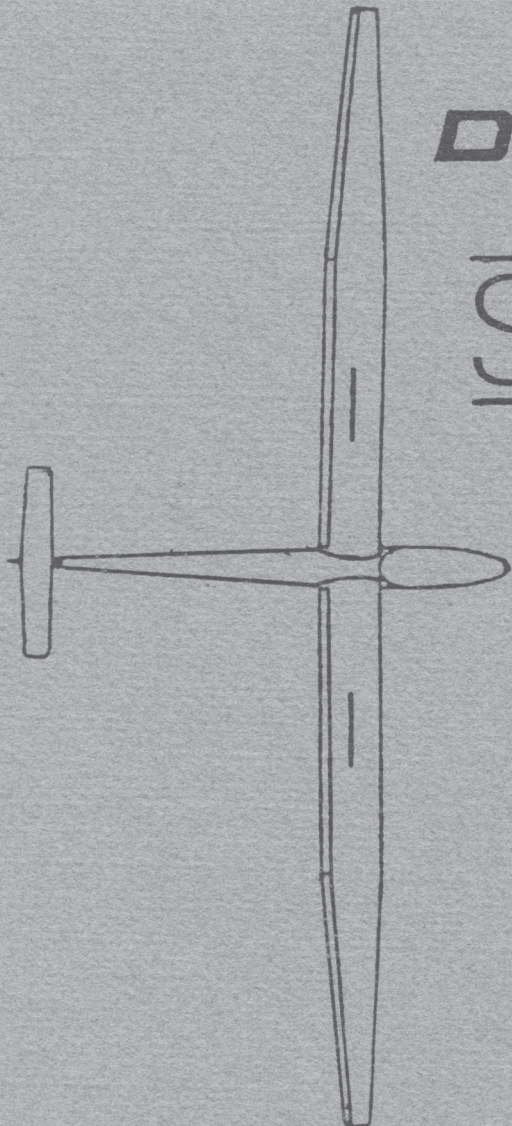


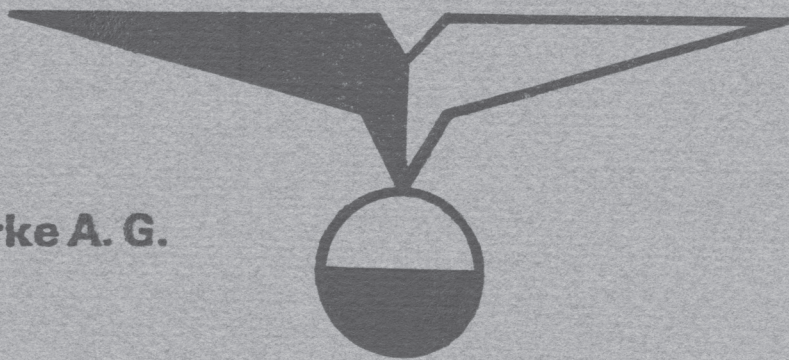
DIAMANT

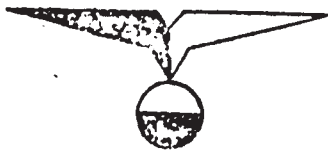
SERVICE

BULLETINS



**Flug- u. Fahrzeugwerke A. G.
Altenrhein**





Flug- und Fahrzeugwerke A.O.

Altenrhein (Schweiz)

S E R V I C E - B U L L E T I N

O B L I G A T O R Y

approved by L + A

DIAMANT

Bulletin No. 1...

Issue... 1.....

Date... 15.5.1970..

Part : Horizontal tail

Ref. : DIAMANT HBV

DIAMANT 16,5

DIAMANT 18

} all work numbers

Date of performance : immediatly after receiving this Service-Bulletin and after every hard landing.

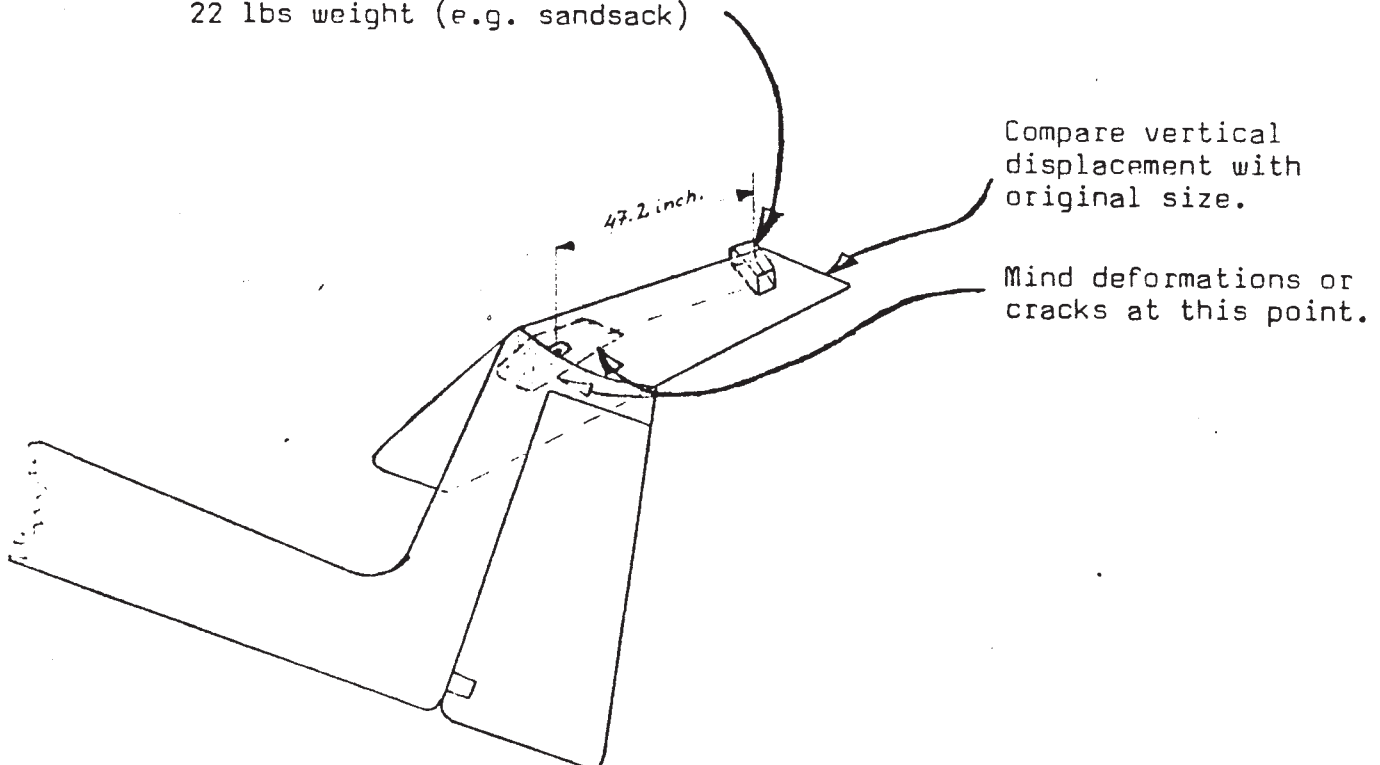
Reason : By violent turn landing damage occured on the inside web of the horizontal tail which is recognizable in a strike softness of the horizontal tail.

Inspection to be taken :

In a distance of 47.2 inch. (1200 mm) from the center the horiz. tail shall be loaded with 22 + 33 lbs (10 + 15 kp). The skin of the empennage in the area of the mounting is to be inspected for detached points and also for deformations and cracks.

Further, the vertical displacement of the empennage leading edge shall be mind.

22 lbs weight (e.g. sandsack)



If there is any damage on the empennage it has to be send immediatly to the nearest workshop or to FFA for repair.

Performance : The repair has to be done by a workshop or by FFA (Flug-
und Fahrzeugwerke AG, Altenrhein).

Necessary material : depends on the damage.

Material is on hand by workshops or FFA.

Influence to the weight : no

Influence to the center of gravity : no

Exposed by :



The Service-Bulletin has to be enclosed in the technical documents and the performance must be attested in the maintenance reports of the concerned sailplane!



Flug- und Fahrzeugwerke A.G.
Altenrhein (Schweiz)

S E R V I C E -- B U L L E T I N
O B L I G A T O R Y
approved by L + A

DIAMANT
Bulletin No. 2.....
Issue ..1.....
Date ..15.5.1970...

Part : Vertical tail

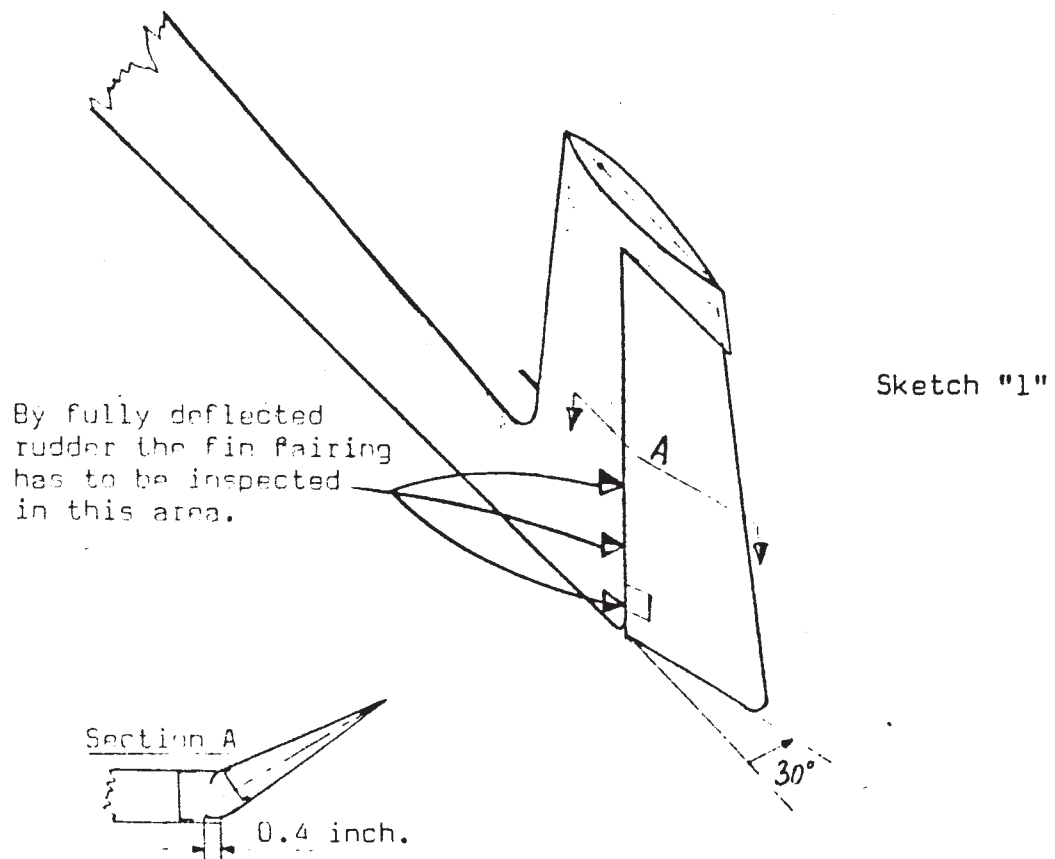
Ref.: DIAMANT HBV all work numbers
 DIAMANT 16,5 } work numbers from 011 to 069
 DIAMANT 18 } except 030, 031, 036, 058, 067, 068.

Date of performance : immediatly after receiving this Service - Bulletin.

Reason : By fitting on the rudder of the vertical empennage some of the left fin hinge fairing were cut very small, so that a simultaneous pressure on the fairing and an extreme rudder position can result in their jamming.

