BRITISH GLIDING ASSOCIATION

BGA TECHNICAL COMMITTEE

TECHNICAL NEWSHEET TNS 5/6/91

PART 1 Airworthiness "AGGRO" - Please add to the BGA's 1991 Blue Pages

1.1. Grob G.109 Corrosion of the bolts securing the wing attachment fittings both on the wing root and in the centre section. Reported by Roger Targett re G-IPSI - Nympsfield.

1.2. GAP Sealing Tapes - "Strangle" ailerons, preventing full deflections. Recently refitted tapes were not checked for full and free movement of controls. Reported from London G.C.

1.3. LS7 (New Aircraft), Rudder cables found to be incorrectly routed through fair leads. Reported by Gerry Sturges, Upavon.

1.4. Libelle (and other types) Hemp cored rudder cables found to be corroded. Hemp cored cables should be removed from all aircraft. Reported by Roger Targett - Nympsfield.

1.5. Pirat - swaged-end aileron drive rod found cracked at the swage. Damaged by overload? reported by Fred Breeze.

1.6. KA13. Inflight failure of the "A" Bracket in the Wing Root!, results in asymmetric speed-brake deployment. Repair/re-enforce as required, and re-inspect frequently. Reported by Ralph Brooker - Essex & Suffolk G.C.

1.7. Vega (T65) Undercarriage Lever Failure. Sketch herewith from Tony Moss. Borders G.C. is self - explanatory.

1.8. Centrair ASW 20F and ASW 20FL Service Bulletin 20-12 (in French herewith), and A.D 91-073 (in English), draws attention to cracks on Rudder Pedals.

1.9. KA8 - Cable Release, failure of Stainless Steel cable. The fatigue resistance of such cables may be inferior. Reported by Tim MacFadyen - Cotswold G.C.

1.10. Pegasus - Cracks in GRP at elevator hinge mounts on the tailplane. Repaired with additional rovings. Reported by Tim MacFadyen.

1.11. LS6 Pedal Adjustment Cable. LBA AD/91 -110 and Tech Bulletin 6022 (herewith), explains the problem.

1.12. JANUS CM - ENGINE MOUNTING PLATE - Recurring failures in Japan. Sketch herewith illustrates cracks after 55 hours. Second failure occurred 5 hrs later. In the UK we may not have flown 50 hrs between accidents!

1.13. K6CR Tailplane Attachment Bracket Failures. This defect has been reported by Rex Flint - Trent Valley G.C. Sketch herewith.

1.14. WAXING OF OIL - TWO STROKE ENGINES. Extract from G.A.S.I.L. is illuminating.

1.15. CARB - ICING - CUB. Extract from A.A.I.B. Bulletin yet again emphasises the dangers!

1.16. Severe Fuel Contamination. GASIL 5/91 highlights this problem. Airfield bulk installations must be correctly managed as required by Article 87 of the A.N.O!

1.17. Putchatz (new) - Control deflections and stops found to be incorrectly set on delivery. Even new gliders require detailed inspection. Reported by Northumbria G.C.

1.18. T.B.O. Hoffmann Propellers. Service Bulletin E-1-M dated 04/17/91 is reproduced herewith.

1.19. Nimbus 3D (T), (and any other Turbo) - frayed decompression cable - which would prevent airstarting. Reported by RAFGSA - Bicester.

1.20. DUPLICATE INSPECTIONS OF CONTROLS, after RIGGING, Adjustment, Overhaul, or dismantling are ESSENTIAL TO SAFETY. Underfloor controls found unlocked in Std Cirrus, resulting in aileron flutter. Reported by I.D. Smith - Nympsfield.

2.0. GENERAL MATTERS

2.1. Weak-Link Ratings. Issue 4 (June 1991) of the list is attached, corrected to include

(a) Pegasus (Centrair 101)
(b) delete Fauvette 905 - Refer to Breguet 905.
(c) add KA18
(d) correct Sky, Skylark, Swallow & Swift.

2.2. Ex Air Cadet (TWIN DRUM) Petrol Winches.

These are now becoming available, mostly in WORKING ORDER., with cable on the drums at about £1000 through ADT (Car Auctions) Measham 061-223-9179, who will put you on the Mailing List.

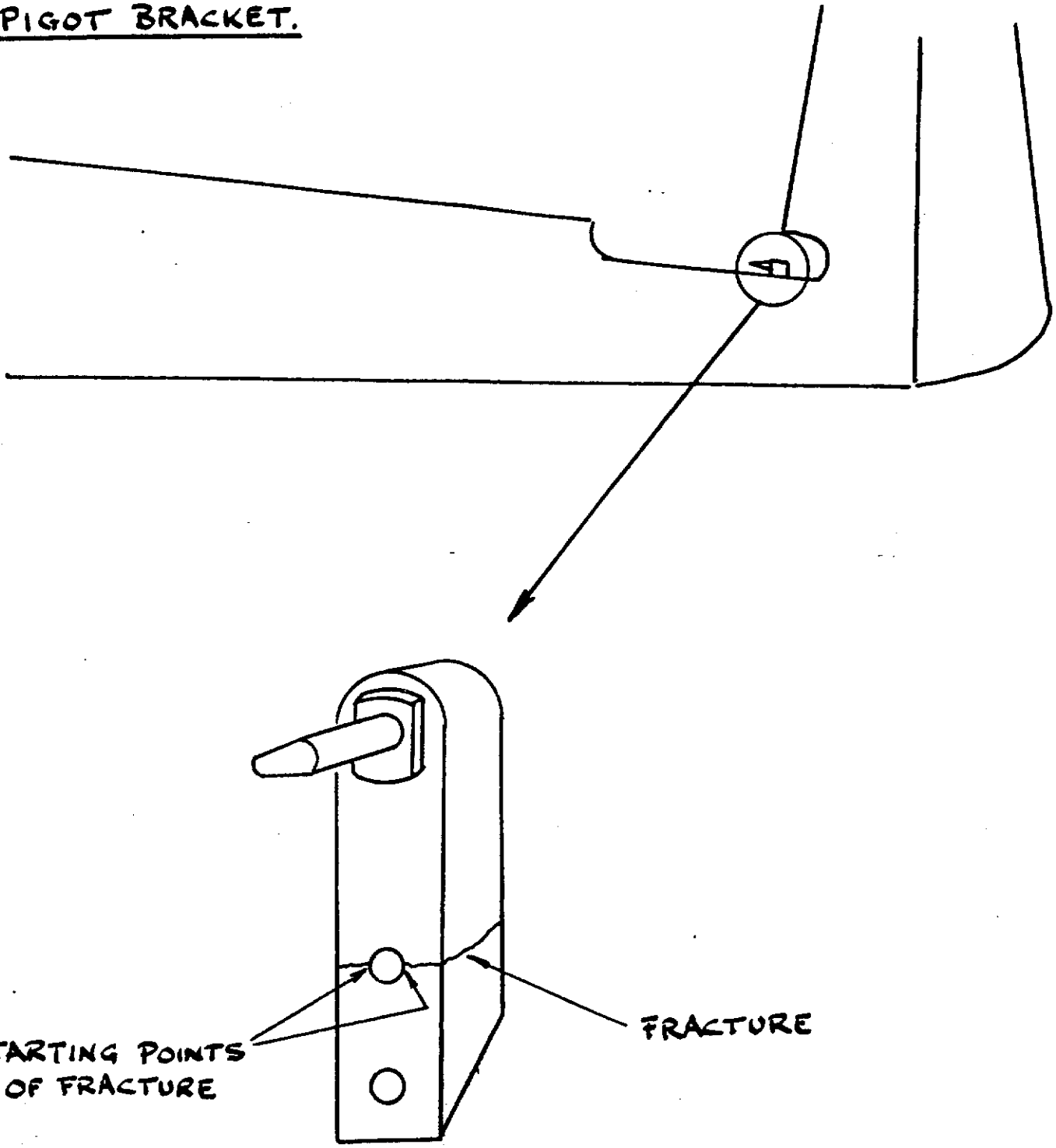
Wing Commander Witman (RAF Newton) 0945-20771 (Ext 405) knows where they are, and, hopefully, when they will be sold.

