROME 36300 LE BLANC

BULLETIN de SERVICE

N : 101-6

CENTRAIR GLIDERS
101 101A 101P 101AP

BGA TNS/3/85(1.2)
Received 13/3/85.

SUBJECT : Checking of the fuselage frames

CONCERNED GLIDERS : 101 - 101A - 101P - 101AP types all serial numbers

In order to prevent any accident risk, it is imperative to immediatly check before the next flight and any case before March 1st, the following inspection on all the frames and fuselage ribs :

- conditions of the stickings,
- conditions of the frames and ribs.

Renew this inspection when the following events happen :

- landing with retracted gear or if the gear retracts when landing,
- ground looping when taking off or landing,
- squash landing or when the intrados of the fuselage is really damaged (deep notches or delamination of the gelcoat for example)

If something atnormal is discovered, please inform the manufacturer CENTRAIR or his legal representative.

The translation into english has been done by best knowledge and judgement ; in any case of doubt the french original is authoritative.

CENTRAIR
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APPROBATION SERVICES OFFICIELS DU
8.02.85
AERO-528-DCO

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3.22) On gliders with front and rear hooks or front hook only, and with the platic tube, shorten the tube.
If the tube (rep.3 fig.2) doesn't exist or if no back lash, replace the cable control (rep.2 fig.2)

The french original of this B.S. has been approved by the VERITAS under the date of dec. 19, 1984.
The translation into english has been done by best knowledge and judgement ; in any case of doubt the french original is authoritative.

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centrair

Aérodrôme 36 300 Le Blanc

BULLETIN de SERVICE N° 6 REV.2

cancels and takes place of S.B n° 4 and 5 and 6 rev. 1.

Planeur ASW 20F-ASW20FL | Nbre Page 1/3

BGA TNS/3/85(1-3)

Objet : Ailerons mass and balance survey and back-lash control in flaps and ailerons controls circuits as to avoid flutter rish.

REV.2 Concerned gliders : ASW20F - ASW20FL - All serial numbers

Instructions :

1a) Check back-lash at ailerons level blocking the stick on neutral and using the flaps handle on position 1 (-11°). Work each aileron up and dawn in its middle as to perfectly check the controls circuits back-lash. Stress must be light to avoid an elastic distortion of steer and controls system. The back-lash, if shown, must be measured on the aileron outside edge with regard to the wing-tip. If resulted value exceeds 1,7mm, the back-lash must be reduced, changing the knee-joints for instance.

1b) Check the back-lash at the flaps level, blocking the stick on neutral and flaps handle on position 1 (-11°). With a light stress, work each flap separately up and dawn on the level of the rod, then, simultaneous both flaps in the same direction : the back-lash must be measured on the inside trailing edge of the flaps with regard to the socket edge of the wing. In both checkings, the back-lash must not exceed 2,7mm.

2) Check the tangentiel back-lash of the wing-fuselage connection. In that purpose relieve the wings by the ends, while working them frontward to backward as for a removal. Then check if the gap between the wing and the fuselage works. In that case, it is necessary to add one or two washers at the back of one or all concerned wings recessing. The knurled recessing then must be pushed out with the assistance of a rod introduced by the opposite side in the binding tube of the wings. The adjusting steel washers are 22 x 32 x 0,5 mm in diameter.

3) Check if the flaps controls go to thrust when locked the handle on position 1 (-11°). If the handle can be pushed beyond the position 1 hole, one of the washers of the flaps rod, located on the left bulkhead of the canopy, has to be rotated as to shorten the rod until the flaps handle could be correctly locked on position 1. Check through the survey hole of the tube that the washers screws remain engaged enough in the threads, then raise the fork up and lock the washers with the counter-screws. Make sure that the handle return-spring plays its part well.

4) Take the ailerons dawn as to check their weight and balance. In that purpose unbranch the rod taking off the tubular rivet 6mm on outside diameter. Burst the rivet head with a 7mm drill, then bore the rivet on a half of its length with a 5mm drill. Then insert a 5mm push off-cotter and strike on it as to push the rivet off, taking care to apply on the opposite side a counter-mass at the end of a tube as to surround the rivet. Take the adhesive strip from the intrados, then drill the pop rivets locking the hinges axis (drill 2mm in diameter). Clip the rivets centre before drilling.

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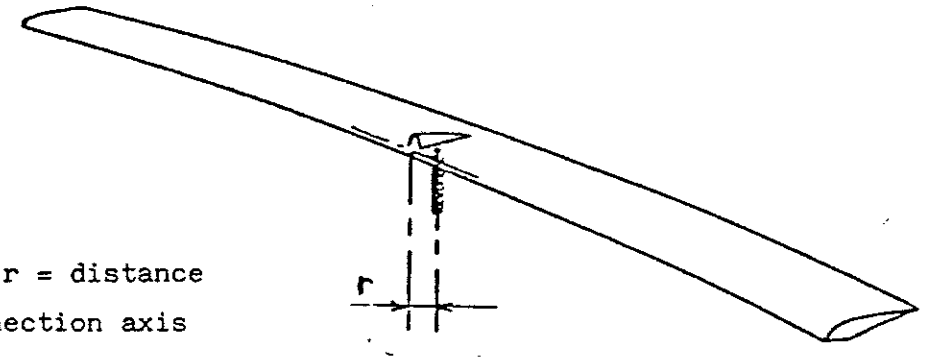
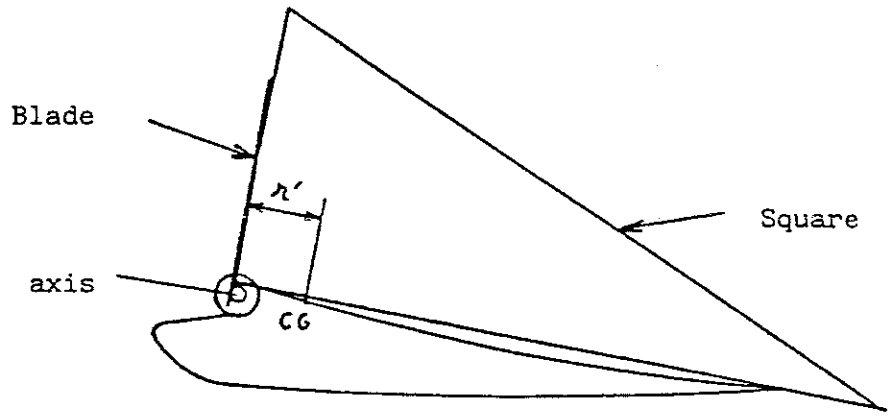
Weigh the cleaned ailerons, without their axis, with an exact balance. The weight has to be between 2,2 and 2,6 Kg.
Find out the centre of gravity position of the aileron in the following way : vertical fixing of a needle. Put the aileron intrados on the needle and search for the centre of gravity position moving it until in balance. Check that the intrados is then correctly horizontal with the help of a spirit-level. Then adjust this laying point marking a small diameter circle around the needle. Often necessary to plug the front screw hole with cement because the centre of gravity can be located right there.



