III. EMERGENCY PROCEDURES

III.1 RECOVERY FROM SPIN

According to the standard procedure spinning is terminated as follows:

a) Apply opposite rudder (i.e. apply rudder against the direction of rotation of the spin).

b) Short pause (hold control inputs for about 1/2 spin turn).

Warning: Disregarding the pause will result in slower recovery!

c) Ease the control column forward (i.e. give in to the pressure of the stick) until the rotation ceases and sound airflow is established again.

Warning: Full forward stick may retard or even prevent the recovery!

d) Centralise rudder and allow glider to dive out.

The altitude loss from the beginning of the recovery until the normal flight attitude is regained is about 80 meter (260 feet).

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.

III.2 CANOPY JETTISONING AND EMERGENCY BAIL OUT

Front canopy:

a) Move lever with the red knob above the instrument panel to the left and push canopy upwards.
b) Open safety harness.
c) Get up and bail out.
d) With manual chute seize release grip and pull out entirely after 1 to 3 seconds.

III.4 WING DROPPING

The glider stalls extremely benign. Nevertheless one always has to face the possibility of wing dropping because of turbulence. In that case push stick forward immediately and apply opposite rudder against a noticeable turn at the same time to regain a normal flight attitude. If the rudder deflection against the turn is forgotten, a spin may occur even if the stick pressure is released.

III.5 GROUND LOOPING

For normal conditions, smooth runway, short grass, one may take off with the wing on the ground without having to fear a change in the direction.

High grass and rough ground, however, may cause ground looping. In that case release the tow rope immediately.

IV.5 FREE FLIGHT

The glider may be flown up to V_{NE} = 151 kts = 174 mph = 280 km/h.
Up to manoeuvring speed of 97 kts = 112 mph = 180 km/h full control deflections can be applied. At higher speeds the controls must be applied more carefully.
At V_{NE} only 1/3 of the max. possible deflections must be applied.

IV.6 LOW SPEED FLIGHT, WING DROPPING AND SPINS

With the stick back a distinct tail buffet is felt.
The glider is very benign in low speed flight. By use of normal aileron deflections the wings may be kept level down to minimum speed, even with aft C.G. positions.
With normal rudder deflections no wing dropping is found. Yaw angles of up to 5° have no significant influence on the wing dropping attitude.
Also rapid pulling up into 30° pitch does not cause wing dropping, but only a gentle nose drop. The same applies for stalling out of a 45° turn.
But one has to point out that even the most benign glider needs speed in order to be controllable.
In turbulence this is especially important when also a wing dropping may occur.
Spin developement from wing dropping strongly depends on the C.G. position and also to some extent from the pilot reaction.

For C.G. positions forward of 315 mm aft of datum the ASK 21 does not spin at all. This configuration applies to 2 heavy pilots.

For C.G. positions from 320 mm through 385 mm aft of datum more incipient spin turns are possible followed by self recovery after 4 1/2 turns at most. Such C.G. positions are possible in dual flight with a lightweight pilot in the front seat.

For C.G. positions aft of 400 mm behind datum controlable sustained spins are possible. Such a C.G. position is usually only possible with one lightweight pilot in the front seat.

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:

Single: All up weight 1034 lbs = 470 daN,
without airbrakes 65 km/h (35 kts) IAS
with airbrakes 68 km/h (37 kts) IAS.

Dual: All up weight 1320 lbs = 600 daN,
without airbrakes 74 km/h (40 kts) IAS
with airbrakes 77 km/h (42 kts) IAS.

IV.7 HIGH SPEED FLIGHT

The glider shows no flutter tendency within the permissible speed range.
With airbrakes extended in a 45° dive the speed remains below V_{NE} = 151 kts = 174 mph = 280 km/h; it goes up to 125 kts = 144 mph = 232 km/h at an all up weight of 1230 lbs = 600 daN.

IV.8 APPROACH AND LANDING

The most favorable approach speed is 49 kts = 56 mph = 90 km/h.
With turbulence it may be advisable to increase slightly the approach speed.
Even steep approaches may be slowed down efficiently with the airbrakes at the beginning of the landing final approach.

Note: The airbrakes increase the stalling speed by about 1,6 kts = 3 km/h.
Sideslipping is also suitable as an approach control. With full rudder during the sideslipping the rudder pressure decreases to zero; the rudder must be pushed back.
During sideslipping the airspeed indication goes to zero reading.