Schempp-Hirth Flugzeugbau GmbH
Krebenstraße 25 · Postfach 14 43
D-7312 Kirchheim unter Teck

FLIGHT MANUAL

for the sailplane model

VENTUS B 16.6

Translation of the German Manual

Issue: April 1983

This manual must be carried on board at all times.

It refers to the sailplane

Model : Ventus b/16.6

Registration No. : . . . . . .

Serial No. : . . . . . .

Manufacturer : . . . . . .

Owner : . . . . . .

This English edition of the "Ventus b/16.6" Flight Manual has been translated with care, and is accurate to the best of our knowledge. However, in all official matters the original German text is the authoritative and definite document.

20. Dez. 1983

Page No. 15 through No. 49 are approved by the Luftfahrtbundesamt

Table of contents Page No.

Table of contents Page No.

AMENDMENT LIST

(log of revisions)

No.	Reference/ short title	Page	Date
1.	Technical Note No. 349-6:		
	Modified canopy locking device (S/N 2,4,21,26,27, 28,33,35)	7, 12,29	April 1983
	Modified canopy jettisoning device (S/N 2,4,21,26,27, 32,33,35,36,37)	7, 12,29	April 1983
2.	Technical Note No. 349-7 Increase of the max. A.U.W. at 15 m Wing span. Increase of the non-lift carrying parts at 15 m and 16.6 m wing span.	4,10, 13,18, 19,22A, 22B,23, 24,26, 28,31, 36,36A, 38,40 42, 43, 44, 47	June 1983
	27. Juli 1984	17,45A	March 1984
3.	Optional use of modified water tank filler caps	42	June 1984
	09. Juli 1984		

Approval of translation has been done by best knowle[dge] and judgement. In any case the original [text] is [illegible]

AMENDMENT LIST

(log of revisions)

No.	Reference/short title	Page	Date
4.	Technical Note No. 349 - 2: affected: Sailplanes being exported to the Netherlands	11,16, 27,46	Oct 1984
5.	Technical Note No. 349 - 8: Optional installation of a tail wheel (instead of standard skid)	21, 32	Oct 1986
6.	Technical Note No. 349 - 14: Optional tilt up instrument panel	5, 6, 29, 30	Sept. 1987
7.	Technical Note No. 349 - 12: Revisions for Italian Type Approval	25,27,28	Febr. 1988
8.	Technical Note No. 349 - 4: Cloud flying not approved in Canada	1/2 25,45	April 1989
9.	Technical Note No. 349 - 15: Nose and c/g tow release mechanism	24	April 1991
10.	Technical Note No. 349-31 Installation of an emergency bail out assistance system - optional all serial numbers -	1/2, 50, 51, 52, 53, 54	Oct. 2006

1. General

1.1 General description

The Ventus is a single seat high performance sailplane in CRP/FRP construction, flap-equipped, with T-tail (horizontal stabilizer and elevators). It can be flown in either a 15 m or a 16.6 m version.

Wings

The four-piece (16.6 m) and two-piece (15 m) wings have a triple trapezoid planform. The trailing edge airbrakes are a combination of spoilers and flaps. Flaps and ailerons have internal drives. Water ballast tanks are integral compartments in the wing nose, total capacity approx. 168 liters.
Wing shells are of carbon fiber/foam-sandwich with spar flanges of carbon fiber rovings and shear webs of FRP/foam-sandwich.

Fuselage

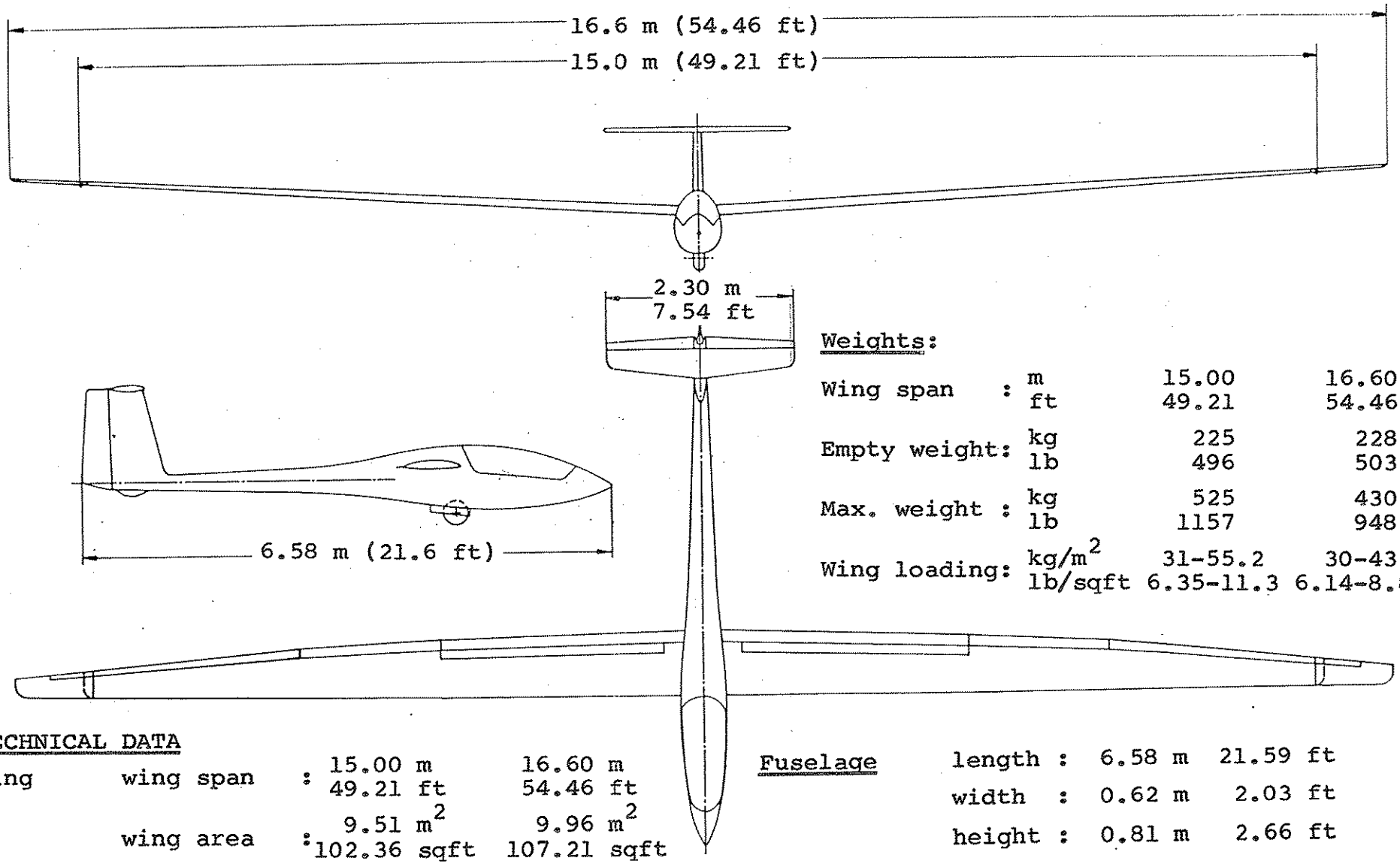
The pilot has a semi-reclining position. The cockpit is comfortable. A one-piece canopy hinges sideways. The fuselage shell is a pure fiberglass lay-up without sandwich and therefore is highly energy absorbing. It is stiffened towards the tail with FRP/foam sandwich webs and the forward fuselage features a double shell on both sides and on the bottom. The undercarriage is retractable and is fitted with a wheel brake.

Horizontal tailplane

The stabilizer of the horizontal tailplane is built in fiberglass/foam-sandwich and the elevators in pure fiberglass lay-up.

Vertical tail

Both fin and rudder are FRP sandwich construction.



Weights:

Wing span :	m	15.00	16.60
	ft	49.21	54.46
Empty weight:	kg	225	228
	lb	496	503
Max. weight :	kg	525	430
	lb	1157	948
Wing loading:	kg/m^2	31-55.2	30-43
	lb/sqft	6.35-11.3	6.14-8.80