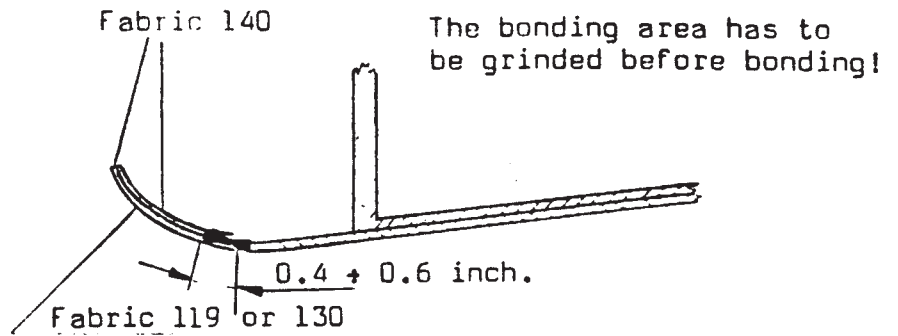
Inspection to be taken :

The rudder shall be fully deflected to the right, so that the left fin fairing can be inspected in accordance to the sketch "1".



If the covering is smaller than 0.4 inches (10 mm) the rudder nose has to be lengthened with 3 strips of fiberglass as shown in sketch "2". The bonding area has to be grinded before bonding.

Sketch "2"



Performance : The repair has to be done by a skilled worker for fiberglass material.

Necessary material : fabric 140

 fabric 119 or 130

 resin Araldit LY 560 100 unit of weight

 hardener HY 560 25 unit of weight

or

 resin Araldit LY 554 100 unit of weight

 hardener HY 956 20 unit of weight

Influence to the weight : can be neglected

Influence to the center of gravity : can be neglected

Exposed by :

The Service-Bulletin has to be enclosed in the technical documents and the performance must be attested in the maintenance reports of the concerned sailplane!



TELEX 77 230 FFA ALTENRHEIN
POSTCHECK-KONTO 90-1759

9422 STAAD SG / SCHWEIZ
TELEFON 071 / 41 41 41
TELEGP ADR FFA RORSCHACH

To all
DIAMANT owners and dealers

V/ZEICHEN

V/NACHRICHT VOM

V/ZEICHEN AE/Jo/gk DATUM

SACHBEARBEITER INT TEL 354/Jost

BETRIFFT DIAMANT Service Bulletin Nr. 3

We have experienced failure at the thread bolt of the unibal connector at the end of the elevator push rod in the fuselage.

Enclosed is the Service Bulletin No. 3, approved by the Swiss Air Office. We kindly ask you to study the Service Bulletin and to check your glider.

Please add this Bulletin to the Technical Documents of your ship.

Yours faithfully,

FLUG- & FAHRZEUGWERKE AG
ALTENRHEIN

Encl.:

Service Bulletin No 3

FLUG- & FAHRZEUGWERKE A.G.

Telefon Nr. (071) 41 41 41
Telegramm-Adresse: FFA Rorschach
Telex: 77230 ffa altonrhein
Postcheck-Konto: Nr. 90 - 1759



Banken: Schweizerische Nationalbank, St.Gallen
St.Gallische Kantonalbank, Filiale Rorschach
Schweiz. Bankgesellschaft, Filiale Rorschach

ALTENRHEIN / Post: 9422 STAAD bei Rorschach

To all DIAMANT owners

ll. Zeichen

Ihre Nachricht vom

Unser Zeichen
221/jf

Tag
3rd December, 1968

Betrifft: Unscrewing of the elevator push rod in the fin during road transportation

We wish to draw the attention of all DIAMANT owners to the fact that during road transportation the lower portion of the vertical elevator push rod and/or the upper hook may become completely unscrewed although counter nuts have been used.

We therefore recommend to check on the proper tightness of the screws before rigging the elevator plane by trying to turn the push rod at the hook end. After about 20° a clear stop should be felt and no further turning should be possible.

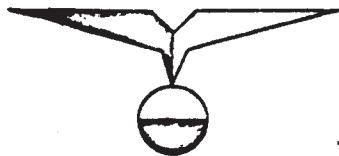
We further recommend to secure the hook at the end of the push rod by means of an elastic or better adhesive tape to keep the push rod from moving during road transportation.

If any of you have also experienced this situation we ask for notification so that we may take action against it.

FLUG- & FAHRZEUGWERKE AG

ALTENRHEIN

[Handwritten signature]



Flug- und Fahrzeugwerke A.G.
Aitenrhein (Schweiz)

S E R V I C E - B U L L E T I N
C O M P U L S O R Y

Approved by the Swiss Federal Air Office

D I A M A N T
Bulletin No. ...3..
Issue1..
Date 22-2-1973.

Part : Bearing rod ends of the elevator pushrod

Ref. : DIAMANT HBV }
DIAMANT 16.5 } all serial numbers
DIAMANT 18 }

Compliance: immediately after receipt of this Service Bulletin and after every adjustment of the elevator pushrods in the fuselage.

Reason: We have experienced a failure of the threaded end of the bearing rod end at the end of the elevator pushrod in the fuselage where the pushrod is connected to the bellcrank at the base of the fin.

Due to improper adjustment of the elevator pushrods in the fuselage, the position of the bellcrank lever was such that the fork of the bellcrank touched the threaded end or the threaded bushing in the fully pulled position. The threaded end was deformed and eventually failed.

Required action:

Check if the driving lever of the bellcrank lever is in vertical position when the stick is in neutral position. The driving lever should attain the full travel as indicated on the attached drawing.

If the travel has to be adjusted, proceed as mentioned in the REPAIR MANUAL, Section 8.5.

After each adjustment, the elevator travel has to be checked as mentioned in the FLIGHT- AND MAINTENANCE MANUAL, Section 5: RIGGING SPECIFICATIONS, item 1.

Check threaded ends for deformation and indentations and ensure that they are screwed in far enough and all lock nuts are tight and lock washers installed as required.

For the above mentioned check the rudder has to be removed as follows:

1. Push rudder to the right travel stop, so that the hinge bolt is visible through the opening on the left side of the rudder.
2. Remove bolt at the end of the push rod (bolt with nut).
3. Remove hinge bolt.
4. Remove rudder from the bearing block by pulling the rudder backwards. As soon as the rudder is clear of the bearing block pull the rudder downwards to remove it from the upper hinge.

HOEHENSTEUERUMLENKHEBEL
ELEVATOR BELLCRANK

← Flugrichtung
Forward

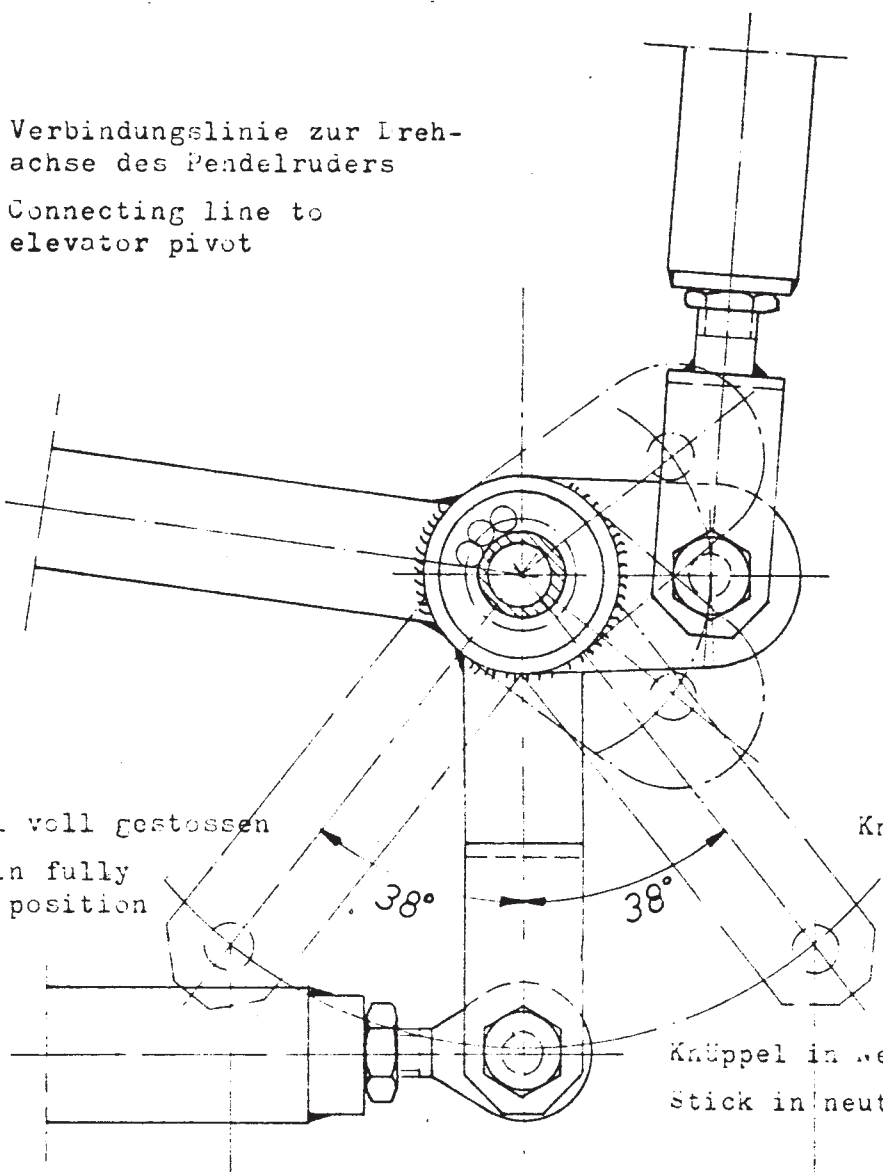
Verbindungsline zur Dreh-
achse des Pendelruders
Connecting line to
elevator pivot

Knüppel voll gestossen
Stick in fully
pushed position

Knüppel voll gezogen
Stick in fully
pulled position

Knüppel in Neutralstellung
Stick in neutral position

39 mm 1,535 in 39 mm 1,535 in



For the installation reverse this procedure.

Manpower: The check can be carried out by the DIAMANT owners themselves, but it has to be entered in the maintenance reports.

Issued by:

P. Jost

(P. Jost)

The Service Bulletin has to be added to the Technical Documents and compliance must be recorded in the maintenance reports of the sailplane concerned.

FFA FLUG- UND FAHRZEUGWERKE AG



ALTENRHEIN

TELEX 77 230 FFA ALTENRHEIN
POSTCHECK-KONTO 90-1759

9422 STAAD SG / SCHWEIZ
TELEFON 071 / 41 41 41
TELEGR ADR FFA PORSCHACH

To all
DIAMANT Owners and Dealers

V/ZEICHEN

V/NACHRICHT VOM

V/ZEICHEN FS/sj

DATUM January 22, 1974

SACHBEARBEITER INT. TEL

415 / Guggiari

BETRIFFT DIAMANT Bulletin No. 4

The stick control of one DIAMANT sailplane had too much play.

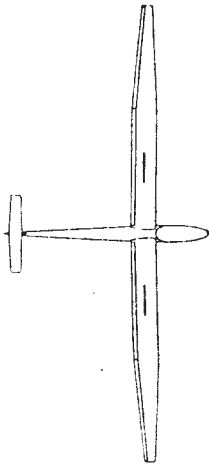
Enclosed is the Service Bulletin No. 4 approved by the Swiss Federal Air Office. We kindly ask you to study the Service Bulletin and to check your glider.

Please add this Bulletin to the Technical Documents of your DIAMANT.

