

0.1 Record of revisions

Any revision of the present manual, except actual weighing data, must be recorded in the following table and in case of approved sections endorsed by the responsible airworthiness authority.

The new or amended text in the revised page will be indicated by a black vertical line in the right hand margin, and the Revision No. and the date will be shown on the bottom left hand of the page.

Rev. No.	Affected Pages/section	Description	Issue Date	LBA Approval Date	Inserted Date Signature
1	0.5, 9.1-9.3	TN 384/5 Winglets at the 18 m wingtips	June 98	22.7.1998	
2	0.4, 7.5	TN 384/6 Parking brake combined with an airbrake securing device (Piggott-hook)	Dec, 2000	7.02.2001	
3	0.3, 0.4, 2.5, 4.11, 4.15, 5.3, 6.9	TN 384/8 manual revision	Nov. 2001		

Issued: see last item

0.1

0.2 List of effective pages

Section	Page	issued	replaced	replaced
0	0.0	April 1997		
	0.1	/		
	0.2	/		
	0.3	see record of revisions		
	0.4	"		
	0.5	"		
1	0.6	April 1997		
	1.1	"		
	1.2	"		
	1.3	"		
	1.4	"		
	1.5	"		
2	1.6	"		
	2.1	April 1997		
	2.2	"		
	2.3	"		
	2.4	"		
	2.5	"	Nov. 01	
	2.6	"		
	2.7	"		
	2.8	"		
	2.9	"		
2.10	"			
3	3.1	April 1997		
	3.2	"		
	3.3	"		
	3.4	"		
4	4.1	April 1997		
	4.2	"		
	4.3	"		
	4.4	"		
	4.5	"		
	4.6	"		
	4.7	"		
	4.8	"		
	4.9	"		
	4.10	"		
	App.	4.11	"	Nov. 01

Issued: November 2001 TN 384/8

0.3

0.2 List of effective pages (cont.)

Section		page	issued	replaced	replaced
4	App.	4.12	April 1997		
	"	4.13	"		
	"	4.14	"		
	"	4.15	"	Nov. 01	
	"	4.16	"		
5	"	5.1	April 1997		
	"	5.2	"		
	"	5.3	"	Nov. 01	
	"	5.4	"		
	App.	5.5	"		
		5.6	"		
		5.7	"		
		5.8	"		
6		6.1	April 1997		
		6.2	"		
		6.3	"		
		6.4	"		
		6.5	"		
		6.6	April 1997		
		6.7	"		
		6.8	"		
		6.9	"	Nov. 01	
		6.10	"		
7		7.1	April 1997		
		7.2	"		
		7.3	"		
		7.4	"		
		7.5	"	Dec. 2000	
		7.6	"		
		7.7	"		
		7.8	"		
		7.9	"		
		7.10	"		

2.4 Mass (weight)

Maximum take-off mass:
with waterballast : 525 kg (1157 lbs.)

without waterballast: $W = W_{NLP} + W_{wings}$

W_{NLP} = max. mass of all non lifting parts see below

W_{wings} = actual mass of the wings

Maximum landing mass: 525 kg (1157 lbs.)

Caution: It is recommended to dump the waterballast before landing on airfields. Dump the ballast before an outlanding in any case.

Maximum mass of all
non lifting parts = 250 kg (551 lbs.)

Maximum mass in baggage
compartment = 15 kg (33 lbs.)

Caution: Heavy pieces of baggage must be secured to the baggage compartment floor.
The max. mass secured on one half of the floor (left and right of fuselage centre line) should not exceed 7.5 kg (16.5 lbs.).

Maximum waterballast
in the wings = 120 kg (265 lbs.) or 174 kg (384 lbs.)

(see section 7.10)
in the tail fin tank = 6.2 kg (13.7 lbs.)

The max. take-off weight is not to be exceeded.

Warning: Follow the loading procedures see sect. 6.

2.5 Centre of gravity

Centre of gravity range in flight is:

210 mm (8.27 in.) up to 350 mm (13.78 in.) behind datum.

datum = wing leading edge at the rootrib

reference line = aft fuselage centre line horizontal

C.G. diagrams and loading chart see sect.6.

4.5.2 Free flight

Stalling characteristics (level and turning flight)

When stalled with flap setting neutral or negative the DG-800S will continue to fly level.

If the stick should be pulled further the DG-800S will drop the nose or one wing.

During the stall a large angle of attack will be reached.

At positive flap settings the DG-800S will stall over one wing.

When reaching the minimum speed, the angle of attack has to be increased remarkably, before the DG-800S stalls so that the stalled flight is easy to recognize.

With a little stick forward and opposite rudder the DG-800S can be recovered without much loss of height. Rain does not influence this behaviour noticeably. The loss of height is appr.30m(100ft) if recovered immediately.

Stall airspeeds see sect. 5.2.2.

Caution: Flights in conditions conducive to lightning strikes must be avoided.

Wing flap settings

Optimal settings depending on the wing loading see sect. 5.3.2.

High speed flying

Flap settings 0°, -5°, -9°

The parallelogram control stick reduces the possibility of pilot induced oscillations.

The DG-800S can be trimmed almost up to high speeds.

Nevertheless don't release the stick at any time.

Do not exceed the max. airspeeds. (see sect. 2.2!)

Thermalling

Flap setting: + 10°.

+ 13° for narrow thermals

Thanks to the long fuselage, the DG-800S is directionally very stable.

Uneven lift can be optimized because of the excellent roll rate.

