

ASK 13



Flight 
 Manual

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Flight - and Maintenance - Manual
for the Glider
AS - K 13

Edition

This Handbook has to be carried on board of the
aircraft.

It belongs to the glider

AS - K 13

F-CAFV

Serial No. 13680 AB

Manufacturer Sportflugzeugbau JUB GmbH

Holder CVV Boanjala

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Amendments

No.	Designation	Page	Date	Signature
1	TN Nr. 4	22	5.12.69	Schleicher
2	TN No. 5(opt.)	8	17.12.70	R. W. J. Faw
3	TN No. 12	annex	04.10.89	R. W. J. Faw
4	TN No. 14	annex	27.09.91	R. W. J. Faw
5	Empty weight	Balancing sheet	18.05.92	R. W. J. Faw
6	TN No. 18	annex	25.05.2010	[Signature]
7	TN No. 19	annex	08.01.2013	[Signature]
8	TN No 20	Appendix 01-2014	01.03.2014	[Signature]

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1. Operating Limitations

Air speeds:

Max. speed	125	mph	200
rough air	87	mph	140
aero tow	87	mph	140
auto and winch tow	62	mph	100

Weights:

Empty weight	650	lbs	295
Max. weight	1060	lbs	480
Max. weight of non lifting parts	710	lbs	322

Category:

2 BVS

Limit load factor

up	4,0
down	-2,0
Safety factor	2,0

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Center of gravity position in flight:

Leveling means	Tangente to rib Nr. 3 horizontal.
Datum	wing leading edge rib 3
Max. forward	2,75 behind datum point
Max. rearward	9,7 " " "

Weak link in the tow cable:

Winch tow	max.	2350 lbs	1065 kg
	min.	1850 lbs	839 kg
Aero tow	max.	1580 lbs	716 kg
	min.	1060 lbs	480 kg

2. Operating Directions:

Winch tow:

Max. tow speed is 62 mph. 100 km/h

Attention. In winch tow pulling the stick back means increase of speed. When lifting off ease the stick some what to overcome a light tendency to pitch up. Best attitude in climb is with stick normal. Winch tow on the belly hook only.

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Aero tow

Max. towing speed is 87 mph. 140 km/h
For aero tow the nose hook is preferable.
Pull release till the stop.

Before every take off check canopy and airbrakes for complete locking.

Adjustment of the front rudder pedals.

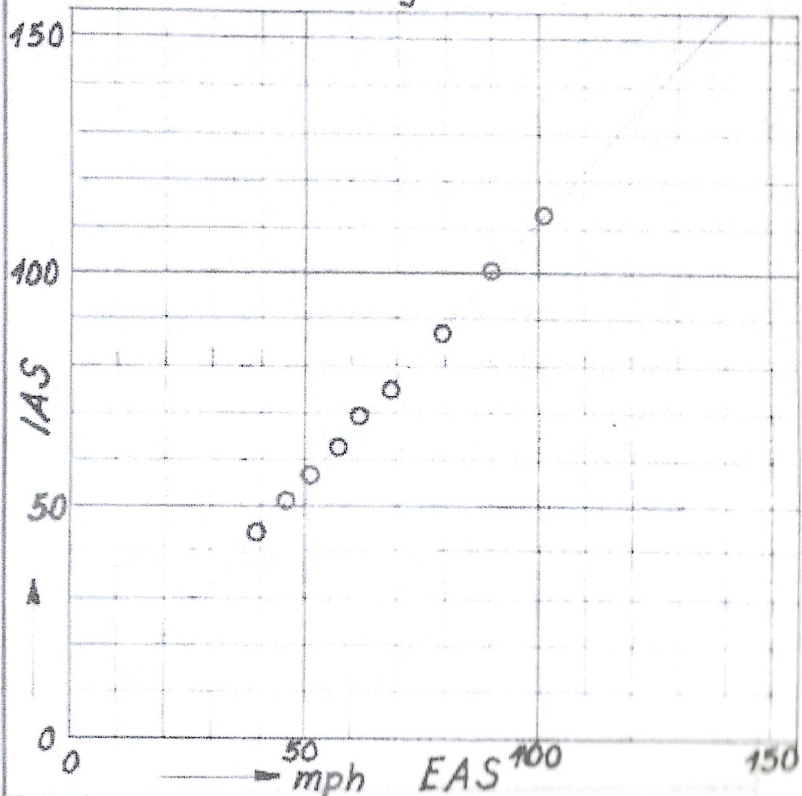
Pull back the pedals with the heels and lock the adjusting link to the desired position. Adjusting is possible during flight too.

In flight:

The presented values are calculated. They are related to EAS. There has to be considered the position error, see Fig. 1.

The indicated air speed reading may drop to zero when the glider is slipping or skidding due to movement of the total pressure peak from the nose to the side.

Fig. 1



Stalling speed with an all up weight

of	840 lbs	is	35 mph	56 km/h
	1040 lbs	is	38 mph	61 km/h

<u>Speed at</u>	min sink	40 mph	64 km/h
	optim. glide	50 mph	80 km/h

Landing:

Approach speed 50 - 55 mph. 80 - 88 km/h
The glide angle can be adjusted in a wide range with the airbrakes. Touch down is best with partly extended airbrakes only. The wheel brake is actuated by the airbrake lever when fully pulled back.

Stalling and Spinning Behaviour:

With stick full back the aircraft can be controlled by the rudder. Applying a large amount of rudder will cause a spin. There has to be considered the influence of the center of gravity position to the spinning characteristics. With the C.of Gr. pos. forward the aircraft will tend to go into a spiral dive and build speed very rapidly. In this case the airbrakes have to be opened first before pulling out.

With C. of Gr well in the middle spinning is normal and the aircraft will recover by giving free the controls alone.

With C.of. Gr. near the most rear ward position spin recovery has to be managed by the following standard methods:

- a) apply opposite rudder (i.e. against the direction of rotation of the spin);
- b) pause ;
- c) ease the control column forward until the rotation ceases
- d) centralise rudder and allow aircraft to dive out.

At high speed there has to be watched the speed limits. When a speed of ^{140 km/h} 87 mph is surpassed involuntary the airbrakes should be opened slowly.

Remember: At higher speeds the airbrake lever force is actuating in opening sense.

Rain drops, hoar frost and ice: will disturb the wing surface, so quite adverse flying characteristics may result. There fore caution is advised in such cases. during approach, give enough speed margin.

Emergency Jettisoning of Canopy: To bail out the canopy has to be opened at the release knob at the left side and pushed forward out of the hinge. The hinges have to be watched for easy moveability.*

Cloud flying

The glider has sufficient strength for cloud flying. Nevertheless some principal rules should be considered:

* TN-no. 5 from 17.12.70: (Amendone N°2)

"To bail out the canopy has to be opened by pulling both release knobs on left and right side."

- 1) Overspeed in cloud flying should be prevented in any case. There should be the rule to open the airbrakes early at speeds of 65 to 75 mph.
- 2) Minimum equipment for cloud flying: ^{105 - 120 km/h}
Air speed indicator with pitot tube protected against icing.
Sensitiv altimeter
Variometer
Compass
Turn and bank (power source insensitive against icing).
Chronometer
An artificial horizon and accelerometer is recommended.

3) The ATC rules are to be observed.

4) Minimum Equipment:

- Airspeed indicator ranging from 30 to 125 mph. ^{50 to 200 km/h}
- Altimeter
- Safety belt and shoulder harness.
- Back cushion if no parachute is carried (min. thickness 4 inch).
- Balance - and data plate
- Flight Manual.

5) Adjusting Data:

The adjusting and washout - angles as well as the control surface deflections are shown in the outline drawing.

At repairs care should be taken to observe the tolerances.

By the particular kinematics of the control mechanism the aileron deflection will be influenced by the elevator. With normal stick position the ailerons have to be normal.

With pushed and pulled stick the ailerons are some what zoomed.

The controls have stops:

Rudder control: Fixed stop at the lower hinge.

Aileron control: Fixed stop at two hard wood pieces down the front seat.

Elevator control: Backward - fixed stop at the front edge of the seat, forward - fixed stop at the ground board.

Airbrakes:

Backward: Adjustable stop at the horizontal pushrod, stops against the main bulkhead frame. Forward: Fixed stop, cross shaft lever stops at a tube piece.

6) Weights and Center of Gravity Positions:

After repairs, after installing of additional equipment, after new painting etc. there should be watched that the empty weight center of gravity is within the limits. If necessary balance weights are to be installed.

Empty weight	616	638	660	682	705	lbs
center of gravity position	max. 21,45	21,06	20,68	20,3	20,0	
	min. 19,3	18,7	18,2	17,7	17,2	

behind datum point.

Leveling means: Tangate to rib 3 horizontal.

Datum: wing leading edge rib 3.

If the empty weight center of gravity is within the given limits it is verified that the in-flight center of gravity is correct provided the glider is properly loaded after the balance plate.

The center of gravity has an important effect to the gliders handling characteristics. Therefore one should pay attention to not exceed the given limits.

Too much backward position may become dangerous: Stalling and especially the spinning characteristics (flat spin) can be badly influenced. The elevator becomes more sensitive.

Too much forward position may deteriorate the performance and does not allow flying at maximum lift. (flare out when landing!).

The following ranges of flight position of. c.g. are tested:

- a) max. forward position:
2,76 inches behind datum point.
- b) max. aft position:
9,7 inches behind datum point.

6) Balancing instructions:

Cockpit load (Pilot + parachute), 64 → 100 kg

single occup. front seat 143 - 220 lbs.

two occup. front seat 143 - 220 lbs.

Less load has to be completed with ballest on the seat (lead - or sand cushion).

Notice: If no parachute is carried a back cushion has to be used which has a compressed thickness of 4 inches.

Trim by weight *7.7 lb*

Fixing the 17 lbs standard trim weight at the forward foot board will compensate for 22 lbs pilot weight.

10 lb