FLUG- & FAHRZEUGWERKE AG
ALTENRHEIN

i.v. Stefan Guggiari

Encl. Service Bulletin No. 4

SERVICE BULLETIN

DATE : 11-12-1973
SUBJECT : Stick control
MODELS AFFECTED : DIAMANT 16.5 } all serial numbers
DIAMANT 18 }
COMPLIANCE : See required action below

Reason : The stick control of one DIAMANT sailplane had too much play. The result of an exact investigation was showing wear of the stick bearing in the torsion tube.

Required action :

1. Inspect stick control for excessive play immediately after receipt of this Service Bulletin.
2. If the stick bearing shows normal play the inspection must be repeated every 50 flight hours.
3. If the stick bearing shows play accomplish the modification in accordance with para 4 before the next flight.
4. Modification:
The present two holes in the torsion tube D1.203-0103 must be drilled and reamed to the diameter of 12-H7 ($12 + 8,018$ mm).
According to the attached drawing, two bushings SK 2521 have to be bonded into the torsion tube. Due to the new dimension of the bearing depth, the pivot bolt D1.203-0106 must be replaced by a new bolt SK 2520.
5. The inspections according to para 2 are no longer necessary if modification has been carried out.

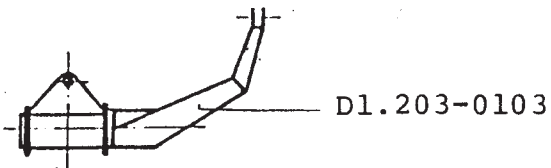
Material : The bushings SK 2521 and the pivot bolt SK 2520 will be supplied by the manufacturer.

Accomplishment : This modification can be carried out by the DIAMANT owners.

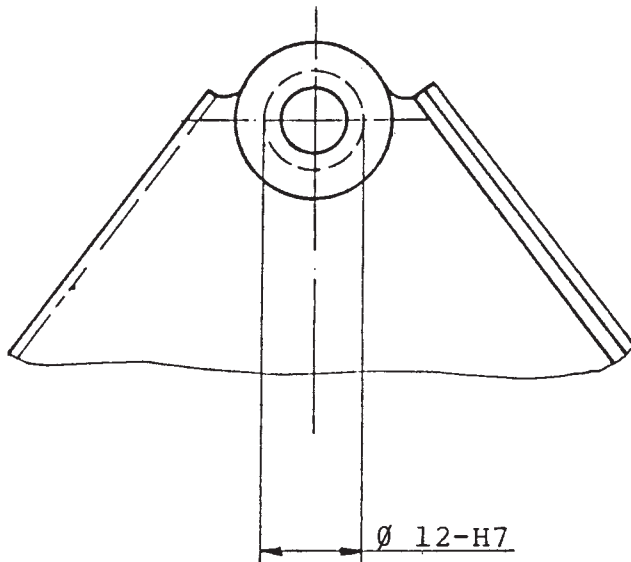
Issued by: *B. Gugger*

This Service Bulletin, approved by the Swiss Federal Air Office, has to be added to the Technical Documents and compliance must be recorded in the Maintenance Reports of the sailplane concerned.

M: 1 : 10



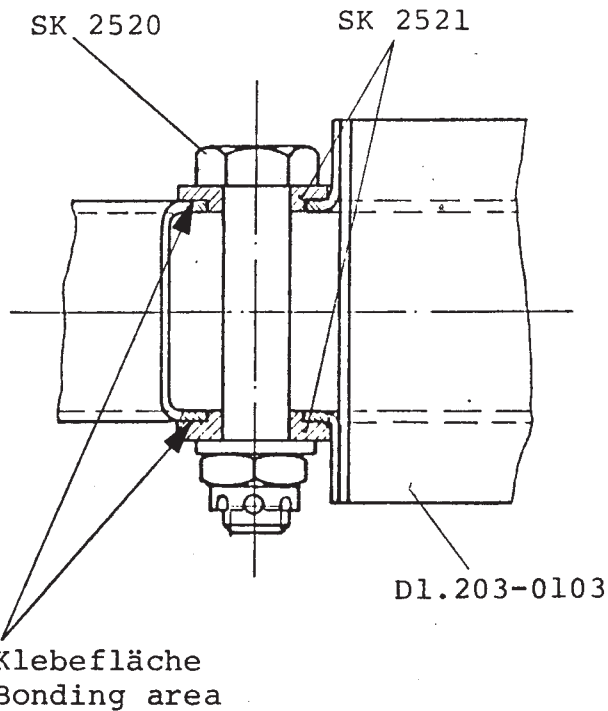
M: 1 : 1

Klebstoff:

Loctite No. 40
oder
Araldit Harz AW 106
Härter HV 953U

Adhesive:

Loctite No. 40
or
Araldit Resin AW 106
Hardener HV 953U

Klebeanweisung:

1. Klebeflächen von Farbe, Oel, Fett und anderen Rückständen reinigen.
2. Klebemittel auftragen.
3. Lager-Büchsen einpressen.
4. Ueberflüssiges Harz von der Innenseite entfernen und Bohrungen sauber halten.

Instruction for bonding:

1. All surfaces to be bonded must be free of paint, oil, grease or other foreign substances.
2. Apply the adhesive.
3. Press in the bushings.
4. Keep the bore of the bushings and inner surface free of adhesive.

TELEX 77 230 FFA ALTENRHEIN
POSTCHECK-KONTO 20-17599422 STAAD SG / SCHWEIZ
TELEFON 071 / 41 41 41
TELEGR ADR FFA RORSCHACH

To all
DIAMANT Owners and Dealers

VZ ZEICHEN

VNACHRICHT VOM

VZ ZEICHEN FS/sj

DATUM March 22, 1974

SACHBEARBEITER INT TEL 350 Mr. Huf

BETRIFFT DIAMANT BULLETIN No. 05

The lower harness attachments of a DIAMANT sailplane came loose due to an incident.

Enclosed is the Service Bulletin No. 05 approved by the Swiss Federal Air Office. We kindly ask you to study the Service Bulletin and to do this work on your glider.

Please add this Bulletin to the Technical Documents of your DIAMANT.

Best regards,

FLUG- & FAHRZEUGWERKE AG
ALTENRHEIN

Encl. Service Bulletin No. 05



SERVICE BULLETIN

DATE : February 4, 1974
SUBJECT : Lower harness attachments Dl.201-0710
MODELS AFFECTED : DIAMANT HBV }
DIAMANT 16.5 } - all serial numbers
DIAMANT 18 }
COMPLIANCE : Immediately after receipt of this
Bulletin.

REASON : The lower harness attachments of a DIAMANT sailplane came loose due to an incident. The investigation showed that the bonding of the attachments was insufficient.

A reinforcement of every lower harness attachment is required since checking the bonding of all active DIAMANT sailplanes is not possible.

REQUIRED ACTION : Two each fiberglass clothes 140 diagonal have to be laminated across the harness attachments in accordance with the attached drawing SK-HBV 189:

1. Remove LH and RH sidewall panels.
2. Remove seat upholstery as far as necessary (glued).
3. Remove lower harness.
4. Remove attachment support Dl.206-0510 of long trim springs.
5. Disconnect trim lever Dl.206-0501 at pivot point.
6. Remove aileron and flap bellcranks at the lefthand side of the landing gear. Tying the push rods up gives sufficient space for the bonding procedure.
7. Sand fuselage and harness retaining area to the size of the reinforcement laminate.
8. Cut to size glass clothes in accordance with the attached drawing SK-HBV 189.
9. Laminate tailored fiberglass clothes with Araldit resin LY 554 (5 parts) and Araldit hardener HY 554 (1 part). Minimum temperature for bonding procedure is 20°C = 68°F.
10. Cut out opening for harness attachment after curing.

11. Reinstall trim lever and attachment support for long trim springs.
12. Reinstall aileron and flap bellcranks.
13. Check trim and all control systems for freedom and correct travel.
14. Reglue seat upholstery.
15. Install harness and sidewall panels.

MATERIAL : 4 glass clothes 140 diagonal
 size 200 mm x 220 mm
 1 tin (350 gr) Araldit resin LY 554 (5 parts)
 1 tin (70 gr) Araldit hardener HY 554 (1 part)

ACCOMPLISHMENT: This modification can be carried out by the DIAMANT owners.

Issued by:

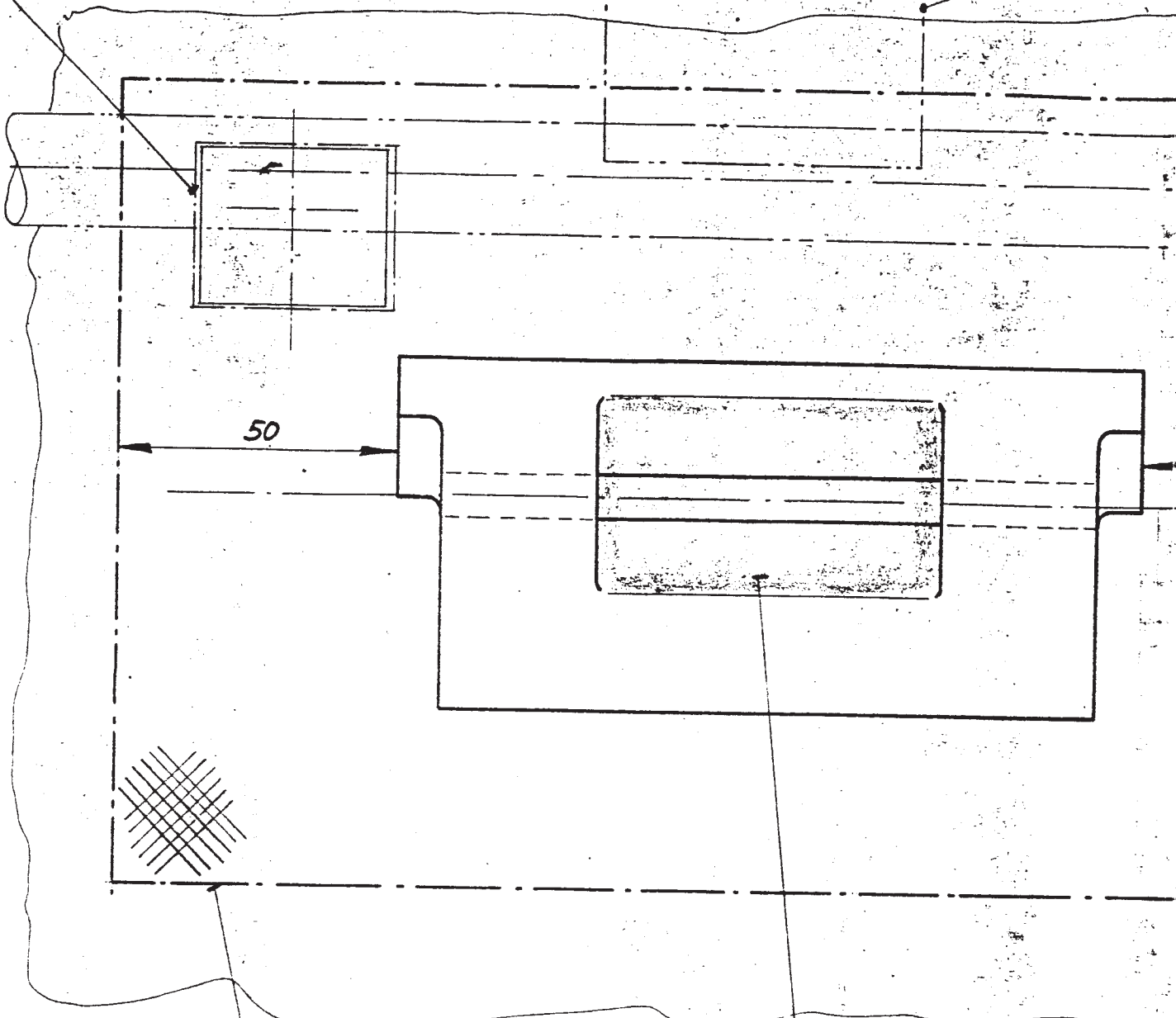
B. Guggiari

(B. Guggiari)

This Service Bulletin, approved by the Swiss Federal Air Office, has to be added to the Technical Documents and compliance must be recorded in the Maintenance Reports of the sailplane concerned.

