



GFA AIRWORTHINESS DIRECTIVE

TYPE AFFECTED: Schempp-Hirth Discus 2a and Discus 2b, serial numbers as follows; 13 to 22; 24, 27, 28, 30 to 48, 50, 51, 53 to 55, 57 to 63, 65, 67, 68, 71 to 79, 81, 82.

Note: Sailplanes which have previously had Schempp-Hirth Technical Note 360-16 incorporated are not affected by this AD.

SUBJECT: Elevator and elevator pushrod.

BACKGROUND: To improve flutter stability, a mass balance on the elevator and a lighter elevator pushrod must be installed.

DOCUMENTATION: Luftfahrt-Bundesamt (LBA) Airworthiness Directive No 2003-048 and Schempp-Hirth Technical Note No 360-19 of 20 December 2002 form part of this AD.

ACTIONS REQUIRED:

1. Add a mass-balance to the elevator halves;
2. Exchange the elevator pushrod in the fin;
3. Carry out a weight and balance and revise the load chart;
4. Replace pages in Maintenance Manual with new pages supplied;
5. Ensure weight and hinge moment of modified elevator is in accordance with the revised page 2.2.1 of the Maintenance Manual.

The above actions to be carried out in accordance with Schempp-Hirth TN 360-19 and associated working instructions.

WEIGHT AND BALANCE: New weight and balance required after carrying out above actions. The aircraft may be expected to be slightly heavier and the CG slightly further aft.

IMPLEMENTATION: Before next Form 2 inspection, but in any case not later than 30 April 2003.

COMPLIANCE: The requirements of this GFA Airworthiness Directive are mandatory. This Directive is issued pursuant to the Rules and Regulations of the Gliding Federation of Australia.

SIGNED:

SENIOR TECHNICAL OFFICER AIRWORTHINESS

For and on behalf of:

THE GLIDING FEDERATION
OF AUSTRALIA



**Airworthiness
Directive
2003-048**

Luftfahrt-Bundesamt
Airworthiness Directive Section
Hermann-Blenk-Str. 26
38108 Braunschweig
Federal Republic of Germany

Schempp-Hirth

Effective Date: March 06, 2003

Affected:

Kind of aeronautical product:	Sailplane
Manufacturer:	Schempp-Hirth, Kirchheim/Teck, Germany
Type:	Discus
Models affected:	Discus 2a and Discus 2b
Serial numbers affected:	13 up to 22, 24, 27, 28, 30 up to 48, 50, 51, 53 up to 55, 57 up to 63, 65, 67, 68, 71 up to 79, 81 and 82
	Note:
	Not affected are sailplanes which comply with Technical Note No. 360-16
German Type Certificate No.:	360

Subject:

Horizontal stabilizer and elevator pushrod

Reason:

To improve the flutter stability a mass balance on the elevators in connection with a lighter elevator pushrod in the vertical fin must be installed.

Action:

The following actions must be performed: add a mass balance to the elevator, exchange the elevator pushrod in the vertical fin, determine a new weight and balance, revise the load chart and replace some pages into the Maintenance Manual.

The actions must be done in accordance with the instructions of the Service Bulletin.

Compliance:

The action must be done before the next annual inspection, but not later than April 30, 2003..

Technical publication of the manufacturer:

Schempp-Hirth Technical Note No. 360-19 dated December 20, 2002 which becomes herewith part of this AD and can be obtained from Messrs.:

Schempp-Hirth
Flugzeugbau GmbH
Postfach 14 43
D- 73222 Kirchheim / Teck
Federal Republic of Germany
Phone: ++ 49 7021 7298-0 Fax: ++ 49 7021 7298-199
www.schempp-hirth.com info@schempp-hirth.com

Holders of affected aircraft registered in Germany have to observe the following:

Action has to be accomplished by the owner of the aircraft or an approved service station and to be checked and entered in the log book by a licensed inspector.