These winches are geared for petrol engines, (not diesels) and should be re-engined with more than 5 litres of automatic powerplants. (Vale of White Horse and Bath & Wilts G.C.'s have already done the conversion).

2.3. BGA Glider Weighing Proformas in both Metric and English Units are copied herewith.

R.B. STRATTON
CHIEF TECHNICAL OFFICER

Ka 6 CR - FAILURE OF TAILPLANE ATTACHMENT SPIGOT BRACKET.



WHILST CARRYING OUT DAILY INSPECTION, TAILPLANE MOVEMENT WAS DETECTED. REMOVAL OF TAILPLANE FOR FURTHER INVESTIGATION REVEALED THAT SPIGOT BRACKET HAD FRACTURED COMPLETELY, ABOUT THE TOP BOLT HOLE. DETAILED EXAMINATION OF THE FRACTURE INDICATED THAT THE BRACKET HAD BEEN IN A PARTIALLY FRACTURED STATE FOR SOME PREVIOUS TIME.

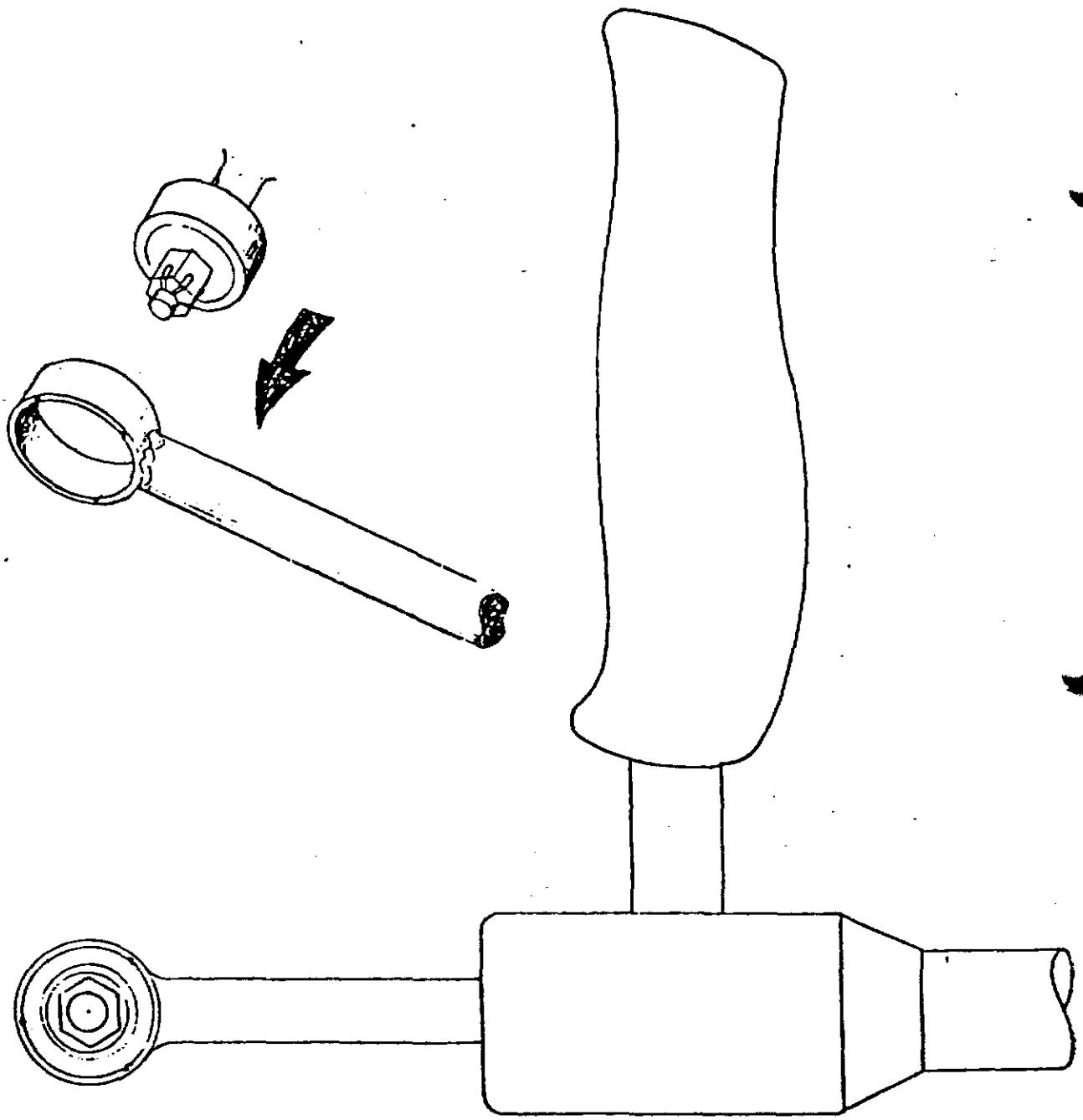
R. FLINT 1/C 799
3.5.91.

Vega Undercarriage Lever.

Failure of rod-end bearing assembly resulting in undercarriage collapse on takeoff.

The unibal race is a light interference fit in in a steel eye welded to the rod end. Retention is assisted by three light peening marks impressed into the eye. The eye detached from the bearing and fell free into the cockpit releasing the undercarriage lock. The assembly *may* have been weakened by operation of the lever from outside and across the cockpit when fitting the belly trolley.

Re-fitting the unibal race with heavier peening and Loctite 'Bearing Fit' 641, available in 5ml packs from Bearing Services, plus greater care in ground operation should prevent further problems.



Tony Moss. Borders Gliding Club, Galewood Airfield, Wooler, Northumberland.

BUREAU VERITAS

AIRWORTHINESS DIRECTIVE

released by DIRECTION GENERALE DE L'AVIATION CIVILE

Inspections and/or modifications described below are mandatory. No person may operate a product to which this Airworthiness Directive applies except in accordance with the requirements of this Airworthiness Directive

Translation of 'Consigne de Navigabilité'
Réf.: 91-073(A)
In case of any difficulty, reference should be made to the French original issue.

CENTRAIR sailplanes

Rudder pedals

This Airworthiness Directive concerns CENTRAIR sailplanes :

- ASW20F and ASW20FL all serial numbers,
- MARIANNE from S/N 201X002 to S/N 201X073 included,
- PEGASE from S/N 101XX001 to S/N 101XX285 included,
- PEGASE from S/N 101D0501 to S/N 101D0530 included.