4.5.8 Aerobatics

Permissible only without ballast in the wings

Execute only the approved manoeuvres. At the recommended entry airspeeds there is no need to pull up abruptly, unnecessarily stressing the aircraft. The following manoeuvres are easy to execute. Wing flap setting for all manoeuvres 0°.

Approved manoeuvres

1. Spins	/		
2. Inside Loop	Entry Speed	180 km/h	(97 kts.)
3. Stall turn	Entry Speed	180 km/h	(97 kts.)
4. Chandelle	Entry Speed	180 km/h	(97 kts.)
5. Lazy Eight	Entry Speed	180 km/h	(97 kts.)

Spins:

Caution: Continuous spinning is best

at **aft C.G. positions** 330-350 mm

(13.0 - 13.8 in) behind datum.

It is not necessary to extend the dive brakes during spin recovery. The DG-800S shows a large nose down pitch after leaving spin if you are spinning more than 2 turns. So you have to flare out correspondingly.

With **forward C.G. position** the DG-800S will not remain in a spin.

The DG-800S will recover after 1-2 turns (depending on C.G. position).

As the nose down pitch and the airspeed will be high with this C.G. position spinning should not be executed.

At **medium C.G. position** there is a tendency that the spin will turn into a spiral dive after 3 turns. Reaching this state you have to recover immediately. The spiral dive tendency can be avoided if you deflect the aileron into the direction of the spin when inducing the spin.

Inducing the spin: (Normal procedure)

Gradually bring the sailplane into a stall. When it starts to burble, pull the stick back completely and kick in full rudder in the spin direction.

Recovering from the spin:

Apply full opposite rudder against direction of the spin. Then ease stick forward until the rotation ceases. At aft C.G. positions at which the glider spins with the nose up, it is necessary to apply full stick forward.

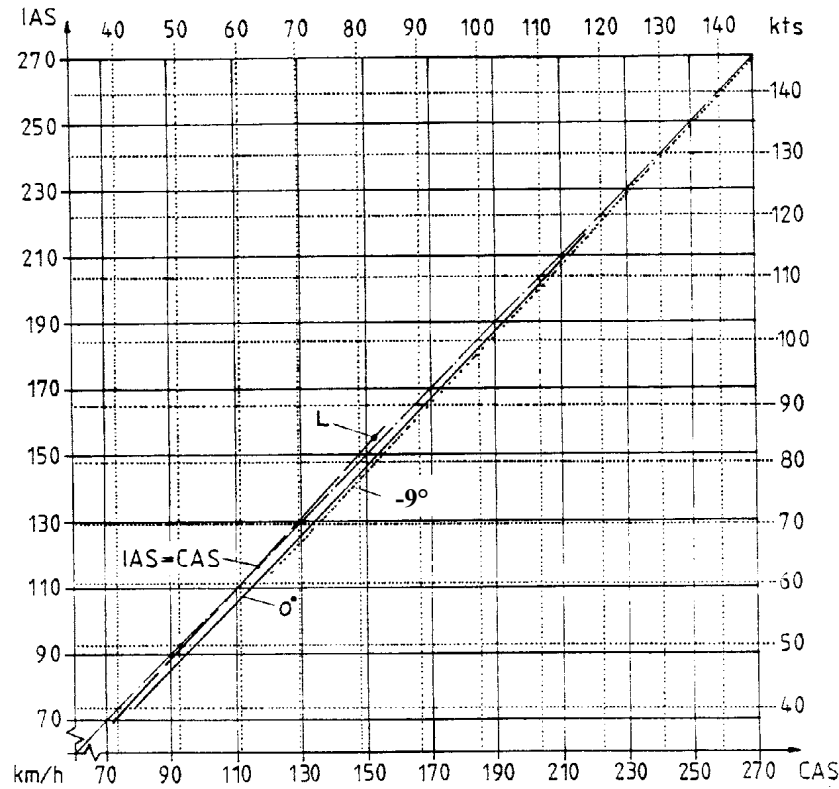
Centralize the controls and carefully pull out of the dive.

The ailerons should be kept neutral during recovery.

Height loss during recovery is up to 150 m (490 ft), the max. speed is 190 km/h (103 kts.).

5.2 Approved data

5.2.1 Airspeed indicator system calibration



IAS= indicated airspeed
CAS= calibrated airspeed

Caution: The airspeed indicator is to be connected to the front static ports and the pitot probe in the fuselage nose.

6.9 C.G. calculation

The actual C.G. can be determined as follows:

For each item, the moment mass x C.G. has to be determined and to be summed up and divided by the total mass. See the following example:

1 kg = 2.2046 lbs. = .264 US gal. water 0.305 m = 1 ft

Item	mass kg	C.G. behind datum m	moment m kg
aircraft empty	265	0.56	148.4
pilot	78	- 0.55	- 42.9
waterballast in the wings	70	0.171	12
water ballast in the fin tank	2.8	4.338	12.2
	415.80	XS=0.312	129.7

CG = moment / mass

The limits of the in-flight C.G. 0.210 m - 0.350 m should not be exceeded!

The most important C.G. positions (behind datum):

Pilot:

The C.G. position is dependent on the pilots shape, mass, thickness of the parachute and the seat back position. The pilot C.G. position can be determined by executing a weight and balance measurement with glider empty and equipped with the pilot etc. see maintenance manual section 5. Please note, that the distance a has to be measured with both configurations, as it may change due to deflection of the landing gear.

The pilot C.G. can be determined by the following

Equation: $XP = (XSF \cdot MF - XSE \cdot ME) / MP$

MF = flight mass XSF = flight C.G. MP = pilot mass
ME = empty mass XSE = empty C.G.