Bei Trimmhebellagerung (rechts) ausscheiden
 CUT OUT AT TRIM CONTROL LEVER SUPPORT (RIGHT)

Befestigungsp
 ATTACHEMENT



2 Gewebe ~~X~~ auf laminiert
 2 FABRICS ~~X~~ LAMINATED

Nach dem Laminieren aussc
 TO BE CUT OUT AFTER LAMIN

Harz LY 554 (5 Teile)
 Härter HY 554 (1 Teil)
 RESIN LY 554 (5 PARTS)
 HARDENER HY 554 (1 PART)

Zulässige Abweichungen f. Masse ohne Toleranzangabe

Größe in mm	bis 30	30-120	120-500	500-1000
spanabhebend bearbeitet	± 0,2	± 0,3	± 0,5	± 0,8
spanlos bearbeitet	± 0,5	± 0,8	± 1,2	± 2,0
Gussteil				
Schmiedeteil				

Oberflächenschutz:

D1.206-0510 (rechts) für lange Trimmfeder
 D1.206-0510 (RIGHT) FOR LONG TRIM SPRING

Steuerstange
 CONTROL ROD


In den Ecken gut
 anpressen!
 PRESS WELL INTO CORNERS

Bestehende
 Gurtverankerung
 EXISTING BELT
 FIXTURES

Zeichnung zu Diamant-Bulletin Nr 5
 DRAWING TO DIAMANT-BULLETIN NO 5

iden
 VA:ING

2	Gewebe 140 X 200 x 220			Glasgewebe	
---	------------------------	--	--	------------	--

Stückzahl		Gegenstand und Dimension				Pos.	Zchg. Norm	Werkstoff	Bemerkungen Artikel Nr./Lager Nr.	Gew.		
III	II	I	c	f				Ersetzt durch				
			b	e				Ersatz für:	2.6. MRZ. 1974			
			a	d				Ursprungszeichnung:				
			Ind.	Index kommt vor	Aend. Nr.	Datum	Name	Ind.	Index kommt vor	Aend. Nr.	Datum	Name
Gruppe:								Nr.	Maßstab	Gezeichnet	4.2.74	Kippel
Diamant Verstärkg. d. Gurtverankerung								1:1	Geprüft			
									Gesehen			
									Normgepr.			
								Zeichnungs-Nr.		Ae-Index		
 Flug- u. Fahrzeugwerke A. G. Altenrhein								Sk-HBV189				

Diese Zeichnung darf ohne unsere Genehmigung weder vervielfältigt noch dritten Personen überlassen werden (Art. 12a. BG betr. Urheberrecht) Flug- u. Fahrzeugwerke AG Altenrhein



To all owners of
DIAMANT 16.5 and 18 Gliders

U/ZEICHEN

I/NACHRICHT VOM

U/ZEICHEN TL/gk DATUM May 19, 1978

SACHBEARBEITER INT TEL Spalinger / 223

BETRIFFT Service Bulletin No. 06

Gentlemen,

We have been obliged to issue a Service Bulletin reducing temporarily the flight envelope of these gliders to

V_{NE}	=	103 mph / 90 kts
V_A	=	74 mph / 64 kts
n	=	2,8/-1,4 in maneuvers
n	=	3,5/-1,75 in gusts

This precautionary measure was the result of an in-flight break-up of a DIAMANT glider at the end of a triangle training flight.

Since the never-exceed speed may have been exceeded, the cause was initially sought in a flutter mode, but unsatisfactory bonding found between the main spar cap and the web could not be ruled out as a cause either. This prompted an investigation resulting in a proposal for inspection and repair methods to be applied according to a Service Bulletin ready for dispatch.

Since, however, the latest findings point to a failure of the stub spar (crossing the fuselage), rather than the spar outside the root rib, additional instructions may become necessary.

We feel, therefore, that it would be of advantage to await the final results of the investigation, which should determine the extent of the repair/modifications. In that case one Bulletin would cover the final repair/modifications instructions, which, when complied with, will lift the present restrictions imposed on the gliders.

Yours very truly,

FLUG- & FAHRZEUGWERKE AG

ALTENRHEIN

Mr. Spalinger
Spalinger



TELEX 71230 FFA ALTENRHEIN
POSTCHECK-KONTO 80-1759

9422 STAAD-SG / SCHWEIZ
TELEFON 071 / XXXXXXX 43 01 01
TELEGR ADR FFA BORSCHACH

To all
DIAMANT - Owners

BEZUG: BERICHT 11 NACHRICHT KOM

U/ZEICHEN TL/gk

DATUM September 29, 1978

SACHBEARBEITER INT TEL Spalinger / 223

BEZUG: Status-Report concerning Service Bulletin No. 6

This is to inform you that a repair schema has been prepared which will allow the DIAMANT sailplanes affected by the Service Bulletin to be used again in the original unrestricted performance spectrum.

A wing will be treated very soon according to this schema under the supervision of the Swiss Air Office in order to prove the feasibility of the method. If the results are satisfactory, a final Service Bulletin will be issued.

Kits will be made available and a number of repair stations will be chosen for accomplishing the Service Bulletin.

FLUG- & FAHRZEUGWERKE AG

mpc. graf a.
ALTENRHEIN

Spalinger

SERVICE BULLETIN

Mandatory

Page 1 of 3

INSPECTION OF BONDING LINES IN WING AND RESTRICTION OF FLIGHT ENVELOPE

1. Planning information

1.1 Applies to the following gliders:

- Type: DIAMANT 16.5
DIAMANT 18
- Serial Nos.: 11 - 80

1.2 Reason: Unsatisfactory bonding between spar cap and shear web found in one glider.

1.3 Purpose of the present bulletin: - Instruction for the visual inspection of the hat section bonding.
- Restriction of flight envelope

1.4 Compliance: Mandatory before next flight

1.5 Approval: Approved by Swiss Federal Air Office

1.6 Man power: Inspection 1 hour

1.7 Material: None

1.8 Tools: Strip lamp
Angled mirror

1.9 Weight and Balance: no effect

1.10 Reference to other publications: none

1.11 Execution: The visual inspection may be made by the owner of the glider according to the instructions below.

./.



Flug- und Fahrzeugwerke AG
Allerheiligen
CH-9422 Staud SG
Telefon (071) 414444

43 01 01

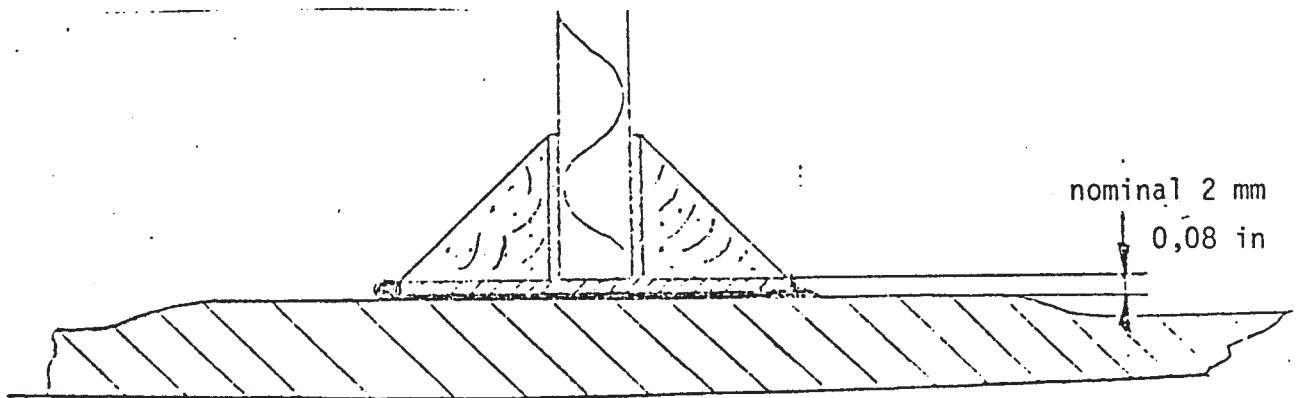
2. Visual inspection of the hat section bonding

2.1 Lay wings on trestles

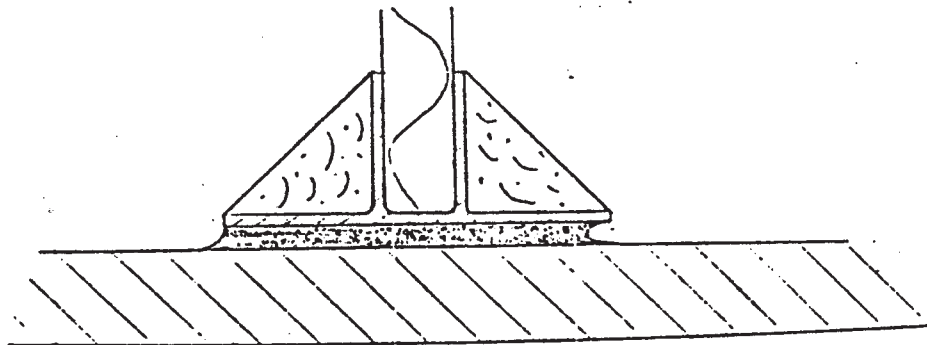
2.2 Insert strip lamp through holes in wing root rib.

2.3 Inspect forward and rearward bonding seams between the hat section and the inner skin according to the following criteria:

2.3.1 The bonding may be considered to be good if the resin has oozed, usually in drops, out of the bonded joint, see fig.1



2.3.2 Receding glue lines must be viewed with suspicion (see fig.2)
Refer to manufacturer for further instructions.



2.3.3 The bonding of the foam gusset is of no importance.

2.4 The visual inspection shall cover the main upper and lower spar hat section up to the water ballast rib and the air brake box respectively.

2.5 The main stub spar of the right wing (crossing the fuselage) shall be inspected visually as follows:

2.5.1 Black rings around the bolts fixing the finger fitting and the main bolt fitting to the webs of the stub spar may indicate a loose fitting.

2.5.2 Any sign of loosening of the webs are critical. Report to the manufacturer any suspicious findings.

3. Restrictions of flight envelope

Gliders with no findings as per para 2.3 and/or 2.5 may be operated with the following restricted limitations until a more detailed inspection and repair shema has been worked out.

	km/h	mph	fts
Maximum speed V_{NE}	166	103	90
Caution speed range (no abrupt maneuvers, avoid turbulence with gust velocity above 7,5 m/s = 25 ft/sec)	120 ÷ 166	74 ÷ 103	64 ÷ 90
Maximum Speed with camber flaps fully positive	120	74	64
Maximum load factor			
in maneuvers	+2,8	;	-1,4
in gusts	+3,5	;	-1.75

Corresponding marks shall be attached to the airspeed indicator and the accelerometer.