Lever arm r = distance
C G - connection axis

Horizontal intrados

Exactly measure the distance between the aileron connection axis and its centre of gravity. For lake of a more accurate tool, put back the central hinge axis and make a blade strike on it upright to the intrados owing to a square lying on it.



Then measure the distance r' between that blade and the marked small circle centre which is the centre of gravity and substract 3mm for the axis radius → r. The maxi permissible miscalculation is 0,5mm. The product of the aileron weight (Kg) by the resulted length r (in cm) give the balance which must take place inside the definite limits as shown in Service Guide : 2,8 to 3,5 cm/Kg.

If back-lash, masses and balances are inside the limits, the glider is able to be refitted together. Not forget to lubricate the ailerons hinges and washers. Putting back the adhesive strip on the hinge point, take care the aileron could go on the thrust toward the top, keeping the strip not overstretched. The strip had to be fold toward the inside of the hinge. In that purpose stick the strip on the wing then lightly drive it with the finger applying it on the aileron pointed on maxi negative.
If weight and/or balance of the ailerons are too high, rub dawn the gelcoat with abrasive paper 800, aminly on the intrados not exposed to sun radiations, taking care not to take off too much stickness, which will make the surface turning blue. Then polish the gelcoat, and trim the trailing edge off few millimeters (maxi 5mm) over all length. Dimension figures of the aileron regarding to the joint axis must be at a minimum of :
76 mm up the outside level
109 mm up the inside level

If these measures are shown inadequate, necessary to get in contact with the builder.

Equipement

For parts replacing, in order to eliminate the possible back-lash, use in-built equipment (washers, bearings...)
A replacing kit for the ailerons is supplied by the builder and a crimping equipment for the tubular rivets is available on request.

Remark

This Service Bulletin application must be put down on the glider Journey Log with report of the resulted valves for back-lash, masses and balances.

Application delay

In case of need of one of the two first following dates :

- Between the three months from this Service Bulletin (8.12.81) issue
- on first annual overhaul (visit)

NOTA-BRUE : This Service Bulletin cancels and takes place of bulletins n° 4, 5 and 6 rev.1. It is only the extension of the appliance of the service bulletin n° 6 rev.1 for all serial numbers

Rev. 1 Checking of back-lash of ailerons and flaps is to renew at the first of the two following limites :

a) Annual (visit) overhaul
b) Every 200 H. of flight

The french original of this B.S. has been approved by the VERITAS under the date of Nov. 16, 1984.
The translation into english has been done by best knowledge and judgement ; in any case of doubt the french original is authoritative.

Le Blanc, 8.12.81

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APPROBATION SERVICES OFFICIELS DU

14 FEBRUARY 1985

Classification

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ROLLADEN-SCHNEIDER FLUGZEUGBAU
Airworthiness Directive
Volume I

BCAA/TNS/3/85
(1.5)

LS4. / LS4A.

85-03-02 ROLLADEN-SCHNEIDER FLUGZEUGBAU GmbH: Amendment 39-4996. Applies to Models LS4 and LS4a sailplanes, serial numbers up to 4340 inclusive, certificated in any category.

Compliance is required prior to further flight, after the effective date of this AD, unless already accomplished.

To prevent possible jamming of lower air brake blade, accomplish the following:

(a) Assemble the sailplane.

(b) With air brakes fully extended, measure overlap between the bottom edge of the lower blade of the air brake and wing skin lip. If the distance is less than five millimeters (0.2 inches), proceed according to subparagraph (c) below. If distance is greater than five millimeters, no further action is required.

(c) (1) Retract air brakes until the overlap distance is at least five millimeters (0.2 inches) at both wing positions.

(2) Measure extended height of the air brake at the inboard edge. If the distance is less than 150 millimeters (5.91 inches) contact the manufacturer and incorporate any necessary modifications.

(3) Install stop fitting P/N 4R6-15, using steel blind rivet (4mm dia. X 10mm lg.) on air brake pushrod in cockpit such that main bulkhead reduces travel to yield minimum overlap specified in paragraph (b).

* NOTE: Rolladen-Schneider TB No. 4020, dated September 1, 1983, applies to this AD. *

Upon request, an equivalent means of compliance with the requirements of this AD may be approved by the Manager, Aircraft Certification Office, AEU-100, Europe, Africa, and Middle East Office, FAA, c/o American Embassy, Brussels, Belgium 09667-1011; telephone 513.38.30.

Aircraft may be ferried in accordance with the provisions of Federal Aviation Regulations (FARs) 21.197 and 21.199 to a base where the AD can be accomplished.

This amendment becomes effective on February 25, 1985.