As a result of the a.m. deficiencies, the airworthiness of the aircraft is affected to such an extent that after the expiry of the a.m. dates the aircraft may be operated only after proper accomplishment of the prescribed actions. In the interest of aviation safety outweighing the interest of the receiver in a postponement of the prescribed actions, the immediate compliance with this AD is to be directed.

An appeal to this notice may be raised within a period of one month following notification. Appeals are to be raised with the Luftfahrt-Bundesamt, Hermann-Blenk-Str. 26, 38108 Braunschweig, in writing or for the purpose of drawing up minutes.

Enquiries regarding this Airworthiness Directive should be referred to Mr. Olaf Schneider, Airworthiness Directive Section at the above address, fax-no. 0049 531/2355-720. Please note, that in case of any difficulty, reference should be made to the German issue!

SHEMPP-HIRTH Flugzeugbau GmbH. Kirchheim/Teck	Technical Note No. 360-19	Page No. 01 No. of pages 02								
<u>SUBJECT:</u>	Horizontal tailplane and elevator pushrod									
<u>AFFECTED:</u>	Sailplane Discus-2a and Discus-2b (TC-No. 360) Serial Nos: 13 - 22, 24, 27, 28, 30 - 48, 50, 51, 53 - 55, 57 - 63, 65, 67, 68, 71 - 79, 81 and 82 <u>Important remark:</u> <u>Not</u> affected are sailplanes which comply with Technical Note No. 360-16 !									
<u>URGENCY:</u>	At the occasion of the next annual inspection, but not later than April 30, 2003.									
<u>REASON:</u>	To improve the flutter stability a mass balance on the elevators in connection with a lighter elevator pushrod in the vertical fin have to be installed.									
<u>ACTIONS:</u>	<div>1. <u>Elevators</u> A mass balance must be added to the elevators according the working instructions that the hinge moments are within the tolerances of the datas on page 2.2.1, issue December 2002, of the Maintenance Manual.</div> <div>2. <u>Elevator pushrod</u> An elevator pushrod (drawing No HS8-31.005) according the working instructions have to be installed in the vertical fin.</div> <div>3. <u>Weight and balance</u> As a result of the actions 1 and 2 a new weight and balance must be determined and the load chart revised.</div> <div>4. <u>Revisions of the Maintenance Manual</u> (revised pages dated December 2002) Following pages were replaced:<table><tr><td><u>Page</u></td><td><u>Title</u></td></tr><tr><td>0.1.3</td><td>Record of revisions</td></tr><tr><td>0.2.1</td><td>List of effective pages (*)</td></tr><tr><td>2.2.1</td><td>Weights and hinge moments</td></tr></table>(*) to be amended by hand</div>		<u>Page</u>	<u>Title</u>	0.1.3	Record of revisions	0.2.1	List of effective pages (*)	2.2.1	Weights and hinge moments
<u>Page</u>	<u>Title</u>									
0.1.3	Record of revisions									
0.2.1	List of effective pages (*)									
2.2.1	Weights and hinge moments									

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MATERIAL:

- 1 set mass balance weight for elevators
(2 x 40 mm, 2 x 50 mm, 2 x 300 mm)
drawing No S11HB321
- 10 off Roll pins, 2 x 15 mm (DIN 1481)
carbon fibre cloth 200 g/m² diagonal 200 x 350 mm,
glas fibre cloth No. 92110 diagonal 200 x 350 mm
- 0,2 kg Resin and hardener (suitable for repair)
- 1 off Elevator pushrod (20 x 0,5 mm)
drawing No. HS8-31.005
- 1 set sealing material and ZZ-tape for horizontal tail plane.

WEIGHTS:

Empty mass approx. 1 kg heavier

C/G POSITION:

More tailheavy

NOTE:

Accomplishment of the actions must be carried out by an approved maintenance facility and entered in the log book by a licensed inspector.

