

THE GLIDING FEDERATION OF AUSTRALIA

GFA AD 536

(ISSUE 1)

GFA AIRWORTHINESS DIRECTIVE

TYPE AFFECTED: Duo Discus
Optional for serial numbers 1 and 8;
Standard on serial numbers 245 and up.

SUBJECT: Maximum permitted aerotow speed.

BACKGROUND: Re-location of the pitot head from the nose to the fin results in an increase in the maximum permitted aerotow speed from 81 kts to 97 kts.

DOCUMENTATION: Schempp-Hirth Technical Note 396-5 and its associated Flight and Maintenance Manual amendments form part of this AD.

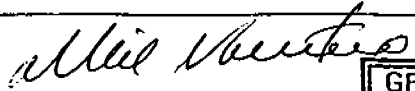
ACTION REQUIRED: As per TN 396-5.

WEIGHT AND BALANCE: Not affected.

IMPLEMENTATION: The Schempp-Hirth Technical Note has no urgency requirement.

If the pitot system is not modified to re-locate the pitot head on the fin, the lower aerotow speed applies and the Flight Manual and cockpit placards must reflect the lower value.

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: 		For and on behalf of:	
			
CHIEF TECHNICAL OFFICER AIRWORTHINESS		THE GLIDING FEDERATION OF AUSTRALIA	
GFA AD 536	ISSUE: 1	19 June, 2000	Page 1 of 14

SUBJECT: Maximum permitted speed on aerotow

AFFECTED: Sailplane model „Duo Discus“
(F.R.G. Type Certificate No. 396)

- optional for S/N 1 and 8 through 244
- standard on S/N 245 and up

URGENCY: ---

REASON: Earlier serial numbers have the Pitot tube fitted to the fuselage nose cone, sometimes causing excessive readings of the ASI on aerotow, so that a limitation of the maximum towing speed to 150 km/h (81 kt, 93 mph) was required.
With the relocation of the Pitot tube into the fin, this restriction is no longer necessary and allows to raise the maximum towing speed to 180 km/h (97 kt, 112 mph).

ACTIONS:

1. Accomplishment of Technical Note No. 396-3
(unless already done)
2. Replacement of the cockpit placard
 “Max. permitted speeds”
(See also page 8.1 of the Maintenance Manual)

3. Revisions of the Flight Manual
(revised pages dated January 2000)

<u>Page</u>	<u>Title</u>
0.1.3	- Record of revisions
0.2.1	- List of effective pages
0.2.3	- List of effective pages
0.2.5	- List of effective pages
2.2	- Airspeed limitations
2.13	- Aerotow
2.15	- Limitation placards
4.5.1.1	- Aerotow

ACTIONS (ctd.):

4. Revisions of the Maintenance Manual
(revised pages dated January 2000)

<u>Page</u>	<u>Title</u>
0.1.1	- Record of revisions
0.2.3	- List of effective pages
8.1	- Placards and pictograms

MATERIAL:

2 Cockpit placards

WEIGHT:

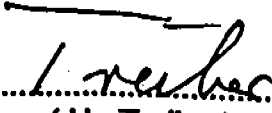
Not affected

C/G POSITION:

Not affected

Kirchheim/Teck, January 10, 2000

Issued


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(H . Treiber)

LBA-approved:

The German original of this document has
been approved by the LBA under the
date of 28 FEB. 2000
and is signed by Mr. Endt
The translation into English has been done
by best knowledge and judgement.

[illegible]

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

0.2 Verzeichnis der Seiten / List of effective pages

Ab- schnitt	Seite	Ausgabe- datum	Bezug
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2	2.1.1	Okt. 1993	TN 396-5 / MB 396-10
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	LBA-ank. 2.3	Okt. 1993	
	LBA-ank. 2.4	Okt. 1993	
	LBA-ank. 2.5	Okt. 1993	
	LBA-ank. 2.6	Okt. 1993	
	LBA-ank. 2.7	Okt. 1993	
	LBA-ank. 2.8	Okt. 1993	
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	LBA-ank. 2.10	Okt. 1993	
	LBA-ank. 2.11	Okt. 1993	
	LBA-ank. 2.12	Okt. 1993	TN 396-5 / MB 396-10
	LBA-ank. 2.13	Jan. 2000	
	LBA-ank. 2.14	Okt. 1993	
	LBA-ank. 2.15	Jan. 2000	TN 396-5 / MB 396-10