FOR FURTHER INFORMATION CONTACT:

Chris Christie, Manager, Aircraft Certification Office, AEU-100, Europe, Africa, and Middle East Office, FAA, c/o American Embassy, Brussels, Belgium 09667-1011, telephone 513.38.30; or Terry Fahr, ANE-153, Boston Aircraft Certification Office, FAA, New England Region, 12 New England Executive Park, Burlington, Massachusetts 01803; telephone (617) 273-7103.

* Copies from UK Vendor.

CENTRAIR

AERODROME 36300 LE BLANC

BULLETIN de SERVICE
N : 8

GLIDERS ASW20F
ASW20FL

36ATNS/3/85.(1.4)

SUBJECT : Tow release cable guiding fittings

Affected gliders : All ASW20F - ASW20FL / CENTRAIR 101 .101A.101AF SB.101-5. 101 P.

Following the SCHLEIDER technical note n° 21 from the 3rd/07/84 (or approwed later revision) ; in order to prevent an unintended release of the tow hook during take off, an inspection of the neutral travel at the actuating cable line of the tow release is required as soon as possible.

1 - Check whether the cable guiding fittings are mounted in front of the bulkhead (fig.1) or rear of it (fig.2)

2 - If the fittings are mounted in front of the bulkhead, they must be remounted to the rear.

3 - Check whether sufficient neutral travel is left as indicated in figure 2.

3.1. If backlash not sufficient in A :

3.11) On gliders with a rear hook only, screw the adjusted bits (rep. 1 fig.2)

3.12) On gliders with a front hook only, replace the cable (rep. 4 fig.2)

3.13) On gliders with front and rear hooks, replace the cable (rep.4 fig.2) if this one shortens the neutral travel and play on the adjusted bits so that the stress is identical on the 2 hooks so that they release together.

3.2. After these operations, if backfash not sufficient enough in B :

3.21) On the gliders with rear hook only and with a plastic tube between the release cable fitting and the cable guide (rep. 3 fig. 2) to ajust it, shorten the plastic tube and/or screw the adjusted bits (rep. 1 fig.2)

If no tube (rep.3 fig.2), screw the adjusted bits rep.1 fig.2 . If no back lash, replace the cable control (rep.2 fig.2)

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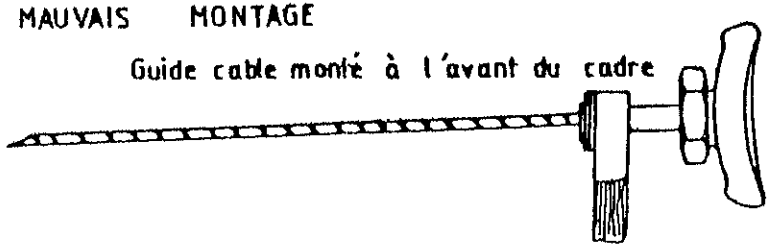
AERODROME 36300 LE BLANC

MAUVAIS MONTAGE

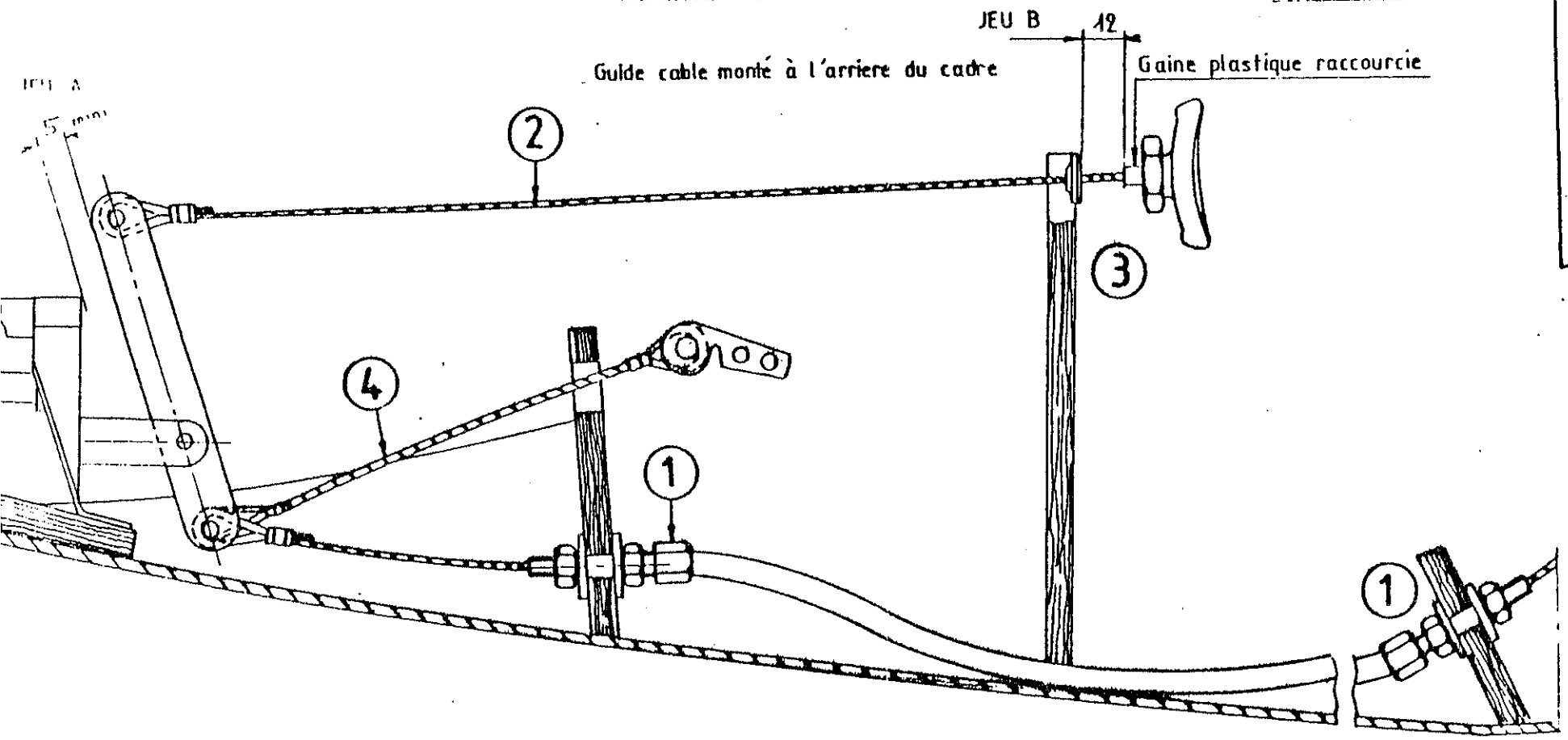
FIGURE 1

Guide cable monté à l'avant du cadre



MONTAGE CORRECT

FIGURE 2



KRD. 20/2/85
BCA. 21/2/85
TNS 3/85. (1·8)