In order to avoid a possible separation between torque tube and vertical tube on rudder pedals with cracks, within next three months after the effective date of this Airworthiness Directive :

- Check the soldered seam in accordance with the Service Bulletin CENTRAIR with regard to type,

Record the application of this Airworthiness Directive in sailplane logbook.

Ref. : CENTRAIR Service Bulletin 20-13 dated March 19, 1991
CENTRAIR Service Bulletin 101-11 dated March 19, 1991
CENTRAIR Service Bulletin 201-08 dated March 19, 1991

EFFECTIVE DATE : APRIL 13, 1991

e/Z
17

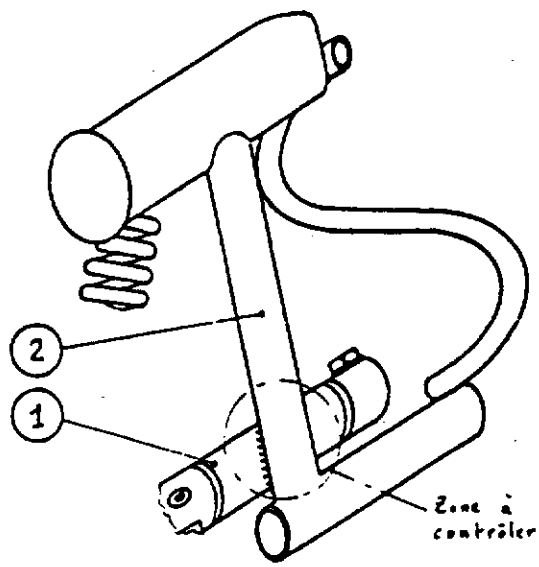
APPLICABILITE : PLANEURS ASW 20 F ET ASW 20 FL
TOUS NUMEROS DE SERIE

OBJET : CONTROLE DES PEDALES DE PALONNIER

DELAI : 3 MOIS

Nous avons constaté sur un planeur accidenté une crique au niveau de la soudure entre le tube d'articulation et le tube vertical d'une pédale (voir croquis ci-dessous). Ce planeur ayant des pédales de palonnier de même type que les planeurs cités en objet, il est demandé de :

a) contrôler l'état de la soudure entre le tube d'articulation (repère 1) et le tube vertical (repère 2) sur les deux pédales de palonnier afin d'y déceler un éventuel début de crique.



b) prendre contact avec S.N.CENTRAIR en cas de constatation de crique.

STE NOUVELLE CENTRAIR

Tél : 54.37.07.96
Telefax : 54.37.48.64
Telex : 750 272

APPROBATION SERVICE OFFICIEL DU 19|03|91

Classification
RECOMMANDE ☐
POUR INFORMATION ☐
IMPERATIF ☒

TNS/5/6/91

AIRWORTHINESS DIRECTIVE

LS-6

91-110 Rolladen-Schneider

Date of issue:
18. APR. 1991

Affected sailplanes:
German Type Certificate No. 357
Sailplane model LS6 S/N 6194
LS6-a S/N 6189
LS6-b S/N 6149, 6151, 6177, 6187, 6188, 6190 to 6193, 6202
LS6-c all serial numbers

German Type Certificate No. 375
Sailplane model LS7 all serial numbers

Subject:
Pedal adjustment cable

Reason:
In one case the cable jammed between cable guide and pulley and disabled adjustment.

Action and compliance:
Check lateral play of pulley in guide according to working instruction for TB 6022/TB 7003 and adjust, if necessary before next flight after the effective date of this AD.

Technical publications of the manufacturer:
Rolladen-Schneider LS6 Technical Bulletin No. 6022 and
LS7 Technical Bulletin No. 7003
of March 1991 including working instruction,

which become herewith part of this AD and may be obtained from Messrs.
Rolladen-Schneider Flugzeugbau GmbH,
Mühlstraße 10
W-6073 Egelsbach, Germany.

Accomplishment and log book entry:
Action to be accomplished by a skilled person. Inspection and certification of accomplishment by licensed inspector in logbook and on TB-AD-Accomplishment List, page 14-1 of Instructions for Continued Airworthiness (Maintenance Manual).

Dismount handle from pedal adjustment cable (See sketch below, No. 1), use 8 mm socket wrench. Hold cable with adjustable jaw joint pliers at end of pressed fitting to avoid drilling.

Push polyamide tube (length approx. 40 cm (16 in), external diameter 6 mm (0.24 in), wall thickness 1 mm (0.04 in)) over threaded fitting.

Pull pedal adjustment cable together with pulley assembly at forward seat edge (See sketch, No. 2), at the same time push tube from rear end.

Check lateral play of pulley, maximum total value should not be greater than 0.5 mm (0.02 in). If play is greater, reduce as follows:

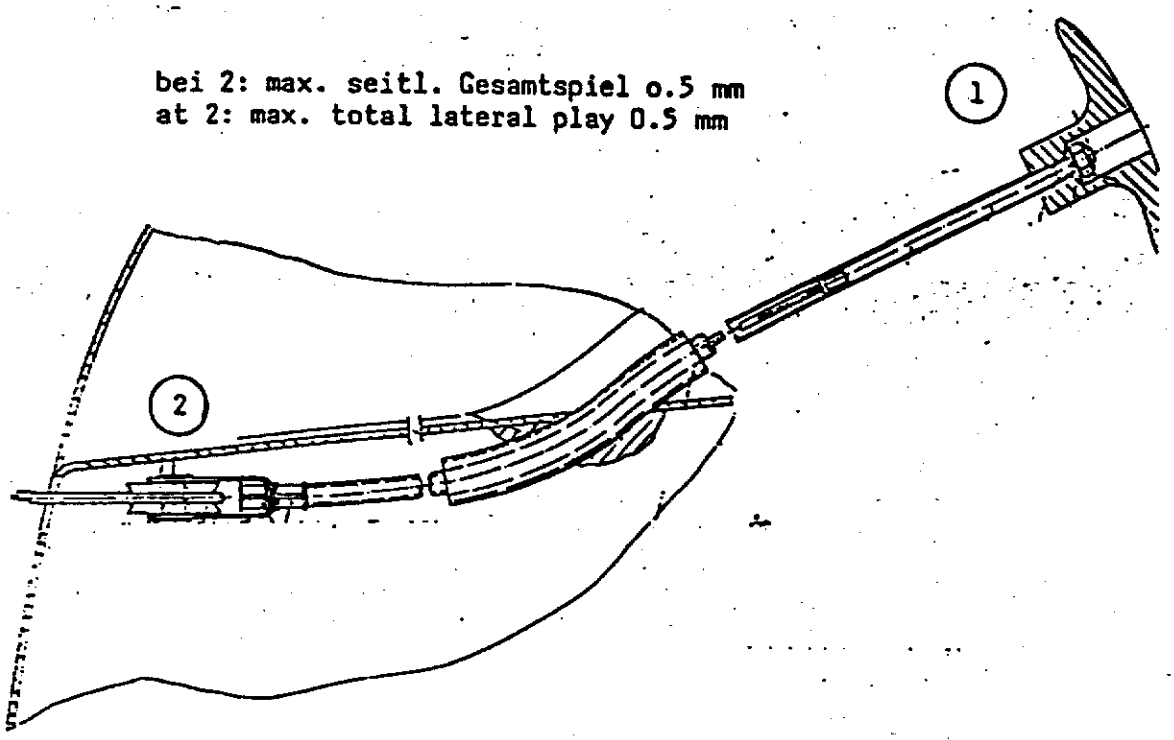
Press pulley holder on both sides directly behind pulley using adjustable jaw pliers until play is below maximum value. (In the region of the riveted bushing the play is still the old value, but at the cable runoff-point the correct value). Restore surface protection if damaged.

