

SCHEMP-P-HIRTH FLUGZEUGBAU GMBH, KIRCHHEIM-TECK  
West Germany

Flight and Service Manual  
for the Sailplane

" J A N U S B "

Issue : March 1978

Tis Manual should always be kept in  
the cockpit

It relates to the two-place Sailplane  
J A N U S B

Registration Number : G-DDTC.....

Serial Number : 63.....

Manufacturer : .....

Owner : .....

Pages 3 - 24 are approved  
by the Luftfahrt-Bundesamt.



*Skor*

25. Juni 1981

Approval of translation has been done by best knowledge  
and judgement. - In any case the original text  
in German language is authoritative.

- JANUS B - - Flight and Service Manual -

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Amendments

No.	Item	Page	Date
2	Installation of a nose and c.g. towing hook. Tech. Note No.295-9)	6, 10, 23	Sept. 1979
6	Rudder, adjustable stop. Tech. Note No. 295-12)	17	Febr. 1983
8	Supplements to section 5 (C.G. positions) and 6 (Loading plan). (Mod. No. 295-23)	5a,18, 19,19a, 19b,19c, 20	Dec. 1983
9	Optional installation of a tail wheel (Tech. Note No. 295-17)	19,22, 23	Dec. 1986
10	Optional mounting provision for trim ballast weights. (Tech. Note No. 295-18)	5a, 20	May. 1987
11	Tow releases "Europa G88" and "E85", weak link. (Tech. Note No. 295-20)	3, 5	April 1990
14	Empty mass c/g positions for various minimum front seat loads. (Tech. Note No. 28)	5a,18, 19,19a, 19b,19c, 20	July 1999

1. Operating Data and Limitations

=====

Airspeed limits	km/h	mph	knots
Glide or dive	220	137	119
Max. speed in rough air	220	137	119
Maneuvering speed	170	105	92
Airplane tow	170	105	92
Auto winch tow	120	75	65
Air brakes extended	220	137	119
Flap positions:			
L	140	87	76
+8, 0, -4, -7	220	137	119

Note:

All airspeeds in this Manual are indicated airspeeds unless otherwise defined.

Weights

Empty weight, apprx.	370 kg,	816 lb.
Maximum weight	620 kg,	1367 lb.
Max. weight of non-lifting parts	440 kg,	970 lb.

Approved for cloud flying YES

(See comments on page 16)

Approved for restricted acrobatic maneuvers YES

(See comments on page 15a)

Acrobatic maneuvers are permitted only without water ballast.

Category (according to LFS) NORMAL (N)

Weak links for towing max. 825 daN  
max. 1819 lb

Frequency of flexural wing vibration apprx. 127 / min.

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C.G. position in flight

Datum: Wing leading edge at root rib

Leveling means: Slope of rear top surface  
of fuselage 100 to 4.5  
tail down

C.G. range: 70 mm to 300 mm aft of datum  
(+ 2.75 in.) to (+ 11.81 in.)  
at all weights

<u>Airspeed Indicator</u>		<u>km/h</u>	<u>mph</u>	<u>knots</u>
Maximum speed	$V_{NE}$	220	137	119
Maneuvering speed	$V_M$	170	105	92
1.1x stall speed 1.1	$V_{S_1}$	75	46	40

Basic for the stall speed 1.1  $V_{S_1}$  is the following configuration:

- a) Wing flaps in position "L"
- b) Air brakes "retracted"
- c) Maximum weight "620 kg, 1367 lbs"

Marking of the Airspeed Indicator

	<u>km/h</u>	<u>mph</u>	<u>knots</u>
Red Radial	220	137	119
Yellow Arc	170 - 220	105 - 137	92 - 119
Green Arc	75 - 170	46 - 105	40 - 92
+ ) White Arc	75 - 140	46 - 87	40 - 76
+ ) wing flaps in position "L"			

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Data and Reference Placards

Identification plate (stainless steel)

<div style="border: 1px solid black; width: 250px; height: 20px; margin: 0 auto;"></div>	
Hersteller: SCHEMPP - HIRTH KIRCHHEIM-TECK	
Bau-Muster	<div style="border: 1px solid black; width: 150px; height: 20px;"></div>
Werk-Nr./Bauj.	<div style="border: 1px solid black; width: 150px; height: 20px;"></div>
Type Cert.No.	<div style="border: 1px solid black; width: 150px; height: 20px;"></div>

**Operation Limits**

Maximum weight	620 kg	1367 lbs.	
Airspeed limits	km/h	mph	knots
Glide or dive	220	137	119
In rough air	220	137	119
Maneuvering speed	170	105	92
Airplane tow	170	105	92
Auto winch tow	120	75	65
Air brakes extended	220	137	119
Flaps: L	140	87	76
+8, 0, -4, -7	220	137	119

Weak links for towing:  
 Max. 825 daN (1819 lb)  
 Landing wheel 3.5 bar  
 tire pressure: 50 psi

Wing flaps

Position marks: L, +8, 0, -4, -7

Load on the seats (pilot with parachute)		kg	lb
Maximum front seat load		110	243
Maximum rear seat load		110	243
	Ballast plates		
Minimum rear seat load	-	-	-
Minimum front seat load	0	70	154
	1	65	143
	2	60	132
	3	55	121

\* Note: As the actual maximum and/or minimum seat loads of this sailplane to which this manual refers may differ from the above typical weights, the seat load placard in the cockpit must show the actual weights from the log chart on page 19 C).