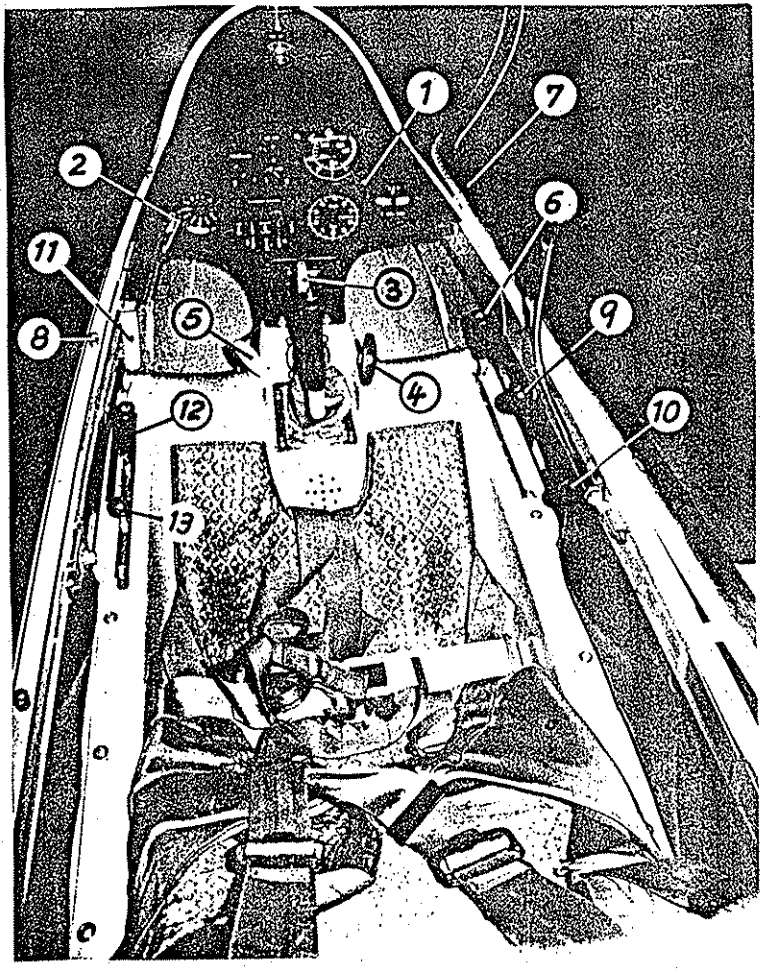
TECHNICAL DATA

Wing	wing span :	15.00 m 49.21 ft	16.60 m 54.46 ft
	wing area :	9.51 m^2 102.36 sqft	9.96 m^2 107.21 sqft
	aspect ratio:	23.7	27.7

Fuselage

length :	6.58 m	21.59 ft
width :	0.62 m	2.03 ft
height :	0.81 m	2.66 ft

1.2 Cockpit lay out and controls



All instruments and controls are within easy reach of the pilot.

(1) Instrument panel

The instrument cover is attached by four screws. The instrument panel is attached to the canopy coaming frame of the fuselage and is easy to detach.

(2) Ventilation

Small black knob on the left side of the instrument panel.

Pull - Closed

Push - Open

In addition, the sliding window or the airscoop in the window may be used for ventilation.

(3) Wheel brake

The brake lever is mounted to the control stick.

(4) Rudder pedal adjustment

Black T-shaped grip on the right side base of the instrument console.

Forward adjustment: Release the locking device by pulling the T-grip. Push pedals with heels into desired position and let them engage the nearest notch.

Backward adjustment: Pull pedals back with T-grip into desired position. Forward pressure with heels (not toes) will engage pedals into the nearest notch with an audible click.

The rudder pedals may be adjusted on the ground and in the air.

(5) Tow release

Yellow T-shaped grip on the left side base of the instrument console.

By pulling the grip the winch cable/ tow rope is released.

(6) Undercarriage

Retract: Unlock the black handle on the right hand side of the seat mould support, pull back and engage in rear recess.

Extend : Unlock black handle, push forward and engage in front recess.

(7) Canopy

The one-piece plexiglass canopy hinges sideways on flush fittings.

Take care that the cable holding the canopy in open position is attached.

(8) Canopy lock

Lever with red ball-shaped knob on the left hand canopy frame.

Rearward position - locked

To open the canopy push lever forward and raise canopy.

(9) Canopy emergency jettison

Red knob on right hand cockpit side-fairing:

Rearward position - locked

To jettison the canopy, first push the locking lever on the left hand canopy frame forward, raise canopy, push red knob on right hand cockpit side-fairing forward and throw off canopy.

(10) Dumping water ballast

Black ball-shaped knob in the midlle of the right hand cockpit side-fairing:

Forward position - valve closed

Rearward position - valve open

To lock the valve open push knob downwards in recess.

(11) Airbrake lever

Blue handle, directed downwards, on left cockpit wall.

Forward position - airbrakes closed and locked

Pulled back approx. 40 mm (1.6 in.) - unlocked

Pulled fully back - airbrakes and flaps fully extended

(12) Flap control lever

Black handle on left seat mould support. Move lever inwards, select flap setting and let engage.

Forward position - high speed range

Rearward position - low speed range

(13) Trim

Green knurled knob on left seat mould support, mounted to the flap push/pull rod.

The spring loaded trim is gradually adjusted by freeing the knurled knob, sliding it into the desired position and tightening up the knurled knob again.

Forward position - nose heavy

Rearward position - tail heavy

A neutral position of the trim at flap setting "0" is shown at the recess by means of a green marking.

(14) Parachute rip cord attachment

Red ring, situated at the front of the steel fuselage frame, left side.

Cockpit data- and reference placards

Identification plate (fire proof)

Manufacturer:
SCHEMPP-HIRTH
Kirchheim-Teck

Type:

Serial No/Yr of Mfr:

T.C. Number:

Operating limits

Maximum permitted all-up weight:

Wing span 15.0 m : 1157 lb / 525 kg
Wing span 16.6 m : 948 lb / 430 kg

Max. permitted speeds (IAS):	kt	mph	km/h
Flap settings -1, -2, S	135	155	250
Flap settings L, +2, +1, 0	86	99	160
in rough air	102	118	190
Maneuvering speed	102	118	190
Aerotow	97	112	180
Auto/Winch launch	81	93	150
for U/C extension	97	112	180

Weak links for towing:

Maximum 680 daN (1499 lb)

Main wheel tire pressure:

up to 330 kg/728 lb = 3.5 bar (50 psi)
above 330 kg/728 lb = 4.7 bar (67 psi)

Loading table

Load on pilot's seat
(pilot and parachute)

Maximum load 110 kg / 242.5 lb *

Minimum load 70 kg / 154.3 lb *

Pilot's weight of less than 70 kg/ 154.3 lb must be raised by using trim ballast

* Any deviations thereof are to be entered into the log sheet - see page 23

Check list before take-off

- o Parachute securely fastened ?
- o Safety belt secured and tight ?
- o Back rest and pedals in comfortable position ?
- o All controls and instruments accessible ?
- o Airbrakes locked after function check ?
- o All control surface movements checked with assistant ?
- o Controls free ?
- o Trim correctly adjusted ?
- o Flaps in take-off position ?
- o Canopy closed and locked ?

AEROBATICS: Without water ballast the following maneuvers are permitted:

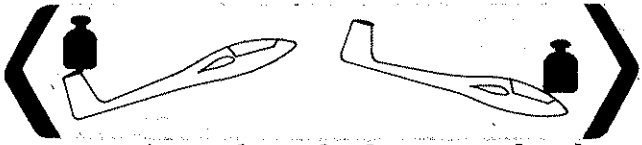
(a) Inside Loops
(b) Stalled Turns
(c) Lazy Eight

Baggage compartment
Max. load: 2 kg/4.4 lb

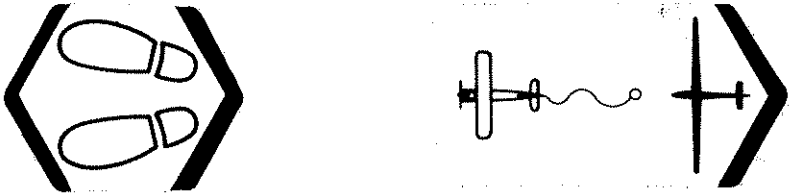
Locking pin flush with upper surface

Operating handles and knobs

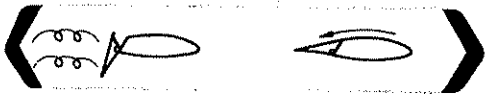
EXTEND - Undercarriage - RETRACT



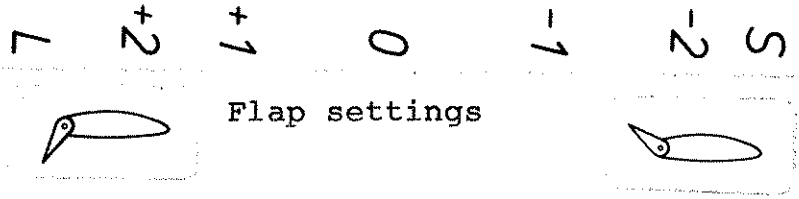
Trim - knurled green knob



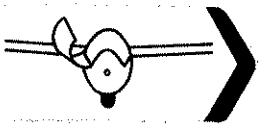
Pedal adjustment Yellow tow release grip



Airbrakes - blue handle

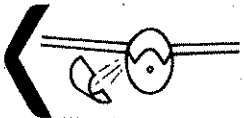


Flap settings

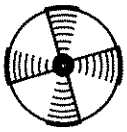


Left - Open

Canopy RED knobs



Jettison - Right



Ventilation

Water ballast dump knob

1.3 Flap use

The flaps alter the wing section so that the laminar "bucket" is always well suited to the actual flying speed.