Check cable condition.

Route adjustment cable through seat using tube again, push cable from forward end.

Assemble handle, hold cable against drilling as above.

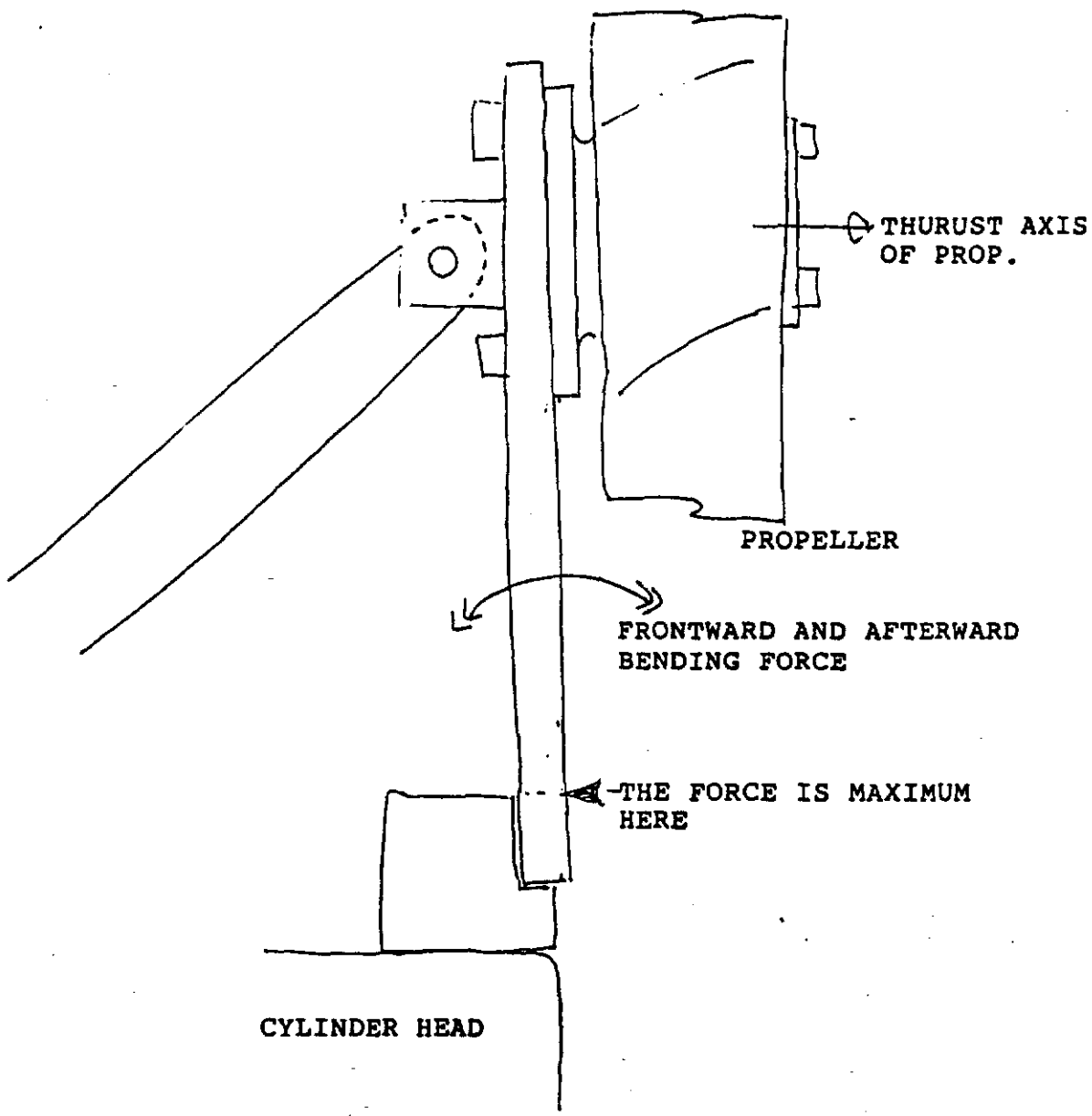
bei 2: max. seitl. Gesamtspiel o.5 mm
at 2: max. total lateral play 0.5 mm



SKY SPORTS ASSOCIATION OF TAKIKAWA
2-1,3-chome,Ninosaka-cho,Takikawa-shi, Hokkaido 073,JAPAN