Kirchheim/Teck, December 20, 2002

Issued:


(H. Treiber)

LBA-approved:

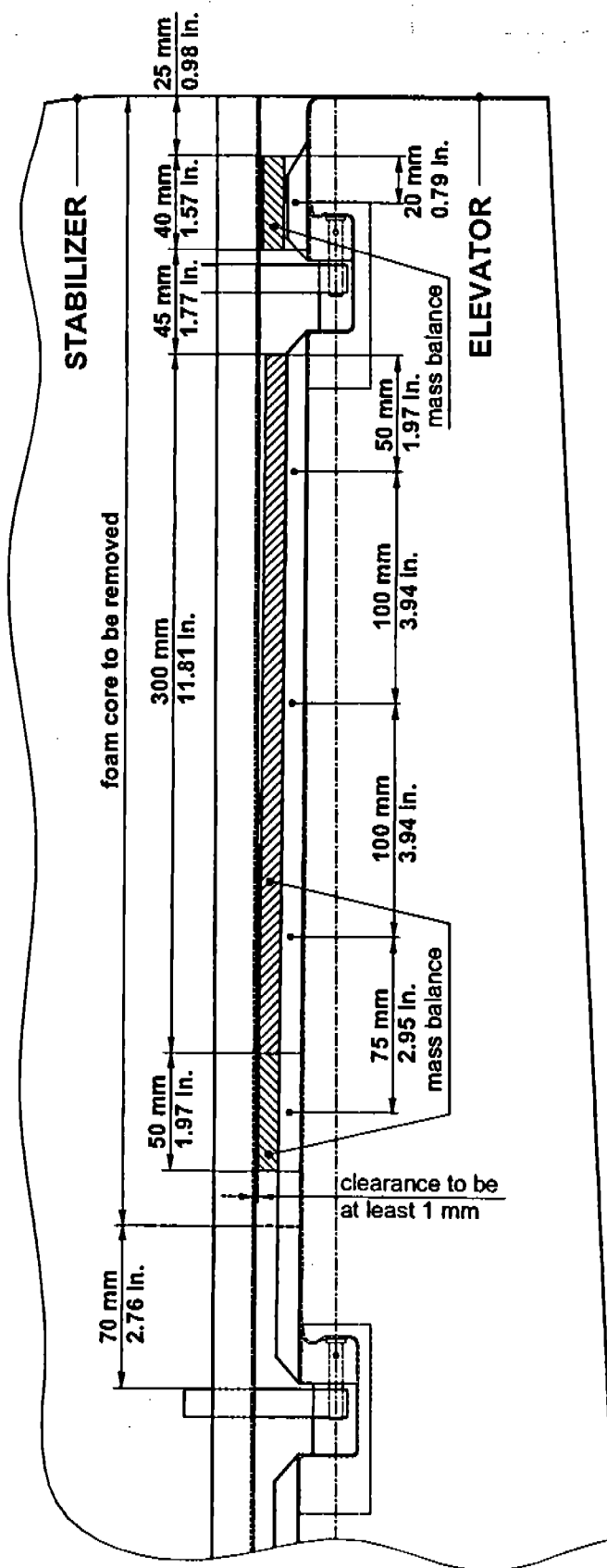
The German original of this Technical Note
has been approved by the LBA under the
date of 18 JAN 2003