4. Enter execution of Service Bulletin into log book.



SERVICE BULLETIN

Mandatory

Page 1 of 2

INSPECTION AND REPAIR OF BONDING IN WING

1. Planning information

1.1 Applies to the following gliders:

Type : DIAMANT 16.5 and 18
 Serial Nos. : 11 - 80

1.2 Reason: Inadequate bonding between spar cap and shear web cannot be ruled out.

1.3 Purpose of the present bulletin:

- Inspection of the hat-section bonding (Appendix I)
- Repair of inadequate bonding (Appendix II)
- Improving the bonding between upper hat-section and shear web (Appendix III)

1.4 Compliance: Mandatory before lifting restrictions of Service Bulletin No. 06, but not later than 1500 flying-hours for S/N 26÷80 and 1000 hours for S/N 11÷25

1.5 Approval: Approved by the Swiss Federal Air Office for Airworthiness Directive.

1.6 Man power

1.6.1 Inspection: 4 hours
 1.6.2 Repair : 6 hours per reinforcement (if required)
 1.6.3 Appendix III: 10 hours

1.7 Materials: See appendices I, II, and III

1.8 Tools: See appendices I, II and III

1.9 Weight: Appendix II according to the extent of repair
 Appendix III: 1,8 lb

1.10 Balance: Negligible effect: Arm 13,58 in (345 mm).

1.11 Reference to other publications: Repair Manual FV-816
 Flight Manuals FV-818, FV-819 (D 16,5)
 FV-820, FV-821 (D 18)

1.2 Execution: The inspection and the repair work shall be performed by an approved fiberglass glider repair shop, e. g.

Europe: REPAIR AG
CH-9423 Altenrhein
Switzerland

Austria: Flughafen Wien
Betriebsgesellschaft
Segelflugzeugwerkstätte
A-1300 Wien

Great Britain: John Hulme
10 Turnbridge Lane,
Bottisham, Cambs.,
England.

USA: - Fred Jiran Glider Repairs
Mojave Airport, Bldg. 6
Mojave, Calif. 93501
Phone: 805-824-2800
USA

- Avtec Corp.
1433 Industrial
Way
P.O.Box 1328
Gardnerville,
Nevada 89410
USA

- Sprague Aviation
Glenside Circle
Lafayette. Calif. 94549
USA

- Smitty's Soaring Service
Deansboro Road RT 12 B
Clinton, New York 13323
USA

South Africa: J.C. Dunbar & Sons
Dunbar House 684
Main Pretoria Rd.
Johannisburg
South Africa 786-2720

Australia:

2. Inspection instructions: See appendix I
3. Repair instructions: See appendices II and III

After complying with the Service Bulletins Nos. 07 and 08 the restrictions of Service Bulletin No. 06 are no longer applicable and the glider is cleared to fly within the limitations of the Flight Manual. Service Bulletin No. 06 is cancelled.

This Service Bulletin shall be kept with the Technical Documents. Its compliance shall be entered in the log book and reported to the manufacturer.

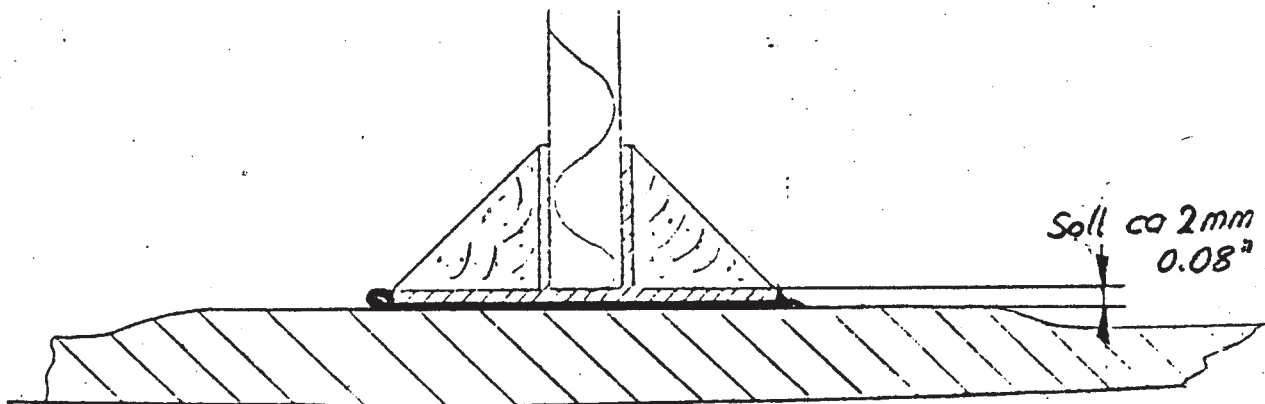
Instruction for visual inspection of the bonding between spar cap and web

- Tools:
- Hand drill with drill bit 1/8" \emptyset x 8 in long
 - Tube 3/16" x 1/8" I.D.
 - Strip lamp or narrow beam lamp
 - Angled mirror or fiber optics intrascope, if available
 - "Long" hook probe (AWG 20 wire bent 90 degrees, 2" long, fixed to a rod 10 ft long)
 - "Short" hook probe (AWG 20 wire, 0,08 in hook bent at 90 degrees)

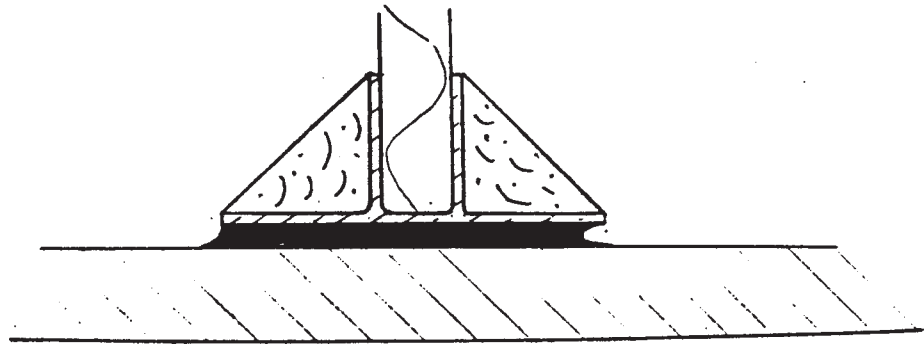
Materials: None

Procedure:

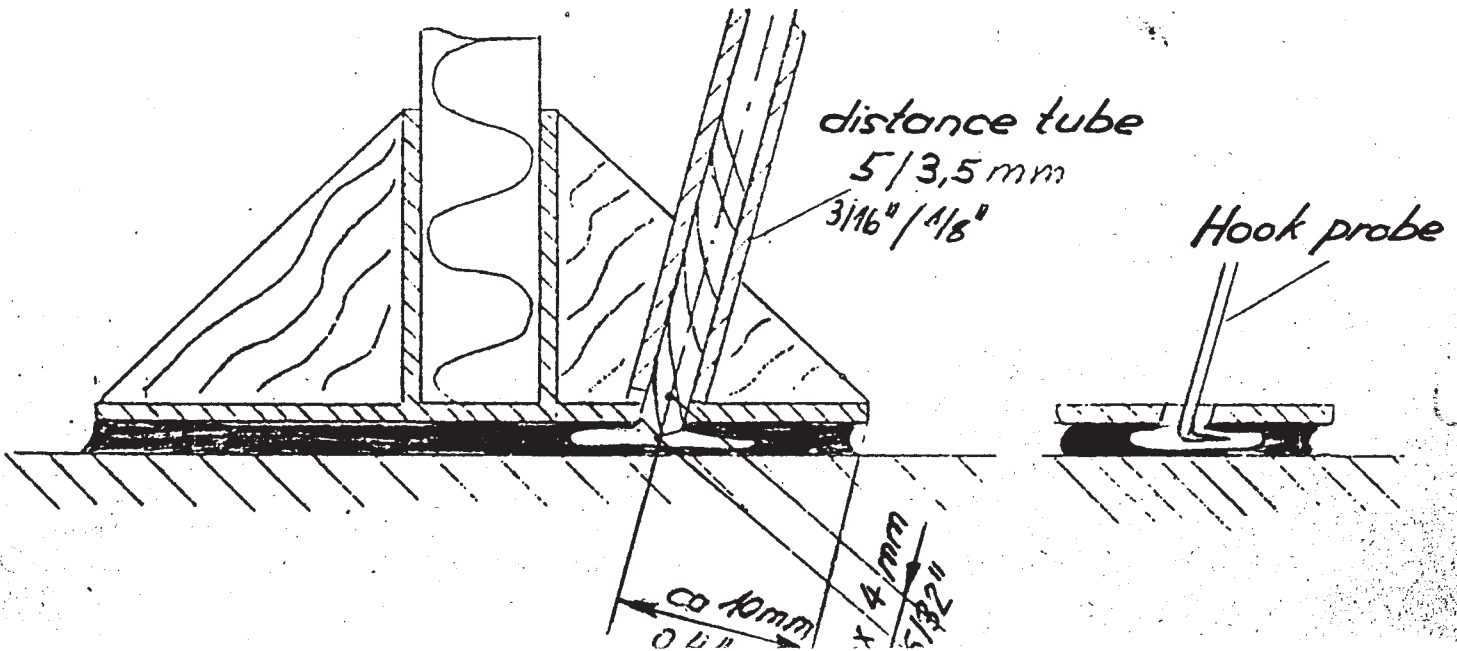
1. Lay wings on trestles the right way up.
2. Remove covers in bottom wing panel
3. Insert strip lamp through holes in root rib.
Inspect forward facing bonding seams up to tank rib,
rearward seams up to 9 ft from root rib.
Inspect bonding seams directly or by means of the angled mirror
through the access holes in the root rib using the following criteria:
 - 3.1 The bonding may be considered to be satisfactory, if the resin has oozed, often in drops, out of the bonded joint. The height of the hat section flange should be less than 0,08" above the skin panel surface to ensure a thin bonded joint.



- 3.2 Overthick bonded joints may well include entrapped air bubbles, if the resin had not been properly squeezed out. Receding glue line must be viewed with suspicion. In both these cases a repair according to Appendix II must be carried out. The extent of the fault will be determined by means of probe drillings. Probe drillings shall be carried out within the suspected area, starting from inboard, in accordance with para. 4.



- 3.3 If receding glue line is detected, estimate depth of same with probe hook and mark spanwise position on opposite wing surface. Repair according to Appendix II of this Service Bulletin.
4. Probe drillings shall be executed as follows:
If the defect is in the lower spar cap, leave the wing in normal position (for attention to the top spar cap all sitings are reversed).
- 4.1 Find chordwise spar cap edge position by tapping upper surface with pencil, observe the change of note and mark.
- 4.2 Drill 0,2" dia. hole (avoiding spar cap) in wing surface opposite to the suspected area.
- 4.3 Using long 1/8" dia. drill, slip over a 3/16" distance-tube, so that the drill point protudes 5/32".
- 4.4 Drill 1/8" dia. hole into foam corner fillet of hat section, through hat section flange and into thick joint according to figure below. Cavity will be felt when drilling. If not, introduce "short" probe hook and see if cavity can be felt.



- 4.5 Repeat probe drillings cca. 1 in inboard and outboard of the first hole using the same hole in the upper wing skin.
- 4.6 Repeat steps 4.2 through 4.6 using a new hole drilled 3" outboard of the first hole in the top surface, to be repeated until the range of the suspected joint defect has been covered.
5. Where no cavities have been found, the holes may be filled in after completion of operations of Appendix III.
6. If cavities have been found, repairs according to Appendix II of this Service Bulletin must be carried out.