Airworthiness Directive

83-150/4 Propeller Hoffmann

Applies To:- GROB G.109. DINONA. TYFUN. IS. 28.M2A.

Date of issue:
December 21, 1984

Affected propeller:
Hoffmann variable pitch propeller HO-V62 R/L 160T in connection with engines Limbach L 2000 ( ).

Subject:
Root attachment of blades

Reason:
Fatigue problems of fixing bolts at rotation speeds between 2950 and 3250 rpm in flight.

Action and compliance:

1. For propellers which have not been modified since publication of SB no. 4 of 15/07/1983 the following applies:

   1.1 Immediately upon publication of this Airworthiness Directive

   - the rotational speed for continuous operation must be limited to 2900 rpm;
   - aerobatic flight with running engine is not allowed.

   1.2 Within the next 10 flight hours

   - the tachometer must be calibrated and a placard installed next to the tachometer as specified in the Service Bulletin Part 1, Item 2a;
   - an inspection of the propeller blades must be performed as indicated in Part 1, Item 2b.

   1.3 Within the next 10 flight hours after the effective date of this AD at the latest, however on March 31, 1985, the propeller must be subjected to a general overhaul and modification according to Part 3 of the Service Bulletin.

2. For propellers which have already been modified and marked with "SB 4" at the base collar:

   2.1 The rotational speed remains limited to 2900 rpm as indicated in Part 2 of the Service Bulletin (SB).

   2.2 Aerobatic flight with running engine is not allowed.

   2.3 Within the next 10 hours of operation, the tachometer must be calibrated and placards as indicated in part 2 figure 2 of the SB applied.

   2.4 Prior to reaching 600 flight hours since new or at a date according to item 3, Part 2 of the SB, at the latest, however, on August 31, 1985, the propeller must be subjected to a general overhaul an modification to meet the condition described in Part 3 of the SB.

3. Propellers in the condition according to Part 3 of the Service Bulletin as shown by the letters A or B behind each blade serial no. may be operated normally again according to items 1 through 4 of the Service Bulletin.

4. The time between overhaul (TBO) for propellers modified according to Part 3 of the Service Bulletin is 600 flight hours (SB no. 1F of 2/11/1983).

Technical publication of the manufacturer:
Propeller Hoffmann Service Bulletin No. 4C
* of February 20, 1984 and Revision 1 of December 11, 1984, which becomes herewith part of this AD and may be obtained from Messrs. Propellerwerk Hoffmann, Postfach 265, D-8200 Rosenheim.

Accomplishment and log book entry:
Action to be accomplished by an approved service station and to be checked and entered in the sailplane's log by a licensed inspector.

Note:
This Airworthiness Directive replaces the AD 83-150/3 of May 28, 1984.

* Available from. SOARING EQUIPMENT LTD.
193 Russell Rd.
Moseley. BIRMINGHAM. B13. 8RR.
021-449-1121.

(1.10)

Subject : Airbrake control system in the wing

Affected: Sailplane model "CIRRUS",
F.R.G. Type Certificate No. 265,
Variant: Cirrus
Serial-No.: 1 - 50

Reason : On two of the serial numbers affected a 6 mm (0.24 in.) threaded bolt welded to the connecting rod of the airbrake bellcranks broke off.

On all sailplanes after serial number 50 this 6 mm threaded bolt has been replaced by a 8 mm (0.31 in.) bolt.

Urgency : Action 1: Prior to the next flight.

Action 2: Not later than April 30th, 1985.

Actions :

1. With the airbrakes extended make a visual check of the welding seam of the 6 mm threaded bolt at the connecting rod (2) by applying a mild vertical load by hand onto the push/pull rod (1) as shown on sketch 1.

   If cracks are found in the welding seam the following actions are to be accomplished prior to the next flight:

   Note:

   These actions do not apply for sailplanes on which the 6 mm threaded bolt has already been replaced by an 8 mm bolt.

2. To remove the connecting rod (2) between the airbrake bellcranks first turn out the push/pull tube (1) at the root rib, then undo the split pins at the airbrake bellcranks.