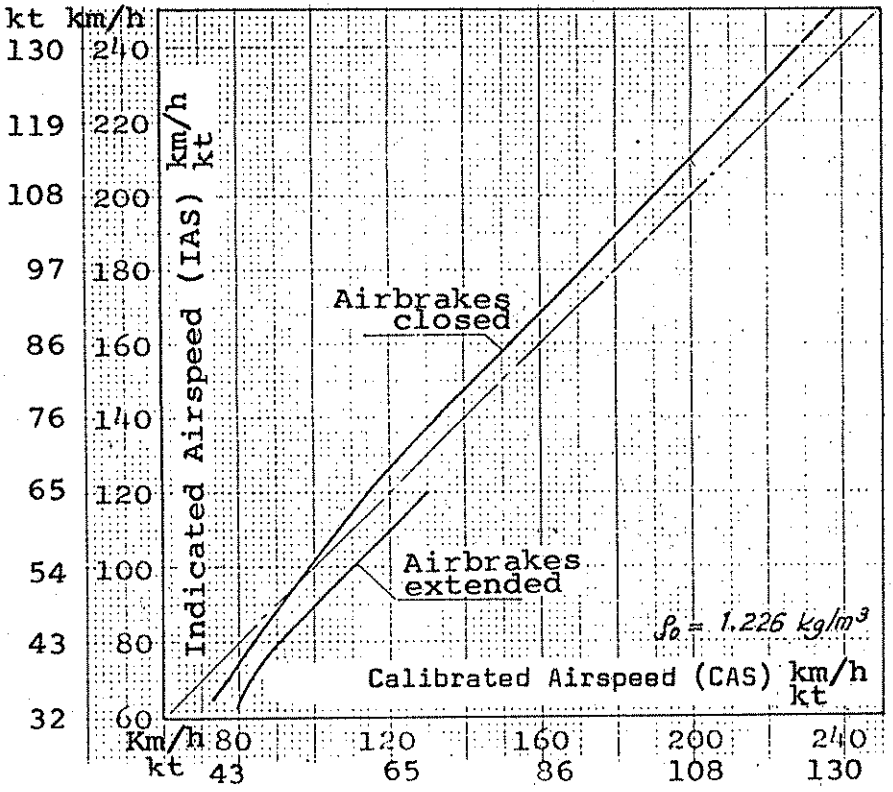
	Flap setting	Optimum Flying Speed 330 kg 728 lb	380 kg 838 lb	430 kg 948 lb	500 kg 1102 lb	
Thermalling (for narrow thermals)	+1 (+2)	75- 85 40- 46 47- 53	80- 90 43- 49 50- 56	85-100 46- 54 53- 62	95-110 51- 59 59- 68	km/h kt mph
Best L/D	0	90-120 49- 65 56- 75	95-130 51- 70 59- 81	100-140 54- 76 62- 87	110-150 59- 81 68- 93	km/h kt mph
Between Thermals	-1	120-140 65- 76 75- 87	130-150 70- 81 81- 93	140-160 76- 86 87- 99	150-175 81- 94 93-109	km/h kt mph
	-2	140-215 76-116 87-134	150-230 81-124 93-143	160-250 86-135 99-155	175-250 94-135 109-155	km/h kt mph
High speed	S	215-250 116-135 134 155	230-250 124-135 143-155	250 135 155	250 135 155	km/h kt mph

1.4 Airspeed indicator system errors

Errors in indicated air speed caused by pitot-static pressure errors may be read off from the calibration chart below.

Position of the pressure ports:
Pitot pressure source : Fuselage nose cone.
Static pressure sources: Fuselage sides, 15 cm (5.9 in.) below main spar cut out for ASI only and for Variometer near the instrument panel and in fuselage tail boom approx. 80 cm (31.5 in) in front of the fin.

All airspeeds shown in this manual are indicated airspeeds (IAS) as registered by the ASI.
The calibration curve is also valid for winch launching and aerotow using the C.G. hook.



2. Operating limitations

2.1 Airspeed limits (IAS)

		km/h	kt
Max. permitted speed Flaps set -1, -2, S	V_{NE} =	250	135
Max. permitted speed Flaps set L, +2, +1, 0	V_{FE} =	160	86
Max. permitted speed in rough air	V_{RA} =	190	102
Maneuvering speed	V_{A} =	190	102
Max. permitted speed on aerotow	V_{T} =	180	97
Max. permitted speed on winch/auto launch	V_{W} =	150	81
Max. permitted speed for U/C extension	V_{LO} =	180	97

Please note that with increasing altitude true airspeed (TAS) increases versus indicated airspeed (IAS).

This is of no consequence with regard to the stressing of the sailplane, however, for flutter prevention the following speeds (IAS) should not be exceeded:

Altitude m	Altitude ft	V (IAS) km/h	V (IAS) kt	Altitude m	Altitude ft	V (IAS) km/h	V (IAS) kt
0	0	250	135	6000	19680	249	134
1000	3280	250	135	7000	22960	235	127
2000	6560	250	135	8000	26240	222	120
3000	9840	250	135	9000	29520	209	113
4000	13120	250	135	10000	32800	197	106
5000	16400	250	135	12000	39360	171	92

2.2 Category of Airworthiness

Category "U" (Utility) according to "LFSM".

This sailplane may be operated VFR during daytime when equipped according to section 2.9.

According to "LFSM" requirements, full control deflections may be applied up to the maneuvering speed V_A = 190 km/h (102 kt).

At higher speeds, when using full control deflections, it would be possible to exceed the stress limits of the sailplane.

For this reason, full deflection of controls must not be used at speeds above 190 km/h (102 kt).
At maximum permitted speed V_{NE} = 250 km/h (135 kt), only a maximum of one third of the full control deflection is permitted.

For the elevator, the deflections at V_{NE} are even considerably smaller and depend on the permitted maneuvering load factors.

In normal weather conditions, this sailplane can be flown at speeds up to V_{NE} = 250 km/h (135 kt) without problems.

In severe turbulence, i.e. wave rotors, thunderstorms, whirlwinds and when crossing mountain ridges, V_{RA} = 190 km/h (102 kt), must not be exceeded.

2.3 Load factors

The following maneuvering load factors must not be exceeded:

at V_A = 190 km/h (102 kt, 118 mph)

n = + 5.3

n = - 2.65

at V_{NE} = 250 km/h (135 kt, 155 mph)

n = + 4.0

n = - 1.5

Airbrakes closed.

With airbrakes extended: Max. n = + 3.5

2.4 Weights

	15.0 m	16.6 m
Empty weight approx.	225 kg 496 lb	228 kg 503 lb
Maximum permitted all-up weight	525 kg 1157 lb	430 kg 948 lb
Max. weight of non-lifting parts	241 kg 531 lb	241 kg 531 lb

For max. permitted water ballast see section 2.5.

2.5 Loading table

Cockpit seat load (pilot and parachute)

Minimum	70 kg (154.3 lb)
Maximum	110 kg (242.5 lb)

Note: As the actual minimum seat load of this sailplane to which this manual refers may differ from the above typical weight, the seat load placard in the cockpit must show the actual minimum seat load from the log chart, see page 23!
Pilot's weight of less than this minimum seat load must be raised by using trim ballast.

1. Ballast (lead- or sand cushion) must be securely held in place by attaching it to the lap belt brackets.
2. Ballast by means of lead plates can be installed into the fuselage nose cone. 2.0 kg (4.4 lb) ballast correspond to 5.0 kg (11 lb) pilot weight.

   The installation point is 1745 mm (68.7 in.) ahead of datum (BE).

Neither the max. permitted all-up weight nor the maximum weight of the non-lift carrying parts (N.T.) must be exceeded.

C/G position of the pilot:

(with parachute or back cushion)

518 mm (20.4 in.) ahead of datum (BE).

Loading table with water ballast

Maximum weight with water ballast
Wing span 16.6 m . . . . . 430 kg/ 948 lb
Wing span 15.0 m . . . . . 525 kg/1157 lb

Lever arm of water ballast:

167 mm (6.57 in.) aft of datum (BE)

Table of various water ballast loads and cockpit loads for both wing spans:

Empty weight kg lb	Cockpit loads kg / lb									
	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb
	70	154	80	176	90	198	100	220	110	243
220 485										
16.6 m	140	309	130	287	120	265	110	243	100	220
15.0 m	168	370	168	370	168	370	168	370	168	370
230 507										
16.6 m	130	287	120	265	110	243	100	220	90	198
15.0 m	168	370	168	370	168	370	168	370	168	370
240 529										
16.6 m	120	265	110	243	100	220	90	198	80	176
15.0 m	168	370	168	370	168	370	168	370	168	370
250 551										
16.6 m	110	243	100	220	90	198	80	176	70	154
15.0 m	168	370	168	370	168	370	168	370	165	363
	Water ballast (kg/lb) in both wing tanks									

Baggage compartment

Maximum permitted load of the baggage compartment is 2 kg (4.4 lb).
This load must be considered when the max. permitted water ballast load is determined.

Lever arm of baggage:

845 mm (33.26 in.) aft of datum (BE).