and is signed by Mr. Blume

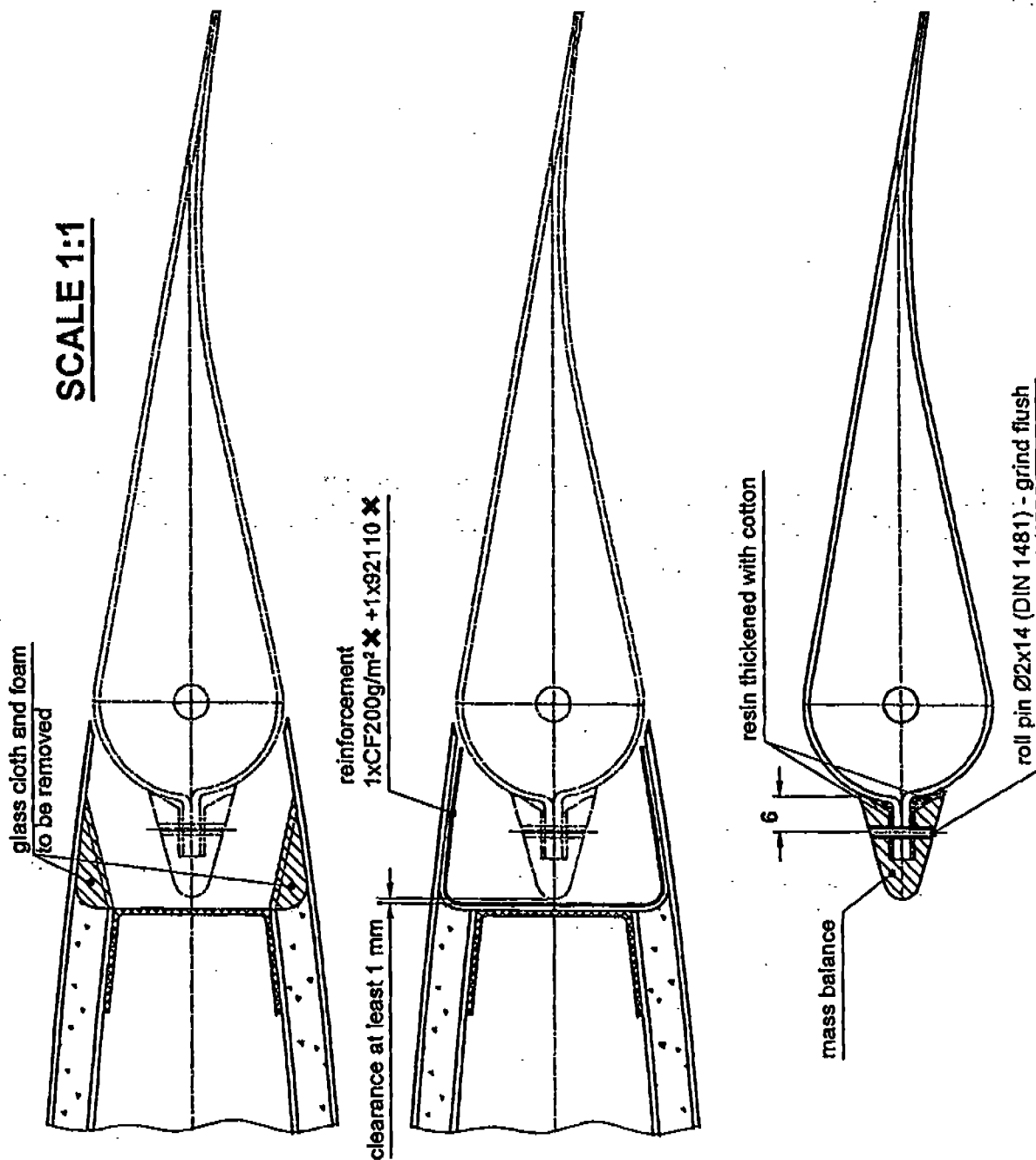
The translation into English has been done
by best knowledge and judgement.

WORKING INSTRUCTIONS FOR INSTALLING ELEVATOR MASS BALANCE

1. Remove sealing tape prior dismounting the elevator halves.
2. Stabilizer
 - a) Remove glass cloth and foam core from shroud up to the web
- see also page 02 and 03.
 - b) Reinforce shroud and web by applying additional carbon/glass cloth layers – see page 03.
3. Mass balance
 - a) Fit mass balance weight to elevator halves; make sure that there is a clearance of at least 1 mm between lead and web – see page 03.
If necessary, shorten elevator joining flange ahead of the hinge or grind off mass balance at the leading edge..
 - b) Bond mass balance weight in place and install roll pins.
 - c) Check elevator for free travel and determine residual moment (revised values shown in the Maintenance Manual).
If required, fit and install further mass balance (inwards) as described above – for gaining more space follow step 2.) if necessary.
 - d) Check once more elevator for sufficient travel – if necessary, grind off balancing lead.
 - e) Determine residual moment and mass of elevator halves.
4. Reinstall elevator halves.
5. Check elevator for free travel and proper deflections within the permitted range.
6. Install again the sealing tapes.