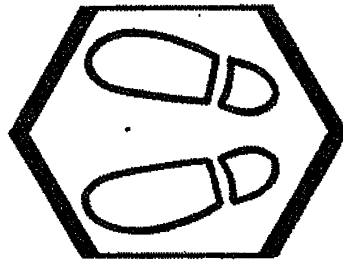
Check list before take-off

- Parachute securely fastened ?
- Safety belts secure and tight ?
- Back rest and rudder pedals in comfortable position ?
- All controls and instruments accessible ?
- Airbrakes checked and locked ?
- All control surfaces checked with assistant for full and free movement in correct sense ?
- Controls free ?
- Trimmer correctly set ?
- Flaps set for take-off ?
- Canopy closed and locked ?
- Tail chute handle locked in rear recess ?

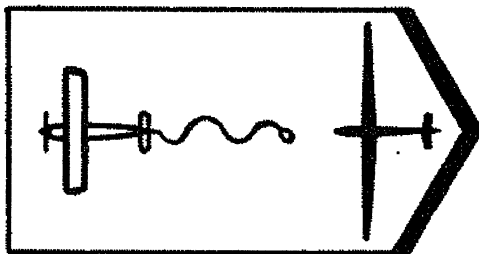
AEROBATICS: Without water ballast the following maneuvers are permitted :

- (a) Inside Loops
- (b) Stalled Turns
- (c) Spins
- (d) Lazy Eight

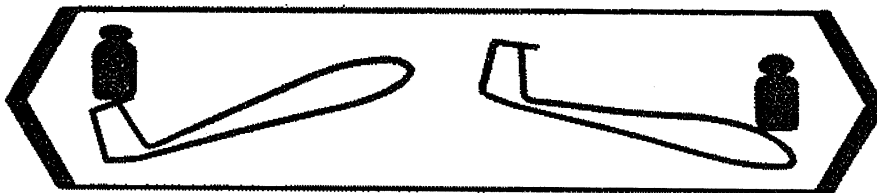
Operating handles and knobs



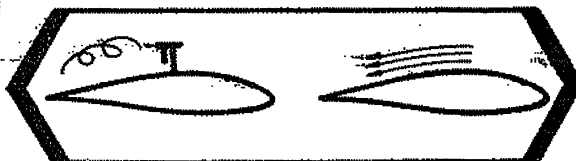
PEDAL ADJUSTMENT  
front seat only  
plastic T-handle



TOW RELEASE  
YELLOW plastic T-handles



TRIMMING  
GREEN knobs



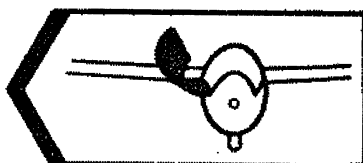
AIR BRAKES  
handles with BLUE marks



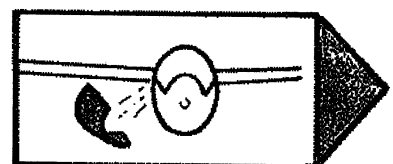
VENTILATION  
small BLACK knobs



TAIL DRAG CHUTE  
BLUE knobs



CANOPY  
RED ball knobs



left side: OPENING

right side: JETTISONING

## 2. Operating Instructions

### Winch launching

Maximum tow speed:

120 km/h, 75 mph, 65 knots.

Wing flaps should be in positions  $+8^{\circ}$ .

The sailplane has one tow release hook on the bottom of the fuselage, just in front of the main landing wheel.

Under normal conditions winch launchings are conducted without any difficulty.

There is no tendency to ground loop.

With two heavy pilots the glider tends to stand on the nose and main wheel. Then the ground run should be started with stick fully pulled back until the nose wheel has ground clearance.

With the C.G. in normal positions the take-off run should be made with stick in neutral position.

When the glider is flown by very light pilots it is recommended to make the first launches with stick in forward position.

### Instructions for the winch driver

Especially when using a strong winch care should be taken to avoid an excessively sharp start, due to the acceleration which presses the pilot back into the seat, by which he unintentionally may pull the stick aft.

### Airplane tow

Maximum tow speed:

170 km/h, 105 mph, 92 knots.

Wing flaps should be in positions  $0^{\circ}$  or  $+8^{\circ}$ .

For airplane tow the nose towing hook is used.

There is no tendency for the glider to ground loop.

With the C.G. on forward position the nose wheel is in ground contact. The ground run should be started with stick fully pulled back. Then ease the stick slowly forward until the nose wheel has ground clearance and the glider is running on the main wheel. With the C.G. in normal positions take-off should be made with stick in neutral position.

For pilots of light weight it is recommended to begin the ground run at the first launches with stick in forward position.

The glider pulls up very gently and does not show any tendency to oscillate.

The take-off speed is about 70 to 90 km/h, 44 to 56 mph, 38 to 48 knots, dependent on wing loading and flap position.

The aerotow should be conducted as follows : Begin the ground run with flaps in position  $0^{\circ}$ , then adjust them into position  $8^{\circ}$  and pull up. At a towing speed of 130 to 170 km/h 81 to 105 mph, 70 to 92 knots take the flaps forward to  $0^{\circ}$

#### Tow release

Pull the release handle fully back.

The tow release is operated by a cable with a yellow plastic T-handle, in the front seat at the left-hand side of the stick and in the back seat at the left-hand side of the instrument panel.

#### Adjustment of the front seat rudder pedals

The adjustment device is operated by a Bowden cable with a plastic T-handle at the right-hand side of the control stick.

Adjustment backwards : Pull the handle and move the pedals into the desired backward position.

Give the pedals a slight forward push with the heels, not with the toes, until the locking pin engages self-acting with a clear clicking noise.