3. a) Modify the connecting rod (2) according to sketch 2

   or

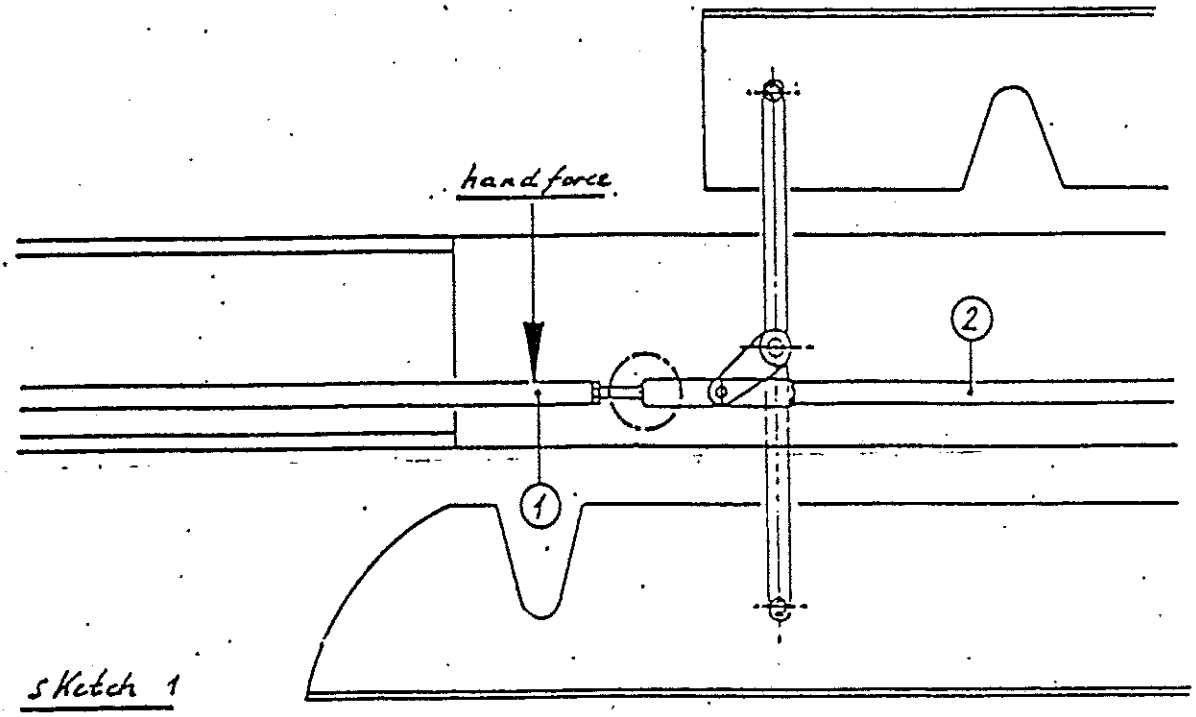
   b) obtain a replacement rod (2) according to

Drawing No.	Nomenclature
50.017	Connecting rod between airbrake bellcranks

   from the manufacturer.

4. Tap a 8 mm (0.31 in.) thread into the threaded end of the push/pull rod (1) .

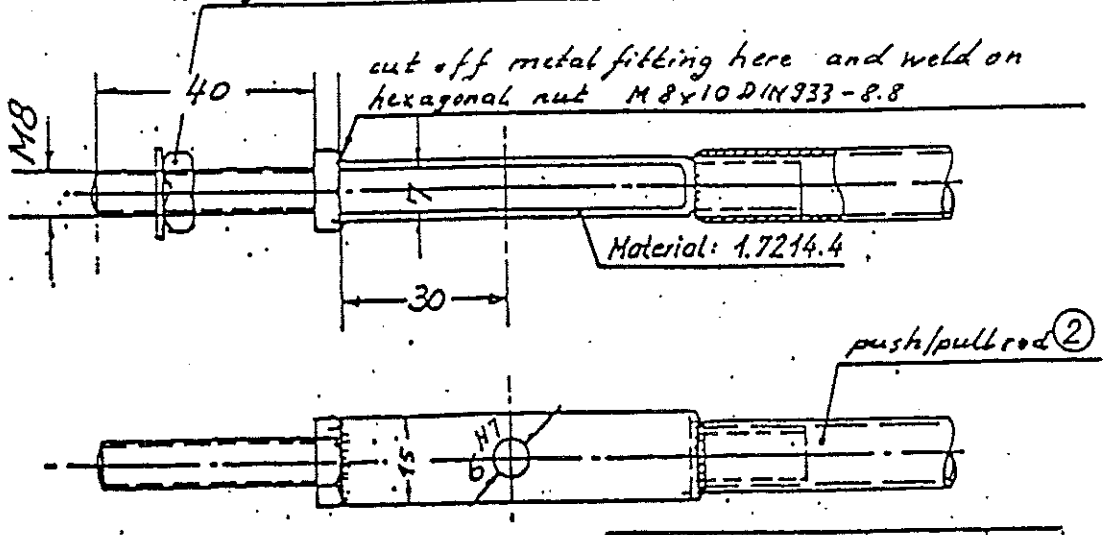
5. Reinstall modified connecting rod (2) (after accomplishment of action 3). Reinstall push/pull rod (1) (after accomplishment of action 4).



Sketch 1

Previously used:
threaded bolt M6

inner toothed spring washer J 8,4 DIN 6797-phr
hexagonal nut M8 DIN 936-8



Sketch 2

Grundwerkstoffe		Schweißzusatzwerkstoff	Schweißverfahren
Werkstoff 1	Werkstoff 2		
1.7734	1.7734 1.7214 VCL 125	1.7734.2	WIG
St 35 St 37 St 52	1.7734 1.7214 VCL 125 St 35 St 37 St 52	G III DIN 8554	WIG Gas

6. Mount the wings and adjust the airbrakes by properly adjusting the push/pull rod ①.

   Take care that the airbrakes on both wings open and close sumiltaneously, furthermore the overcentering force of the airbrake operating lever in the cockpit must not exceed 20 daN (44 lb).

   When properly adjusted secure the airbrake push/pull rod ① by tightening the lock nut M8 inside the airbrake box.

Material: See drawings and sketch.

Weight and C.G. Position: No change.

