

Check List / 2

Pre take-off check:

1. Tail dolly removed – ballast checked?
2. Parachute properly fastened – raise line?
3. Safety harness properly fastened – all operating elements within reach?
4. Put your toes under the toe-straps! Do not flatten the straps!
Danger of jamming the pedals!
5. Airbrakes retracted and locked?
6. Placard for spin ballast?
7. Altimeter adjusted?
8. Radio on – frequency and volume checked?
9. Trim adjusted?
10. Control circuit check – Controls easy to operate?
11. Airspace for start and release clear?
12. Check wind
13. Prepared for take-off interruption?
14. Both canopies closed and locked? – Emergency jettisoning procedure in mind?

- 5) Check condition of tailskid, pitot tube and venturi tube!
- 6) Check static vents for cleanness!
- 7) See 2.)

After rough landings or excessive flight stress the whole sailplane must be checked with the wings and tail unit removed. If any damage is found, a technical inspector must be called in. On no account one must take off again before the damage has been repaired.

See also Maintenance Manual.

IV.3 Pre take-off check

1. Tail dolly removed – ballast checked?
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Emergency jettisoning procedure in mind?

Re II 8. Weight and balance information with spin ballast

With every new weighing of the sailplane, a current spin ballast-table must be requested from the manufacturer and filed after this page.

Before every flight with spin ballast the pilots must be weighed with the equipment worn in flight (clothes, parachute ...). The amount of spin ballast is specified in the current spin ballast-table. The mass of the pilot in the front seat defines the line of the table; the mass of the pilot in the rear seat defines the column of the table. At the intersection, the number of ballast plates (1 kg = 2.2 lbs), which are to be attached, is noted.

Other cockpit ballast must be removed. The use of this table ensures a permissible in-flight C. of G.-position, even if the cockpit load falls below the minimum cockpit load specified in the Weight and Balance Form.

Up to a maximum of 12 spin ballast plates are permissible. The plates have to be distributed evenly to the left and right side of the fin and have to be fixed with the provided screw.

CAUTION: *The washer and nut fixed at the cockpit placard (see below) **must** be used. After removal of the spin ballast the washer and the nut must be fixed again on the placard.*

Attention



Check spin ballast!

Only use spin ballast for flights
with two pilots!

ASK 21 Flight Manual

Date of weight & balance		Empty weight c.g. (mm/in. behind datum)		Front seat kg/lbs payload incl. chute min max		Rear seat kg/lbs payload incl. chute min max		Old spin ballast table removed (check off)		Signature of inspector, inspection stamp	
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Note: During spins the ASK 21 oscillates in pitch. From a steep nose down spin recovery according to the standard procedure is up to 1 turn, from a flat spin less than 1 turn.

The speed at which the stall takes place depends on the payload. The following standard values are applicable:

	without airbrakes	with airbrakes
Single, all up weight 470kg	65 km/h 35 kts	68 km/h 37 kts
Dual, all up weight 600 kg	74 km/h 40 kts	77 km/h 42 kts

Spinning with spin ballast

Mounting of spin ballast see chapter II.8 Mass and Balance Form. Spinning with spin ballast is principally only allowed by dual flights. With spin ballast other aerobatic manoeuvres are not permissible.

Entry procedure:

The best entry speed is 2 km/h (1.1 kts) above the speed, at which the stall warning sets in. This must be checked before in flight.

Step hard on the rudder in the intended spin direction. Then, fully pull the stick. The aileron stays neutral. The rudder must stay in this position as long as the spin is supposed to continue.

WARNING: *If a spiral dive sets in, it must be stopped immediately, to prevent overstressing the structure.*

Recovery procedure:

Recovery according to the standard procedure, see chapter III.1.

IV.7 High Speed Flight

The sailplane shows no flutter tendency within the permissible speed range.

With airbrakes extended in a 45° dive the speed remains below $V_{NE} = 280 \text{ km/h}$ (151 kts); it goes up to 232 km/h (125 kts) at $G = 600 \text{ kg}$ (1323 lbs).

IV.8 Cloud flying

For min. equipment for cloud flying see II.3 a & II.3 c.

According to past experiences the airspeed indicator system is not exposed to the danger of icing-up. However with strong icing-up the pilot must be always take into account the possible failure of the airspeed indicator. When planning cloud flying, he must take this point into consideration.

Excessive speeds during cloud flying must be avoided in any case. The pilot should try to keep an average speed of about 100 km/h (54 kts) and with increasing speed above 130 km/h (70 kts) he should use the airbrakes in order to control the speed.

Attention!

Never release stick and rudder pedals when flying aerobatics.

With aerobatics instruction a reliable agreement must be made between instructor and student flyer with regard to the communication system for the mutual taking over of the controls.

Airbrakes must be extended as soon as the pilot loses the control of the sailplane or as the speed increases unvoluntarily to rapidly.

Exception: „Tail sliding“!

The trim remains in the center position for aerobatic manoeuvres. Don't ever change the trim when flying aerobatics!

With spin ballast is attached, aerobatics are prohibited (except spinning).

10. Prohibited aerobatics

- All abrupt aerobatic manoeuvres.
- Loop forward.
- Tail sliding

V Weights and C.G. positions

V.1 on the WEIGHT AND BALANCE SHEET...

(see page 33) the min and max c.g. limits with regard to the glider empty weight are noted.

Min pilot weight for front seat = 70 kg (154.3 lbs).

Max pilot weight for both seats = 110 kg (242.5 lbs) each.

Pilot weight means pilot + parachute.

If the empty weight c.g. positions are within the permissible range, it is assured that also the in-flight c.g. is within the permissible range provided that the load limitations (pilot weights) have been observed.