Instruction for improving the bonding between upper hat section and shear web

Tools:

- Narrow beam light
- 20 ml (1,2 cu.in) syringe with tubes \emptyset 3/16" x 1/8" I.D.
- Bonding equipment
- Screwdriver
- Mirror

Materials:

- Resin XB 2878 A
- Hardener XB 2878 B
- Microballoon
- Glass fabric Nos. 140, 130, 119
- Plastic tape
- Polyethylene foil

Procedure:

1. Trestle up wing upside down.
2. Drill 0,2 in dia. holes at 30 degrees to lower surface according to figure on page 2. Remove covers (except cover near root rib).
Exception: Regions accessible through probe drillings and/or access holes of 2.1, Appendix II.
3. Wax lower wing surface with car wax (without silicone content)
4. Tilt wing to 75 degrees and secure by clamping stub spar to trestle using suitable wedge (leading edge down).
NOTE: Wing leading edge must be exactly horizontal.
5. Use narrow beam lamp to illuminate bonding seam between hat section and shear web through hole in root rib.
6. Prepare a mixture of 100 gr resin XB 2878 A and 36 gr hardener XB 2878 B according to the Repair Manual.
Caution: Minimum temperature 20°C
7. Insert the short syringe tube through the outermost upper hole to reach the web and the foam corner fillet. Then withdraw tube 0,4 in. Squeeze out 45 gr of resin mixture onto the shear web in about one minute. Continue with the next two holes.
8. Using the beam lamp, check if any resin leaked out. If so, mark the position on the wing.
9. Apply resin mixture using the next holes and check for leakage, if any, mark position. Use long tube for inboard end.
10. If a leakage is found, tilt wing to 45 degrees position and leave 4 hours.

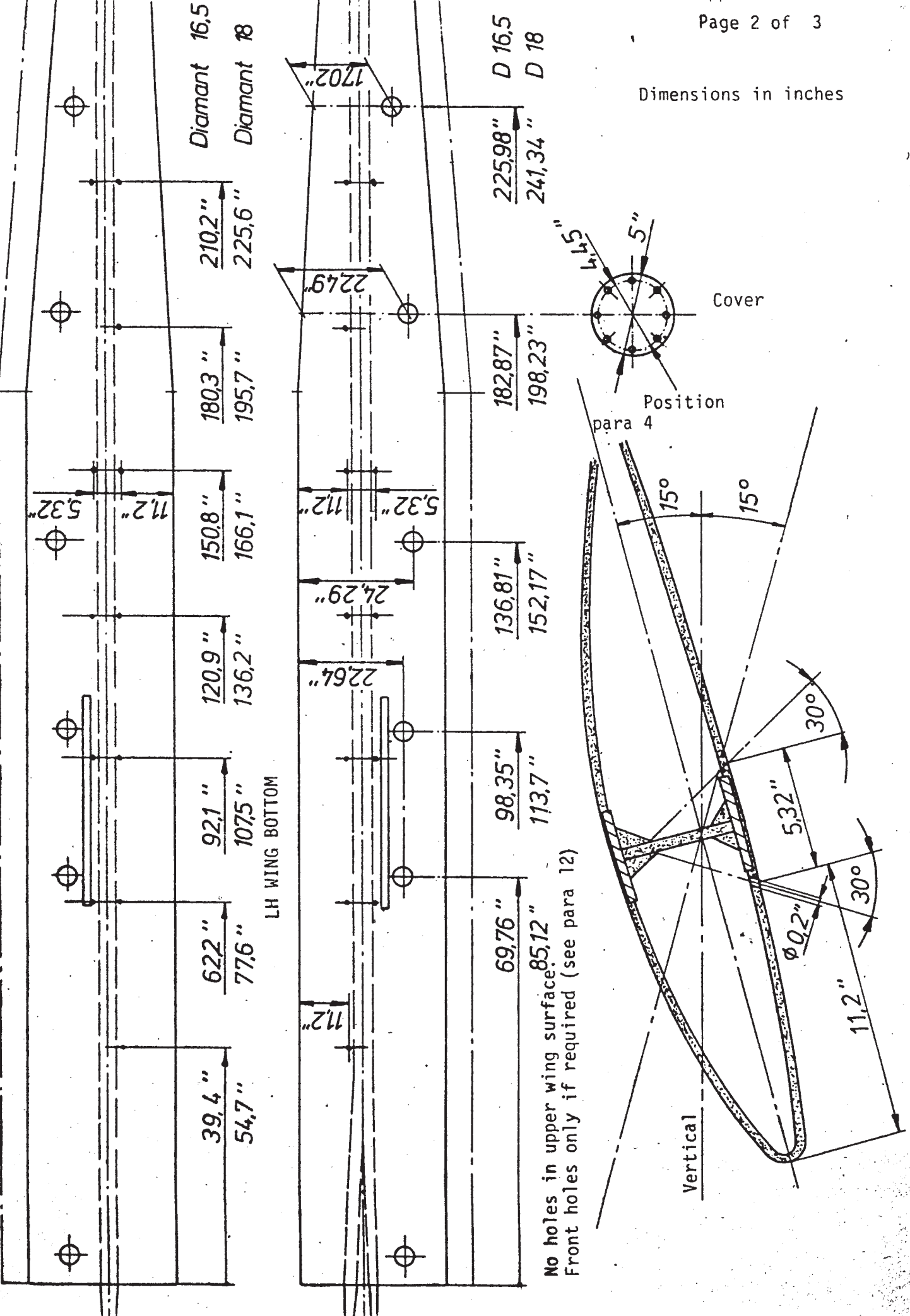
Dimensions in inches

Diamant 16,5
Diamant 18

D 16,5
D 18

LH WING BOTTOM

No holes in upper wing surface.
Front holes only if required (see para 12)



11. After curing tilt wing back to 75 degrees and apply resin mixture to the leak point using nearest hole. Leave for 4 hours.
12. If gap between web and hat section is existing on forward face of spar (visible through hole in root rib), drill holes in front of spar, turn wing to 75 degrees nose up position and repeat procedure of para. 6 to 11 using the forward holes. There should be no more leakage of resin. Keep wing in this position for 4 hours at 20⁰C minimum.
13. Fill the 3/16" holes with microballoon/resin mixture after leveling the wing the right way up. Cover over holes with plastic tape.
14. Patch up the 7 x 3.2 in access holes, if required in Appendix II, according to Repair Manual section 3, page 5 :
 - 14.1 Increase size of cut-out in outer sandwich skin and foam core to 8.3 x 4.7 in.
 - 14.2 Roughen inner skin carefully and chamfer edge of outer skin.
 - 14.3 Prepare a patch for inner skin by laminating glass fabric no. 130 using outer skin covered with polyethylene foil as a profile mold.
 - 14.4 Cut to size foam core and inner patch and bond both into cut-out.
 - 14.5 Trim core to contour.
 - 14.6 Bond outer patch to skin and core using one layer of glass-fabric no. 140 diagonally and one layer of no. 119 (outside).
 - 14.7 Trim outer contour.
15. After curing 4 hours at 20⁰C (min.) sand repaired holes to smooth finish.
16. Repaint surface as necessary according to Repair Manual.
17. After 12 hours curing sand painted areas using 600 grade wet sanding paper and polish.
18. Enter inspection and repair into log book.

INFORMATION SHEET

relating to FFA Service Bulletin no. 7

- a. The accompanying Service Bulletin and appendices are intended for the information of aircraft owners and of workshops officially approved for the repair of glassfibre sailplanes.
Such repair workshops shall carry out the instructions contained in the Bulletin under their own responsibility and at their own risk.
- b. The Service Bulletin and its appendices do not imply any transfer of responsibility as to the manner in which any such work is carried out, nor do they provide any extension or renewal of any manufacturer's guarantee whose period of validity has expired, nor supplement any guarantee which may still be current.
- c. The Service Bulletin and its appendices are approved by the Swiss Federal Air Office.
- d. The Service Bulletin and its appendices, as well as this information sheet which forms an integral part of the Bulletin, are subject to Swiss law.



SERVICE BULLETIN

Mandatory

Page 1 of 3

REINFORCEMENT OF RIGHT WING STUB SPAR- 1. Planning information:

1.1 Applies to the following gliders:

- Type: DIAMANT 16,5 and 18
- Serial Nos.: 11 - 80

1.2 Reason: Scatter in bonding of shear web cannot be ruled out.

1.3 Purpose of the present bulletin: Instruction for reinforcement of the RH wing stub spar.

1.4 Compliance: Mandatory before lifting restrictions of Service Bulletin No. 06, but not later than after 1500 flying hours for S/N 26÷30 and 1000 hours for S/N 11÷26. See also page 2, para 2 and 3.

1.5 Approval: Approved by Swiss Federal Air Office for Airworthiness Directive

1.6 Man power: 15 man-hours

1.7 Materials: Kits SK HBV-191 and SK HBV-194 available from REPAIR AG CH-9423 Altenrhein Switzerland at owners cost

1.8 Tools:

- Bolt removing tool
- Grinding equipment:
 - centre drill
 - face grinder 5/8" dia.
- Expanding Reamer 5/8" dia.

} or step grinder

1.9 Weight: + 2,5 lb

1.10 Balance: Negligible effect: Arm 13,58 in (345 mm)

1.11 Reference to other publications: Repair Manual FV 816, Flight Manuals FV 818, FV 819 (D16,5), FV 820, FV 821 (D16)

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- 1.12 Execution: The reinforcement work shall be performed by an approved fiberglass glider repair shop, e. g.
- Europe: REPAIR AG, CH-9423 Altenrhein
Switzerland
- Austria: Flughafen Wien
Betriebsgesellschaft
Segelflugzeugwerkstätte
A-1300 Wien
- Great Britain: John Hulme
10 Turnbridge Lane,
Bottisham, Cambs.,
England.
- USA: - Fred Jiran Glider Repairs
Mojave Airport, Bldg. 6
Mojave, Calif. 93501
Phone: 805-824-2800
USA
- Avtec Corp.
1433 Industrial
Way
P.O.Box 1328
Gardnerville,
Nevada 89410
USA
- Sprague Aviation
Glenside Circle
Lafayette, Calif. 94549
USA
- Smitty's Soaring Service
Deansboro Road RT 12 B
Clinton, New York 13323
USA
- South Africa: J.C. Dunbar & Sons
Dunbar House 684
Main Pretoria Rd.
Johannisburg
South Africa 786-2720

2. Accomplishment instructions

For DIAMANT 16.5 S/N 11 - 25 and D 18 (all): Appendix I

For DIAMANT 16.5 S/N 37 - 51, 58 - 68: Appendix II.
after 3000 flying hours : Appendix I

- ✓ After complying with the Service Bulletins 07 and 08 the restrictions of Service Bulletin no. 06 are no longer applicable and the glider is cleared to fly within the limitations of the Flight Manual. Service Bulletin 06 is cancelled.

3. Periodic inspections

- ✓ 3.1 After reinforcement of the wing stub spar, inspect the fittings every 100 flying hours, but at least once a year and after hard landings, for cracks, looseness and other defects.
- ✓ 3.2 Inspect the fittings of not reinforced wing stub spar every 50 hours, but at least once a year and after hard landings.

INFORMATION SHEET

relating to FFA Service Bulletin no. 8

- a. The accompanying Service Bulletin and appendices are intended for the information of aircraft owners and of workshops officially approved for the repair of glassfibre sailplanes.
Such repair workshops shall carry out the instructions contained in the Bulletin under their own responsibility and at their own risk.
- b. The Service Bulletin and its appendices do not imply any transfer of responsibility as to the manner in which any such work is carried out, nor do they provide any extension or renewal of any manufacturer's guarantee whose period of validity has expired, nor supplement any guarantee which may still be current.
- c. The Service Bulletin and its appendices are approved by the Swiss Federal Air Office.
- d. The Service Bulletin and its appendices, as well as this information sheet which forms an integral part of the Bulletin, are subject to Swiss law.

- ✓3.3 At the same intervals as above check the bending frequency of the wing on assembled glider as follows:
 - ✓3.3.1 Inflate tyre to 30 psi.
 - ✓3.3.2 Shake wing tip up and down and count number of cycles per minute at natural frequency. Enter into log book.
 - ✓3.3.3 If lower frequency is observed refer to the manufacturer immediately.
 - ✓3.3.4 After repairs or repainting of wing check bending frequency.
- ✓3.4 These inspections may be accomplished by the owner.