SCALE 1:1



Working instructions for removing/reinstalling the vertical elevator actuating rod inside the fin

- a) Remove bolt „M6“ connecting the vertical elevator actuating rod to the bellcrank (at base of fin) using a socket wrench (10 mm).

Recommendation: Thin tape in the socket of the wrench will prevent nut and bolt from falling down into the fuselage tail cone. The washer is removed with the aid of a small magnet. Using a drift facilitates the removal of the connecting bolt.

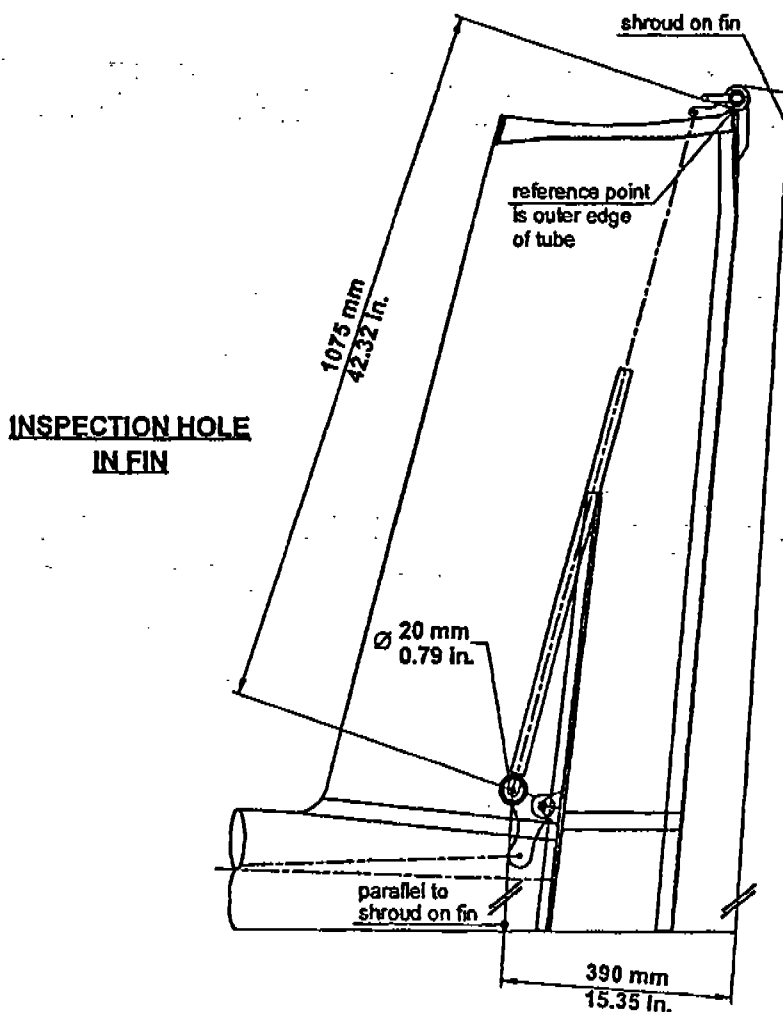
- b) Disconnect upper end of vertical elevator actuating rod from elevator actuating bracket (at top of fin) and remove rod.

- c) Reinstall new elevator actuating rod.

- d) Check elevator deflections – if necessary, readjust ball bearing rod end.

Make sure that thread of rod end has entered for a depth of at least 10 mm (0.39 in.)

- f) Check tail cone for foreign objects and tape over the openings at the base of the fin.

