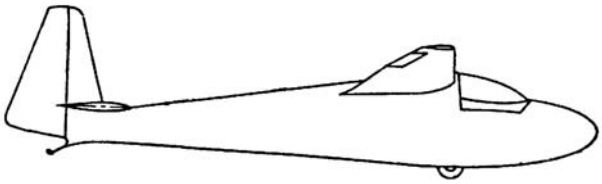
Handbook for Sailplane

Schleicher KA6CR



A/ Main Data
B/ Minimum Equipment
C/ Adjusting Data
D/ Rigging & Derigging
E/ Flying Operation
F/ Maintenance
G/ Centre of Gravity

Enclosures: -

1/ Outline Drawing
2/ Drawing with Weighing Instructions

A/ Main Data:

Weights: Empty Weight- 400 lbs

Highest Permissible disposable Load - 265 lbs

Highest Permissible all-up Weight - 660 lbs

Highest Permissible weight of non-lifting parts - 420 lbs

Permission for:

Bungee launch	Yes
Auto & Winch-tow	Until 55 knots
Aero Tow	Until 75 knots
Max speed in calm air	110 knots
Max speed in rough air	75 knots
Primary training	No
Stalls & Spinning	Yes
Stress Category	2 as per BVS

B/ Minimum Equipment:

Safety belt and should harness.
Airspeed indicator ranging from 30 – 110 knots.
Altimeter, back cushion with rigid filling 4 inches thick (when compressed).
Trimming plane.
Data Plate.

C/ Adjusting Data:

The adjusting and washout angles as well as the deflection of the control surfaces are shown in the outline drawing.

During repairs it is important that the tolerances are being adhered to.

By the particular kinematic of the control mechanism the aileron deflection will be influenced by the elevator. With normal and pushed control stick the ailerons must be balanced (stand normal). With pulled control stick they are a little bit zoomed.

The controls have stops:

Rudder Control:	Fixed stop in the rear below the rudder hinge.
Aileron Control:	Fixed stop of the control shaft at frame 5.
Elevator Control:	Backward – fixed stop at the seat. Forward – adjustable stop on the control shaft.
Airbrakes:	Backwards – Is stopped by the cable of the wheel brake. Adjusting the turnbuckle. Forwards – Fixed stop, cross shaft lever stops at a plywood block behind frame 11.

D/ Rigging & Derigging:

Rigging

1/ Clean and grease bolts and holes.

2/ First put left wing in from the side and put in the nose bolt. Do NOT tilt fuselage.

3/ Put in right wing as mentioned in 2 above.

4/ Below main bolt (long handle) to be put in, holes must range.

5/ By exact adjusting of wings also the upper holes to be ranged, put in the main bolt.

6/ Main bolt to be secured with a safety pin.

7/ Aileron and airbrake linkages to be joined and secured with safety pins.

8/ Set up the elevator unit, insert front screw and secure with safety pin. When setting up the unit pay attention that the control surface bell crank have been inserted in correctly.

9/ Check that all the controls function correctly: Airbrake release, automatic jack of release hook, for free movement and function. Inspect for foreign bodies.

Derigging:

Point 1 to 10 in reverse sequence.
Grease all connexions to decrease danger of corrosion.

E/ Flying:

Trimming:

The glider can be flown with pilot weights of 140 lbs to 220 lbs, with parachute 130 – 220 lbs.

Persons of less weight have to carry ballast (lead sheets at seat pad)

For adjusting the desired stick force there is a spring trimmer installed at the stick.

Adjusting of Rudder Pedals:

Draw back pedals with heels and adjust limb in control cable to be put into click stop. Adjusting also possible during flight.

Winch Tow:

Preset breaking piece No 11 (weak link?)

Max speed 55 knots. Note: In winch tow pulling means the same as speed increase. At the take off push stick a little, best pitch ratio with the stick in the normal position.

Winch tows, only at the c.g. hook.

Aero tow:

Preset breaking piece No 1 (weak link)

Maximum speed 75 knots. Normal tows using the nose hook. Aero tow at the c.g. hook is permissible when using textile ropes of 100 metres (300 feet) maximum length. No experiences of hand towing in very rough air (wave towing) Release to be pulled completely!

