Maximum permissible recovery loads

Maximum positive load	+ 5,3g)	at 180 km/h
Maximum negative load	- 2,65g)	

With increasing speed the limits decrease linearly to:

Maximum positive load	+ 4,0g)	at 280 km/h
Maximum negative load	- 1,5g)	

II.6. CREW

The crew of the ASW 22 is one pilot.

II.7. MASSES

According to the "Gesetz über Einheiten im Messwesen" (Weights and Measures Act) of July 2, 1969, the term "mass" is to be used where the kilogram (kg) is the unit, as opposed to the expression "weight" formerly used.

	24 m	22 m
Empty mass with min. equipment	ca.410 kg	ca.400 kg
Max. permissible flight mass	650 kg	750 kg
Max. permissible mass of the non-lifting structural parts	275 kg	275 kg
Water ballast in the wing tanks, depending on empty mass and cockpit load (see tables in Chapter II.9.)	185 kg max.	240 kg max.

II.8. LIMITS OF C.G. POSITION IN FLIGHT

The Datum Point (BP) is the leading edge of the wing root rib (disregarding the rounded part of the wing-fuselage transition).

Maximum permissible water ballast for the 24 m version

Cockpit load (kg)

(MASS OF PILOT, PARACHUTE AND BAGGAGE) →

AIRFRAME MASS (kg) ↓	75	85	95	105	115
390	185 ⊕	175 ⊕	165 ⊕	155 ⊕	145 ⊕
400	175 ⊕	165 ⊕	155 ⊕	145 ⊕	135 ⊕
410	165 ⊕	155 ⊕	145 ⊕	135 ⊕	125 ⊕
420	155 ⊕	145 ⊕	135 ⊕	125 ⊕	115 ⊕
430	145 ⊕	135 ⊕	125 ⊕	115 ⊕	*

See Page 17

⊕ First fill outboard wing tanks with approx. 120 kg (120 l water); the remainder may be loaded into the inboard tanks.

* These combinations are not permissible, as the maximum permissible mass of non-lifting structural parts will be exceeded.

Maximum permissible water ballast for the 22 m version

Cockpit load (kg)

(MASS OF PILOT, PARACHUTE AND BAGGAGE) →

AIRFRAME MASS (kg) ↓	75	85	95	105	115
390	full	full	full	full	full
400	full	full	full	full	full
410	full	full	full	full	225 ⊕
420	full	full	full	225 ⊕	215 ⊕
430	full	full	225 ⊕	215 ⊕	*

See Page 17

Horizontal tailplane

Span	3.125 m
Area	1,27 m^2
Aspect ratio	7,69
Section	Wortmann FX 71-L-150/30 12 % thickness

Elevator

Area	0,381 m^2
Control surface chord ratio	30 %

Airbrakes	Schempp-Hirth, top surface only
Length	1,20 m
Area (both)	0,336 m^2
Height	0,15 m

Weights

Empty weight	approx.	410 kg
Useful load		125 kg
Weight of non-lifting structural parts	max.	275 kg
Max. flying weights, 24 m		650 kg
22 m		750 kg
Wing loadings, 24 m		31,6 ÷42,0 kg/m^2
22 m		32,0 ÷50,3 kg/m^2

II. DESCRIPTION OF SYSTEMS

II.1. ASW 22 glider

Midwing, single-seat glider, featuring camber-changing flaps, T-tailplane, retractable landing gear and water ballast system. The wingspan can be increased by means of two

value for non-lifting structural parts is 275 kg, a payload of up to 115 kg was permitted in the pilot's seat.
The alterations to the equipment raise the mass of the non-lifting structural parts by $m_{O_2} + m_{i2} - m_{i1} = 5,5 + 0,8 - 0,3 = 6,0$ kg to

$$m_{ntr} = 156 \text{ kg}.$$

The new maximum payload in the seat now amounts to 275 - 156 = 119 kg.
The C.G. position alters as follows:

$$x_{Lnew} = \frac{(m_L \cdot x_L)old + (m_{i2} - m_{i1}) \cdot x_i + m_{O_2} \cdot x_{O_2}}{m_{Lnew}}$$

$$m_{Lnew} = m_{Lold} + m_{i2} - m_{i1} + m_{O_2}$$

$$= 509 + 0,8 - 0,3 + 5,5 = 515 \text{ kg}.$$

$$x_{Lnew} = \frac{508 \cdot 598 - (0,8 - 0,3) \cdot 1450 + 5,5 \cdot 300}{515}$$

$$= 591,66 \approx 592 \text{ mm}.$$

Reading off the graph Fig. 3.2.-1, you will see that the minimum payload in the pilot's seat is now 75 kg.
The new values must now be entered in Chapter II.9. to update the current state of the aircraft, by a person licensed to do this (e.g. building inspector of any licensed repair company).