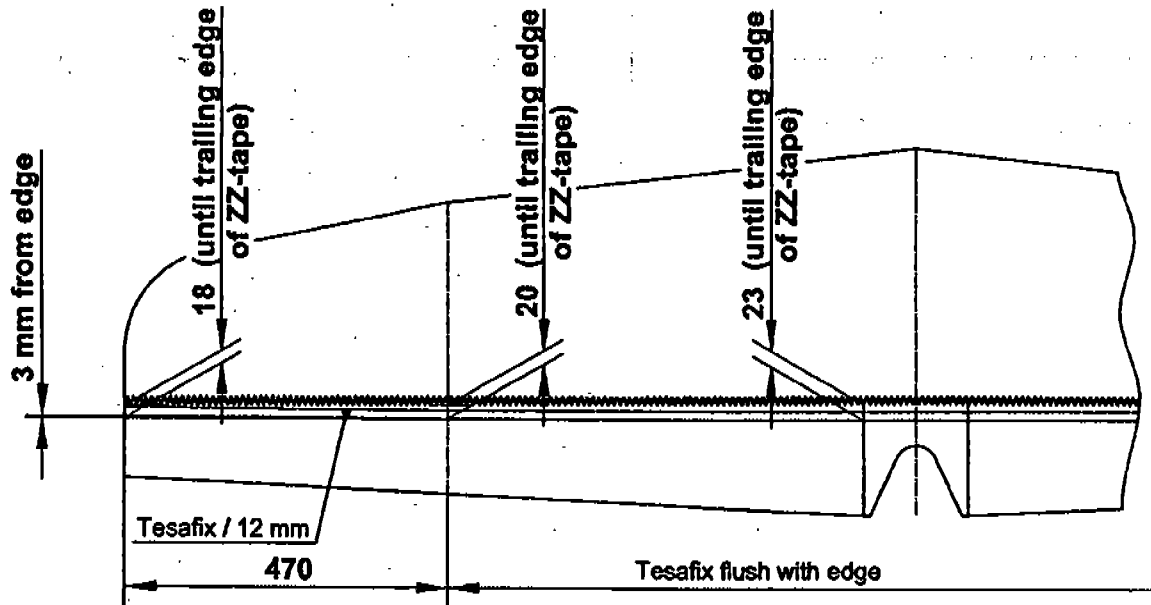


SCHEMPP-HIRTH
Flugzeugbau GmbH.
Kirchheim/Teck

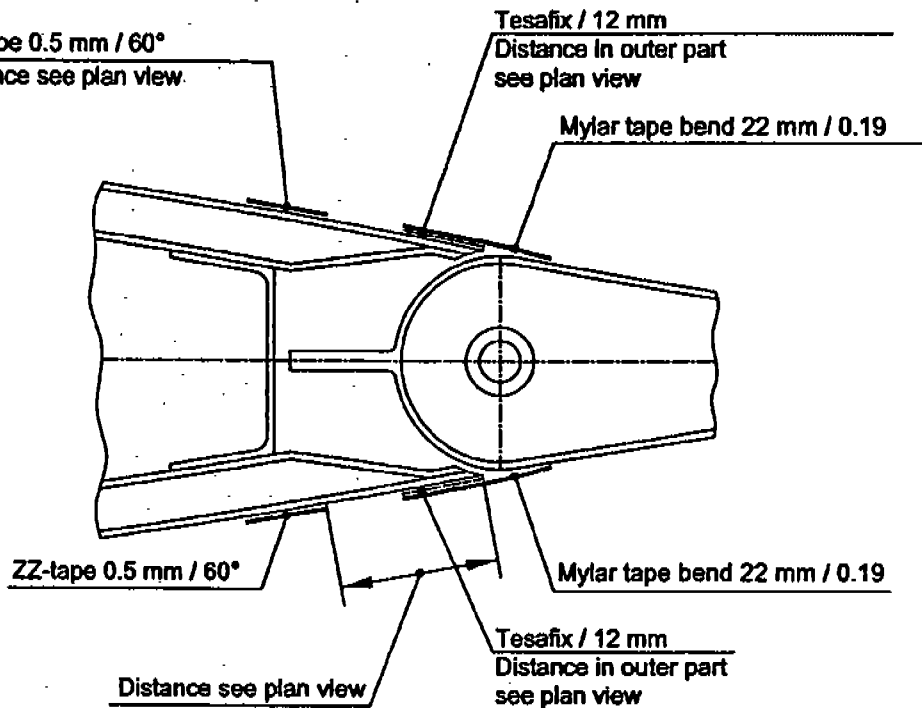
ZZ - tape position and sealing

Typ: Discus-2a/2b
Ventus-2a(x)/2b(x)

Geräte-Nr.: 360
349



ZZ-tape 0.5 mm / 60°
Distance see plan view.