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4	4.1.1	Okt. 1993	MB 396-3
	4.1.2	Okt. 1993	
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	LBA-ank. 4.2.2	Apr. 1994	
	LBA-ank. 4.2.3	Okt. 1993	
	LBA-ank. 4.3.1	Okt. 1993	
	LBA-ank. 4.3.2	Okt. 1993	
	LBA-ank. 4.3.3	Feb. 1996	
	LBA-ank. 4.3.4	Feb. 1996	
	LBA-ank. 4.4	Okt. 1993	
	LBA-ank. 4.5.1.1	Jan. 2000	TM396-5/MB396-10
	LBA-ank. 4.5.1.2	Feb. 1996	
	LBA-ank. 4.5.1.3	Okt. 1993	TM396-3/MB396-7
	LBA-ank. 4.5.1.4	Okt. 1993	
	LBA-ank. 4.5.2	Okt. 1993	FAA
	LBA-ank. 4.5.3.1	Dez. 1994	
	LBA-ank. 4.5.3.2	Okt. 1993	
	LBA-ank. 4.5.3.3	Feb. 1996	
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	LBA-ank. 4.5.6.3	Okt. 1993	
	LBA-ank. 4.5.6.4	Okt. 1993	TM396-3/MB396-7
	LBA-ank. 4.5.6.5	Okt. 1993	
	LBA-ank. 4.5.7.1	Okt. 1993	
	LBA-ank. 4.5.7.2	Okt. 1993	
	LBA-ank. 4.5.8	Okt. 1993	
	LBA-ank. 4.5.9	Okt. 1993	

2.2 Airspeed

Airspeed limitations and their operational significance are shown below:

	SPEED	(IAS)	REMARKS
V_{NE}	Never exceed speed in calm air	250 km/h 135 kt 155 mph	Do not exceed this speed in any operation and do not use more than 1/3 of control deflection.
V_{RA}	Rough air speed	180 km/h 97 kt 112 mph	Do not exceed this speed except in smooth air, and then only with caution. Rough air is met in lee-wave rotors, thunderclouds etc.
V_A	Maneuvering speed	180 km/h 97 kt 112 mph	Do not make full or abrupt control movements above this speed as the aircraft structure might get overstressed.
V_T	Maximum speed on aerotow	180 km/h 97 kt 112 mph	Do not exceed this speed during an aerotow.
V_W	Maximum winch launch speed	150 km/h 81 kt 93 mph	Do not exceed this speed during a winch launch.
V_{LO}	Maximum landing gear operating speed	180 km/h 97 kt 112 mph	Do not extend or retract landing gear above this speed.

2.13 Aerotow and winch launch

Aerotow

Maximum towing speed : 180 km/h (97 kt, 112 mph)

Weak link in tow rope : 700 - 910 daN (1543 -
2006 lb)

Minimum length of
tow rope : 30 m (98 ft)

Tow rope material : Hemp or Nylon

Winch launch

Max. launching speed : 150 km/h (81 kt, 93 mph)

Weak link in
winch cable : 700 - 910 daN (1543 -
2006 lb)

2.15 Limitation placards

MAXIMUM PERMITTED ALL-UP MASS: 700 kg (1543 lb)			
MAXIMUM PERMITTED SPEEDS (IAS): km/h kt mph			
Never exceed speed	250	135	155
Rough air speed	180	97	112
Maneuvering speed	180	97	112
Aerotowing speed	180	97	112
Winch launching speed	150	81	93
Landing gear operating speed	180	97	112

fin tank n o t installed

LOAD ON THE SEATS (crew incl. parachutes)				
SEAT LOAD	TWO PERSONS		ONE PERSON	
	min.	max.	min.	max.
front seat load	70* kg 154* lb	110* kg 243* lb	70* kg 154* lb	110* kg 243* lb
rear seat load	at choice	110* kg 243* lb	_____	_____
Loads of less than the above minimum must be raised by using trim ballast - see instructions given in section 6.2 of the Flight Manual.				

fin tank i n s t a l l e d

LOAD ON THE SEATS (crew incl. parachutes)				
SEAT LOAD	TWO PERSONS		ONE PERSON	
	min.	max.	min.	max.
front seat load	100* kg 220* lb (70*)kg (154*)lb	110* kg 243* lb	100* kg 220* lb (70*)kg (154*)lb	110* kg 243* lb
rear seat load	at choice	110* kg 243* lb	_____	_____
Loads of less than the above minimum must be raised by using trim ballast - see instructions given in section 6.2 of the Flight Manual. The value shown in parenthesis may be used after having thoroughly checked the ballast quantity in the fin tank and the appropriate loading chart.				

- * As the actual minimum or maximum load on the seats of this "Duo Discus" (to which this manual refers) may differ from these typical weights, the placards in the cockpit must always show the actual weights, which are also to be entered in the log chart - see page 6.2.3.

Note:

Further placards
are shown in the
Maintenance Manual

WEAK LINK FOR TOWING	
for Aerotow and Winch launch: max. 910 daN (2006 lb)	
TIRE PRESSURE	
Nose wheel :	3.0 bar (43 psi)
Main wheel :	4.0 bar (57 psi)
Tail wheel :	
(if installed)	3.0 bar (43 psi)

4.5 Normal operating procedures and recommended speeds

4.5.1 Methods of launching

Aerotow

ONLY PERMISSIBLE WITH NOSE TOW RELEASE IN PLACE

Maximum permitted towing speed:

$$V_T = 180 \text{ km/h (97 kt, 112 mph)}$$

For aerotow only the nose tow release must be used - hemp and nylon ropes of between 30 and 40 m length (98-131 ft) were tested.