SATA

COPY



Side view

JANMS CM

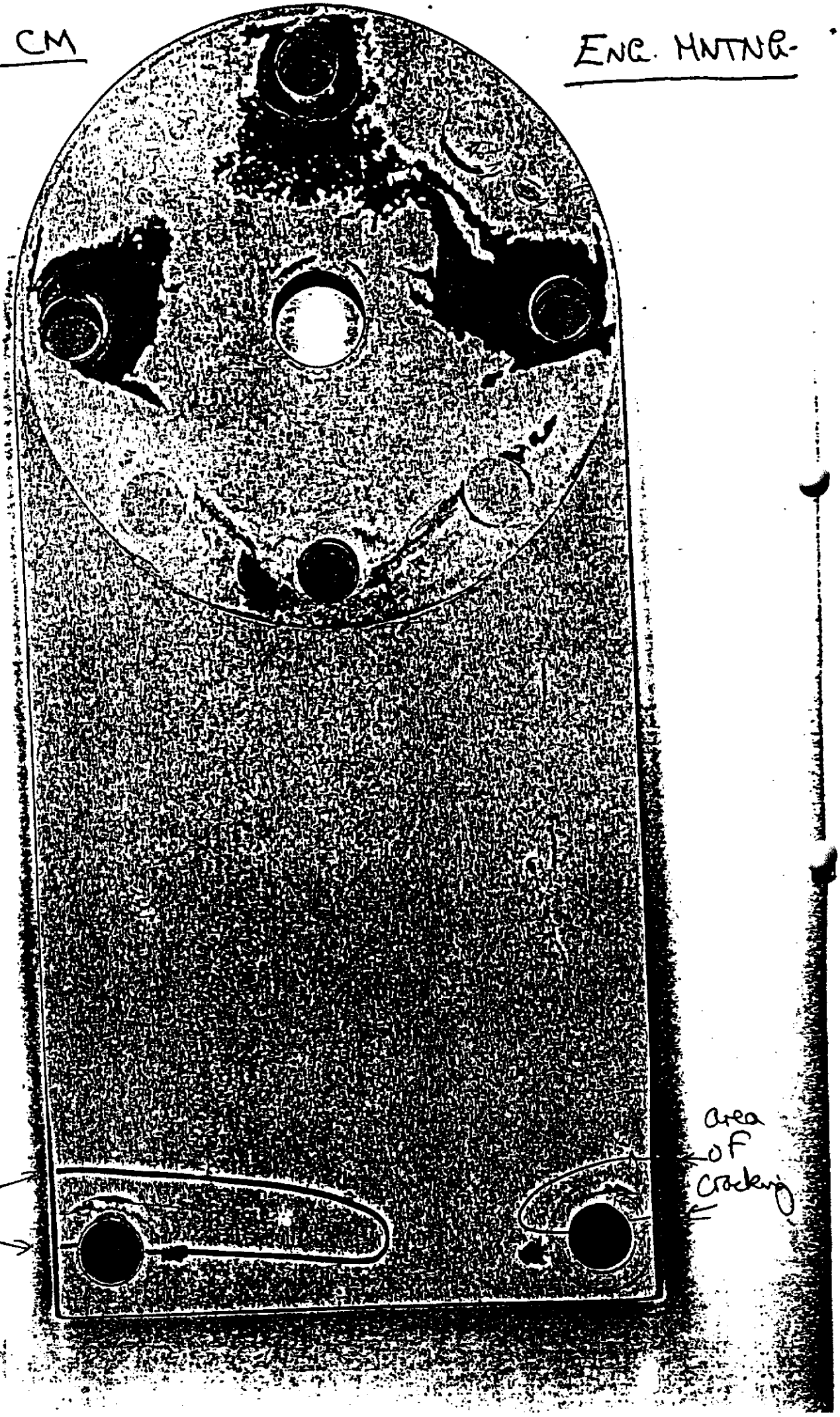
ENG. MNTNG

CRACKED

GLIDING SCHOOL, GLIDING CLUB, GLIDING INSTITUTE
TEL 0125-24-3255 FAX 0125-23-3777

JANUS CM

ENG. HNTNR-



No: 4/91 **Ref: EW/G91/02/01** **Category: 1c**

CARB-ICING-CUB!!

Aircraft Type and Registration:	Piper PA-18-150, G-AVPT
No & Type of Engines:	1 Lycoming O-320-A2B piston engine
Year of Manufacture:	1967
Date and Time (UTC):	10 February 1991 at 1145 hrs
Location:	Headcorn Aerodrome, Kent
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - 1
Injuries:	Crew - None Passengers - Minor
Nature of Damage:	Substantial
Commander's Licence:	Private Pilot's Licence with IMC, Night and Assistant Instructor ratings
Commander's Age:	48 years
Commander's Total Flying Experience:	949 hours (of which 208 were on type)
Information Source:	Aircraft Accident Report Form submitted by the pilot and telephone inquiries by AAIB Inspector

The accident occurred shortly after take-off from runway 29 at Headcorn Aerodrome.

At about 300 ft in the climb, after a normal take-off, the pilot re-trimmed and reduced power. Almost immediately, and without warning, the engine lost power completely and the pilot began a glide towards a field situated to the north west of the airfield. This field had overhead power wires on the approach and was smaller than the pilot would otherwise have chosen, but was the only field which he considered viable. The pilot checked the engine switches, in case he had disturbed them whilst re-trimming, and changed fuel tanks but the engine did not respond. When about 100 m short of the field, the aircraft began to 'sink' and the pilot elected to fly under the wires and through a hedge, rather than attempting to clear the wires. The aircraft touched-down and stopped within its own length, incurring considerable structural disruption. With fuel spilling into the cockpit, the occupants found that the door could not be opened but were able to vacate the aircraft successfully through the roof and cabin window.

Before the flight, both fuel tanks had been filled and a contamination check carried out. The pilot reported that the air temperature was -3°C. Meteorological data from Crawley, for 1200 hrs UTC on the

day of the accident, indicated that the relative humidity was 89% from ground level to 500 ft. Although snow was present on the ground at the time of the accident, no snow was falling when the aircraft took-off.

The aircraft and engine were examined after the accident by engineering personnel, who found that the spark-plugs did not show any signs of prolonged over-rich running. There was an ample fuel flow rate from each tank but because of disruption of the wing attachments a full check of the fuel system was not possible. The fuel strainer bowl was full of fuel and the filter element clean, but fuel was not abundantly evident in the carburettor. At the present time, no material explanation for the engine failure has been found.

At a temperature of -3°C and with 89% humidity, carburettor icing will almost certainly occur at both glide and cruise power settings, with a possibility of serious icing even at cruise power. However, the pilot stated that he made considerable use of carburettor heat during engine warm-up and whilst taxiing, and did not notice any symptoms of carburettor icing.

10. WAXING OF OIL IN TWO STROKE ENGINES

P/E

Aircraft Type : All with Two Stroke Engines
Date : February 1991

As a results of problems experienced during the unusually cold weather this winter, the Manufacturer of a UK Microlight has asked us to warn the operators of all aircraft fitted with two stroke engines to note the following:

"You MUST NOT mix synthetic and mineral oil as it appears that a waxy substance is formed particularly in cold weather. This will NOT dissolve until heated to a high temperature.

Always use the Engine Manufacturers recommended oils. The problem has been reported on certain weight-shift microlight aircraft fitted with Rotax engines and on the Konig engine in the Chevron. If you have in the past mixed these oils, flush the system with neat fuel before filling the system with the correct fuel/oil mixture."

CAA Comment

Although winter is over, this problem could affect anyone who plans to fly in a colder part of the world, or who plans to fly at high altitude, don't forget the temperature drops by approximately 2°C per 1000 ft, and the fuel line is generally out in the fresh air.

SERVICE BULLETIN NO. E 1 M

dated 04/17/1991

replaces S.B. No. E 1 L, dated 03.01.1990
The German Issue of this S.B. is LBA approved

Product affected: HOFFMANN variable pitch propellers, all models
A/C affected : A/C using HOFFMANN variable pitch propellers
Compliance : effective date of this Bulletin

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TBO OF HOFFMANN VARIABLE PITCH PROPELLERS

1) Discussion:

The purpose of S.B. No. 1 is to list the TBO of HOFFMANN variable pitch propellers. This Service Bulletin will be reissued as necessary in accordance with TBO progression and experience.

2) Required Action:

The TBO of propellers listed under 5) is valid only:

a) if the propeller is approved together with the aircraft and is listed in the Type Certificate Data Sheet or equivalent of the aircraft.

b) If the propeller Log Card and/or Inspection Certificate shows no other times.

3) Overhaul is required prior to accumulation of service hours as listed under 5)

a) always if ground strike, impact, overspeed or any malfunction, leakage, corrosion, cracks in metal parts or necessary compliance with Service Bulletins or any other reason of serious consideration require overhaul

b) together with engine overhaul, if propeller and engine service time are equal or earlier, as listed below,

c) after 5 years since installation on the craft or after expiration of the storage period. The calender time can be extended over 5 years to coincide with the aircraft's annual inspection, if no Service Bulletins or other Technical Information have been issued for the proppeller model. A total of 6 years must not be exceeded. Please refer to para 6) for calendar limits and long term storage.

....2

d) ALL MODELS NOT LISTED UNDER 5) are limited to

max. 200 hours or per 3) a) thru c)

whichever occures first, if not otherwise stated in the propeller Log Card and/or inspection certificate. They must be shipped to the factory for special inspection. If not practical, contact us for approved repair station, having our permission.

e) ALL MODELS USED IN COMPETITION ACROBATICS are limited to

max. 500 hours

If the specific installation listed under 5) shows a lower time, this lower time applies.

TBO is as specified in category 5), provided less than 400 hours are acrobatic.

The TBO is 500 hours if all hours are acrobatic.

The TBO is reached when 400 acrobatic hours have accumulated and total time is less than times specified in category 5).

W A R N I N G

Acrobatic manoeuvres can produce excessive loads, which can result in overstress and/or abnormal wear, shorten the service life. Inspection intensity and close inspection-intervals as well as overhaul periods therefore have to be established by the operator.

f) If service time or caleder time of a propeller are unknown, it must be overhauled prior to its return to service.