Before every take off:

Make sure that the cockpit and airbrakes have locked in.

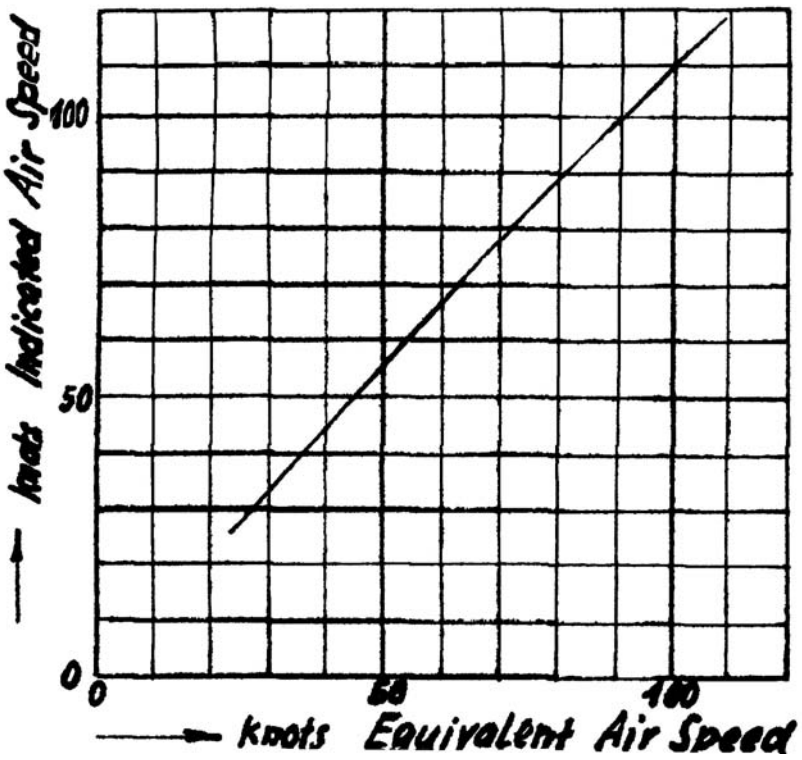
Free flight

The data mentioned is ascertained by calculation. They refer to real flying speed (EAS).

There is the position error to be taken into consideration, see figure 1.

Take note that with strong side slips the ASI will drop to zero due to lateral incidence of the fuselage.

Fig. 1.



Stalling speed at 570 lbs all up weight = 31 knots.

The lowest sinking speed in straight flight = 37 knots

The best gliding angle = 43 knots.

In turns the lowest sinking speed is:

30^o	39 knots
45^o	43 knots
60^o	51 knots

Just below these speeds stalling begins; the sinking speed will increase rapidly. For the beginning is will be advisable to take 43 knots as the normal speed for straight flight, as well as for moderate turns.

In thermal cross-country flights the optimal speed for straight flight is 48 knots, if the average climb in the thermal will be 1.6 ftps; corresponding to 65 knots at 6.0 ftps climb.

Here it is supposed that no life or down draft region will be crossed. This data is only approximate, but deviation of the optimal speed by 6 knots will reduce the average speed marginally.

The speed noise is unusually low; therefore it is difficult at the beginning to hold the speed by noise alone.

The control forces and movements are also small and demand a certain care and restraint, especially when coming from a more inert aircraft. After becoming accustomed this point will be found as very pleasant and in longer flights less tiring.

Landing

Approach with about 45 - 50 knots. With the airbrakes the gliding angle can be adjusted within wide limits. The touch down is to be completed without the airbrakes being fully open. Full operation of the airbrake lever will put the wheel brake into operation. Also this lever must also be pulled wholly, in order to avoid landing with the nose grinding on the ground.

The glider can be held with the rudder in stalled with the elevator control fully backwards. Stronger rudder deflections will put the glider into a spin. Centralising all the controls will remove the glider from the spin, easily and quickly.