Adjustment forward: Pull the handle slightly back to unlock the mechanism and push the pedals with the heels into the desired forward position and lock as before.

### Canopy

The one-piece plexiglass hood is attached by flush hinges at the right-hand side of the fuselage.

It is opened at the left-hand side of the cockpit. PULL BACK the red knob of the locking device on the canopy frame and lift the canopy with the free hand.

Take care that the cord which holds the opened canopy in place is attached.

The jettisoning device is mounted on the right-hand side of the cockpit, just under the canopy frame. For jettisoning open the canopy as described before, then PULL BACK the red knob at the right-hand side and push off the canopy.

### Drag parachute

The operating handle with a blue knob is installed at the right-hand side of the cockpit where the molded seat is attached to the fuselage shell. It should be operated with the right hand.

To deploy the chute push the handle forward through the guide slot up to the center stop, where the slot is branched off.

Moving the handle further forward up to the front stop of the slot means jettisoning the chute.

Do not push the handle too far forward if the drag chute should be deployed unless it is desired to jettison the chute.

For normal landings the use of the drag parachute is not necessary, since the air brakes are very effective. Deploy the parachute only in emergency.

Pack the drag parachute very carefully, following the enclosed "Operation and Maintenance Instructions" of drag parachutes.

Calibration of the Airspeed indicator

Dynamic Pressure intake: Fuselage nose,  
top edge of the air inlet hole.

Static pressure intake

Airspeed indicator: Cockpit frame, about  
and Variometer : 6 cm, 2 3/8" in front of  
the front instr. panel.

Altimeter : Rear fuselage, about 1.2 m,  
47" in front of the vertical  
tail plane.

Equivalent airspeed : V (EAS)

Indicated airspeed : V' (IAS)

V(EAS) km/h	V'(IAS) km/h	V(EAS) mph	V'(IAS) mph	V(EAS) knots	V'(IAS) knots
70	69	45	44.7	38	37.8
80	80	50	50	40	40
90	90	60	60	50	50
100	100	70	68.3	60	59.4
110	108	80	78.3	70	68.6
120	117	90	88.8	80	78.8
140	138	100	98.8	90	88.7
160	158	110	108.1	100	98.4
180	177	120	118.3	110	108.8
200	198	130	128.6		

Air density  $\rho_0 = 0.125 \text{ kgs}^2/\text{m}^4$

Flight Performances (two-seat)

W/S = 36.5 kp/m<sup>2</sup>, 7.48 lb/ft<sup>2</sup>

Stall speed (flaps +8°) 70 km/h, 44 mph, 38 kts.

Minimum sink 0.7 m/sec, 2.3 ft/sec  
at 90 km/h, 56 mph, 49 knots

Best gliding ratio 39.5 at 110 km/h,  
Max. L/D 68 mph, 59 knots

Wing flaps

The flaps have the purpose to adapt the laminar bucket of the wing airfoil to the respective airspeed in the best way. Since the laminar buckets of the applied airfoil are covering each other widely, the following flap positions can be accepted:

Normal flight three positions  
Landing one position  
High speed flight one position

Application	Flaps	Airspeed		
		km/h	mph	knots
Approach and Landing	L	80-110	50-68	43-59
Thermal flight	+8°	80-100	50-62	43-54
Best glide	0°	90-140	56-87	49-76
Flight between thermals	-4°	120-160	75-99	65-86
High speed	-7°	150-220	93-137	81-119

### Longitudinal trim

The spring-type trimming device (green knob) at the left-hand side of the cockpit, where the seat is supported, is gradually variable.

With the C.G. in a medium position the glider can be trimmed for steady flight at speeds of 75 to 200 km/h, 46 to 124 mph, 40 to 108 knots.

### Circling flight

The increase of stick forces when pulling back during circling is clearly noticeable. Opposite aileron is necessary only in turns with greater bank, due to the selected aileron differential.

The rudder is very effective and must be held almost in neutral position during the circling flight.

Full rudder and aileron is necessary to roll from a  $45^\circ$  banked turn through an angle of 90 degrees.

Time taken for this motion with flaps in position  $+8^\circ$  is 5 seconds at a speed of 100 km/h, 62 mph, 54 knots.

### Stalling characteristic

Stalls from straight flight:

Depending on the wing loading and wing flap position, stall warning occurs at speeds of 65 to 85 km/h, 40 to 53 mph, 35 to 46 knots by a slight oscillation of the horizontal tail plane and the ailerons become sloppy.

By pulling the stick gently back the glider stalls. When pulling the stick sharply back or under gusts the glider pitches down or, depending on the position of control surfaces, a wing may drop.

Speed is increasing very fast.

Stalls from turning flight:

Pulling the stick slowly back in a turning flight requires increasing opposite aileron and rudder control, i.e. against the direction of the turn.

In the fully stalled condition the glider pitches down by the lower wing. It recovers promptly from this attitude by easing the control stick forward. Normal unstalled flight is restored by opposite rudder and aileron.

### Behaviour at high speeds

Neglecting the influence of the high flight loads the controls are easy to be handled at high speeds.

Excessive control movements however should be avoided.

When flying at high speeds in gusty air care is to be taken that the safety belts are firmly attached, due to the high acceleration which acts upon the pilot. Hold the control stick well fixed!

In a flight with an inclination of the flight path of 45 degrees the air speed is set at  $V_{NE} = 220$  km/h, 137 mph, 119 knots, air brakes extended and wing flaps in the position  $+8^\circ$ .

### Approach and Landing ( Flap position L )

The approach is normally conducted at a speed of about 90 to 100 km/h, 56 to 62 mph, 48 to 54 knots, dependent on the wing loading.

The air brakes are extended smoothly and are very effective.

Sideslip is easily controlable and can be used as landing aid, also with air brakes extended.

The sideslip should be initiated or recovered with air brakes retracted to avoid the influence of turbulence on the horizontal tail surface.

The glider touches down on the landing wheel and tail skid (or wheel) simultaneously.

The wheel brake (drum brake) works well. It is operated by a handle on the sticks.

To avoid a long landing run it is advisable to touch down at a minimum speed of 70 to 80 km/h, 43 to 50 mph, 38 to 43 knots, dependent on the wing loading. Landing with a speed of 95 km/h, 59 mph, 51 knots instead means doubling the time to slow down the energy and considerably increases the running distance.

### Emergencies

The sailplane can be held in a stalling position with fully pulled stick and necessary rudder control. Applying full rudder in a stall brings the glider into a spin.

Safe recovery from the spin is effected by the STANDARD METHOD, which is defined as:

- a) apply opposite rudder (i.e. against the direction of the spin);
- b) pause;
- c) ease the control stick forward until rotation ceases and the glider becomes unstalled;
- d) take the rudder into neutral position and allow the glider to dive out.

The loss of height in one complete rotation of the spin is 80 to 100 meters.

After having initiated action for recovery from the spin the glider speeds up very fast,

therefore be cautious to bring the glider out of the dive promptly but gently.

Flying in rain or with iced-up wings means a considerable loss of performance and aerodynamic qualities. The minimum speed can increase about 15 km/h, 9 mph, 8 knots. Therefore be cautious when landing!

Come in at a speed of about 100 to 110 km/h, 62 to 68 mph, 54 to 59 knots.

### Emergency exit

The roomy and well faired cockpits guarantee a quick and safe bailing out in emergency.

### Jettisoning of the canopy

1. PULL BACK the red ball knob at the left-hand side of the canopy frame.
2. PULL BACK the red ball knob at the right-hand side of the cockpit.
3. Throw off the canopy.

The cord which holds the opened canopy in place is released when pulling back the knob of the jettisoning device at the right-hand side of the cockpit.

The canopy frame on the fuselage is built of strong fiber glass without sharp edges and is well suited as a support for the pilots to jump off.

### Acrobatic maneuvers

The following acrobatic maneuvers are permitted:

Inside loops, Turns, Spins, Lazy eights.

In the following the parenthesized speeds refer to higher wing loading (two-seat).

#### Inside loops

Entry to the maneuver with flaps in position  $-7^\circ$  at a speed of 180 (200) km/h.

In the medium part of the maneuver flap position  $0^\circ$  is preferable.

Pull-out speed: 160 (175) km/h.

#### Turns

Entry to the maneuver with flaps in position  $-7^\circ$  at a speed of 180 (200) km/h.

Full rudder in the vertical climb at a speed about 140 km/h.

#### Spins

Possible only with the C.G. in an aft position.

Positive flap position:  $+8^\circ$ .

Entry to the spin from a sharp stall applying full rudder. The control stick should be pulled during the spin.

Recovery from the spin by the "Standard Method": Opposite rudder and control stick eased forward, aileron neutral.

Pull-out speed: 140 to 160 km/h dependent on flap position and recovery method.

#### Lazy eights

Entry to the maneuver with flaps in position  $-7^\circ$  at a speed of 180 to 200 km/h.

Climbing with  $30^\circ$  to  $45^\circ$  and entering the turn at 120 km/h.

Pull-out speed: 160 to 180 km/h.

### Cloud Flying

The sailplane has sufficient strength and stability for cloud flying.

Nevertheless observe the following instructions:

- a) Do avoid extreme airspeeds in any case. Make it a rule to extend the air brakes already at speeds about 150 km/h, 93 mph, 81 knots.
- b) Cloud flying is permitted only when the following approved instruments are installed:
  - (1) Airspeed Indicator
  - (2) Altimeter
  - (3) Turn and Bank
  - (4) Variometer
  - (5) Magnetic Compass

The installation of an artificial horizon, a clock, an accelerometer and a radio is recommended.

- c) Take care to follow the official regulations about cloud flying.

### 3. Minimum Equipment =====

- a) Airspeed Indicator 250 km/h, 160 mph,  
Altimeter 140 knots

Four-piece safety belt

Back cushion or parachute

- b) Operating Instructions:

Flight and Service Manual

Placards indicating operation limits

#### 4. Wing and tail setting Control surface movements

=====

Angle of wing setting 2.6°  
Reference: Rear fuselage center line

Angle of tail setting 0°  
Reference: Rear fuselage center line

For control surface movements see page 21.

Pay attention to the tolerances if repair work is necessary.

The travel of controls is limited by stops.

Rudder - Adjustable stops on the back side of the fuselage steel tube frame.  
Firm stops at the lower rudder hinge.

Elevator - Adjustable stops on the sticks and their attachment bulkheads (setscrews).

Ailerons - Adjustable stops on the sticks, firm stops in the wing.

Wing flaps - Locking device in the cockpit.

Air brakes - Firm stops at the operation handles in the cockpit and on the fuselage steel tube frame.

5. C.G. positions

a) C.G. range in Flight (at all weights)

Leveling means: Slope of rear top surface  
of fuselage 100 to 4.5,  
tail down

Datum (BE): Wing leading edge at root rib

Max. forward C.G. : 70 mm, 2.75 in.

Max. rearward C.G. : 300 mm. 11.81 in.

behind of datum (BE)

It is very important that the maximum permitted rearward C.G. position is not exceeded, which is warranted when the minimum front seat load (pilot and parachute) is observed. Less front seat load be compensated by ballast, see also loading plan, page 20.

b) Empty weight C.G. positions

The sailplane must be weighed at least once every four years, after repairs of major nature, after additional equipment, after a new painting etc.

It is important to ensure that the empty weight C.G. is within the permitted limits. If necessary, compensating ballast weight must be installed.

If the empty weight C.G. limits and the loading plan are observed, the C.G. position in flight will be within the permitted range.

If a modification of the loading plan should be necessary, consult with the manufacturer.

The determination of the C.G. ranges as shown in the diagrams on page 19 A and 19 B is done with the following seat loads:

Forward C.G. positions : With a maximum front seat load of 110 kg (242.5 lb) and a max. back seat load of 110 kg (242.5 lb)

Rearward C.G. positions : With various minimum front seat loads and 5 kg (11 lb) load in the baggage compartment

For easier determination of the "empty" weight C.G. position, the table below shows, at various empty weights, the maximum permissible loads on the tail skid (or wheel - if installed) with various seat loads (with reference to the rear-most C.G. position).

Just determine the actual load on the tail skid (or wheel) with the sailplane being in horizontal position (main wheel on the ground, tail jacked up approx. 42 cm/16.5 in. above floor level - this is the position as described on page 18, section 5.8).

If the determined load on the tail skid (or wheel) is below the value shown in the table, the C.G. position is within the permitted range.

For sailplanes fitted with a tail wheel, the values in the table below must be increased by a factor of 1.007.

Empty weight kg      lb		Load on tail skid (or wheel) with a front seat load of:							
		70 kg	154 lb	75 kg	165 lb	80 kg	176 lb	85 kg	187 lb
360	794	29.7	65.5	31.2	68.8	32.7	72.1	34.2	75.4
370	816	29.9	65.9	31.4	69.2	33.0	72.6	34.5	76.1
380	838	30.2	66.6	31.7	69.9	33.2	73.2	34.7	76.5
390	860	30.4	67.0	32.0	70.5	33.5	73.9	35.0	77.2
400	882	30.7	67.7	32.2	71.0	33.7	74.3	35.2	77.6
410	904	30.9	68.1	32.5	71.6	34.0	75.0	35.5	78.3
420	926	31.2	68.8	32.7	72.1	34.2	75.4	35.8	78.9