Kirchheim/Teck, February 11th, 1985

Issued: H. Treiber

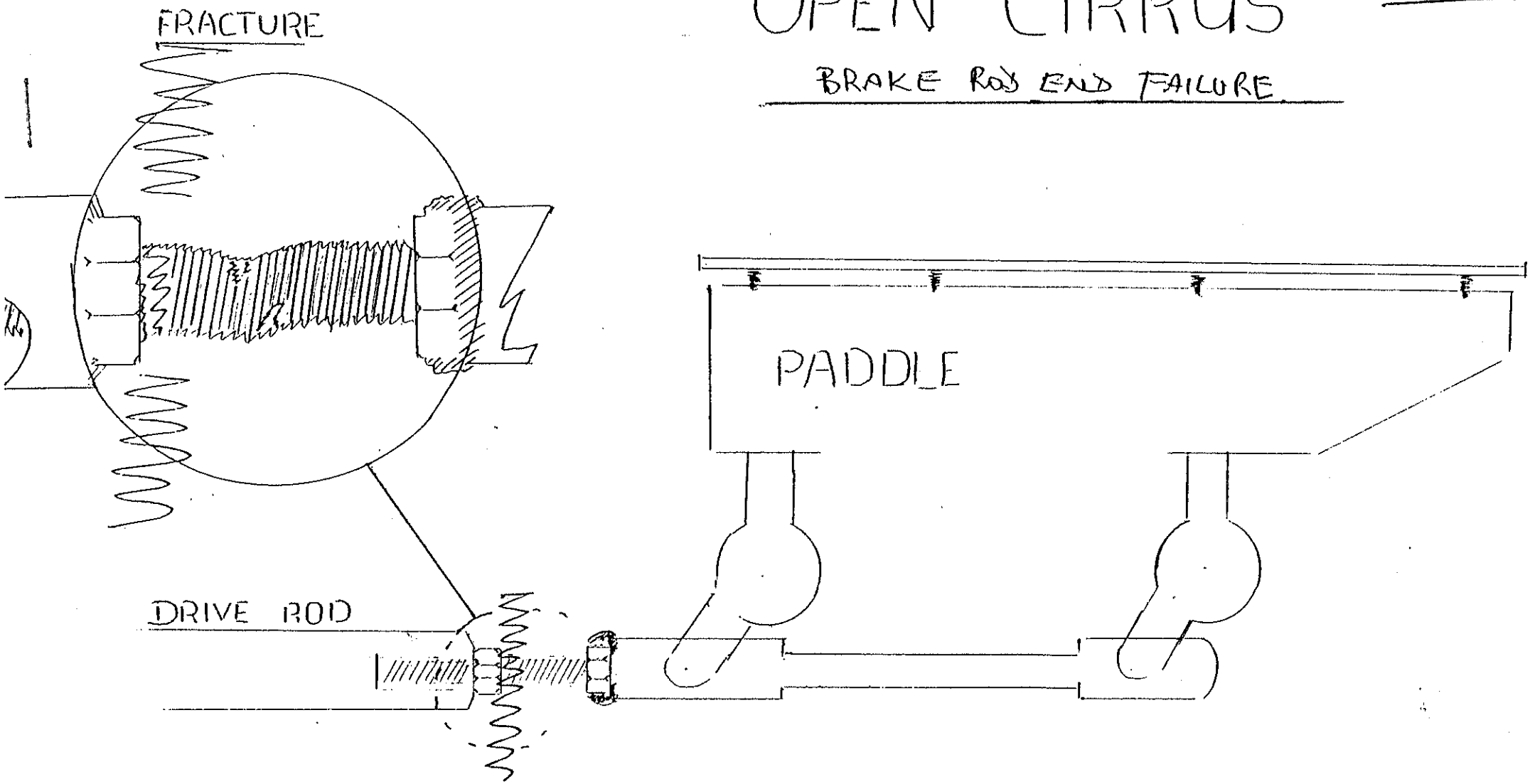
(H. Treiber)

LBA approved

TNS 3/85

OPEN CIRRUS

BRAKE ROD END FAILURE



REF TNS 1/85.

SHROPSHIRE SOARING Group

PROPELLERS CAN KILL!

2. PROPELLER DANGERS

P

Propeller Injury

The following appeared in the US Publication "Aviation Consumer."

"One of the most tragic and senseless of all aviation accidents is the propeller injury. As hard as it is to imagine, pilots and non-pilots alike continue to walk into whirling propellers or rotorblades at an astounding rate. In the past six years, for example, 112 people have been killed or injured by propellers. Surprisingly, the majority of the prop-strike victims actually survived. Only 23 of the 112 incidents were fatal, a surprisingly low number considering that a typical piston-engine propeller idling at 900 rpm has the kinetic energy of a five-pound brick travelling about 250 mph.

Some 75 percent of the prop-strike victims simply walked into whirling propellers, while the remaining 25 percent were killed or injured trying to hand-prop their aircraft. Of those who walked into whirling blades, the majority were passengers who presumably didn't spend much time around airplanes. A spinning prop is near invisible - particularly at night - and it's not hard to see how an aviation novice, distracted or confused, might accidently walk into the propeller arc.

The distractions noted in the FAA accident reports we checked were many and varied. Particularly poignant were the two cases in which people had their hats blown off by prop or rotor wash, and then chased the flying hats into the blades.

Other incidents were simply bizarre. One accident brief read, " A pedestrian in a Halloween costume ran into idling propeller after first lying in front of aircraft on the ramp." Another passenger deplaned "for physiological reasons" and was injured by the spinning propeller. The report didn't specify what part of his body was struck.

Of the 'hand-propping' incidents, most involved pilots who were trying to coax balky engines to life and had forgotten to turn off the mags. In several cases, the mag lead wire was shorted out. In all cases, the victims were no doubt astonished at how quickly the engine started, or that it even started at all.

The lessons here for pilots are clear. First of all, never allow passengers - particularly those new to aviation - to get out of the airplane or approach it from the outside with the engine running. The danger of a spinning prop may be very clear to you, but tragic experience has proved it may not be so obvious to them. Anytime the door is open, the engine should be off.

When 'hand-propping', chock the airplane and tie the tail. Make sure the ignition keys are in your pocket, and assume that the engine will start any time you move the prop. Get your momentum going away from the prop on every compression stroke. You may look a little foolish leaping away every time the prop turns over, but it's better to be called 'Weirdo' than 'Lefty'."