Re-typed 06/01/02 by Malcolm Austin

In high-speed flights it is necessary that the speed limits are followed. As soon as a speed of 75 knots is passed involuntary, the airbrakes are to be used.

Note: At higher speeds the lever becomes light and there is a tendency for the airbrakes to self deployed once the lock has been released. (they will pull open!)

Rain drops, hoar frost and icing can disturb the wing surfaces so much that changed flying characteristics will become evident. Therefore a particular care is necessary when landing in rain; increase speed to compensate.

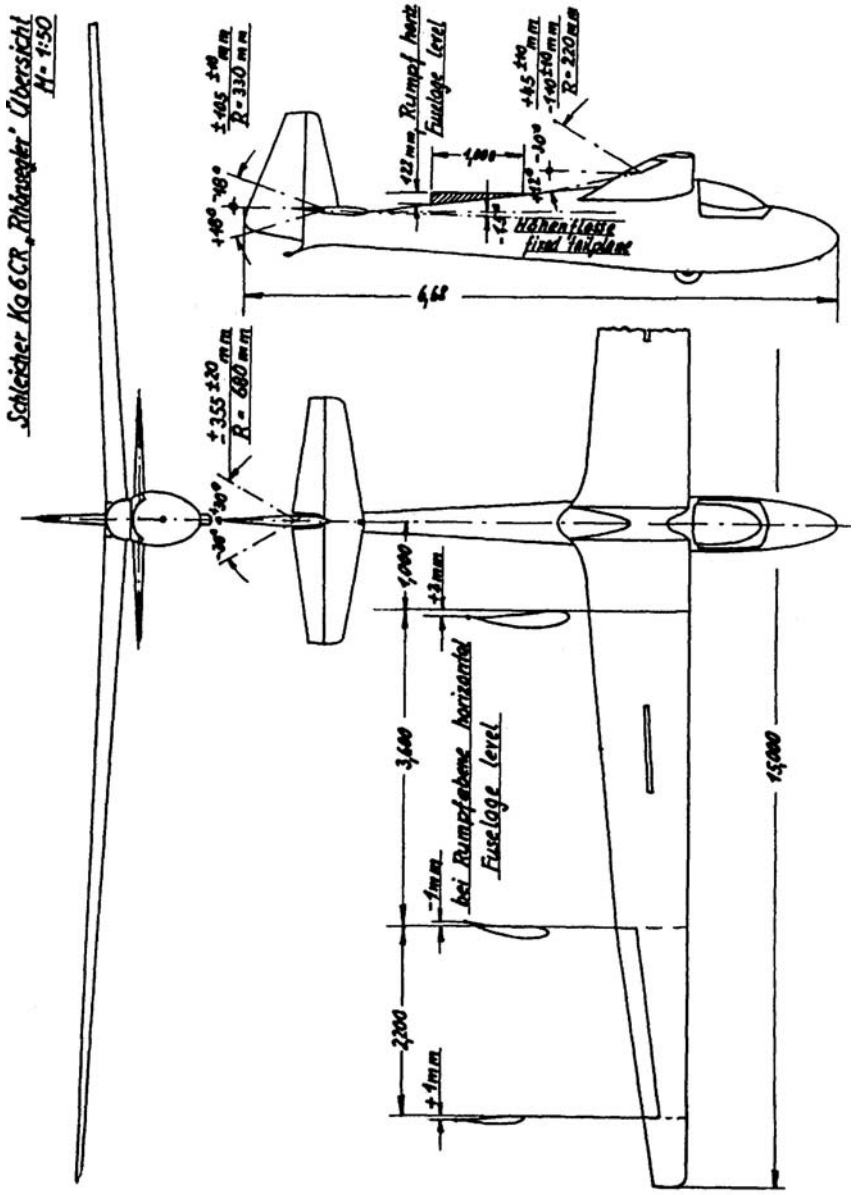
F/ Maintenance

Humidity is the greatest enemy of a wooden glider! Be careful and ensure that no water remains inside the plane, especially in corners! If there is a suspicion that water has entered the wings or fuselage, take them into a dry room and turn them very day so the moisture is dried out. The glider is endangered especially when on open trailers. Ensure that a rainproof covering is added and that no rain can splash into the wing root.

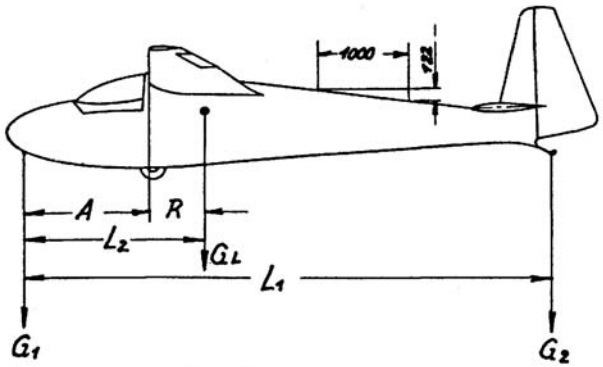
Condensation can introduce considerable quantities of moisture into the interior of the glider.

Strong Sun Irradiation will injure the finish over time, therefore the glider should not be exposed to the sun for longer than is necessary. Use of a good quality varnish as this will improve the durability of both the varnish and the surfaces. The preference is for the a laminar profile which will be enhance by a smooth finish. It is not important that the surface shines, rather that all unevenness in dust, dirt splashes and insects is removed.

Sealing of splits and clefts with adhesive tape will show a gain in performance. However it is inadvisable to seal the cockpit gaps in case a parachute bail out is required!


Schleicher Ka 6 CR „Rhönsegler" Übersicht
M 1:50
Höhenlage
Fixed Tailplane
Rumpf horiz.
Fuselage level
bei Rumpfebene horizontal
Fuselage level
15,000
6,65
3,600
2,200
1,000
±3mm
±1mm
-1mm

Schleicher Ka 6 CR „Rhönsegler" Wägeblatt
(Siehe auch Arbeitsblatt 051)



G_L = Leergewicht; empty weight
G_1 = Gewicht am Starthaken;
weight at bungee launch hook
G_2 = Spoorgewicht; weight at tail skid
R = Schwerpunktrücklage;
center of gravity position.

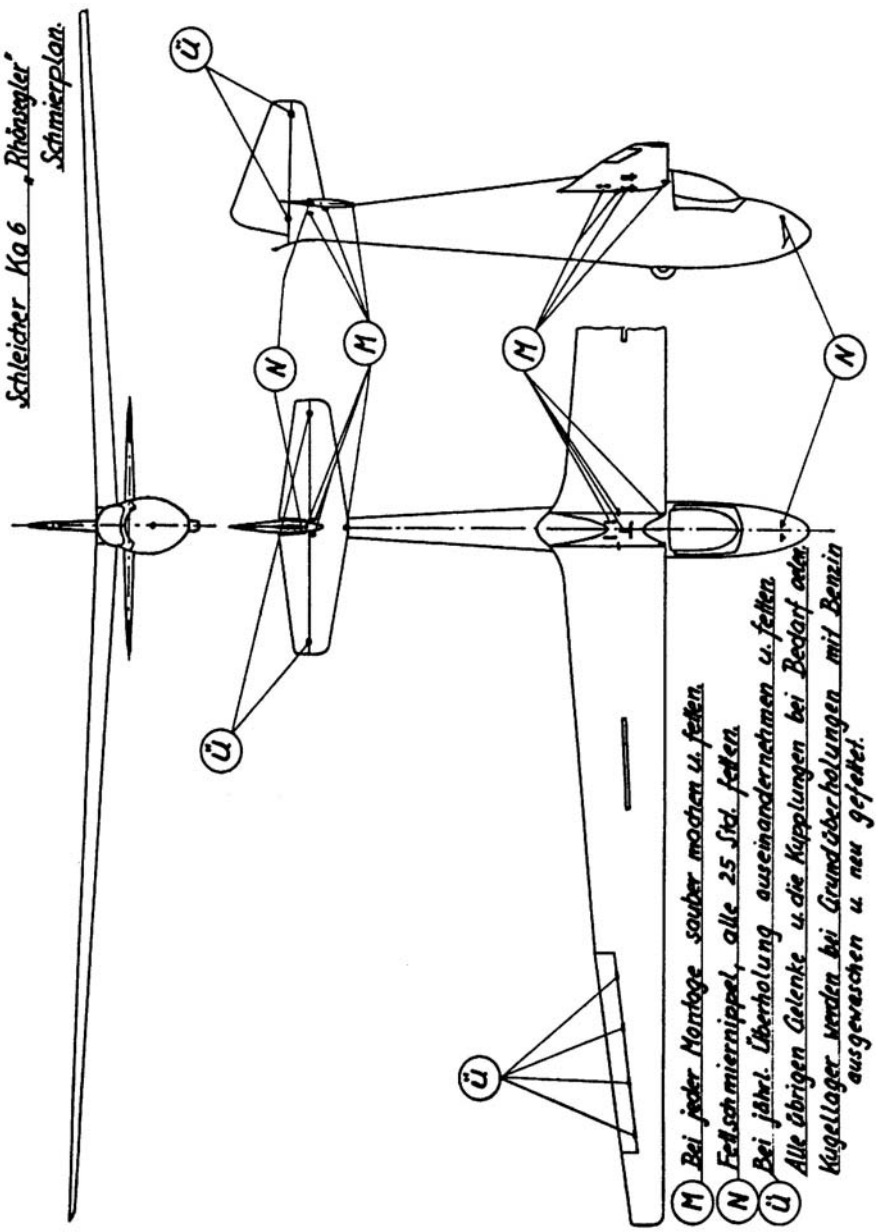
$$R = L_2 - A = \frac{G_2 \cdot L_1}{G_L} - A$$

$$G_1 + G_2 = G_L$$

Geforderte Leergewicht-Schwerpunktlage:
Empty weight- C. of Gr.-position:

G_L = Leergewicht; empty weight	170	180	190	200	kg
R = Schwerpunktlage; C. of Gr. position	610	590	575	560	mm ±30 mm

hinter Flügelvorderkante
behind wing leading edge.


Schleicher Ka 6 „Rhönsegler"
Schmierplan.
Ü
N
M
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N
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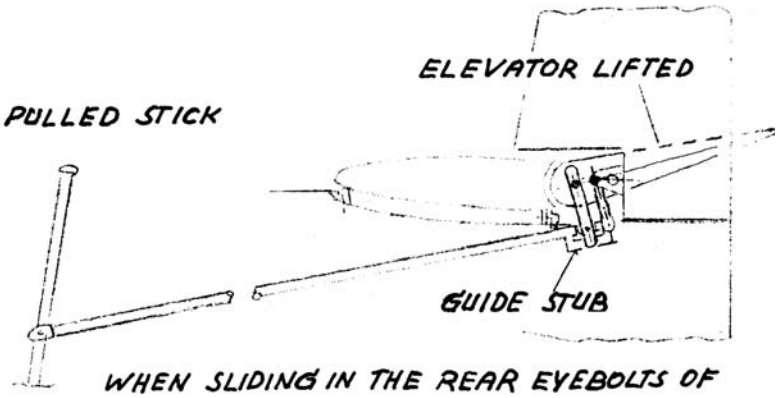
M Bei jeder Montage sauber machen u. fetten.
N Fettschmiernippel, alle 25 Std. fetten.
Ü Bei jährl. Überholung auseinandernehmen u. fetten.
Alle übrigen Gelenke u. die Kupplungen bei Bedarf oder
Kugellager werden bei Grundüberholungen mit Benzin
ausgewaschen u. neu gefettet.

ELEVATOR UNIT
ASSEMBLY
SCHLEICHER K8



WHEN SLIDING IN THE REAR EYEBOLTS OF THE STABILIZER IT IS ADVISABLE TO LIFT THE ELEVATOR SOMEWHAT. THE BALL BEARING OF THE ELEVATOR CONTROL LEVER MUST FIT INTO THE GUIDE STUB OF THE PUSH-PULL TUBE TO AVOID THE RISK OF BENDING THE TUBE.