Gezeichnet: Malcik

Datum: 03.05.02

Geprüft:

Datum:

T. Neuberger
20.12.2002

Discus-2a
Discus-2bWARTUNGSHANDBUCH / MAINTENANCE MANUAL0.1 Erfassung der Berichtigungen / Record of Revisions

Lfd.Nr. Rev.No.	Benennung Reference	Seite Page	Datum Date
10	<u>Technische Mitteilung Nr. 360-18</u> Einbauposition der Schwerpunktkupplung Discus-2b Werk-Nr. 1 bis 133 <u>Technical Note No. 360-18</u> CG tow release, mounting position Discus-2b, S/N 1 through 133	5.2.4	Januar 2002
11	<u>Technische Mitteilung Nr. 360-19</u> Höhenruder und Massenausgleich <u>Technical Note No. 360-19</u> Elevator with mass ballance	0.2.1 2.2.1	Dezember 2002

 MB: Modification Bulletin – Änderungsblatt
 TN: Technical Note – Technische Mitteilung

Discus-2a
Discus-2b

WARTUNGSHANDBUCH / MAINTENANCE MANUAL0.2 Verzeichnis der Seiten / List of effective pages

Seite / Page	Datum / Date	Bezug / Reference
0.1.1		
0.1.2		
0.1.3		
0.2.1		
0.2.2		
0.2.3		
0.3.1	Oktober 1998	
0.3.2	Oktober 1998	
0.3.3	Oktober 1998	
1.1	Oktober 1998	
1.2.1	Oktober 1998	
1.2.2	Oktober 1998	
1.2.3	Oktober 1998	
1.3	Oktober 1998	
1.4	Oktober 1998	
2.1.1	Oktober 1998	
2.1.2	Oktober 1998	
2.2.1	Dezember 2002	TN 360-19
2.2.2	Oktober 1998	
2.3	Oktober 1998	
2.4	Oktober 1998	
3.1.1	Oktober 1998	
3.1.2	Oktober 1998	
3.2.1	Oktober 1998	
3.2.2	Oktober 1998	
3.2.3	Oktober 1998	
3.2.4	Juli 2001	TN 360-17
3.3.1	Oktober 1998	
3.3.2	Oktober 1998	

2.2 Weights and hinge moments of control surfaces

After repair work or repainting, the hinge moment of a component must not and its weight should not exceed the following values:

Component	Weight	Residual moment
Rudder with mass balance	3.90 - 4.80 kg 8.60 - 10.58 lb	(-2.00) - (3.20) cmkg (-0.14) - (0.23) ftlb
<i>CRFP horizontal tailplane with:</i> 1 GFRP-elevator with mass balance, without fitting	1.15 - 1.40 kg 2.53 - 3.09 lb	1.00 - 1.85 cmkg 0.072 - 0.134 ftlb
Inbd. aileron with mass balance	3.00 - 3.70 kg 6.61 - 8.16 lb	3.40 - 4.40 cmkg 0.25 - 0.32 ftlb
Outbd. aileron with mass balance	0.95 - 1.30 kg 2.09 - 2.87 lb	(-0.30) - 0.20 cmkg (-0.02) - 0.015 ftlb

If the values shown in the above table are exceeded, it will be necessary to add an additional balance weight forward of the hinge axis as follows:

1. After repair work - in the area of the repair
2. After repainting - in the repainted area

After complete repainting – distributed along the whole length of the component (if there was no mass balance attached) or near or next existing mass balance.

Exceeding the value in the above weight table because of additional mass balance is permissible up to 15%, provided the residual moment within the tolerance.