CAA Comment:
The poster distributed with GASIL 2/85 should be displayed where all can see it. It may help, particularly with inexperienced passengers. Propellers should always be treated as 'live' since a magneto is made 'dead' by being wired to earth. If the earth wire falls off, the magneto becomes live. The next incident is a good example.

GASIL 3/85

P (1·13)

3. Live Magneto

Aircraft : DHC1 Chipmunk (RAF aircraft)

The following appeared in the RAF Support Command Flight Safety Magazine October-December 1984.

"The aircraft, was due for an air test. The rear cockpit ignition switches were confirmed to be OFF by the ground crew and the front cockpit switches were confirmed OFF by the pilot. The propeller was turned by the ground crew in order to prime the engine and during this operation the engine fired and started to run. The engine was shut down by turning off the fuel.

Investigation revealed that the right-hand magneto had failed to earth properly due to an intermittent open circuit in the contact breaker cover. The right-hand contact breaker cover was replaced and no further problems were discovered."

4. Hand Swinging P

Aircraft : Jodel D117A
Date : 13 January 1985

Owing to having an unserviceable starter the pilot hand swung the propeller. He did not, however, check the throttle setting which, unfortunately was fully open. The engine started on full power and the aircraft tipped onto its nose, destroying the propeller and shock loading the engine.

CAA Comment:
The pilot's report, which was anonymous but commendably frank does not state how he got out of the way but his presumed agility saved him from the natural consequences of his sin of omission. He was more fortunate than many others who have arguments with propellers with depressing frequency.

The Lessons?

- Do not attempt to hand swing propellers without someone in the cockpit.
- Make sure that chocks are in position.
- Make sure that the drill is clearly understood by both parties including hand signals: if in doubt stand clear.
- Consider the slope and state of the ground - one slip could be your last.
- Always treat the propeller as 'live'.
- Swing the propeller with a turn away as you do so, with the weight of the body transferring to the leg opposite to the swinging arm.
- Never allow any of your weight to be supported by the propeller.
- Do not walk into propellers - people do!

'What to do if ..... you hand swing a propeller' was published with GASIL 3/81. It provides more comprehensive advice.

A.I.B. FATAL AEROTOW. KA.18.

No: 2/85 Ref: EW/C891/01

Aircraft type and registration:	Piper PA18-150 Super Cub G-AVPU (light single engine fixed wing aircraft)
Year of Manufacture:	1967
Date and time (GMT):	25 October 1984 at 1520 hrs
Location:	Portmoak Airfield, Scotlandwell, Fife
Type of flight:	Club Flying — Aerotow
Persons on board:	Crew — 1 Passengers — None
Injuries:	Crew — 1 (fatal) Passengers — None
Nature of damage:	Aircraft destroyed by the ground impact and subsequent fire
Commander's Licence:	Private Pilot's Licence
Commander's Age:	42 years
Commander's total flying experience:	2357 hours (of which 30 were on type)
Information Source:	AIB Field Investigation

G-AVPU, which was one of two Super Cubs used by the gliding club for the purpose of aerotow launching gliders, had been operating for an hour prior to the accident, during which time it had performed five launches.

At approximately 1510 hrs, the club's 'course instructor' took over as tug pilot and prepared to launch a Schleicher K18. Whereas most club gliders are fitted with both a nose hook, used for aerotow, and a 'belly hook', used mainly for winch launching, this glider was fitted with only a 'belly hook' situated just forward of the main wheel.

On the first launch attempt the K18 overran the tow rope, which automatically back-released, although this was too late for the tug to abandon its take-off. The tug therefore flew a quick circuit and repositioned for another attempt with the same glider.

The combination then carried out a normal take-off run during which the K18, as is typical, became airborne before the tug and maintained a low height above the ground whilst the tug accelerated to its unstick speed of approximately 45 kt. The tug was seen to fly fairly level whilst continuing to accelerate and then to initiate a normal climb, habitually conducted at 60 kt.

During the initial climb, the K18 was observed to maintain an unusually low position behind the tug and to weave gently from side to side. Witnesses at the launch point stated that the glider then suddenly pitched up into an abnormally steep attitude and rapidly climbed to an excessively high position above the tug. Coincidentally with the latter part of this manoeuvre, and at about 200 ft, the tug was seen to pitch down violently into an apparently vertical dive from which it did not recover before striking the ground. The tug burst into flames on impact but the K18 was able to make a foreshortened circuit over the airfield and land without further incident.

The pilot of the glider stated that he released the tow rope as the tug disappeared from his view; however subsequent examination showed that the tow rope steel attachment rings were still engaged with the glider launch hook. Subsequent examination of the glider release mechanism showed it to be in a serviceable condition.

Examination of the wreckage of the aircraft failed to reveal any pre-impact defect which would have contributed to this accident. The tow rope was found just behind the aircraft wreckage and, although the rope had been largely consumed by the post-impact fire, it was apparent that it had failed at its connection with the glider attachment rings.

Post mortem examination did not provide any evidence to suggest that the tug pilot had suffered any medical condition which would have contributed to the accident.

Part of the tow rope used on the accident flight, together with a similar intact rope and samples of new rope, were later subjected to 'pull tests'. Failure loads of between 980 lbf and 3030 lbf were recorded, the particular values depending on the configuration and age of the rope. It is currently a CAA requirement that 'the breaking strain of the towing cable, or weak link if fitted, shall not exceed 1000 lbf when towing one glider'. As the exact breaking strain of any particular rope is difficult to quantify, the British Gliding Association have now ensured that all glider tow ropes are fitted with a suitable weak link.

Two main factors are now generally recognised as being of importance in tug upset accidents. Firstly, when aerotowing a high winged glider using the low set 'belly hook' there is a marked tendency for the glider to pitch up and

climb, if allowed to do so. Secondly, the speed with which the situation can develop is likely to take a glider pilot who has a low level of aerotow experience on 'belly hooks' by surprise. This effect will be exacerbated in turbulent conditions when the glider's Centre of Gravity is in an aft position.