Empty weight kg lb	Cockpit loads kg / lb: kg 70 / lb 154			kg 80 / lb 176			kg 90 / lb 198			kg 100 / lb 220			kg 110 / lb 243		
	Liter	U.S. Gal.	Imp. Gal.	Liter	U.S. Gal.	Imp. Gal.	Liter	U.S. Gal.	Imp. Gal.	Liter	U.S. Gal.	Imp. Gal.	Liter	U.S. Gal.	Imp. Gal.
220 485															
16.6 m	140	37.0	30.8	130	34.3	28.6	120	31.7	26.4	110	29.1	24.2	100	26.4	22.0
15.0 m	168	44.4	36.9	168	44.4	36.9	168	44.4	36.9	168	44.4	36.9	168	44.4	36.9
230 507															
16.6 m	130	34.3	28.6	120	31.7	26.4	110	29.1	24.2	100	26.4	22.0	90	23.8	19.8
15.0 m	168	44.4	36.9	168	44.4	36.9	168	44.4	36.9	168	44.4	36.9	160	42.3	35.2
240 529															
16.6 m	120	31.7	26.4	110	29.1	24.2	100	26.4	22.0	90	23.8	19.8	80	21.1	17.6
15.0 m	168	44.4	36.9	168	44.4	36.9	168	44.4	36.9	160	42.3	35.2	150	39.6	33.0
250 551															
16.6 m	110	29.1	24.2	100	26.4	22.0	90	23.8	19.8	80	21.1	17.6	70	18.5	15.4
15.0 m	168	44.4	36.9	168	44.4	36.9	160	42.3	35.2	150	39.6	33.0	140	37.0	30.8

W a t e r b a l l a s t i n b o t h w i n g t a n k s

2.6 C.G. Positions

a) C.G. Range in Flight

Sailplane attitude: Tail skid jacked up approx. 44 cm (17.3 in.) above floor level so that a wedge-shaped block 100:4.4 placed on fuselage tail boom is horizontal along its top edge.

Datum (BE)	:	Wing leading edge at root rib
Max. forward C.G.	:	200 mm (7.87 in.) aft of datum (BE)
Max. rearward C.G.	:	340 mm (13.39 in.) aft of datum (BE)

Make sure that the maximum permitted rearward C.G. position is not exceeded - this is ensured when the minimum cockpit load is observed. Less cockpit/seat load must be balanced by ballast, see also loading table, section 2.5.

b) Empty Weight C.G. Position

After repair, repainting, installation of additional equipment, modifications etc. the center of gravity must be determined by weighing the sailplane, but not later than four years after the last weighing.

Make sure that the empty weight C.G. is within the permitted range.
If necessary, compensating ballast weight must be installed.
When the empty weight C.G. limits and the loading table are observed, the C.G. position in flight will be within the permitted range.
(For the determination of the C.G. position see Maintenance Manual, page 23-24).

The determination of the C.G. ranges as shown in the diagrams on page 22 A and 22 B is done with the following cockpit loads:

Forward C.G. positions	:	With a maximum seat load of 110 kg (242.5 lb) and with maximum permitted water ballast
Rearward C.G. positions	:	With various minimum seat loads and with 2 kg (4.4 lb) load in baggage compartment

For easier determination of the "empty" weight C.G. position the table on page 21 A shows at various empty weights the maximum permissible tail skid loads with various seat loads (with reference to the rearmost C.G. position).

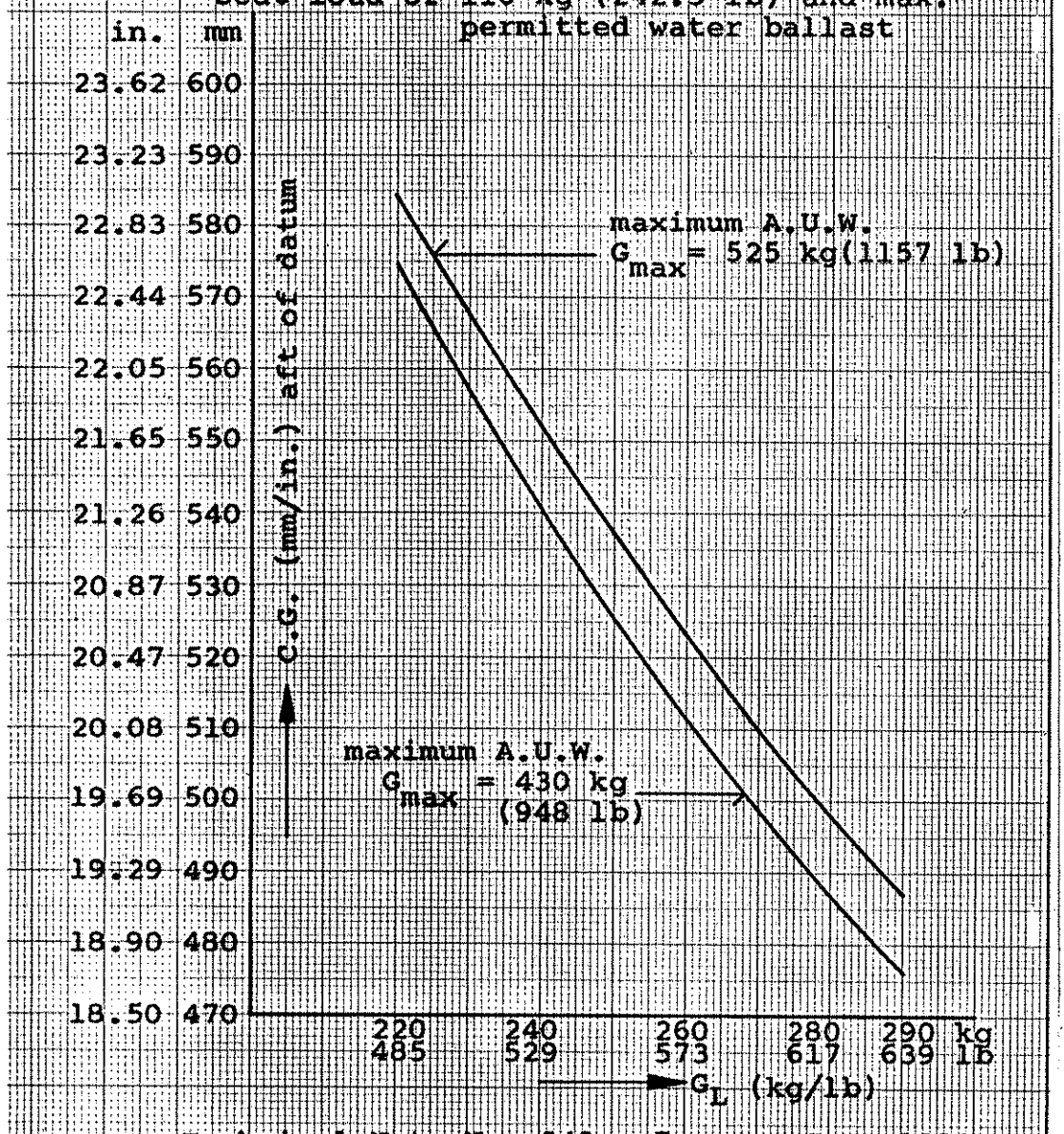
Just determine the actual tail skid load with the sailplane being in the weighing attitude (Main wheel on the ground, tail skid jacked up approx. 44 cm (17.3 in.) above floor level) as described on page 20, section 2.6 a).

If the determined tail skid load is below the value shown on page 21 A, the C.G. position is within the permitted range.

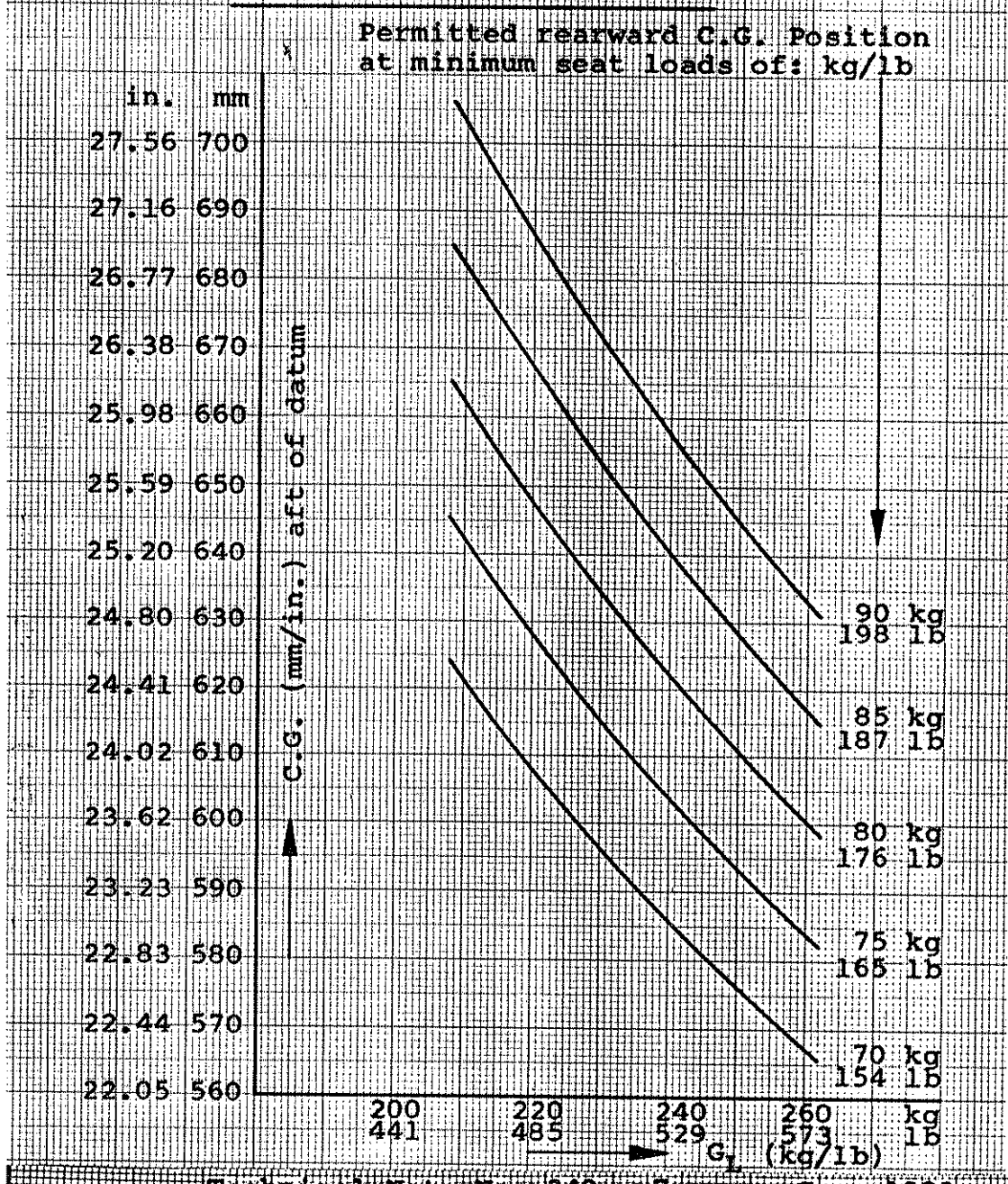
Empty weight kg	Empty weight lb	Tail skid load with a seat load of: 70 kg	154 lb	75 kg	165 lb	80 kg	176 lb	85 kg	187 lb	90 kg	198 lb
210	463	26.7	58.9	27.8	61.3	28.8	63.5	29.9	65.9	30.9	68.1
220	485	27.3	60.2	28.4	62.6	29.4	64.8	30.5	67.2	31.5	69.4
230	507	27.9	61.5	28.9	63.7	30.0	66.1	31.0	68.3	32.1	70.7
240	529	28.4	62.6	29.5	65.0	30.6	67.5	31.6	69.7	32.7	72.1
250	551	29.0	63.9	30.1	66.4	31.2	68.8	32.2	71.0	33.3	73.4
260	573	29.6	65.3	30.7	67.7	31.8	70.1	32.8	72.3	33.8	74.5