The max all up weight of 600 kg (1323 lbs) must not be exceeded. In the case that the empty weight comes to more than 380 kg (838 lbs), the max permissible pilot weights have to be reduced accordingly.

V.2 Weights of non-lift producing members

The weight of the non-lift producing members is composed of pilots' weights, fuselage, tail units, and equipment, - without the weight of the wings.

The weight of 410 kg (904 lbs) for the non-lift producing members must not be exceeded.

After repairs, repainting or the installation of additional equipment, at the latest however every 4 years the empty weight and the c.g. positions must be re-established.

V.3 Table for spin ballast

When the plane is equipped with an attachment for spin ballast (TN4a):

After every weighing a new table for the spin weights must be requested from the manufacturer. A copy of the weighing formula and the equipment list, signed and stamped by the inspector, must be forwarded to the manufacturer.

The table is to file away after page 10c in the Flight Manual.

VII. Check lists

Pre Flight Check

1. Main pins safetied?
2. Rear wing attachment pins: is the safety lock visible above the pin?
3. Horizontal tail unit pins safe tied? Is the spring retainer engaged?
4. Elevator pushrod connected? Safetied with a spring clip?
Not applicable for gliders using the automatic elevator connection!
5. Aileron pushrods connected? Safetied with a spring clip? Do not forget the visible control through the access hole cover!
6. Airbrake pushrod connected? Satisfied with a spring clip? Do not forget the sight control through the access hole cover!
7. Check for foreign objects!

Attention: *At all L'Hotellier quick release joints, one must be able to touch the ball pivot by feeling through the slot in the ball socket. Check the proper engagement of the safety lock by pushing it on to close!*

Pre take-off Check

1. Tail dolly removed – ballast checked?
2. Parachute properly fastened – raise line?
3. Safety harness properly fastened - all operating elements within reach?
4. Put your toes under the toe straps! Do not flatten the straps! Danger of jamming the pedals!
5. Airbrakes retracted and locked?
6. Placard for spin ballast?
7. Altimeter adjusted?
8. Radio on – Frequency and volume checked?
9. Trim adjusted?
10. Control circuit check – Controls easy to operate?
11. Airspace for start and release clear?
12. Check wind
13. Prepared for take-off interruption?
14. Both canopies closed and locked – Emergency jettisoning procedure in mind?

X Placards and Markings

1. Data placard with weight & balance data; one placard each for the front and rear seat on the right cockpit wall.
2. Fire-proof type plate; right at the spar tunnel bottom.
3. Placard stating the approved Airworthiness Category; on the front instrument panel.
4. Max. baggage compartment loading, on placard each left and right on the rear cockpit wall close to the baggage compartment opening.
5. Placard on the rear instrument panel.
6. Placard for „Pre take off check“; on the underside of the front instrument panel cover so that the placard is visible when the canopy is open.
7. Placard on left side of top of fin.
Note: This placard is cancelled if your glider features the automatic elevator connection. Placard in the access hole cover
8. Placard for tire pressure nose wheel: 2.0 bar (= 29 psi).
9. Placard for tire pressure main wheel 2.7 bar (= 39 psi).
10. Airspeed indicator marking.
11. G-meter marking.

For gliders with pneumatic tail wheel only

12. Placard for tire pressure tail wheel (only when the pneumatic tail wheel is installed): 2.5 bar (= 36 psi)!

For gliders equipped with an attachment for spin ballast (TN4a)

13. Placard for spin ballast (at the front instrument panel)



EMERGENCY JETTISONING of front canopy: Push lever with red flat knob to the left.



OPEN and/or EMERGENCY JETTISONING of rear canopy: Move red levers LH and RH on canopy frame backwards



Ventilation: Pipe right below the canopy frame.

Prior to take off, check proper engagement of the canopy locks!

This placard must be fitted in the front and rear cockpit in full view of the pilot.

When the plane is equipped with an attachment for spin ballast (TN4a)

Placard at the front instrument panel, informing about mounted spin ballast.

Attention



Check spin ballast!
Only use spin ballast for flights with two pilots!


A M8-screw must be mounted through the placard from the backside. The placard is visible, when spin ballast is mounted on the tail (= DANGER). When spin ballast is removed, the placard is covered by the nut that otherwise holds the spin ballast.

5
1 off
Rear

Attention! Emergency bailout!

a) Pull back both canopy side-locks and push canopy upwards.
 b) Undo safety harness.
 c) Get up and bail out.
 d) With manual chute seize release grip and pull out entirely after 1-3 sec.

2



A. Schleicher
6416 Poppenhausen

Model : ASK 21
 Serial no: 21 XXX
 Registration letters :
 Made in West Germany

3
1 off

Aerobatics prohibited!
 Equipment as under airworthiness category "U" (Utility)

3
1 off

Aerobatics as per Flight Manual
 Equipment as under airworthiness category "A" (Acrobatic)

For equipment without g-meter and bottom strap.

For equipment with g-meter and bottom strap.

Segelflugzeugbau A. Schleicher Poppenhausen

Model _____ Serial no. _____

DATA PLACARD

Approved for:

Max. speed for calm air	280 km/h
Max. speed for rough air	200 km/h
Max. maneuvering speed	V _M 180 km/h
Max. aero tow speed	V _F 180 km/h
Max. winch launch speed	V _W 150 km/h

WEIGHT AND BALANCE

Min. payload front seat kg
 Max. payload front seat kg
 Max. payload rear seat kg
 Baggage in wingroots max. 2 x 10 kg
 Max. permissible all-up weight kg

1
2 off

4
2 off

Loading of baggage compartment: max. 10 kg

6
1 off

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