The Service Bulletin shall be kept with the Technical Documents. Its compliance shall be entered in the log book and reported to the manufacturer.

Accomplishment instructions (see SK-HBV-191)

- ✓ 1. Lay bare bolts of finger fitting by grinding off the lateral enlargements.
- ✓ 2. Partially grind stub spar in area of upper first wrapping, smooth off edges 1/8".
- ✓ 3. Level bosses to bolts of main fitting with staple fibre soaked with resin XB 2878 A/B.
- ✓ 4. Prepare glass fabric for first wrapping (Pos. 4,6,8,10), provide cut-out for assembling stud.
- ✓ 5. Degrease stub spar carefully with acetone or chlorothene or trichloroethylene, roughen bonding surfaces slightly
- ✓ 6. Laminate in layers upper first wrapping (Pos.4,6,8,10), stretch with foil over stub spar. Remove excess resin and press laminate with rubber covered boards and clamps.
- ✓ 7. Leave to cure.
- ✓ 8. Turn wing over.
- ✓ 9. Partially grind stub spar in area of lower first wrapping, smooth off edges 1/8", degrease.
- ✓ 10. Laminate lower first wrapping (Pos. 3,5,7,9)
- ✓ 11. Leave to cure.
- ✓ 12. Trim laminated area.
- 13. Remove 2 bolts of finger fitting by means of a bolt removing tool.
- ✓ 14. Place U-shaped cuffs (Pos. 1) with intermediate layer of a separating foil on the stub spar. Fill cavities with glass fabrics.
- ✓ 15. Remove cuffs, degrease and roughen bonding surfaces, laminate fabric filling with resin XB 2878 A/B. Press on cuffs (with protecting foil) in order to obtain good adhesion between fabric filling and stub spar. Leave to cure.
- ✓ 16. Remove cuffs.
- ✓ 17. Remove protecting foil from one cuff, roughen green primer surface slightly, degrease.
- ✓ 18. Degrease and roughen slightly bonding surface on stub spar.
- ✓ 19. Bond cuff onto stub spar by means of resin AV 144 (100 parts of weight) and HV 997 (60 parts of weight). Apply resin to both surfaces beforehand. Leave to cure for 12 hours at a minimum of 20°C.

Not in
p. 2

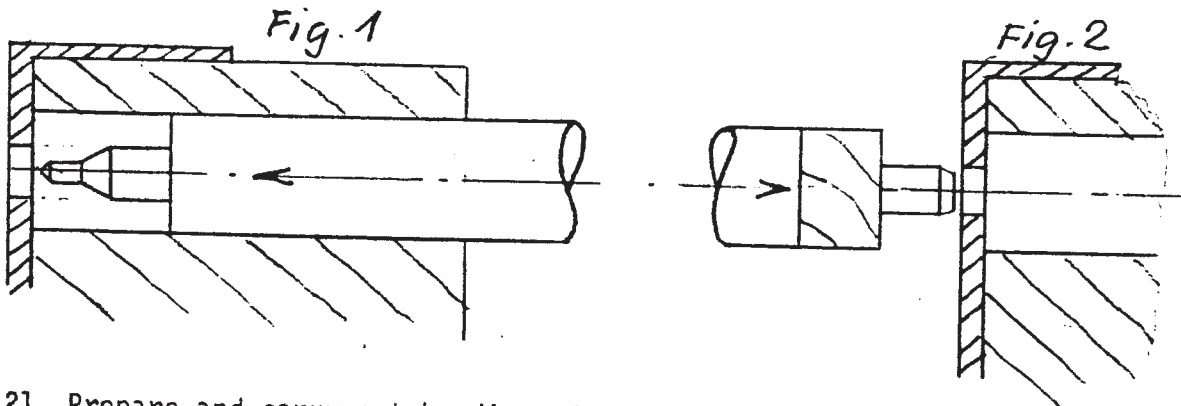
Not in
φ BA

20. Carefully drill off and ream \varnothing 0.6306 " holes in cuff from finger fitting as follows:

20.1 Drill off centre by using centre drill (Fig. 1)

20.2 Drill hole 5/8" from outside using 5/8" face grinder with centre (Fig. 2)

20.3 Ream hole to 0.6305" . Deviation to 0.631" is acceptable.



21. Prepare and carry out bonding of second cuff (Pos. 1) as per para.17 to 19.
22. Carefully drill off second cuff (2 drilled holes of .6306" dia.).
23. Insert 2 bolts (Pos. 2).
- ✓24. Fill up and laminate cavities with staple fabric and wrap a 2 in wide fabric strip 140 (Pos. 12) with resin XB 2878 A/B around cuffs (start second wrapping 1,2 in before cuffs).
- ✓25. Leave to cure, then trim.

NOTE: Alternate method for grinding hole (para 20):

Grind hole 16 H7 with special step grinder using existing hole as guide as per Fig. 1.

(for DIAMANT 16,5 S/N 37 - 51, 58 - 68
with less than 3000 hrs only)

Accomplishment instructions (see SK-HBV-194)

1. Trestle up right wing.
2. Partially grind stub spar in area of upper first wrapping, smooth off edges 1/8".
3. Level bosses to bolts of main fitting with staple fibre soaked with resin XB 2878 A/B.
4. Prepare glass fabric for first wrapping (Pos. 4,6,8,10), provide cut-out for assembling stud.
5. Degrease stub spar carefully with acetone or chloroethene or trichloroethene.
6. Laminate in layers upper first wrapping (Pos. 4,6,8,10), stretch with foil over stub spar. Remove excess resin and press laminate with rubber covered boards and clamps.
7. Leave to cure.
8. Turn wing over.
9. Partially grind stub spar in area of lower first wrapping, smooth off edges 1/8", degrease.
10. Laminate lower first wrapping (Pos. 3,5,7,9)
11. Leave to cure.
12. Degrease front end of stub spar and finger fitting plate.
13. Laminate horizontal wrapping around finger fitting (Pos. 12,13,14).
14. Leave to cure.
15. Trim laminated area.

SERVICE BULLETIN

Mandatory

Page 1 of 4

REINFORCEMENT OF RIGHT WING STUB SPAR

1. Planning information

1.1 Applies to the following gliders :

- Type : DIAMANT 16.5
- Serial Nos.: 11 - 25

The Service Bulletin no. 08 is for the above mentioned serial nos. cancelled and superseded by this Service Bulletin no. 08A.

1.2 Reason : Scatter in bonding of shear web cannot be ruled out.

1.3 Purpose of the present bulletin: Instruction for reinforcement of the RH wing stub spar.

✓ 1.4 Compliance : Mandatory before lifting restrictions of Service Bulletin No. 06, but not later than 1000 total hours.

1.5 Approval : Approved by Swiss Federal Air Office for Airworthiness Directive.

1.6 Man power : 15 man-hours

1.7 Materials : Kit SK HBV-195 available from REPAIR AG
CH-9499 Altenrhein, Switzerland

✓ 1.8 Tools : Laminating Tools

1.9 Weight : + 2.5 lb

1.10 Balance : Negligible effect : Arm 13.58 in (345 mm)

1.11 Reference to other publications: Repair Manual FV 816, Flight Manual FV 818, FV 819

./.

FFA

Flug- und Fahrzeugwerke
Altenrhein
CH 9422 Stald SG

1.12 Execution : The reinforcement work shall be performed by an approved fibreglass glider repair shop, e.g.

EUROPE except REPAIR AG, CH-9499 Altenrhein
Austria and Great Switzerland
Britain

AUSTRIA: Flughafen Wien
Betriebsgesellschaft
Segelflugzeugwerkstätte
A-1300 Wien

GREAT BRITAIN: John Hulme
10 Turnbridge Lane,
Bottisham, Cambridge
England

U.S.A.: - Fred Jiran Glider Repairs
Mojave Airport, Bldg. 6
Mojave, Calif. 93501
Phone: 805-824-2800
USA

- Sprague Aviation
Glenside Circle
Lafayette, Calif. 94549
USA

- Smitty's Soaring Service
Deansboro Road RT 12 B
Clinton, New York 13323
USA

- Avtec Corp.
1433 Industrial Way
P.O.Box 1328
Gardnerville,
Nevada 89410
USA

SOUTH AFRICA: J.C. Dunbar & Sons
Dunbar House 684
Main Pretoria Rd.
Johannisburg
SOUTH AFRICA 786-2720

✓ 2. Accomplishment instructions

See drawing SK HBV-195 in Kit .

2.1 Lay bare side FRP webs and bolts of finger fitting by grinding off the lateral enlargements and the roving slings around bolts.

- 2.2 Partially grind stub spar in area of upper first wrapping, smooth off edges 1/8" .
 - 2.3 Level bosses to bolts of main fitting with staple fibre soaked with resin XB 2878 A/B.
 - 2.4 Prepare glass fabric for first wrapping (Pos. 4,6,8,10), provide cut out for assembling stud.
 - 2.5 Degrease stub spar carefully with acetone or chloroethene or trichlorethylene, roughen bonding surfaces slightly .
 - 2.6 Laminate in layers upper first wrapping (Pos. 4,6,8,10), stretch with foil over stub spar. Remove excess resin and press laminate with rubber covered boards and clamps.
 - 2.7 Leave to cure.
 - 2.8 Turn wing over.
 - 2.9 Partially grind stub spar in area of lower first wrapping, smooth off edges 1/8", degrease.
 - 2.10 Laminate lower first wrapping (Pos. 3,5,7,9) .
 - 2.11 Leave to cure.
 - 2.12 Trim laminated area.
 - 2.13 Place U-shaped cuffs (Pos. 1) with intermediate layer of a separating foil on the stub spar. Fill cavities with glass fabrics.
- (Bolts removed in $\phi 8$) → N O T E : The bolts must protrude .02" over the cuffs.
- 2.14 Remove cuffs, degrease and roughen bonding surfaces, laminate fabric filling with resin XB 2878 A/B. Press on cuffs (with protecting foil) in order to obtain good adhesion between fabric filling and stub spar. Leave to cure.
 - 2.15 Remove cuffs.
 - ($\phi 8$ cuff) * 2.16 Remove protecting foil from cuffs, roughen green primer surface slightly, degrease.
 - 2.17 Degrease and roughen slightly bonding surfaces on stub spar.
 - ($\phi 8$ cuff) * 2.18 Bond cuffs onto stub spar by means of resin AV 144 (100 parts of weight) and HV 997 (60 parts of weight) . Apply resin to both surfaces beforehand. Leave to cure for 12 hours at a minimum of 20° C.

2.19 Fill up and laminate cavities with staple fabric and wrap a 2 " wide fabric strip 140 (Pos.12) with resin XB 2878 A/B around cuffs (start second wrapping 1.2 " before cuffs).

2.20 Leave to cure, then trim.

After complying with the Service Bulletins 07 and 08A the restrictions of Service Bulletin 06 are no longer applicable and the glider is cleared to fly within the limitations of the Flight Manual. Service Bulletin 06 is cancelled for the above mentioned Serial Nos.

3. Periodic inspections

- 3.1 After reinforcement of the wing stub spar, inspect the fittings every 100 flying hours, but at least once a year and after hard landings, for cracks, looseness and other defects.
- 3.2 Inspect the fittings of not reinforced wing stub spar every 50 hours, but at least once a year and after hard landings.
- 3.3 At the same intervals as above check the bending frequency of the wing on assembled glider as follows:
 - 3.3.1 Inflate tyre to 30 psi.
 - 3.3.2 Shake wing tip up and down and count number of cycles per minute at natural frequency. Enter into log book.
 - 3.3.3 If lower frequency is observed refer to the manufacturer immediately.
 - 3.3.4 After repairs or repainting of wing check bending frequency.
- 3.4 These inspections may be accomplished by the owner.

THE SERVICE BULLETIN SHALL BE KEPT WITH THE TECHNICAL DOCUMENTS. ITS COMPLIANCE SHALL BE ENTERED IN THE LOG BOOK AND REPORTED TO THE MANUFACTURER.

INFORMATION SHEET

relating to FFA Service Bulletin no. 08A

- A. The accompanying Service Bulletin is intended for the information of aircraft owners and of workshops officially approved for the repair of glassfibre sailplanes.

Such repair workshops shall carry out the instructions contained in the Bulletin under their own responsibility and at their own risk.

- B. The Service Bulletin does not imply any transfer of responsibility as to the manner in which any such work is carried out, nor do they provide any extension or renewal of any manufacturer's guarantee whose period of validity has expired, nor supplement any guarantee which may still be current.
- C. The Service Bulletin is approved by the Swiss Federal Air Office.
- D. The Service Bulletin as well as this information sheet which forms an integral part of the Bulletin, are subject to Swiss law.



SERVICE BULLETIN

Page 1 of 2

INSPECTION AND POSSIBLE REPLACEMENT OF FORK END

OF ELEVATOR PUSH ROD IN VERTICAL TAIL

1. Planning information

1.1 Applies to the following gliders:

- Type : DIAMANT HBV, 16,5 and 18
- Serial Nos.: all

1.2 Reason: In one glider a bent fork end was detected

1.3 Purpose of the present bulletin: Instruction for visual inspection and, where necessary, replacement of the fork end

1.4 Compliance: Before the next flight as well as after hard impact of the fuselage end or at signs of noseheaviness

1.5 Approval: Approved by the Swiss Federal Air Office

1.6 Man power:

- 1.6.1 Inspection: 2 man-hours
- 1.6.2 Repair : 8 man-hours

1.7 Material: Fork end D1.206-0405, available from Repair AG
Locking lacquer

1.8 Tools: 2 Ring spanners 11 mm

1.9 Weight: Not affected

1.10 Balance: Not affected

1.11 Reference to other publications: - Flight Manual
- Repair Manual

./.

2. Accomplishment instructions

2.1 Visual inspection

2.1.1 Remove rudder as follows:

2.1.1.1 Push rudder to the right deflection limit so that the bolt is visible through the opening on the left side of the rudder.

2.1.1.2 Remove bolt at the end of the push rod (bolt with nut).

2.1.1.3 Remove bearing bolts.

2.1.1.4 Remove rudder from the bearing block by pulling the rudder backwards. As soon as the rudder is off the bearing block, pull the rudder downwards to remove it from the upper bearing.

2.1.2 Visual inspection of the lower elevator push rod fork end for deformation or cracks.

2.1.3 If the fork end is found without defects, the rudder may be mounted in reversed order to item 2.1.1.

2.2 Repair instructions

2.2.1 When damaged, the fork end has to be replaced by a new one D1.206-0405. In order to adjust the new fork end to the same total rod length, the distance between the fork end and the rod shall be measured and noted beforehand.

2.2.2 Check deflections ($\pm 10^0$) according to the Repair Manual.

2.2.3 Secure lock nuts with locking lacquer.

2.2.4 Mount rudder in reversed order to item 2.1.1.

2.2.5 Check rudder and elevator controls for free play.

This Service Bulletin shall be kept with the Technical Documents. Its compliance shall be entered in the log book and reported to the manufacturer

SERVICE BULLETIN

Mandatory

Page 1 of 2

CLOSE TOLERANCE BOLT IN THE RUDDER

1. Planning information

1.1 Applies to the following gliders:

- Type: DIAMANT HBV, 16,5 and 18
- Serial Nos.: all

1.2 Reason:

In one glider the lower close tolerance bolt came out during operation.

1.3 Purpose of the present bulletin:

- Check tightness of close tolerance bolt
- Replacement of the close tolerance bolt, the connecting bolt and the self locking nut. Remove anchor nut according to working instructions (2.).

1.4 Compliance:

- Check: Before next flight and then each 25 hours until replacement of the close tolerance bolt.
- Modification/Replacement: Immediately if close tolerance bolt is loose. If it is tight, on the occasion of the next check, but not later than 30.9. 1981.

1.5 Approval:

Approved by the Swiss Federal Office for Civil Aviation for Airworthiness Directive.

1.6 Man power:

- Check: 5 minutes
- Modification/Replacement: 6 man hours

1.7 Material, cost and availability:

Material available from Repair AG, CH-9423 Altenrhein. Cost on application.

1.8 Tools:

- Check: 1 Spanner 11 mm
- Modification/ Replacement: 1 Spanner 14 mm
- Replacement: 1 Ringspanner 10 mm
- 1 Ringspanner 11 mm
- 1 Pincer Pliers

1.9 Weight and Balance:

Not affected

1.10 Electrical load data:

Not affected

1.11 Reference to other publications: None



Flugzeugwerke
Altenrhein AG
CH 9423 Altenrhein

Telefon 071 43 91 01

2. Working instructions

2.1. Remove rudder as follows

- 2.1.1. Push rudder to the right deflection limit so that the bolt is visible through the opening on the left side of the rudder.
- 2.1.2. Remove connecting bolt at the end of the push rod (bolt with nut, detail Y).
- 2.1.3. Remove close tolerance bolt (detail Z).
- 2.1.4. Remove rudder from the bearing block by pulling the rudder backwards. As soon as the rudder is off the bearing block, pull the rudder downwards to remove it from the upper bearing.

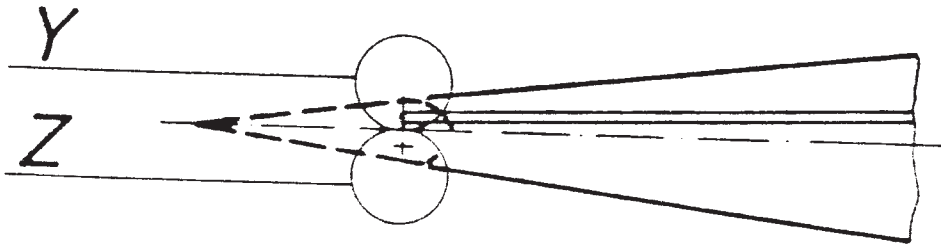
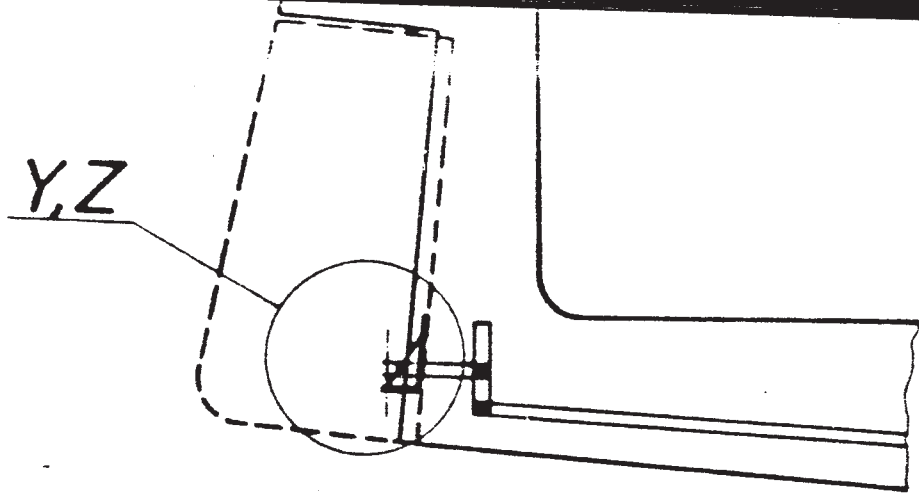
2.2. Modification procedure

- 2.2.1. On the lower bearing block remove both rivets from the anchor nut. Then rivet bracket and sheet together again (without anchor nut).
- 2.2.2. Mount rudder in reverse order to item 2.1. (with parts on sketch SB10 /1).
- 2.2.3. Check deflections according to the Flight Manual. Item 5.2 ($+30^{\circ}$, $+3^{\circ}$, -0°)
- 2.2.4. Check rudder and elevator controls for free movement

3. <u>Material:</u>	1 Connecting bolt	D1.206-0303.1	SB 10/1 a)
	1 Spacer	AN 960-C10L	SB 10/1 b)
	2 Castle nuts	M6 VSM 13780	SB 10/1 d)
	2 Cotter pins	1,6 x 16 VSM 12760	SB 10/1 e)
	1 Close tolerance bolt	D1.201-1228.1	SB 10/1 f)
	2 Rivets	MS 20470-AD2-10	SB 10/1 c)

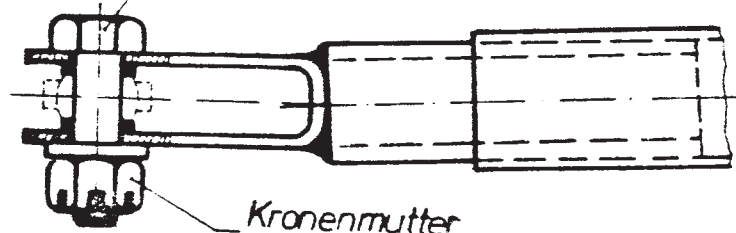
4. Limitations: None

This Service Bulletin shall be kept with the Technical Documents. Its compliance shall be entered in the log book and reported to the manufacturer.



Verbindungsbolzen
Connecting bolt SB10/1a)

Detail Y:



Kronenmutter
Castle nut SB10/1d)

Splint
Cotter pin SB10/1e)

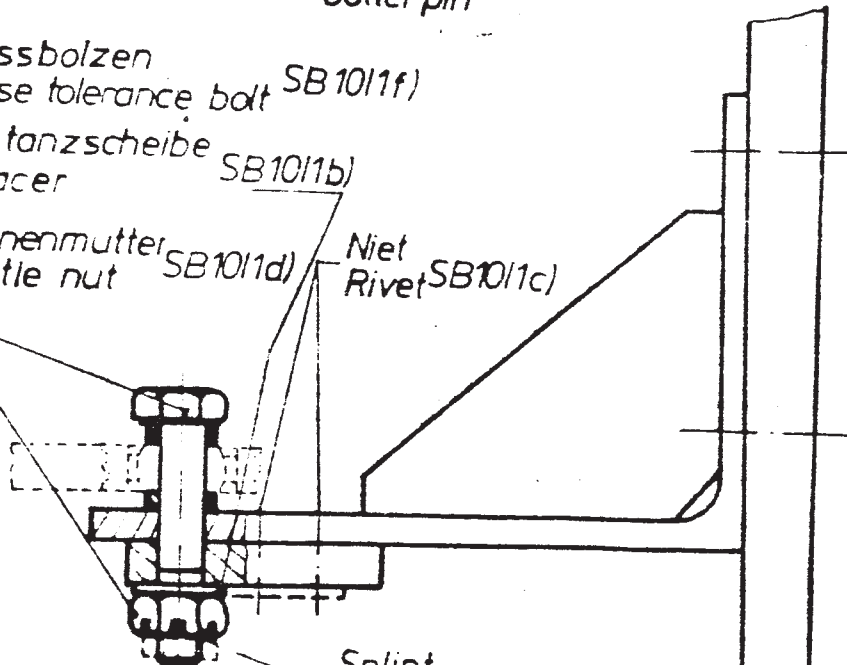
Passbolzen
Close tolerance bolt SB10/1f)

Distanzscheibe
Spacer SB10/1b)

Kronenmutter
Castle nut SB10/1d)

Niet
Rivet SB10/1c)

Detail Z:



Splint
Cotter pin SB10/1e)