Prior to take-off set elevator trim as follows:

- Rearward c/g positions : Lever forward to first third of its travel
- Other c/g positions : Lever to the middle of its travel

As the tow rope tightens, apply the wheel brake gently (by actuating the stick-mounted lever) to prevent the "Duo Discus" from overrunning the rope.

In crosswind conditions the aileron control should be held towards the downwind wing, i.e. in winds from the left the stick should be displaced to the right. This is to counteract the lift increase on the right wing generated by the tug's prop wake, which the crosswind forces to drift to the right.

For intermediate to forward c/g positions the elevator should be neutral for the ground run; in the case of rearward c/g positions it is recommended that down elevator is applied until the tail lifts.

After lift-off the elevator trim can be set for a minimum in control stick loads.

0.1 Erfassung der Berichtigungen / Record of Revisions

Lfd.Nr. Rev.No.	Benennung Reference	Seite Page	Datum - Date
1	<u>Änderungsblatt Nr. 396-2</u> Fahrwerksbetätigung bei Werk-Nr. 1 <u>Modification Bulletin No. 396-2</u> U/C operation on S/N 1	0.2.3 8.4 Diagr. 4	April 1994
2	<u>Änderungsblatt Nr. 396-3</u> Ansteckflügel bei Werk-Nr. 16 und ab Werk-Nr. 18 <u>Modification Bulletin No. 396-3</u> Wing tip extension on S/N 16 and S/N 18 and up	Diagr. 2	April 1994
3	FAA-Ergänzung FAA- initiated supplements	0.2.1 0.2.2 3.2.2 5.4.1	Dezember 1994
4	<u>TM-Nr. 396-3 / AB-Nr. 396-7</u> Gesamtdruckabn. für den Fahrtmesser im SLW Werk-Nr. 1, 8 bis 84 wahlweise ab Werk-Nr. 85 serienmäßig <u>TN-No. 396-3 / MB-No. 396-7</u> Pitot tube in fin optional for S/N 1 and 8 through 84 standard on S/N 85 and up	0.2.2 5.2.1	Februar 1996
5	<u>Änderungsblatt Nr. 396-8</u> Anschallgurtsystem 4-01-0856 und 4-02-0256 wahlweise Verwendung bei allen Werk-Nrn. <u>Modification Bulletin No. 396-8</u> Optional use of SCHROTH restraint systems type 4-02-56 for all S/N	0.2.3 7.1	März 1996
6	Leermassen-Anpassung Supplements concerning the empty mass	0.2.2 6.4.2 6.4.3 6.7	April 1996
7	Ergänzung Farbkennzeichnung Appendix ACM schemes		November 1996
8	<u>TM-Nr. 396-5 / AB-Nr. 396-10</u> wahlweise Werk-Nr. 1, 8 bis 244 serienmäßig ab Werk-Nr. 245 Höchstzul Flugzeugschleppgeschwindigkeit <u>TN-No. 396-5 / MB-No. 396-10</u> optional for S/N 1, 8 through 244 standard on S/N 245 and up Maximum permitted speeds	0.2.3 8.1	Januar 2000

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

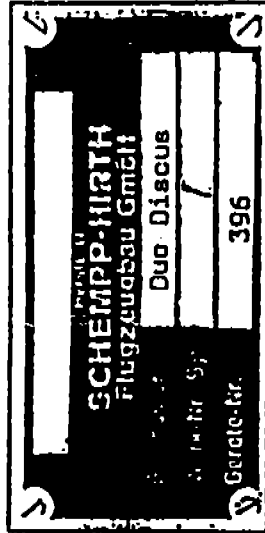
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7.1	März 1996	MB 396-8
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7.2.3	Jan. 1994	
7.2.4	Jan. 1994	
8.1	Jan. 2000	TN 396-5 / MB 396-10
8.2	Jan. 1994	
8.3	Jan. 1994	
8.4	Jan. 1994	
8.5	Jan. 1994	
8.6	Jan. 1994	
9	Jan. 1994	
10	Jan. 1994	
11	Jan. 1994	

Duo Discus

8. Placards and pictograms

Placing:



Identification plate
(fire resistant)

Cockpit inner skin in the
rear on the right

MAXIMUM PERMITTED ALL UP MASS: 700 kg (1543 lb)			
MAXIMUM PERMITTED SPEEDS (IAS): km/h kt mph			
Never exceed speed	250	135	155
Rough air speed	180	97	112
Maneuvering speed	180	97	112
Aerotowing speed	180	97	112
Winch launching speed	150	81	93
Landing gear operating speed	180	97	112

Operating limits

Cockpit inner skin on the
left for either seat

WEAK LINK FORTOWING	
for Aerotow and Winch launch: max. 910 daN (2006 lb)	
TIRE PRESSURE	
Nose wheel :	3.0 bar (43 psi)
Main wheel :	4.0 bar (57 psi)
Tail wheel :	
(if installed)	3.0 bar (43 psi)

Operating limits

Cockpit inner skin in the
rear on the left