MB 295 - 23

TN 295 - 17

TN 295 - 28

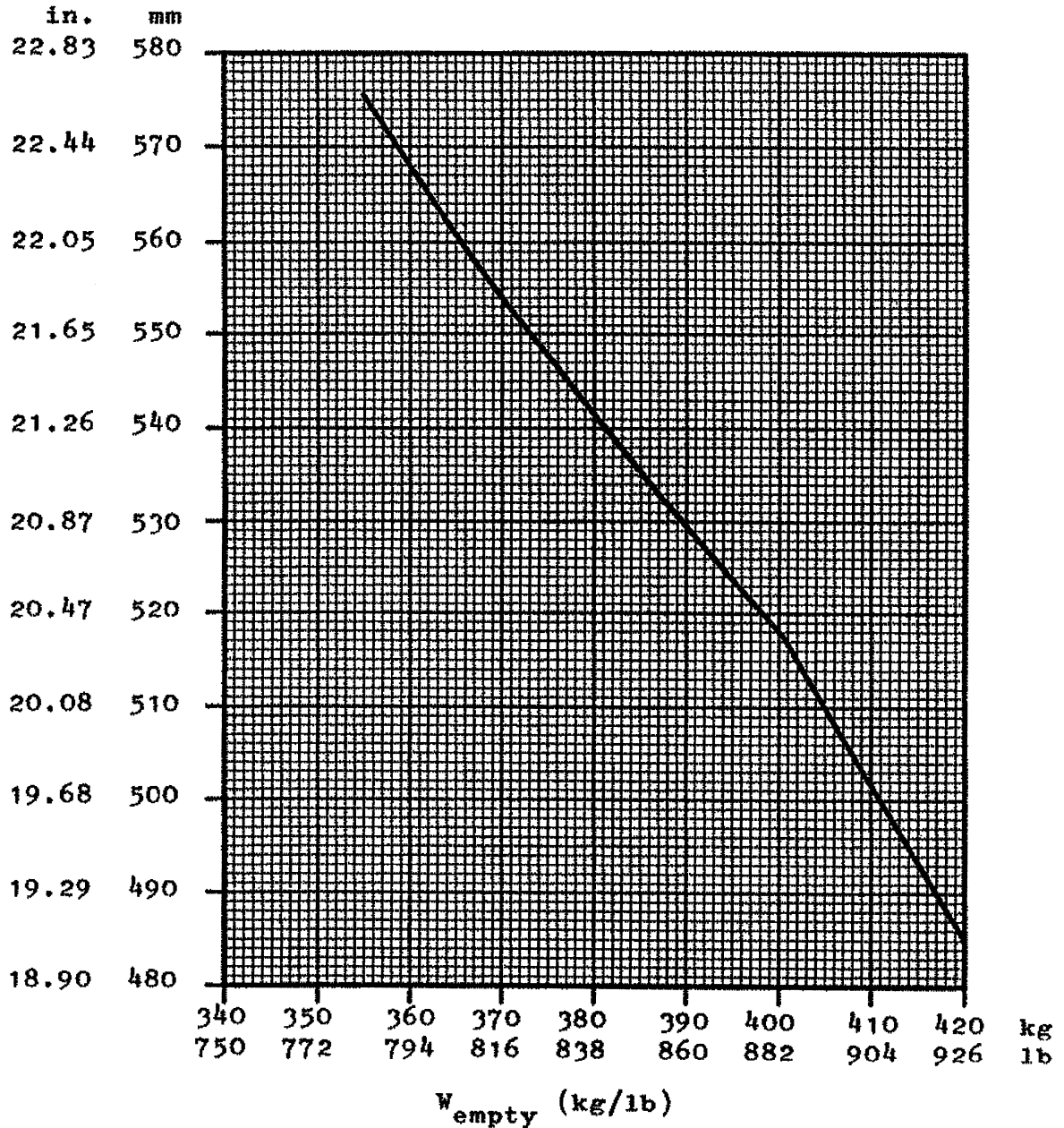
December 1983

December 1986

July 1999

EMPTY MASS C/G RANGE

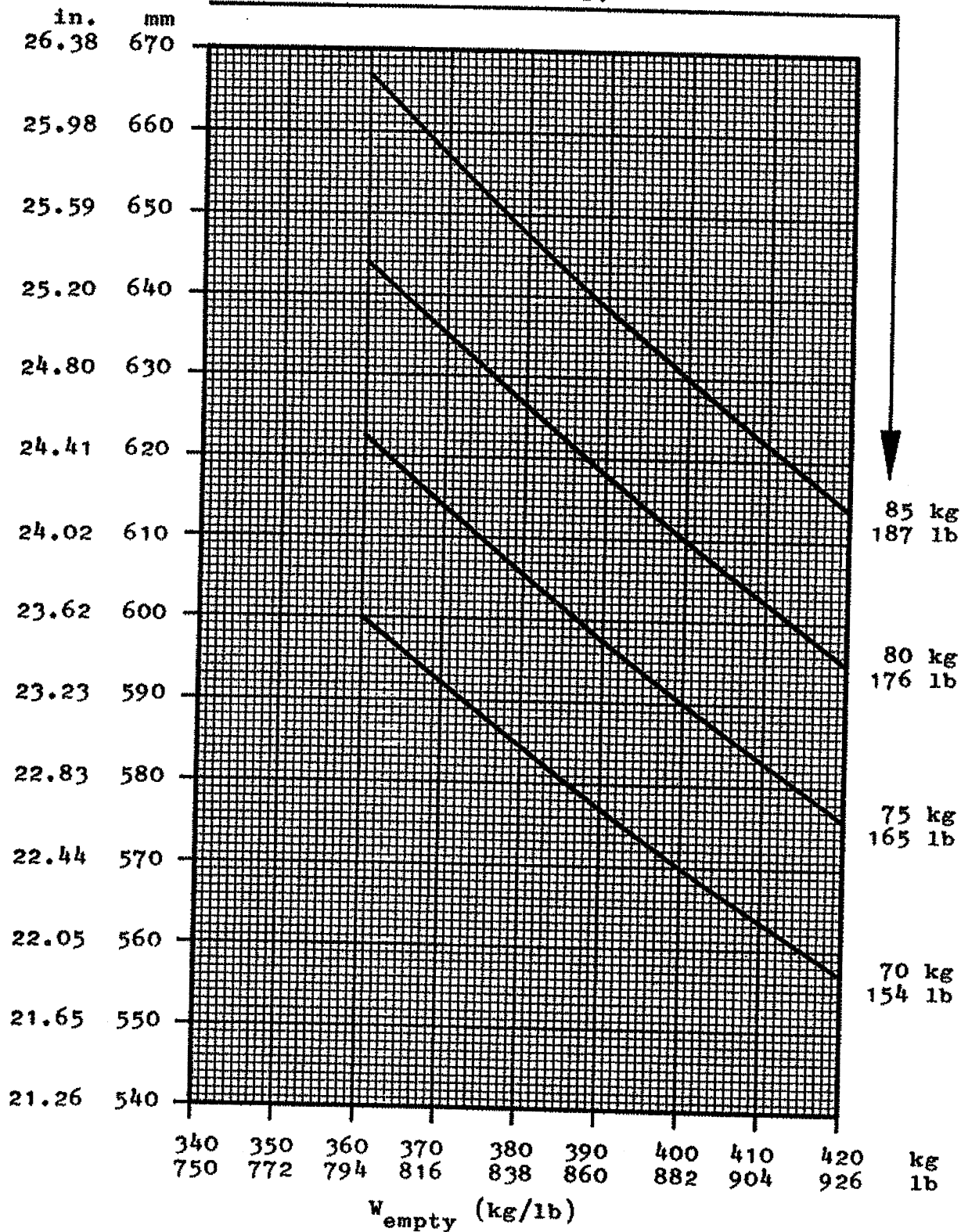
Permissible forward c/g position with a  
maximum seat load of 2 x 110 kg (2 x 242.5 lb):



Maximum permitted all-up mass = 620 kg (1367 lb)

EMPTY MASS C/G RANGE

Permissible rearward c/g position with a minimum front seat load of:



Maximum permitted all-up mass = 620 kg (1367 lb)

## Weight and Balance Log Sheet

Date of weighing									
Inspector Signature Stamp									
Empty weight									
Equipment List dated									
Empty weight C.G. position aft of datum									
Pilot & 'chute front seat	max.								
	min.								
Pilot & 'chute back seat	max.								
Maximum Payload									
Water ballast at maximum Payload									

MB 295 - 23  
TN 295 - 28

December 1983  
July 1999

Loading tableNote:

1. As the actual maximum and/or minimum seat loads of this sailplane to which this manual refers may differ from the typical weights shown below, the seat load placard in the cockpit must be observed (showing the actual weights from the log chart on page 19 C).
2. Neither the maximum permitted gross weight nor the maximum permitted weight of the non-lifting parts must be exceeded.