EMPTY WEIGHT C.G. RANGE

Permitted forward C.G. position at max. seat load of 110 kg (242.5 lb) and max. permitted water ballast



EMPTY WEIGHT C.G. RANGE



Weight- and Balance Log Chart

Date of weighing							
Inspector: Signature, Stamp							
Empty weight	15.0 m						
	16.6 m						
Equipment list dated							
Empty weight C.G. position mm aft of datum(BE)	15.0 m						
	16.6 m						
Weight of pilot and parachute	max.						
	min.						
Maximum payload							
Permitted water ballast at max. payload	15.0 m						
	16.6 m						

Note: Permitted weights see page 17. Weights above are kg/lb

2.7 Weak links in winch cable and aerotow rope

The strength of the weak link depends on the maximum permitted all-up mass, which (for this serial number) is shown on page 17.

Maximum strength for winch launching and aerotow:

Max. weak link strength	Max. all-up mass
550 daN (1213 lb)	430 kg (948 lb)
650 daN (1433 lb)	500 kg (1102 lb)
680 daN (1499 lb)	525 kg (1157 lb)

The minimum strength of the weak link should not be less than the value for the maximum take-off mass.

2.8 Tow release mechanism(s)

a) C/G tow release mechanism

For winch launching and aerotow the TOST safety tow release mechanism model

"EUROPA G 72", "EUROPA G 73" or "EUROPA G 88"

is used, which is installed at the bottom of the fuselage in front of the main wheel.

b) Nose tow release mechanism (if installed)

For aerotow the TOST nose tow release mechanism model

"E72", "E 75" or "E 85"

is used, which is installed in the nose of the fuselage.

2.7 Weak links in winch cable and aerotow rope

The strength of the weak link depends on the maximum permitted all-up mass, which (for this serial number) is shown on page 17.

Maximum strength for winch launching and aerotow:

Max. weak link strength	Max. all-up mass
550 daN (1213 lb)	430 kg (948 lb)
650 daN (1433 lb)	500 kg (1102 lb)
680 daN (1499 lb)	525 kg (1157 lb)

The minimum strength of the weak link should not be less than the value for the maximum take-off mass.

2.8 Tow release mechanism(s)

a) C/G tow release mechanism

For winch launching and aerotow the TOST special tow release mechanism model "S 72" or the safety tow release mechanism model "EUROPA G 88" is used, which is installed at the bottom of the fuselage in front of the main wheel.

b) Nose tow release mechanism (if installed)

For aerotow the TOST nose tow release mechanism model

"E72", "E 75" or "E 85"

is used, which is installed in the nose of the fuselage.

2.9 Minimum Equipment

Instruments and other basic equipment must be of an approved type and should be selected from the list in the Maintenance Manual.

a) Normal Operations

1 Airspeed indicator, range 0-300 km/h, (0-162 kt), with colour markings shown on page 26

1 Altimeter

1 Four-piece symmetrical seat-harness

1 Automatic or Manual parachute or a seat-back cushion (approx. 10 cm/4 in. thick when compressed)

b) Cloud Flying

In addition to the equipment listed in a):

Turn & Slip indicator with slip ball

Magnetic compass

Variometer

VHF Transceiver

Temperature indicator (when flying with water ballast)

Note:
From experience gained to date it appears that the A.S.I. installation system remains fully operational when flying in clouds.

Recommended additional equipment:

Artificial horizon, clock, accelerometer (3 hands, resettable)

Note: For structural reasons the weight of the instrument panel and instruments must not exceed 10 kg (22 lb).

Operating Instructions

See Flight- and Maintenance Manual.

See Data- and Reference Placards in the cockpit according to Flight Manual, page 10-12

Airspeed Indicator Colour Markings

	kt	mph	km/h
Maximum permitted speed V_{NE}	135	155	250
Maneuvering speed V_A	102	118	190
1.1 x Stalling speed 1.1 V_{sl}	48	55	89
White arc (flap setting L,+2,+1,0)	44- 86	50- 99	81-160
Green arc (normal range)	48-102	55-118	89-190
Yellow arc (caution range)	102-135	118-155	190-250
Radial red line (never exceed) at	135	155	250
Yellow triangle (approach speed) at	62	71	115

The stalling speed on which the A.S.I. markings are based refers to the following configuration:

a) Flap setting: "L"
b) Airbrakes : Closed
c) Max. weight : G_{max} = 525 kg (1157 lb)
d) Wing span : 15.0 m

2.10 Restricted Aerobatics

For the sailplane Ventus b/16.6 the following aerobatic maneuvers are permitted:

a) Inside Loops

b) Stall Turns

c) Lazy Eight

It is recommended that in addition to the instrumentation shown in section 2.9 a) an accelerometer (3 hands, resettable) is installed.

Aerobatics are only permitted without water ballast.

Loose items should be removed before commencing aerobatics.

3. Emergency Procedures

3.1 Spin Recovery

If the sailplane with the C.G. in midway or rearward position unintentionally enters a spin, full opposite rudder should be applied immediately and the control column eased forward.
When rotation stops, centralize the rudder and pull out smoothly from dive.

3.2 Safety Considerations

Take-off by winch launch or aerotow from uncut grass fields must be strictly avoided. If a wing tip is caught in high grass, release tow rope/winch cable immediately, otherwise a break-out with resulting ground loop (with risk of damage) cannot be prevented.
After an emergency release at low altitude, in straight flight, flap setting "0", a speed of 80-115 km/h (43-62 kt, 50-71 mph), depending on wing loading, should be maintained.

In circling flight the speed should be increased according to the bank angle. This will prevent the sailplane from being inadvertently and unnoticeably flown in a stalled condition.
If light vibration and sloppy controls are felt, the sailplane is flying in a stalled condition - the control column should then be eased forward immediately.

3.3 Emergency Canopy Jettison

The procedure for jettisoning the canopy is as follows:

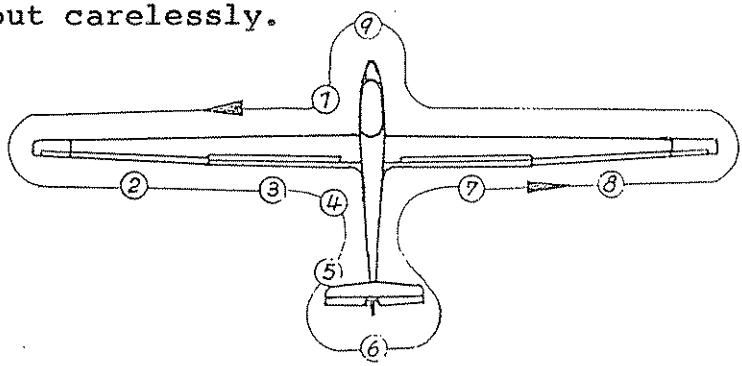
1. Push canopy locking lever with red knob on left canopy frame forward and raise canopy.
2. Push red knob on right side below canopy frame forward.
3. Throw off the canopy.

The canopy coaming frame of the fuselage is made of fiberglass laminates, strong and without sharp edges, so the pilot may use it for support when bailing out.

4. Normal Operations

4.1 Daily Inspection

Before commencing the day's flying or after rigging the sailplane it is very important to inspect it carefully, as accidents often occur when these daily inspections are neglected or carried-out carelessly.



When walking around the sailplane, check all surfaces for paint cracks, dents and uneveness. In case of doubts, ask an expert for his advice.