3. Example of calculating the flight mass C.G. position:

a) An ASW 22 with an empty mass of m_L = 408 kg and an empty mass C.G. position x_L = 598 mm, is to be flown by a pilot of 90 kg weight (including parachute). He takes 2 kg of rations with him in the cockpit, plus 4 kg of baggage (barograph, retaining straps, canopy cover, rainwear etc.) in the baggage compartment.
What will the in flight C.G. position be ?

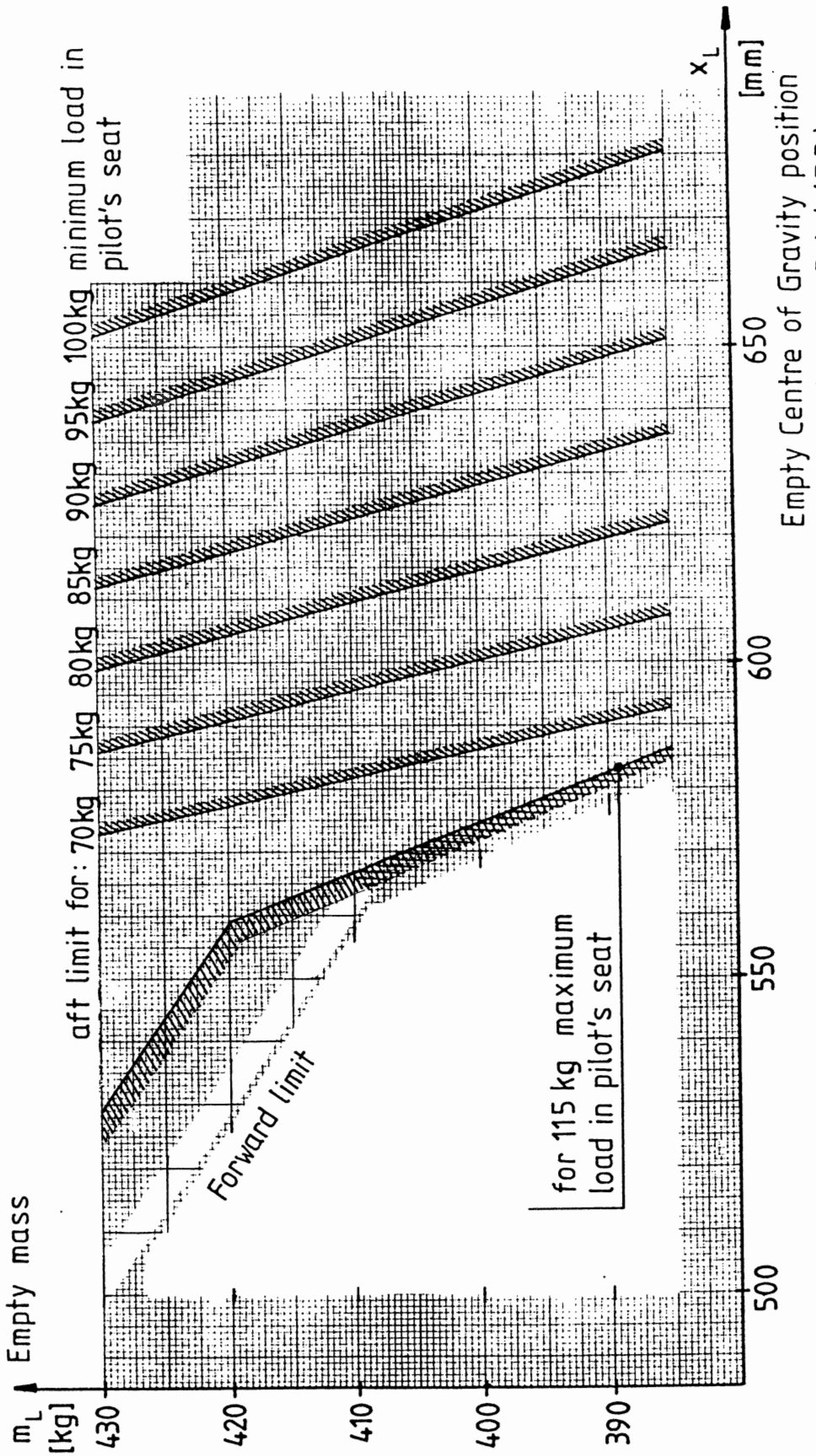

Fig. 3.2-1

DATE:	AUTHOR:	CORRECTION:	
15.03.85	Heide		only for T.N. No.3