Maximum seat load (pilot and parachute)

Front seat : 110 kg (242.5 lb)  
 Rear seat : 110 kg (242.5 lb)

Minimum seat load (pilot and parachute)

Front seat : 70 kg (165.3 lb)  
 Rear seat : n o t l i m i t e d

A front seat load of less than 70 kg (165.3 lb) must be compensated by attaching trim ballast onto a mounting provided at the nose wheel housing. Three lead plates (each 3.65 kg/8.05 lb) are supplied by the manufacturer to be used as follows:

Placarded minimum front seat load reduced by:	Number of lead plates required:
5 kg (11 lb)	1
10 kg (22 lb)	2
15 kg (33 lb)	3

Lever arm of trim ballast weights: 1900 mm (74.8 in.) ahead of datum

C.G. position of the pilots

(with parachute or back cushion)

Front seat : 1300 mm (51.18 in.) ahead of datum

Rear seat : 190 mm ( 7.48 in.) ahead of datum

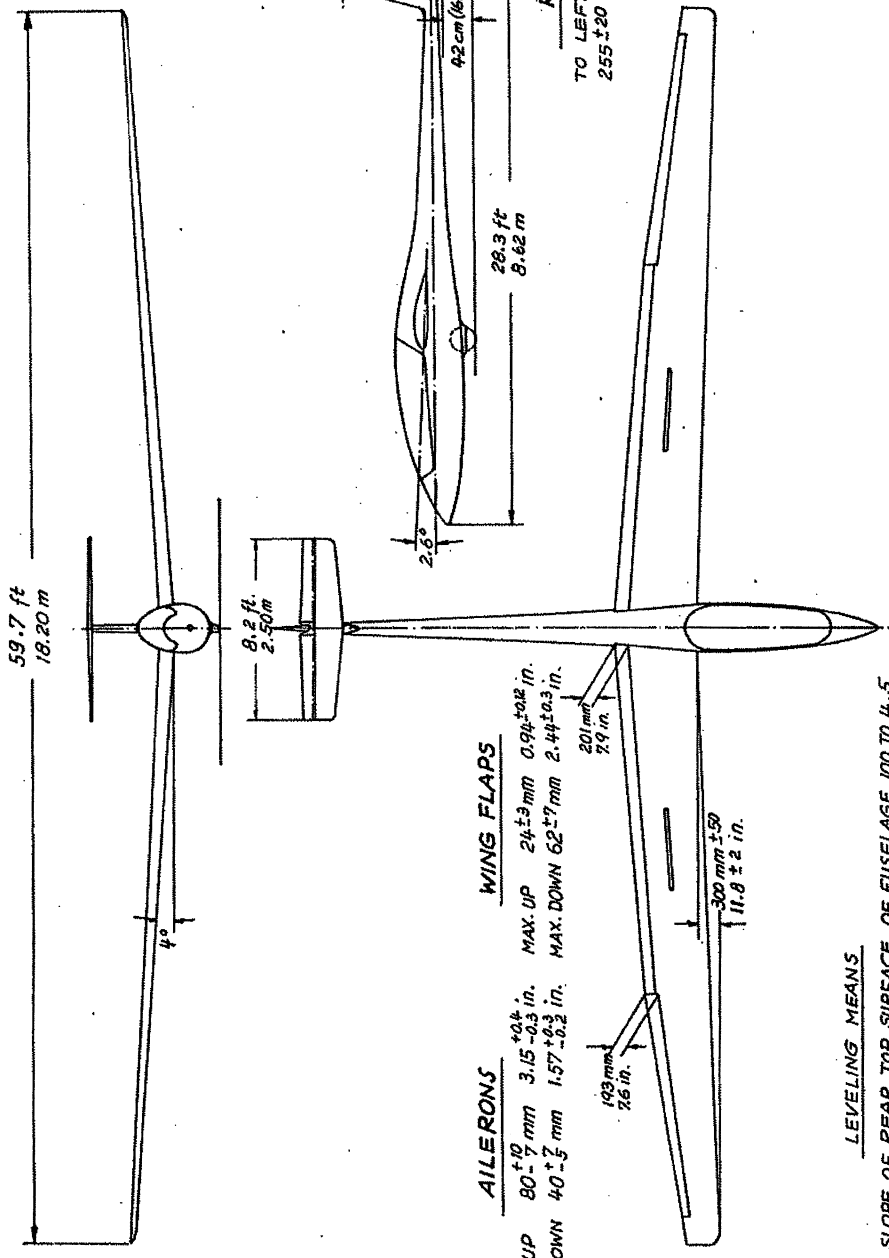
Baggage compartment

Equipment with a maximum weight of 25 kg (55.1 lb) can be fastened onto the mounting panel installed above the main landing wheel.

The baggage compartment behind the wing spar stubs is for the installation of fixed equipment only, like oxygen cylinders or variometer flasks and/or for storage of light baggage, like jackets etc.

The diagram on page 19 B allows for a maximum load of 5 kg (11 lb) for removable baggage.

Lever arm of baggage: 1100 mm (43.3 in.) aft of datum



AILERONS

UP  $80^{+10}_{-7}$  mm  $3.15^{+0.4}_{-0.3}$  in. MAX. UP  $24^{+3}_{-3}$  mm  $0.94^{+0.2}_{-0.1}$  in.  
DOWN  $40^{+7}_{-3}$  mm  $1.57^{+0.3}_{-0.2}$  in. MAX. DOWN  $62^{+7}_{-7}$  mm  $2.44^{+0.3}_{-0.3}$  in.

WING FLAPS

UP  $80^{+10}_{-7}$  mm  $3.15^{+0.4}_{-0.3}$  in. MAX. UP  $24^{+3}_{-3}$  mm  $0.94^{+0.2}_{-0.1}$  in.  
DOWN  $40^{+7}_{-3}$  mm  $1.57^{+0.3}_{-0.2}$  in. MAX. DOWN  $62^{+7}_{-7}$  mm  $2.44^{+0.3}_{-0.3}$  in.

RUDDER

TO LEFT AND RIGHT  
 $255 \pm 20$  mm  $10 \pm 0.8$  in.

ELEVATOR

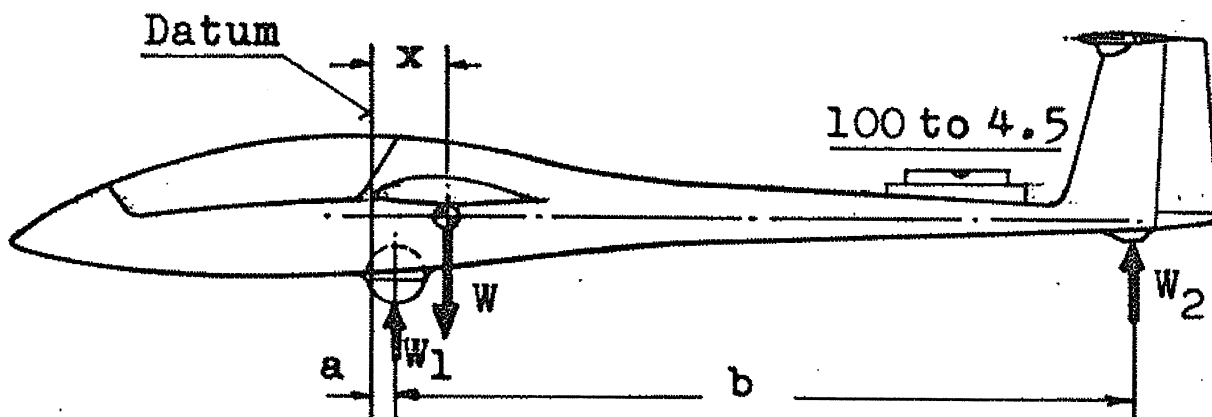
UP and DOWN  
 $55 \pm 6$  mm,  $2.16 \pm 0.24$  in.

LEVELING MEANS

SLOPE OF REAR TOP SURFACE OF FUSELAGE 100 TO 4.5  
i.e. FUSELAGE CENTER LINE HORIZONTAL.  
MAIN LANDING WHEEL ON THE GROUND AND TAIL  
JACKED UP ABOUT 42 cm (16.5 in.) FROM THE GROUND.

THREE-SIDES VIEW  
CONTROL SURFACE MOVEMENTS  
JANUS B

Weight and Balance



Datum: Wing leading edge at root rib

Leveling means: Slope of rear top surface  
of fuselage 100 to 4.5

Weight at landing wheel  $W_1 = \dots\dots\dots$

Weight at tail skid  $W_2 = \dots\dots\dots$

Empty weight  $W_1 + W_2 = W = \dots\dots\dots$

Distance main wheel:  $a = 164 \text{ mm} \quad 6.45 \text{ in.}$   
 Distance tail skid :  $b = 5290 \text{ mm} \quad (208.27 \text{ in.})$   
 Distance tail wheel:  $b = 5252 \text{ mm} \quad (206.77 \text{ in.})$

Empty weight C.G. position (aft of datum)

$$x = \frac{W_2 \cdot b}{W} + a = \dots\dots\dots$$

Maximum cockpit load  $G_L = \dots\dots\dots$

## C h e c k L i s t

=====

### A) After assembly

1. Is the handle of the main bolt secured to the fuselage by the safety cowl pin?
2. Are the push rods of the ailerons, flaps, and air brakes safely connected by their ball-spring couplings and checked?
3. Are the joints of the wing and fuselage and the hole for the locking handle of the horizontal tail plane sealed?
4. Does the tow release mechanism function properly?
5. Does the wheel brake function properly?
6. Is the tire pressure of the main landing wheel, nose wheel and tail wheel (if installed) checked ?  
Main landing wheel : 2.75 bar (39 psi)  
Nose wheel : 1.5 bar (21 psi)  
Tail wheel : 2.5 bar (36 psi) |
7. Is the horizontal tailplane safely attached ?

### B) Before Take-off

1. Check the function of the control surfaces. Do the controls reach the limit of their travel with sufficient ease and smoothness?
2. Do the air brakes operate properly? Make sure to lock them after checking.
3. Is the drag chute handle locked at the rear stop of the guide slot?

- JANUS B -

- FLIGHT MANUAL -

4. Are the flaps in the correct take-off position?
5. Is the canopy properly closed and locked? The red knobs at the left-and right-hand side must be in the front position.
6. Is the pilot's parachute properly attached?
7. Are the safety belts put on and secured?
8. Is the altimeter adjusted for the equivalent altitude or for NN?
9. Is the radio frequency adjusted for the airfield and/or for the air traffic control?

C) After take-off

Check the trim.