(1) a) Open the canopy

b) Check that the main bolt is fully home and secured.

c) Make a visual check of all control circuits in the cockpit

d) Check controls for full, correct and free movements

e) Check for foreign objects.

f) Check main wheel tire pressure:
Up to 330 kg (727 lb): 50 psi (3.5 bar)
Above 330 kg (727 lb): 67 psi (4.7 bar)

g) Check condition and operation of tow hook(s)

2.) a) Check upper and lower wing surfaces for damage

b) Clean and grease water dump valves

c) Check connection of wing tip extensions (locking pin must be flush with upper wing surface)

d) Check ailerons for proper condition and free movement. Check for unusual play by gently shaking the trailing edge of the aileron. Check hinges for damage

3.) a) Check flaps for proper condition and free movement. Check for unusual play by gently shaking the trailing edge of the flap. Check hinges for damage with the spoiler open

b) With the flaps set to "S", airbrakes closed, check the gas strut in the control circuit in the fuselage. Do this by pushing the inboard end of the flap down at the trailing edge to the "L" position and release it. Flap must return to the "S" setting.

c) Check airbrakes for proper condition, fit and correct locking

4.) a) Check fuselage for damage, especially the underside

4. b) Check that the static ports below the main spar cut-out and on the tail boom (80 cm/31.5 in. forward of the leading edge of the fin) are clear

5. a) Check condition of tail skid (or wheel - if installed, tire pressure 2.0 bar/28 psi).

   b) If a T.E. Compensator is used, mount it and check the line. When blowing gently into the T.E. probe, Variometer should read climb

6. a) Check horizontal tailplane for correct attachment and locking

   b) Check elevator and rudder for free movement

   c) Check trailing edge of elevator and rudder for damage

   d) Check elevator and rudder for unusual play by gently shaking the trailing edge

7. See (3)

8. See (2)

9. Check that the static pressure ports near the instrument panel and the Pitot tube are clear. Blowing gently into the Pitot tube ASI should register

10. By removing the connectors behind the instrument panel water may be drained from Pitot-, Static- and T.E. Compens. lines

    After heavy landings or after the sailplane has been subjected to excessive loads, the resonant frequency of the wing should be checked (approx. 145/min. for 15 m span and approx. 131/min. for 16.6 m span).

Check the entire sailplane thoroughly for surface cracks and other damage.
For this purpose it should be de-rigged.

If damage is found (i.e. surface cracks in the fuselage tail boom or tailplane, or if delamination is discovered at the wing roots or at the bearings in the root rib) the sailplane must be grounded until the damage has been repaired by a qualified person.

4.2 Preflight Inspections

See placards in cockpit

4.3 Take-off

Aerotow

Max. permitted speed on aerotow:

V_T = 180 km/h (97 kt)

Use the C.G. hook for aerotow or, if installed, the nose tow hook. For aerotow hemp and perlon ropes were tried, length 30-60 m (100-200 ft).

For take-off set trim to nose heavy and flaps to -1. As the tow rope tightens apply the wheel brake gently so that the sail-plane does not overrun the aerotow rope.

For intermediate to forward C.G. positions take-off run is commenced with the stick in neutral position, for rearward positions it is recommended that down elevator is applied until the tail lifts.

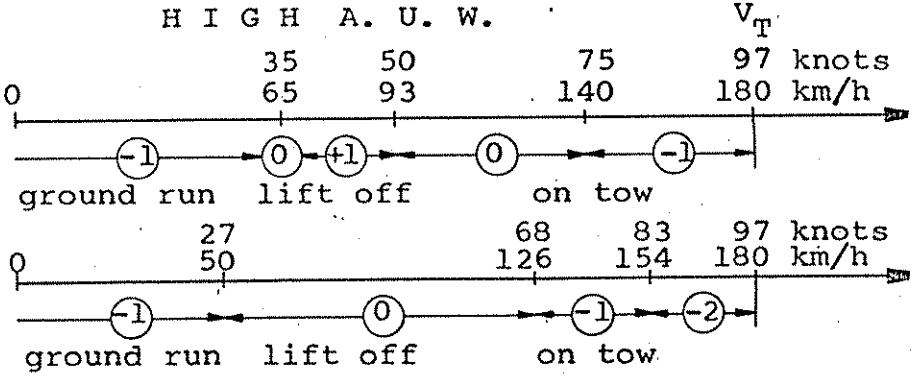
As the speed increases during take-off run reset flaps to 0.

For aft to intermediate C.G. positions lift off is done with flap setting 0 and in the case of forward C.G. positions or high take-off weights flap setting +1 should be selected for a shorter take-off run.

The control circuit geometry provides for greater aileron deflection during take-off.

After lift-off, between 70 and 90 km/h (38-48 kt), depending on all-up weight and flap setting, the trim can be set for minimum elevator control forces.
With flap setting 0, normal towing speed is in the region of 100 to 120 km/h (55-65 kt) and between about 120 to 140 km/h (65-75 kt) when water ballast is carried.

At higher towing speeds above about 130 or 140 km/h (70-75 kt) flap setting -1 should be selected. If the all-up weight is low, then flaps should be set to -2 for speeds from about 160 km/h (85 kt) to maximum permitted aerotow speed V_T, according to the sketch below.



L O W A. U. W.

Only small control movements are necessary to keep station behind the tug. In gusty conditions or if the sailplane is flown into the propeller slip stream of a powerful tug, correspondingly greater control movements are necessary.
The undercarriage may be retracted during tow; this is not, however, recommended at low altitude, as changing hands on the stick could easily cause the sailplane to lose station behind the tug.

When releasing the tow rope, pull the yellow grip fully several times and turn only when definitely clear of rope.

Winch Launch

Max. permitted winch launch speed:

V_W = 150 km/h (81 kt, 93 mph).

For winch launching only the C.G. hook must be used. The flaps are set at 0 (above 430 kg/948 lb A.U.W. at + 1). The trim is normally at a mid-point position, but for rearward C.G. positions it should be set to fully nose heavy.
As the cable tightens, apply the wheel brake gently in order to prevent the sailplane overrunning the winch cable.

Ground run & take-off are normal, there is no tendency to veer off or to climb excessively steeply on leaving the ground. Depending on the cockpit load the sailplane is lifted off with the stick almost fully pushed forward at aft C.G. positions and slightly pulled back at forward C.G. positions. After climbing to a safe height the stick is further pulled back for transition into the steep climbing attitude. At normal flying weights, without water ballast, the launch speed should not be less than 90 km/h (49 kt, 56 mph) and with water ballast not less than 100-110 km/h (54-59 kt, 62-68 mph). Normal launch speed is about 100 km/h (54 kt, 62 mph), with water ballast about 115-125 km/h (62-68 kt, 71-77 mph).
At the top of the launch the cable will normally back release automatically; the cable release should, however, be pulled firmly several times to ensure that the cable has actually gone.

Note:

Winch launching at maximum permitted all-up weight of 525 kg/1157 lb should only be performed if an appropriately strong winch and a cable in perfect condition are available.
Furthermore, for the search of up-currents a winch launch makes not much sense if the release height gained is less than 400 m (1300 ft).

In case of doubt, reduce all-up weight to e.g. 430 kg/948 lb or less.

Winch launching with water ballast is not recommended if the head wind is less than 20 km/h (11 kt).

It is explicitly advised against winch launching with a tail wind.

4.4 Free Flight

This sailplane has pleasant flight characteristics and can be flown effortlessly at all speeds, loading conditions (with or without water ballast), configurations and C.G. positions.
As the elevator trim is linked to the flaps, it should be set so that there is no load on the control column at speeds of about 110 to 120 km/h (60-65 kt) with 0 flap setting. The green knurled knob is then opposite the green marking on the edge of the cut-out. Then the sailplane is practically always well trimmed for all other flap settings and for optimum performance within their speed range.
With a mid-point C.G. position the speed range covered by the trim is from 65 km/h (35 kt) with flap setting L to about 250 km/h (135 kt) at flap setting S.
Flying characteristics are pleasant and the controls are well harmonized.
Turn reversal from 45° to 45° is effected without any noticeable skidding. Ailerons and rudder may be used to the limit of their travel. Times required are shown below, the 16.6 m version is set in parenthesis:

Flap setting	+ 2
Speed	85 km/h/46 kt
Reversal time	3.5 (5.1) seconds

Performance (at a wing loading of 33 kg/m^2)

Stalling speed (flap setting +2)	61 km/h / 33 kt (60 km/h / 32 kt)
Min.Sink (flap setting +2 at 75 km/h/40 kt)	0.58 m/s / 114 fpm (0.56 m/s / 110 fpm)
Max. L/D (flap setting 0 at 100 km/h/54 kt)	43.4 (46.5)

4.5 Low Speed Handling and Stall

In order to become familiar with the sailplane it is recommended to explore the low speed- and stall characteristics at a safe height. Stalls should be approached from straight flight and from turning flight (with approx. 45° bank), using various flap settings. The following speeds (being the results from measurements done with two different sailplanes) are typical in straight flight:

A.U.W.	305 kg 672 lb			347 kg 765 lb			430 kg 948 lb			430 kg 948 lb			525 kg 1157 lb		
C.G. Pos.	340 mm 13.39 in.			340 mm 13.39 in.			200 mm 7.87 in.			200 mm 7.87 in.			200 mm 7.87 in.		
Wing span	15 m			16.6 m			15 m			16.6 m			15 m		
Stalling speed, airbrakes closed,	km/h	kt	mph	km/h	kt	mph	km/h	kt	mph	km/h	kt	mph	km/h	kt	mph
Flaps + 2	60	32	37	61	33	38	70	38	43	71	38	44	83	45	52
Flaps 0	65	35	40	65	35	40	75	40	47	77	42	48	89	48	55
Flaps S	70	38	43	75	40	47	88	48	55	88	48	55	99	53	62
airbrakes extended, Flaps L	50	27	31	59	32	37	63	34	39	66	36	41	80	43	50

Stall warning occurs 2 or 3 kt (3-5 km/h) above stalling speed and is indicated by a slight buffeting and increasing vibration in the control system when pulled further back. Ailerons get spongy and the sailplane tends to slight pitching motions.