Following this and several similar accidents the BGA, in conjunction with the CAA, has taken steps to identify the problems and produce suitable remedies. Considerable progress has already been achieved in such areas as:

(a) Re-emphasising to all gliding clubs the dangers inherent in conducting aerotow operations and the importance of ensuring an adequate level of glider pilot training relevant to operation on 'belly hooks'.

(b) The design, prototype manufacture and testing of automatic upward/load sensitive release hooks for tug aircraft.

In addition, the BGA have intimated that the provision of nose mounted hooks in gliders may, in the future, be a pre-requisite for BGA certification.

In due course, the results of such research and subsequent recommendations will be promulgated by the BGA.

BRITISH GLIDING ASSOCIATION

A Technical Summary of the Reasons why Sailplanes constructed of Glass, Kevlar or Carbon Fibre stabilised with thermosetting resins are coloured White

When the Germans exploited the application of these materials in the late 1950's a significant proportion of the research work was undertaken by the Aeronautical Technical Institutes. Evaluation of the materials and physical properties coupled with manufacturing methods ultimately lead, in conjunction with the German Airworthiness Authorities (the LBA - equivalent to the UK CAA), to the formulation of design requirements for sailplanes.

An important feature of these requirements relate to limiting temperature criteria in that design properties are appropriate to a maximum temperature of +54°C. This is primarily due to the fabrication methods and associated economies in that sailplanes are mainly hand-fabricated with room-temperature thermosetting resins whose temperature operating limit is +54°C (known as the heat distortion temperature). Use of higher temperature resins necessitate considerably more expensive plant which is not economically compatible with production quantities and product cost.

The net result is that in order to satisfy the overall criteria all sailplanes embody a white-pigmented gel coat which rules out the use of contrasting colours since white is the only colour which will constrain the structure to the limiting temperature under worldwide pan-climatic conditions. This situation is crucial to the extent that the German Authorities will only allow registration letters and competition numbers to be light grey in colour.

Increase above this critical temperature leads to progressive and significant reduction in compressive strength, Youngs Modulus in tension/compression and Shear Modulus. Each of these properties is critical to structural integrity both in terms of velocity/gust criteria and flutter characteristics.

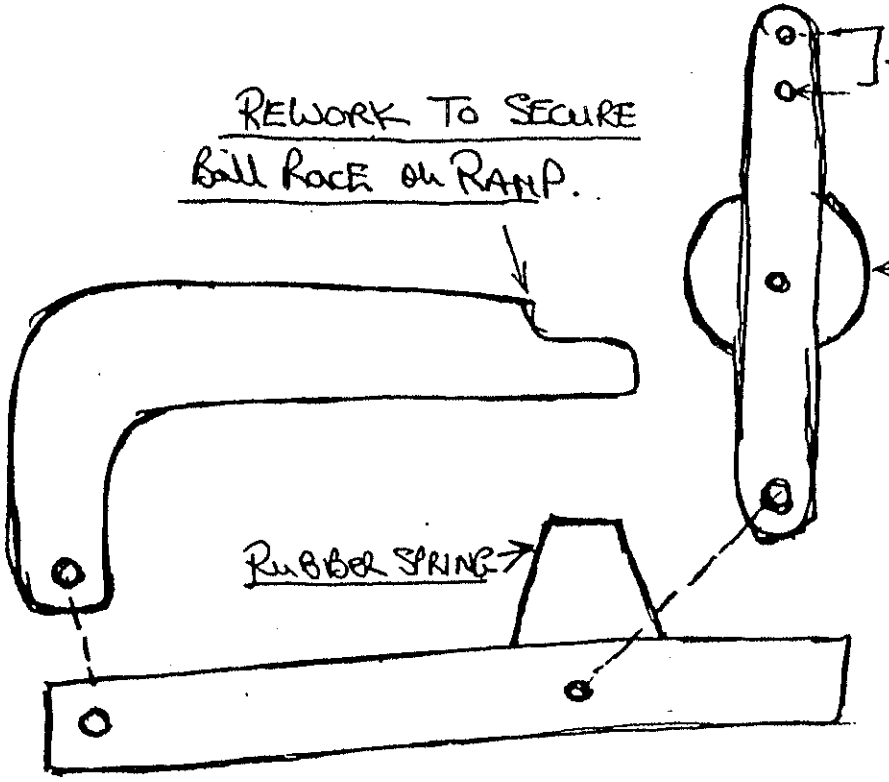
The modern generation of all-composite sailplanes incorporate the latest developments in materials, structural and aerodynamic design and, to this end, there is a greater tendency to operate them at the extremities of the permitted flight envelope particularly in championship flying worldwide.

For example when operating in, say, Texas, Australia and other hot climates it would be possible for the structure to heat up to well above the critical temperature if the sailplane were any colour other than white. Shortly after takeoff the sailplane crosses the start line at its never-exceed speed (V_{ne}) and it would be quite possible for a sailplane in a colour other than white to heat up to, say, 80-100°C on the top of the wing after exposure to 2 or 3 hours in the sun which could lead to wing compressive failure (top surface) or wing flutter.

These conditions could also apply to the empennage and fuselage since certain flutter modes can be appropriate to these elements of the structure.

J.D. Jones, C. Eng., F.R.Ae.S,
Chairman,
BGA Technical Committee
10th January 1985

This is a rough sketch to show what it is, if you would like to have detailed drawing or photo let me know.



→ OPTIONAL CABLE attachments

1" O.D. SEALED BALL RACE.

ASK BGA Office & CAA FOR "AD261
Schweitzer Tow Hook Modification"

TNS/3/85

Alan Urwin.

Schweitzer Type Hook (MODIFIED), BGA MOD/T/1/85.

with 1" O.D. Sealed Ball Race – to reduce the Release load. (By 75% under tension approx).

For: BGA.

ALAN URWIN
BORDERS G.C.

28/2/85.

BGA/837/E