4) Required Records:

a) Service hours and all repairs, modifications, overhauls as well as installation to and removal from the A/C are to be listed in the propeller log book or log card. Log book or log card shall be kept together with the A/C and they shall be attached to the propeller if it is removed from the A/C.

b) The TBO listed in this Service Bulletin shall be recorded in the A/C log book.

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5) Table of Propeller/Engine Combinations:

Hub model	basic blade model	Engine Model	TBO hours	LBA Appr.
HO-V 12*)			250*	
HO-V 42/48-( )-( )	all models	Hirth F10 ( )	300	x
HO-V 42/48-( )-( )-R	all models	Hirth F10 ( )	200	x
		Rectimo 4AR1200	200	x
HO-V 62 ( )	170 Y	TCM/RR O-200-( )	200	
HO-V 62 ( )	all models	SL 1700-( )	1000	x
HO-V 62 ( )	L 160 BT	L 2000-( )	1000	x
	L 160 T		600**	x
HO-V 62 ( )	L 160 BT	Grob 2500 ( )	1200	x
HO-V 72 ( )	all models	Lyc. ( )O-320-( )	750	x
HO-V 92 ( )	195 C	Cont. ( )O-470-( )	1200	x
HO-V 113 ( )	LD 150 +2A	Lyc. O-235 (Speed Canard)	400	x
HO-V 123 ( )	185 V	Franklin 6A350-C1	600	x
HO-V 123 ( )	all models	Avco-Lycoming, Porsche, TCM	1200	x
HO-V 155	137 CL	Porsche 930-67	1500	
	137 BC	Porsche 930-03	1500	
HO-V 245	LD 120 CM	Allison	500	x
HO-V 254	D 275 CS-PIA	Deutz Diesel	1200	
	D 275 DE-PIA	Deutz Diesel	1200	Canada
HO-E 292	292 DV	BMW 132A3	300	
DOWTY	328 BQ	various	700	
	L 318 DA	various	700	
	335 EA	various	700	
ALL MODELS NOT LISTED HEREIN, SEE 3) d)			200	

*) This model is obsolete and is not being overhauled any longer.
**) Limited due to S.B. No. 4 C according to LTA No. 83-150/4.

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6) Calendar limits and long term storage

The effects of exposure to the environment over a period of time create a need for propeller overhaul regardless of flight time. Therefore, a five year calendar limit between overhauls is specified in para 3c).

Start date for calendar limit is when propeller is first installed on an engine, calendar limit is not interrupted by subsequent removal and/or storage.

Note: Start date for calendar limit should not be confused with warranty start date (which, with certain exceptions, is normally the date of sale to the first retail customer).

Experience has shown that special care, such as keeping an aircraft hangared, is not sufficient to allow extension of the five year calendar limit.

Prior to initial installation, propellers are occasionally stored for long periods.

CAUTION

The propeller should be stored in the original packing in a dry room with no extreme temperature changes. Do NOT store the propeller standing on the tips.

The following long term storage procedures apply to propellers prior to installation with 0 hours since new or overhaul.

A) If storage period is less than two (2) years:

1. Make a general visual inspection of its condition. As necessary, investigate and correct any questionable conditions.

2. Check current LBA LTA's, Hoffmann Service Bulletins and Hoffmann Technical Information. There may be documents issued since manufacture or overhaul which require compliance.

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B) If storage exceeds two (2) years comply with above requirements and in addition:

1. Inspect internally/externally for damage or corrosion. Paint and plating need not be removed. Total disassembly is not necessary unless corrosion or damage warrants. Replace parts as necessary.

2. Replace all seals and gaskets.

3. Replace the lubricant according to the applicable overhaul manual.

4. If applicable, test the de-ice system, including boots, ensure boots are still acceptable bonded with no sign of blistering or peeling.

5. Repaint and/or replate components as required.

6. After accomplishing required procedures, the propeller may be released for full TBO and calendar live.

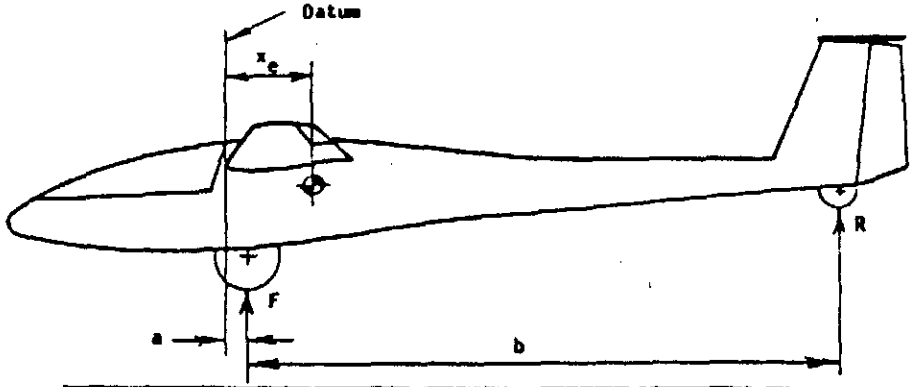
Note: The above steps must be accomplished by a Hoffmann approved propeller repair station in accordance with the applicable Hoffmann overhaul manual.

HOFFMANN PROPELLER ROSENHEIM

LBA No. I-EC 2, No. I-C 14

The German edition of this Service Bulletin is LBA approved

RECORD OF WEIGHING : SINGLE SEATER OR SIDE-BY-SIDE TWO-SEATER : ENGLISH UNITS



EMPTY MASS

Front Support:		**Rear Support:**	
Reading F_1	lb	Reading R_1	lb
Zero F_2	lb	Zero R_2	lb
$F = F_1 - F_2$ =	lb	$R = R_1 - R_2$ =	lb
Empty mass $E = F + R$ =		+ =	lb

EMPTY C.G. POSITION

Front support aft of datum, a in
Front support to rear support, b in

$x_e = (b \times R/E) + a$ = (x /) +
= + = in aft of datum

If the distance of the front support is 'a' inches forward of datum, the above formula becomes

$x_e = (b \times R/E) - a$

* From C. of A. or Flight Manual

COCKPIT LOADS : DATA FOR CALCULATIONS

			Notes
Max. all-up mass (without water ballast)*,	W_o	lb	(i)
Max. mass of non-lifting parts*,	W_{NL}	lb	(ii)
Empty mass	E	lb	
Empty mass of non-lifting parts	E_{NL}	lb	(ii)
Forward CG limit, * + ve aft of datum	x_f	in	
Aft CG limit,* + ve aft of datum	x_a	in	
CG of cockpit load*, + ve fwd of datum	x_p	in	
Empty CG, + ve aft of datum	x_e	in	

MAX COCKPIT LOAD

By total mass, $P_1 = W_o - E$ = − = lb

By max. mass of non-lifting parts,
$P_2 = W_{NL} - E_{NL}$ = - = lb

By CG, $P_3 = E \times (x_e - x_f)/(x_p + x_f)$
= E x (-)/(+)
= x / = lb

Max. load = least of P_1, P_2 and P_3 = lb

MIN COCKPIT LOAD

By CG, $P_{min} = E \times (x_e - x_a)/(x_p + x_a)$
E x (-)/(+)
= x / = lb

Notes: (i) For older types of gliders, only W_o will be stated. If so, ignore the calculation of P_2.
(ii) For more recent types W_{NL} and/or W_o will be stated. If so, find P_2 and/or P_1. To find P_2, E_{NL} must be found. E_{NL} = empty weight of all parts other than the wings. Either weigh these parts directly, or weigh the wings (W_W) and find $E_{NL} = E - W_W$.
If only W_{NL} is stated ignore the calculation of P_1.