With the C.G. in rearward positions the sailplane usually drops the nose or a wing when a stalled condition is reached. With the C.G. in forward positions and stick fully pulled back, the sailplane just stalls without the nose or a wing dropping. A normal flight condition is regained by easing the stick forward immediately and, if necessary, applying opposite rudder and aileron. The loss of height during recovery from stall is approx. 20 m (65 ft) and about 40 m (130 ft) with airbrakes extended.

Stall from Turning Flight

Approaching a stall from 45° banked turn will produce slight wallowing in the pitch plane which is however easy to control. On stalling the sailplane rolls slightly into the turn but when easing the stick forward the nose goes down slightly and normal flying attitude is regained. There is no overriding tendency to enter a spin. The loss of height during recovery from stall is about 20 to 40 m (65-130 ft).
With the C.G. in foremost position usually the turn will continue in a mushed condition but without the nose dropping.

With the C.G. in rearward positions the sailplane enters a spin when full rudder is applied at a stall.

Usually a steady spinning motion is not possible. In some cases the sailplane recovers after one or two full rotations with heavy skidding and enters a dive. The spinning attitude can be very steep, and with a high rotation speed.

The loss of height during recovery from spin is approx. 50 to 100 m (165-330 ft).

A safe recovery from spin is effected by following the standard method:

a) apply opposite rudder against direction of spin

b) short pause

c) ease the control column forward until rotation ceases and the airflow is restored

d) centralize rudder and pull gently out of the resulting dive.

4.6 High Speed Flight

During high speed flight particular attention must be paid to the maximum speed limits associated with the various flap settings. These speeds are clearly marked on the ASI in different colours.

Full deflections of control surfaces are permitted only up to V_A = 190 km/h (102 kt). At V_{NE} = 250 km/h (135 kt) only one third of the full deflection is permitted. Avoid especially abrupt elevator control movements.
In severe turbulence, i.e. in wave rotors, thunderstorms, visible whirl winds or when crossing mountain ridges the speed in rough air V_{RA} = 190 km/h (102 kt) must not be exceeded.
With the C.G. in rearward positions the required control stick travel from stall to maximum speed is relatively small, however, speed changes are recognized by a perceptible change of the control stick loads.
The airbrakes may be extended up to V_{NE} = 250 km/h (135 kt), however, they should only be used in emergency or when the maximum permitted airspeeds shown on page 15 are inadvertently exceeded. When extending the airbrakes suddenly a strong deceleration occurs. Therefore attention must be paid that the harness is tight. Also, when extending the airbrakes take care that the control column is not inadvertently moved.

Avoid loose objects in the cockpit.

It should also be noted that with airbrakes extended the sailplane should be pulled out less abruptly than with retracted airbrakes (see section 2.3 load factors).

Airbrakes fully extended, a limitation of the terminal velocity in a 45° dive at maximum permitted A.U.W. of 525 kg (1157 lb) is established at about 230 km/h (124 kt, 143 mph), respectively at about 190 km/h (102 kt, 118 mph) at 430 kg (948 lb) A.U.W.

4.7 Flying with water ballast

The water ballast tanks are integral compartments in the wing nose.
The tanks are to be filled with clear water only through a round opening on the upper surface of the wing nose. Tank openings are closed with plugged-in filler caps having either a 5 mm (0.2 in.) hole or a 6 mm (0.24 in.) female thread for lifting and venting.
Lifting is done by inserting the special rigging pin into the 5 mm cap hole or, should the cap have a 6 mm threaded hole, by using the tailplane rigging screw.
Since the cap hole also serves as vent hole it always should be kept open.
Tanks also have an additional venting tube running from the highest point of the tank through the wing to the underside of the wing tip.
Dumping the ballast takes about four or five minutes from full tanks.
The tank in each wing has a capacity of approx. 84 liters of water. When filling the tanks bear in mind the weight of the pilot and ensure that the maximum permitted all-up weight is not exceeded, see Loading Table, page 18.

Both tanks should always be filled with the same amount of water to prevent lateral imbalance.
Prior to take-off with partially filled tanks ensure that the wings are held level in order to allow the water to be equally distributed so both wings are balanced.
Due to the heavier wings the helper on the tip should assist the take-off run as long as possible.
Thanks to the integral bulkheads in the ballast tanks there is no perceptible movement of the water ballast when flying with partially full tanks.

When flying with max. permitted A.U.W. the low speed- and stall behaviour of the sailplane is slightly different from the flight characteristics without water ballast. Stall speed increases (see section 4.5) and for corrections of the flying attitude larger control surface movements are required. Also, for recovery from a stall break slightly more height is necessary to regain normal flying attitude.
Water ballast is dumped through an opening on the lower wing surface near the root rib. The dump valve mechanism is hooked-up automatically when the wings are rigged.

In the unlikely event of the tanks emptying unevenly or only one of them emptying (recognized by having to apply up to 50% opposite aileron for normal flying attitude), it is necessary to fly somewhat faster to take into account the higher weight and also to avoid stalling the sailplane.

Should the sailplane spin with a very flat longitudinal attitude, then full forward stick is required for recovery according to the standard method.
When landing, be prepared to veer off course as the heavier wing will touch down somewhat earlier.

IMPORTANT

1. On longer flights at air temperatures below 0 degr. C (32 degr. F) water ballast must be dumped in any case.
2. At expected average rates of climb of less than 1.5 m/s (295 fpm) there is little point in using much water ballast. The same applies to flights in narrow thermals requiring high angles of bank.
3. Prior to off-field landings water ballast should always be dumped.
4. On no account whatsoever must the sailplane ever be parked with full ballast tanks because of the danger of them freezing up. Prior to parking dump ballast completely, remove the filler caps and allow the tanks to dry out.
5. Prior to filling the water tanks check with the dump valves opened that both drain plugs open, move and close simultaneously. Leaking (dripping) dump valves are avoided by cleaning and greasing the valve seats and drain plugs (with the valves open), then, with the valves closed, the drain plug is pulled in position with the threaded tool used to attach the tailplane.
6. Never pressurize the tanks, for instance directly from the water hose, water should always be poured in.

4.8 Cloud Flying

This sailplane is sufficiently robust and stable for cloud flying. It is simple to control and is stable in turn.

Nevertheless certain basic rules must be observed.
Avoid flying close to the stalling speed or exceeding the operating limitations under any circumstances.
It is recommended that the airbrakes are extended when exceeding a speed of 130 km/h (70 kt) or if the load factor is above 2 g.
The additional equipment required for cloud flying is to be observed and is shown on page 25, section 2.9.

4.9 Flying at Temperatures below Freezing Point

When flying in temperatures below 0° C (32° F), (as in wave or during the winter months) it is possible that the control system will not operate with the usual ease and smoothness. Ensure that all control elements are free from moisture so that there is no danger of them freezing solid. This applies especially to the airbrakes.
It has been found beneficial to cover the mating surfaces of the airbrakes with Vaseline along their full length so that they cannot freeze solid.

Move control surfaces at frequent intervals.

When flying with water ballast note the instructions on page 44, section 4.7.

Warning:

Since the polyester gelcoat of this sailplane becomes very brittle when operating at high altitude at associated temperatures of possibly -40° C to -50° C (-40° F to -58° F), cracks in the wing shell coating - particularly near the ends of the airbrakes - may occur under certain loads.
Therefore, after having reached the ceiling on high altitude wave flights, descend cautiously while the airbrakes are extended.

A steep descent with the airbrakes extended should only be conducted in case of emergency.

So far no damage to the structure was found on cracked wing shell coatings.

4.10 Restricted Aerobatics

(only permitted without water ballast)

The Ventus b/16.6 is permitted to carry out the following aerobatic maneuvers:

(a) Inside Loop
(b) Stalled Turn
(c) Lazy Eight

Inside Loop

Enter the maneuver at 200 km/h (108 kt) IAS, flap setting -2. At the top of the loop set flaps to 0. Speed during recovery from the maneuver: 160 to 180 km/h (86 to 97 kt).

Stalled Turn

Enter the maneuver at a speed of about 180 to 200 km/h (97-108 kt),IAS, at flap setting -2. Whilst climbing vertically let the wing which will be on the inside of the turn drag and then at about 140 km/h (75 kt) apply rudder in the direction of the dragging wing in order to prevent a distorted maneuver.

Lazy Eight

Enter the maneuver at a speed of about 190 to 200 km/h (102-108 kt) at flap setting -2. After pulling up into a 45° climb enter a turn at about 120 km/h (65 kt). Recovery speed between 160 to 180 km/h (86-97 kt).

4.11 Approach and Landing

The trailing edge airbrakes are a combination of spoiler and flap. They provide a very effective landing aid and make possible steep and relatively slow approaches.
With the flap set at "L" pulling back the airbrake lever about 11 cm (4.3 in.) will only extend the spoilers; they are similar in effect to normal Schempp-Hirth airbrakes. If they are extended suddenly the indicated airspeed increases by about 5 km/h (3 kt) and the sailplane adopts a more nose down attitude. Pulling the airbrake lever further back causes the spoilers to engage the flaps; this does not alter the attitude of the sailplane but does reduce the indicated airspeed by approx. 10 km/h (5 kt).
Normal approach speed with airbrakes fully extended, flap setting "L" and with the main wheel lowered is 80-90 km/h (43-49 kt, 50-56 mph), and at max. A.U.W. between 105 and 115 km/h (57-62 kt, 65-71 mph). In this configuration the glide angle is approx. 1 : 5.4.

Should it become necessary to stretch the glide when making a steep approach, normal flying attitude should first be restored and only then (if it is still necessary) should the airbrakes be retracted.

Touch-down should always be with airbrakes fully extended since this configuration produces the lowest touch-down speed.

For steep approaches (e.g. if there is strong turbulence near the ground or if approaching over high obstacles) open the airbrakes fully and correct the glide angle with the elevator only. Excessive height can be dived off without picking up excessive speed.
Main wheel and tail skid (or tail wheel - if installed) touch down simultaneously. The wheel brake (drum brake) is appropriately effective.

On the ground run always reset the flaps at +1 or 0 for improved aileron control.

To avoid a long ground run make sure that the sailplane touches down at the lowest possible airspeed (60-65 km/h = 32-35 kt). A touch down at 90 km/h (48 kt) instead of 65 km/h (35 kt) effectively doubles the kinetic energy to be dissipated by braking and therefore increases the length of the ground run considerably.

For off-field landings the undercarriage should always be extended.

Both the performance and the aerodynamic characteristics of the sailplane are affected adversely by rain or ice on the wings.

Caution: When landing with rain or ice on the wings increase the approach speed by at least 10 km/h (5 kt) to 100 to 110 km/h (54-59 kt).

Note:

For better aileron control and easier flap handling during approach and landing - especially in crosswinds - the flaps may also be set at +1. The approach speeds quoted previously should then be increased by at least 5 km/h (3 kt).

This approach technique with the flaps set at +1 offers the pilot some reserve for the case of an approach over an obstacle being too short as he may pull the flaps back to "L" thus gaining temporarily some additional height. (After touch down flaps are then reset to +1 or 0).

5. Supplements

5.1 Emergency bail out assistance NOAH

Section 1: General

Brief description of the emergency bail out assistance NOAH

NOAH is a system to facilitate the bail-out of the cockpit in case of emergency. NOAH is a supplementation to the parachute.

NOAH features an airbag similar to a car airbag. The gas which is necessary to inflate the bag is stored in a pressurised gas cylinder. The actuation is by mechanical means via a yellow and black marked handle at the right hand side canopy frame.

To avoid inadvertent activation of the system on the ground the release handle is secured by a spring cotter. The spring cotter must be removed before flight and must be installed best after the landing, latest at the end of daily flight operation.

To actuate NOAH the canopy must be opened or jettisoned first. When the canopy is closed it is not possible to activate NOAH because the handle is blocked by a plate attached to the canopy frame.
If the NOAH system is activated by pulling the NOAH handle the Bowden cables will first open the seat harness buckle and then the valve of the pressurised gas cylinder. The pilot will be lifted by the airbag so that he can roll himself out of the cockpit.

Note: There is a small hole in the NOAH airbag at the front end. In case of inadvertent inflation of the airbag gas can stream out of this hole. This is to prevent injuries to the pilot if the seat harness buckle is not open.

Technical data:

Mass of all parts:	approx. 4,5 kg
Generation of pressure:	nitrogen approx. 200 bar
Filling time:	approx. 2 seconds
Design range:	pilot mass 110 kg up to 4 g

Aircraft handling, care and maintenance

For inspections and maintenance please refer to the “Manual for the emergency bail out-assistance NOAH for Schempp-Hirth single seater “.

5.1 Emergency bail out assistance NOAH (cont.)

Section 1: Normal procedures

1.2 Cockpit description

The NOAH handle is located on the right hand side canopy frame and is marked yellow and black.

The following placard is located on the cover for the pressurised gas cylinder behind the back rest:

Secure valve before removal of the
compressed gas cylinder!
Only use provided spring cotter!

The checklist prior to take-off is amended by the securing spring cotter for the NOAH actuation handle

CHECK LIST BEFORE TAKE-OFF

- **O** Parachute securely fastened ?
- **O** Safety harness secured and tight ?
- **O** Back rest (if installed) and pedals in comfortable position ?
- **O** All controls and instruments easily accessible ?
- **O** Airbrakes checked and locked ?
- **O** All control surfaces checked with assistant for full and free movement in correct sense ?
- **O** Trim correctly set ?
- **O** Flaps set for take-off ?
- **O** Canopy closed and locked ?
- **O** NOAH: Cotter pin from release handle removed?

5.1 Emergency bail out assistance NOAH (cont.)

Section 3: Emergency procedures

Use of NOAH in case of an emergency bail out

Note: We recommend strongly the use of an automatic parachute.
Only with an automatic parachute the bail out procedure will be nearly automatic and precious time and altitude can be saved.

Emergency bail out with NOAH:

1. For the bail out jettison the canopy first (see flight manual section 3.3)

Warning: If there are safety bows at the rudder pedals make sure that your feet are out of the safety bows first.

2. Then pull the NOAH handle (at the right hand side of the canopy frame, marked in yellow and black) strongly and quickly up to its stop
(When the airbag fills, legs will make the instrument panel tilt up).

3. When the airbag is filled, tuck up legs a little and roll out of the cockpit to the side. If the canopy has not been jettisoned completely from the fuselage roll out to the left hand side.

4. Pull rip cord of manual parachute at a safe distance and height.

Note: Don't operate the NOAH handle on the ground with canopy open as you may release NOAH and the pressurised gas cylinder must be filled again.

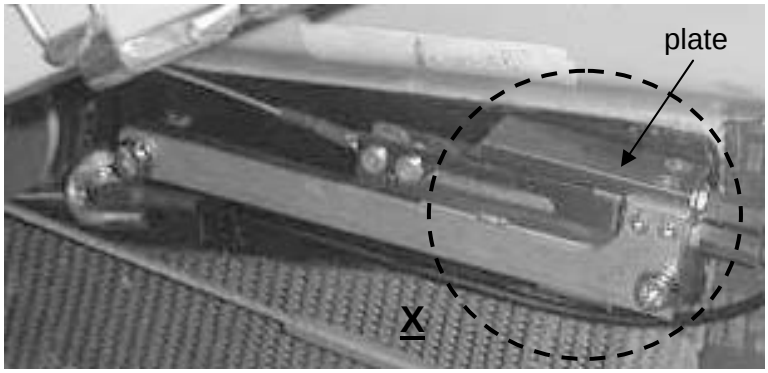
5.1 Emergency bail out assistance NOAH (cont.)

Section 4: Normal procedures

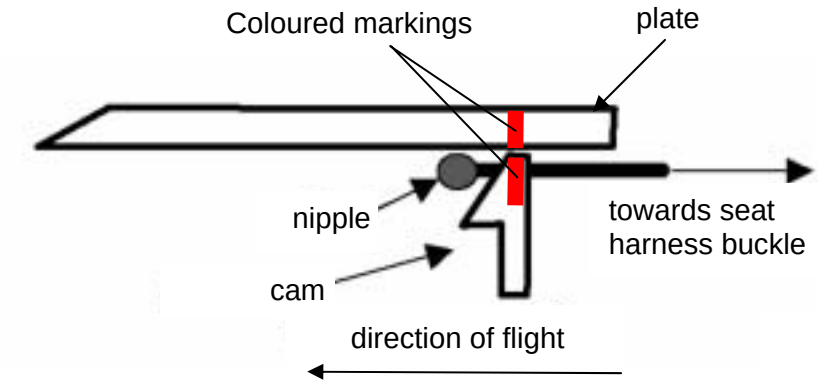
4.1 Daily inspection

a) Check that the transport securing device (cotter pin) has been removed from the pressurised gas cylinder.

b) Check the airbag, the high pressure hose and the operating cables for correct positioning and for any wear.
Check especially if the nipple of the cable which opens the seat harness buckle is positioned aft of the cam of the actuation unit (see sketch). In addition the colour markings on the plate and the cam must be in-line.



Detail X (with correct position of nipple and cam):



Detail of the operative actuating unit (at the right hand side cockpit shell at the front end of the cockpit frame

c) For normal opening of the seat harness buckle rotate the buckle only in clockwise direction.

d) For inspections and maintenance please refer to the “Manual for the emergency bail out-assistance NOAH for Schempp-Hirth single seater “.

5.1 Emergency bail out assistance NOAH (cont.)

Section 4: Normal procedures

4.2 Pre-flight inspection

Remove securing spring cotter from the NOAH handle before flight.

When the backrest is adjusted take care that the NOAH-airbag is not clamped below the backrest!