WATER BALLAST

Max and min cockpit loads are as calculated above.

Max all-up mass with water ballast*, W_1	lb
Max water ballast capacity*, C_{WB1}	lb
Max water ballast with min cockpit load, $C_{WB2} = W_1 - E - P_{min}$ = - - =	lb
Max permitted water ballast = lesser of C_{WB1} and C_{WB2} =	lb

For permitted water ballast with cockpit loads greater than P_{min}, see the flight manual

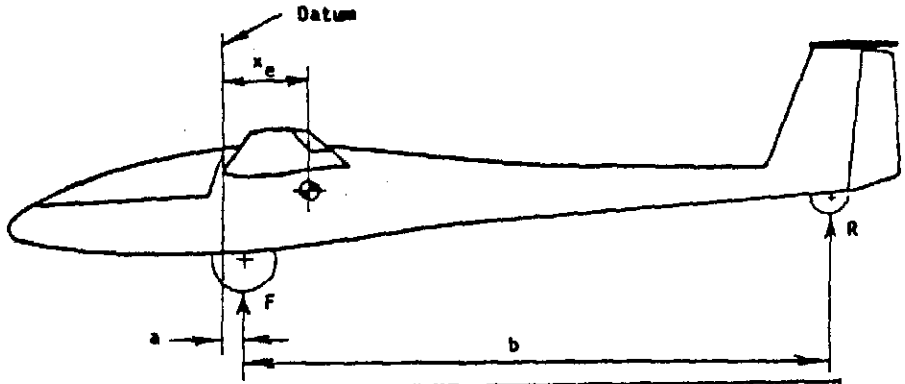
Glider Type: Signature:

BGA No.: BGA Insp. No:

Inspector's Name: Date:

NOTE: If the results of this weighing [illegible] significantly different from those of the previ[illegible]eighing, please provide an explanation.

RECORD OF WEIGHING : SINGLE SEATER OR SIDE-BY-SIDE TWO-SEATER : METRIC UNITS



EMPTY MASS

Front Support:		Rear Support:	
Reading F_1	kg	Reading R_1	kg
Zero F_2	kg	Zero R_2	kg
$F = F_1 - F_2$ =	kg	$R = R_1 - R_2$ =	kg
Empty mass $E = F + R$ =		+ =	kg

EMPTY C.G. POSITION

Front support aft of datum, a mm

Front support to rear support, b mm

$x_e = (b \times R/E) + a$ = (x /) +

= + = mm aft of datum

If the distance of the front support is 'a' mm forward of datum, the above formula becomes

$x_e = (b \times R/E) - a$

* From C. of A. or Flight Manual

COCKPIT LOADS : DATA FOR CALCULATIONS

			Notes
Max. all-up mass (without water ballast)*,	W_o	kg	(i)
Max. mass of non-lifting parts*,	W_{NL}	kg	(ii)
Empty mass	E	kg	
Empty mass of non-lifting parts	E_{NL}	kg	(ii)
Forward CG limit, * + ve aft of datum	x_f	mm	
Aft CG limit,* + ve aft of datum	x_a	mm	
CG of cockpit load*, + ve fwd of datum	x_p	mm	
Empty CG, + ve aft of datum	x_e	mm	

MAX COCKPIT LOAD

By total mass, $P_1 = W_o - E$ = - = kg

By max. mass of non-lifting parts,

$P_2 = W_{NL} - E_{NL}$ = - = kg

By CG, $P_3 = E \times (x_e - x_f)/(x_p + x_f)$

= E x (-)/(+)

= x / = kg

Max. load = least of P_1, P_2 and P_3 = kg

MIN COCKPIT LOAD

By CG, $P_{min} = E \times (x_e - x_a)/(x_p + x_a)$

E x (-)/(+)

= x / = kg

Notes: (i) For older types of gliders, only W_o will be stated. If so, ignore the calculation of P_2.

(ii) For more recent types W_{NL} and/or W_o will be stated. If so, find P_2 and/or P_1. To find P_2, E_{NL} must be found. E_{NL} = empty weight of all parts other than the wings. Either weigh these parts directly, or weigh the wings (W_W) and find $E_{NL} = E - W_W$.
If only W_{NL} is stated ignore the calculation of P_1.

WATER BALLAST

Max and min cockpit loads are as calculated above.

Max all-up mass with water ballast*, W_1 kg

Max water ballast capacity*, C_{WB1} kg

Max water ballast with min cockpit load, $C_{WB2} = W_1 - E - P_{min}$

= - - = kg

Max permitted water ballast = lesser of C_{WB1} and C_{WB2} = kg

For permitted water ballast with cockpit loads greater than P_{min}, see the flight manual

Glider Type: Signature:

BGA No.: BGA Insp. No:

Inspector's Name: Date:

NOTE: If the results of this weighing are significantly different from those of the previous weighing, please provide an explanation.

B.G.A. WINCH/AUTO TOW WEAK LINKS

Revised JUNE 1991 From TOST DATA SHEET 2/4/90 With Ammendment As Authorised By B.G.A.*

	NOT EXCEEDING KP			NOT EXCEEDING KP	
ASTIR (s) Single	500	No.5	Eagle	600	No.4
TWIN ASTIR	845	No.3	EON. PRIMARY	500	No.
ASH 25	900	No.2.	EON. BABY	600	No.4
ASK 14	830	No.3	ELF.S.2.	540	No.5
ASK 15	500	No.5	Falcon	500	No.5*
ASK 17	600	No.4	Fauvel	500*	No.5
ASK 19	600	No.4			
ASK 20	600	No.4	FOKA 3/4/5	720	No.4
ASK 21	1000	No.1	Geier II	765	No.3
ASK 22	900	No.2	Glasflugel 604	850	No.2
ASK 23	680	No.4	Goevier III	1030	No.1
ASK 24	600	No.4	Grunau /5	540	No.4
AV.36	600	No.4	Gull 1/3/4	500	No.5
Austria Std.	670	No.4	Harbinger	500	No.5*
BergFalke 2	970	No.2	Hornet	500	No.5
BergFalke 3	1070	No.1	Hutter 17	500	No.5
BergFalke 4	750	No.3*	Iris (D77)	500*	No.5
Bijave (WA30)	600*	No.4	IS.28B2	600	No.4
Blanik	630	No.4	IS.29/30/32	500	No.5
Bocians	1000	No.1	Jantor Std	530	No.5
Breguet 905	600	No.4	Jantar 2	600	No.4
BG. 135	600	No.4	Jantar 3	600	No.4
Cadet Mk1 & 2	500	No.5	Janus B	600	No.4
Cadet Mk3 (T31)	500	No.5	Janus C	750	No.3
Caproni A21	600	No.4	Jaskolka	500*	No.5
Capstan	600*	No.4	Javelot	500*	No.5
Carman JP15	600	No.5	Junior	500	No.5
Centrair 101 (Pegasus)	500	No.5	JP 36A	500*	No.5
Cirrus	860	No.2	KA 1 & 3	450	No.6
Cirrus (Std)	500	No.5	KA 2	600	No.4
Cumulus	540	No.5	KA 4	900	No.2
Cobra	600	No.4	KA 6	650	No.4
Condor	1000	No.1	KA 7	1080	No.1
			KA 8	668	No.4
Dart 15/17/	500	No.5	KA 18	668	No.4
Delphin	700	No.4	KA13	1080	No.1
Diamant 16.5/18	935	No.2	Kestrel 17/19	630	No.4
Discus	650	No.4	Kite 1.2B	500*	No.5
DG 100/200/	500	No.5	Kranich II/III	960	No.2
DG 400	500	No.5	Kranjanek	500*	No.5
DG 300/600	680	No.4	LAK 12	600*	No.4
Doppleraab	800	No.3	Libelle (201)	500	No.5
			Libelle H.301	670	No.4

	NOT EXCEEDING KP	
LS 1	500	No.5
LS 3	600	No.4
LS 4	600	No.4
LS 6	600	No.4
LS 7	600	No.4
LO-100	650	No.4
M 100	500*	No.5
M 200	600*	No.4
Meise	670	No.4
MG 19A	950	No.2
Mosquito	650	No.4
Moswey	650	No.4
Minimoa	500	No.5
Mucha Std.	820	No.3
MU 13	535	No.5
Nimbus 2	600	No.4
Nimbus 3	750	No.3
Nimbus 3.24 &3D	1040	No.1
Nimbus - Mini	600	No.4
Olympia 1&2	500*	No.5
Olympia 460/463	500*	No.5
Olympia 419	600*	No.4
Peak 100	600*	No.4
Petrel	500*	No.5
Phoebus (all)	1000	No.1
PIK 20E	600	No.4
PIK 16/20	530	No.5
Pilatus B4	500	No.5
Pirat	600*	No.4
Prefect	500*	No.5
Puchatz	600	No.4
Rheinland	500*	No.5
Rhonlander 2	500*	No.5
Rhonlerche 2	900	No.2
Rhonsperber	500*	No.5
Sagitta	600*	No.4
SB.5	600*	No.4
SF.26	650	No.4
SF.27A	**750**	**No.3**
SF.34	600	No.4
S.G.38	300	No.7
SHK	700	No.4
SIE 3	700	No.4
Silene (E.78)	600*	No.4
Sky	**500**	**No.5**
Skylark 1.2.3.4.	**500**	**No.5**
Spatz	520	No.5
Sperber	1030	No.1
Suid III	500	No.5
Swallow	**500**	**NO.5**
Swift	**500**	**No.5**

	NOT EXCEEDING KP	
T.21	500*	No.5
T.31	500*	No.5
T.53/YS53	750*	No.3
Torva	500*	No.5
Tutor	500*	No.5
Vega	600	No.4
Ventus	650	No.4
Viking (V.G.C.)	500*	No.5
Wassamer WA26	500*	No.5
Weihe	670	No.4
Zugvogel 1.2.	720	No.4
Zugvogel 3.	742	No.4
Zugvogel 4	690	No.4

TOST COLOUR CODING

Black No.1	1000 daN	= 2200 lbs
Brown No.2	850	= 1870 lbs
Red No.3	750	= 1650 lbs
Blue No.4	600	= 1320 lbs
White No.5	500	= 1100 lbs

N.B. If in doubt:

Tost apply a factor of 1.3 x Max all up weight of glider to determine Weak Link Strength for winch/autotow.

DATA FROM TOST Kindly Supplied to BGA By Chiltern Sailplanes Ltd, Booker Airfield, Marlow, Bucks. SL7 3DR. 0494-445854

TNS 5/6/91 Issue 4 **Amendments as indicated in BOLD.**

JUNE 1991

General Aviation Safety Information Leaflet

GASIL

The Monthly CAA Accident Prevention Leaflet

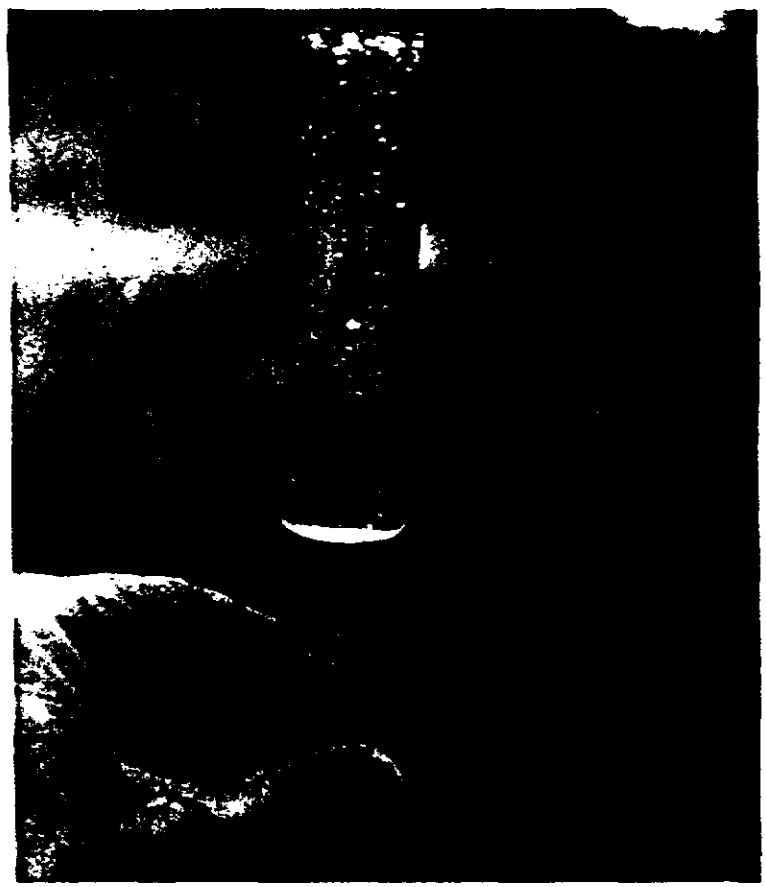
May 1991 5/91

1. CONTAMINATED FUEL

P/E

Aircraft type : Gulfstream American AA5B
Date : January 1991

After a successful training flight, the aircraft was taxied to the fuel pump and 105 litres of fuel was uplifted. The aircraft was re-started to return to the parking area, but after approximately 20 seconds the engine stopped. After investigation, the fuel was found to be contaminated with water in both fuel tanks with most of the uplift consisting of water.



CAA Comments

This incident highlights the importance of carrying out daily quality control checks on aviation fuel supplies before dispensing fuel for use in aircraft. In this case, it appears that an underground AVGAS tank failed over an unknown period of time allowing a considerable amount of water into the bulk tank. This problem was not detected by periodically checking the bottom of the tank by sounding rod and paste technique.

The above incident emphasises the requirement for fuel installation operators to conduct DAILY checks of fuel supplies which are in use. These checks should include tank bottom sampling for free water at the beginning of each day that fuel is dispensed in aircraft. CAP434 'Aviation Fuel at Aerodromes' provides advice and guidance.

Furthermore, although many pilots may consider the pre-flight task of taking fuel samples from the fuel tanks of their aircraft as an unnecessary inconvenience, the above shows that rain is not the only source of water contamination in fuel tanks.

Inside: