



**Handbook
for Sailplane**

K 7

Handbook for sailplane

Schleicher K 7 " R h ö n a d l e r "

- A) Main data
- B) Minimum equipment
- C) Adjusting data
- D) Rigging and derigging
- E) Flying operations
- F) Maintenance
- G) Centre of gravity

- Enclosures:
- 1. Outline drawing
 - 2. Drawing with weighing directions

A) Main data:

Weights:	empty weight approx:	615 lbs
	highest permissible disposable load:	440 lbs
	highest permissible load of non lifting parts:	700 lbs
	highest permissible all-up weight:	1050 lbs

Permission for:

Bungee launch	yes
Auto- and winch-tow	until 55 knots
Aero-tow	until 70 "
Maximum flying speed in rough air	until 70 "
Maximum flying speed in calm air	until 90 "
Primary training with instructor	yes
Stalls and spinings	yes

Stressing category 2 as per BVS

B) Minimum equipment:

safety-belt and shoulder-harness. Airspeed-indicator ranging from 25-100 knots in both seats. Altimeter in front-seat. Back-cushion with firm filling, 4 inches thickness (when compressed), if no parachute is taken along. Trimming-plane. Data-plate.

C) Adjusting data:

The adjusting- and wash-out angles as well as deflections of the control surfaces are shown in outline-drawing.

At repairs take care that the tolerances are being observed.

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

The controls have stops:

- Rudder-control: fixed stop in the rear at the below rudder-hinge.
- Aileron-control: fixed stop at two small hardwood-pieces below the front-seat.
- Elevator-control: backward: fixed stop at front seat-edge
forward: stop at bottom-board.
- Airbrakes-control: backward: adjustable stop at back horizontal push rod, strikes at main bulkhead.
forward: fixed stop, cross-shaft-lever strikes at U-tin at main bulkhead.

D) Rigging and Derigging:

Rigging:

- 1.) Clean and grease bolts and holes.
- 2.) First put left wing in form the side and put in the bolts. Do not tilt fuselage considerable.
- 3.) Right wing to be set in as mentioned under 2).
- 4.) Set in the two conical main-bolts (first the lower one) and screw on. By shaking the wings it will be easier to fasten the screws.
- 5.) Main-bolts to be secured with safety-needle. Back bolts secure with safety-hook.
- 6.) Aileron- and airbrake-linkages to be joint and secured with safety-needle.
- 7.) Set up elevator unit, front-screw to be fastened and secured with safety-needle. When setting up the unit pay attention that control-surface-bellcrank has been put in unobjectionable. Danger for bending the push-rod-rocker by using force!
- 8.) Check-up controls, airbrakes and release for free movement and function. Check-up for foreign bodies (substances). Tyre press: 35 - 42 psi.
- 9.) Set up slot covering. Supporting strut for hind canopy put in at main fitting and secure with safety-needle.

Derigging:

Point 1-10 in opposite sequence. The conical bolts are to be loosened by a slight stroke with a hammer. Grease all connexions, danger of corrosion.

Attention! Before disconnection the aileron controls fasten the aileron by suitable clamps to prevent the spar being damaged by the aileron bell crank.

E) Flying:

Trimming:

The glider can be flown in front-seat with pilot weight (incl. parachute) of 140 lbs till 220 lbs. The weight-span is for two-seated 120-220 lbs in the front seate. In this range a weight trim is not necessary. Persons of less weight have to carry ballast (lead-sheets as seat-pad). The installed flettner-trim serves as trimming for various flying-speeds only within the permitted locations of c.g. Especially the attention is drawn to the fact that it is dangerous to correct a tailheavy glider with the Flettner-trimming.

Adjusting of rudder-pedals:

Fetch back pedals with heels, and adjusting-
limb in control-cable to be put into click-
stop. Adjusting is also possible during
flight.

Winch-tow:

Preset breaking piece Nr. III. Max. speed
55 knots. Note: in winch-tow pulling means
speed-increase. at take off push a little.

Best pitch-ratio with stick in normal
position, in last part of tow a little
pulled. Winch-tow only; at the c.g. hook.

B 1) Supplement to the trim plan:

With very light pilots in the front seat there is ballast necessary. It should be noted that this ballast is to be fixed to prevent blocking of the controls.

It is recommended to use a lead cushion prepared after the scetch below.

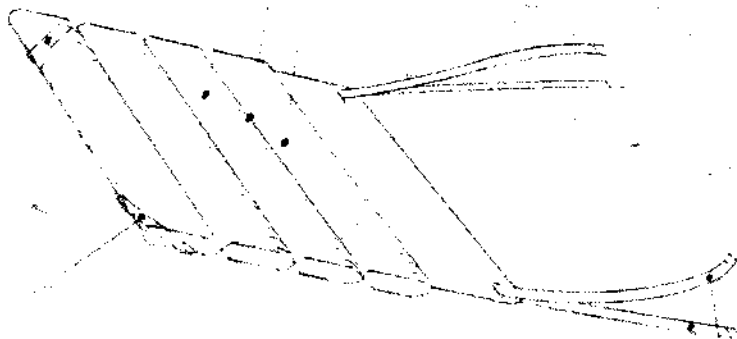
The weight of the ballast cushion should be 20 or 30 lbs. This weight is to be considered when using the trimplan.

Heavy canvas.

Adjust size
to seat

About 4 times separated.

*Fill with lead shot or
lead sheet stripes.*



Webbing to hook in
at the seat corners.

*Heavy webbing to fix
it on steel tubes or
belt triangle.*

Aero-tow:

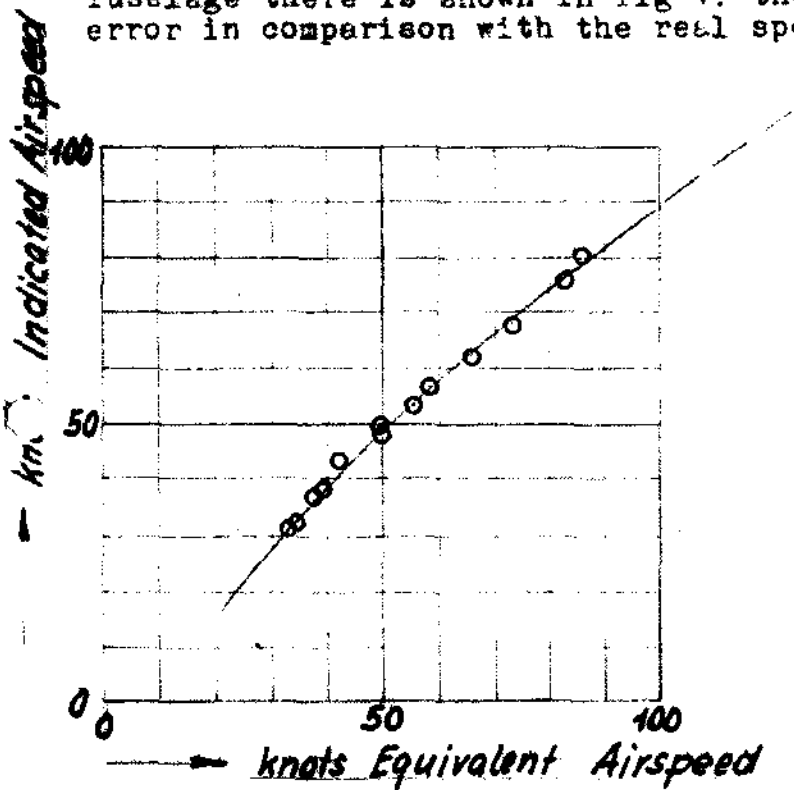
Preset braking point wr. II (min 1100 lbs, max. 1300 lbs. Max. tow-speed 70 knots.

Before every take off make sure that cockpit and airbrakes are clicked in.

Free flight:

The data mentioned here are ascertained by calculation. They refer to the real flying-speed (dynamic pressure EAS).

There is still the position-error of the airspeed-venturi-head to be taken into consideration, which is dependent on the place the airspeed-venturi has been fixed. For the normal execution (venturi 3,5) in front on fuselage there is shown in fig 1. the position error in comparison with the real speed.



Stalling speed at 800 (1000) lbs flying-weight
= 29 (32) knots

The lowest sinking speed in straight flight is
at 32 (37) mph

The best gliding angle at 40 (46) knots.

In turns the speed at best sinking will be
higher in relation to bank.

Landing:

Approach with about 40 (45) knots. With the air
brakes the gliding angle can be adjusted well.

Touch down will be done best with the wheel
alone, the glider will not bound. Braking will
done by pushing down on the skid.
(figures in brackets: two-seated.)

Stalls and spinning:

The glider can be hold with the rudder in
stalled flight with pulled stick. Spinning
will be introduced by strong rudder deflection.
With foremost c.g. the glider soon will go into
a spiral dive. With normal and backwards c.g.
an unobjectionable spinning will ensue.
Spinning with back c.g. must be avoided, possib-
ly, because the come out will take a little
longer (about 1/2 after-turn.)

In high-speed-flights the speed-limits are to be followed exactly. As soon as a speed of 70 knots has been exceeded involuntary the air-brakes are to be opened slowly. Note: at higher speed the lever-power will work into direction of opening.

(Reindrops, hoar-frost and icing can disturb the wing-surfaces so much that other flight-characteristics will follow. Therefore, a particular care is necessary by landing in rain; enough overspeed.

F. Maintenance

(Humidity is the greatest enemy of a wooden plane. Also the steel-tube-fuselage is to be kept dry well. Take care always that no water will remain in the corners. On suspicion that water came into the wings bring them into a dry room and turn every day.

The glider will be endangered particularly on open transport-cars. In any case it must be made sure, that by covering the front part no splash water will touch the whg-root. Also by condensing-waters considerable quantities of humidity can enter the interior of the glider.

Strong solar-irradiation will injure the finish by time, therefore the glider should not be exposed to the sun more than necessary. The treatment of the finish with good varnish-material will increase the durability of the finish and improve the flying-performances. It is not the main thing that the varnish will shine but that all unevenness, dust-grains, dirt-splashes, insects etc. will be removed.

Sealing of the slits and clefts with adhesive tape will also increase the performance. However at the cockpit caution is necessary when parachute bail-out should be possible.

Cleaning of plexiglass-parts of the canopy only with "plexipol" and "plexiklar". In case of need clean water. Soft cloth (gloves-cloth) In no case rub with hard cloth dry on plexiglass.

Lubrication of bearings:

The bearings are, so far as possible, normally covered and therefore require no special maintenance for longer times. Only the bearing at the wing-root, where the rigging-connections do not allow an unobjectionable protection, must be cleaned with petrol when fouled and then greased again.

The control-cables require frequent cleaning and greasing at the glide spots. Especially on sandy ground, as soon as wearing is to be seen on the cable they must be replaced.

The grease-nipples of the pedal-bearings, elevator-oscillator, stick-bearing and cross-shaft-lever in the wing (each 3 pieces) must be greased every 25 flying hours.

The control-surface and other plain-bearing will be dismantled, cleaned and greased at the yearly overhaul.

The cig. hook especially is exposed to mud and requires often cleaning and oiling. Also the wheel-bearings demand careful maintenance.

If the flying takes place on very stony or sand grounds it is advisable to protect the skid by screwing on a steel plate of 1 mm thickness.

The tail-skid-plate must be renewed by welding on a 2 mm steel plate from time to time. The skid is to be unscrewed for this purpose.

The safety-belts are to be checked currently for fractures, damp-stain and rust.

Repairs:

Repairs at the main-spar must be done by the manufacturer. For repairs at the steel-tube-fuselage a qualified welder must be at disposal. It will be good to contact the manufacturer for greater repairs.

G. Centre of gravity:

Great influences to the flying characteristics has the centre of gravity. Therefore the prescribed limits must be kept and not exceeded. Far aft position of c.g. is particularly dangerous. The stalling and especially the spinning characteristics (flat spin) will go worse. The sensibility of the elevator will increase. C.G. too much in front will diminish performances and will not allow flying at maximum lift coefficient. (pull through by landing)

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

- a.) max. forward position: 2 inches behind wing-leading-edge at rib 2
- b.) max. hind position: 11 inches behind wing-leading-edge at rib 2

Pay attention to c.g. when additional equipment will be installed, at repairs and revarnish. One can take it as a rule, that the gliders become heavier during their life and become tail-heavy. Therefore it is advisable to have a new weight regulation of the parts and c.g. at the yearly overhauls.

- K 7 - Flight Manual

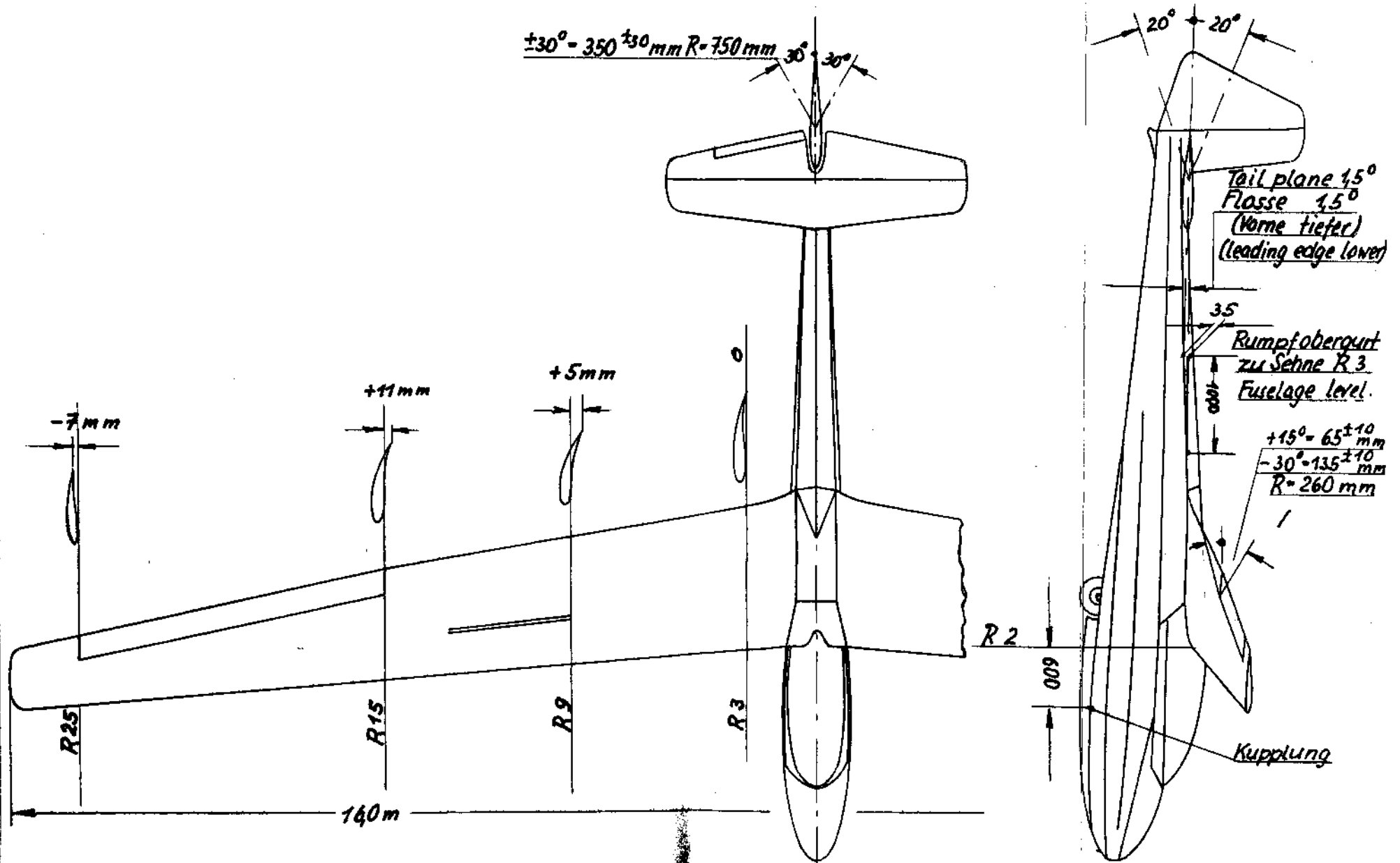
Trim by weight:

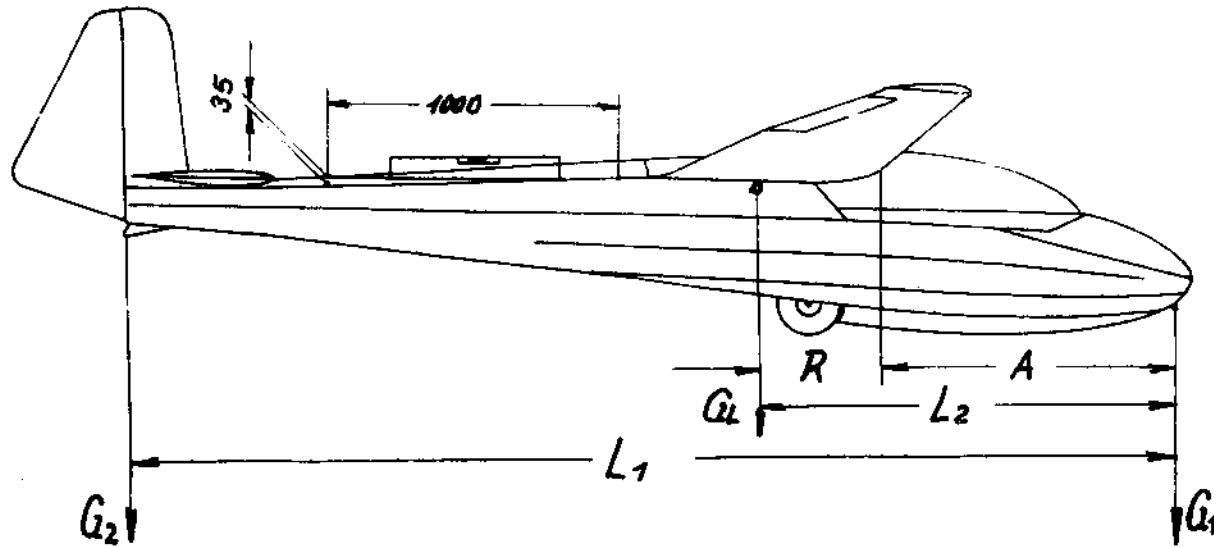
Fixing the 17 lbs standard trim weight at the forward foot board will compensate for 32 lbs pilot weight.

Schleicher K 7 „Rhönadler“ Übersicht M=1:50

-17-

$\pm 20^\circ = \pm 160^{\pm 10} \text{ mm}; R = 470 \text{ mm}$





G_L = Leergewicht; empty weight

G_1 = Gewicht am Start haken;
weight at bungee launch hook

G_2 = Sporngewicht; weight at tail skid

R = Schwerpunkt rücklage;
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-Schwerpunkt Lage:
Empty weight - C. of Gr. position:

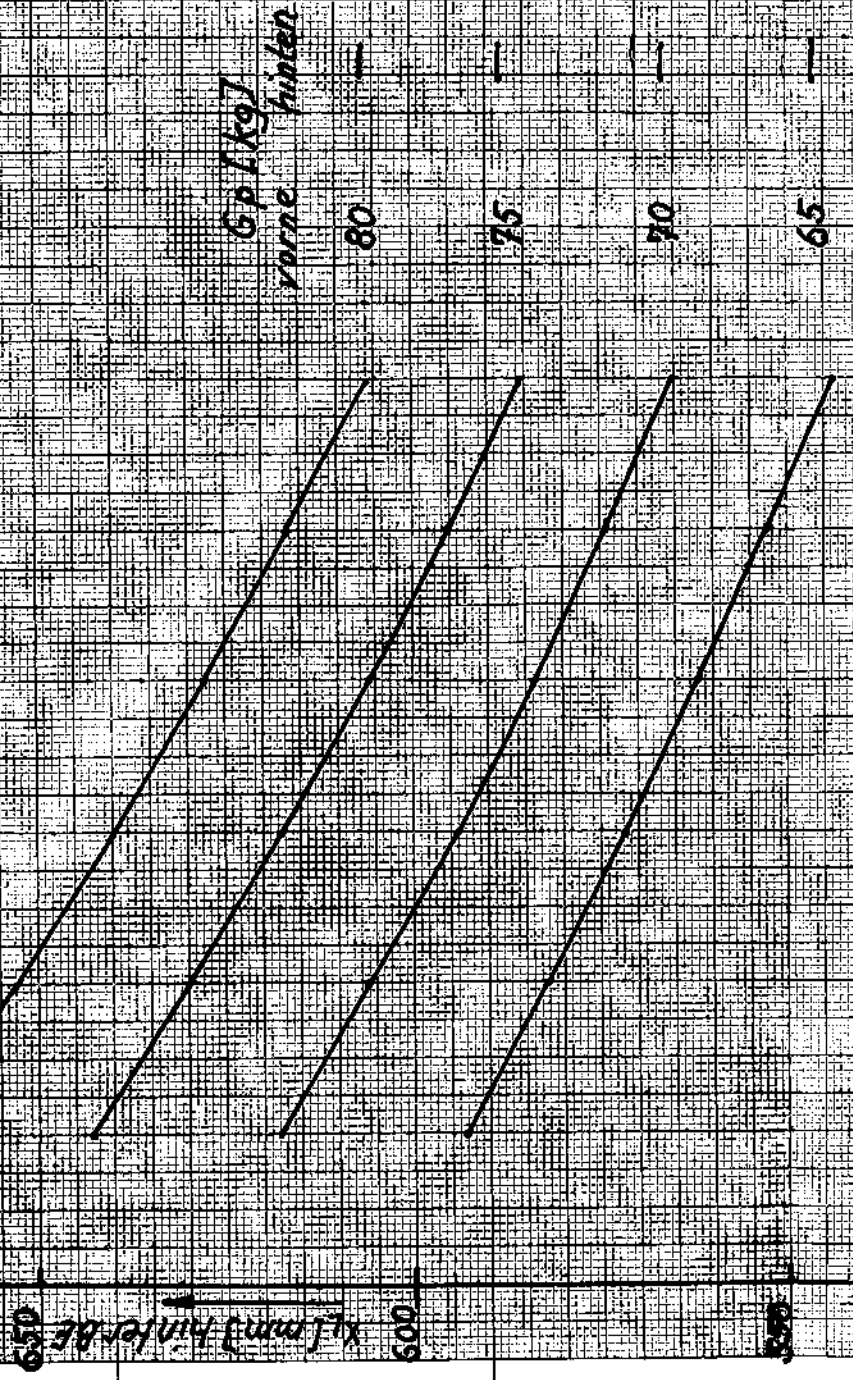
G_L = Leergewicht; empty weight

R = Schwerpunkt Lage; C. of Gr. position

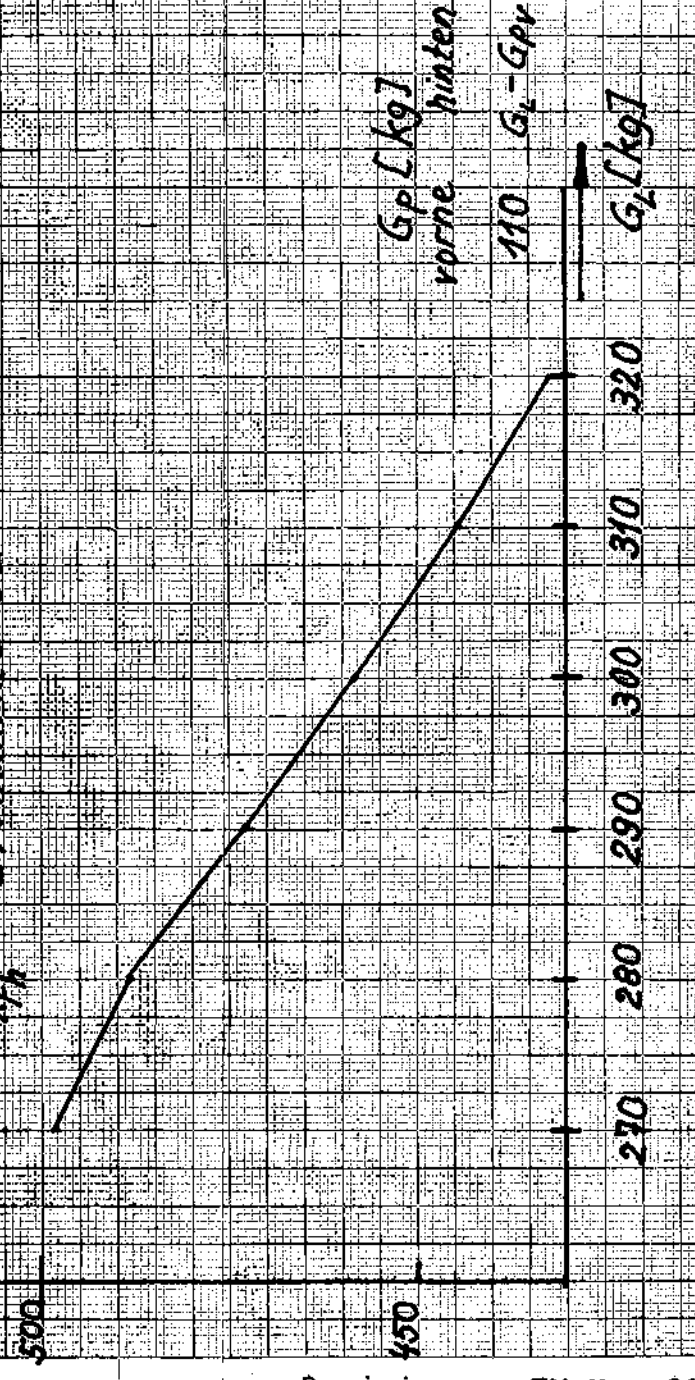
hinten Flügelvorderkante Rippe 2
behind wing leading edge rib 2

Leergewicht-Schwerpunkt-Diagramm siehe Seite 18 A

Leertgewicht - Schwerpunkt - Diagramm
 mit
 Segeflügelzugmuster K 7



$x_{pV} = 1050 \text{ mm vor BE (mit Fallschirm)}$
 $x_{pH} = 30 \text{ mm hinter BE (mit Fallschirm)}$
 $x_{fV} = 50 \text{ mm hinter BE}$
 $x_{fH} = 275 \text{ mm hinter BE}$



Logblatt der Wägungen

Wägung am:	Leermasse [kg]	Ausrüstungs- verzeichnis vom:	Schwerpunkt- lage [mm] hinter BE	Zuladung in den Sitzen (Besatzung einschl. Fallschirm)						Prüfer Stempel Unter- schrift
				einsitzig		zweizitzig				
				vorderer Sitz		vorderer Sitz		hinterer Sitz		
				min. [kg]	max.* [kg]	min. [kg]	max. [kg]	min. [kg]	max.* [kg]	

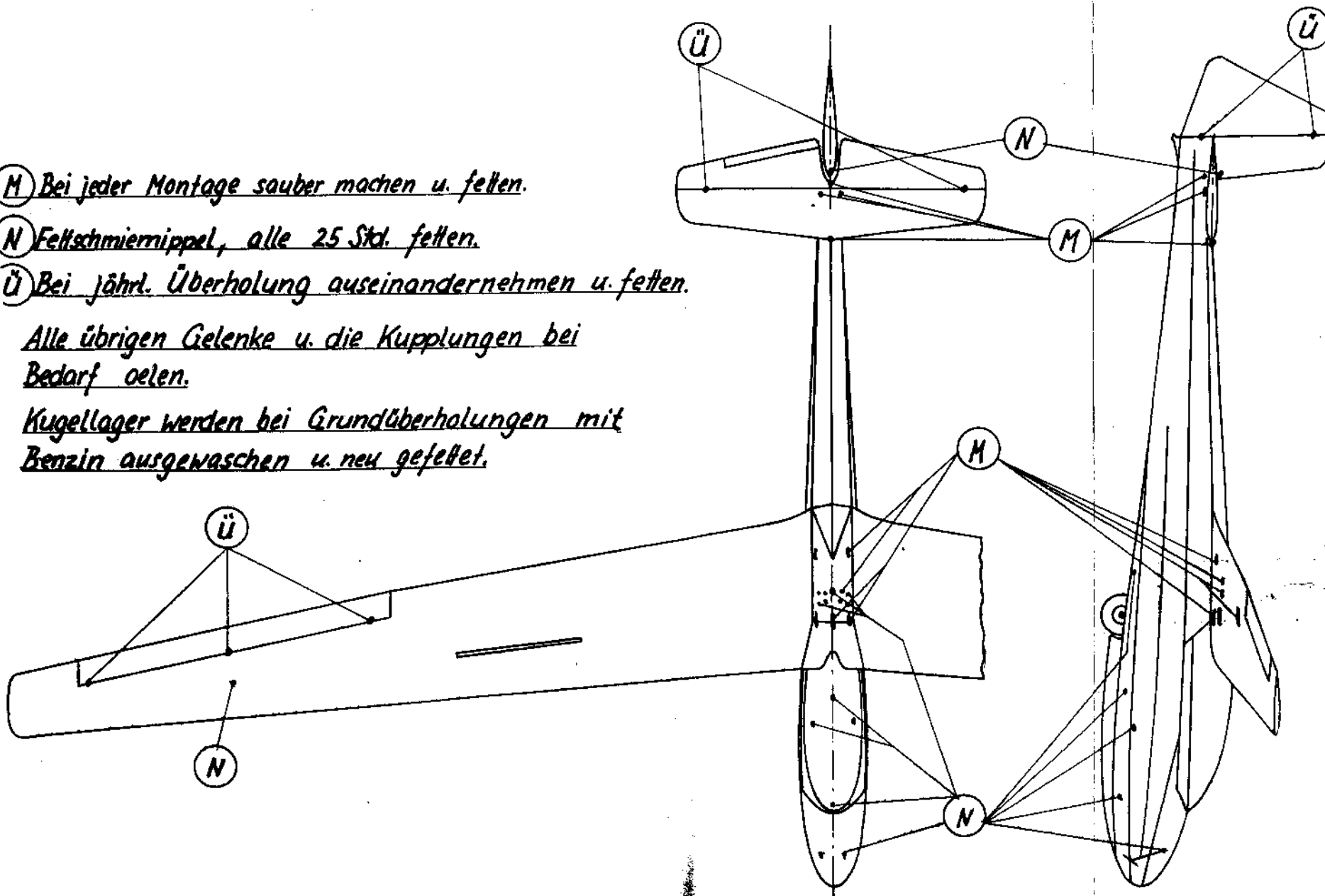
Revision zu TM-Nr. 21
07.05.93 / Sköv

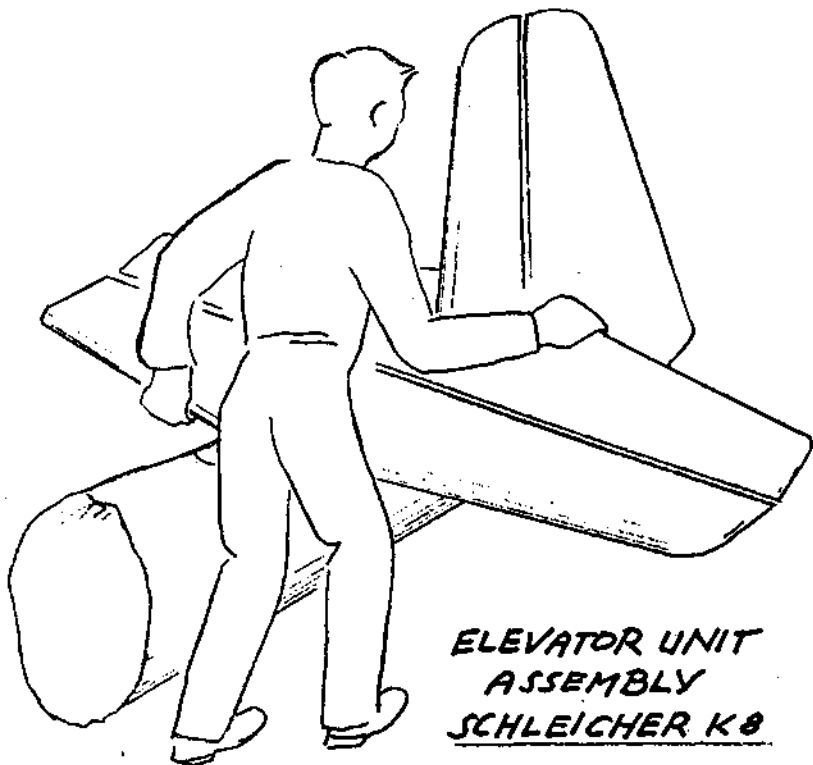
Hinweis: *) maximale Masse (Flugzeugführer und Fallschirm)
nicht mehr als 110 kg

- (M) Bei jeder Montage sauber machen u. fetten.
 (N) Fettschmiernippel, alle 25 Std. fetten.
 (Ü) Bei jährl. Überholung auseinandernehmen u. fetten.

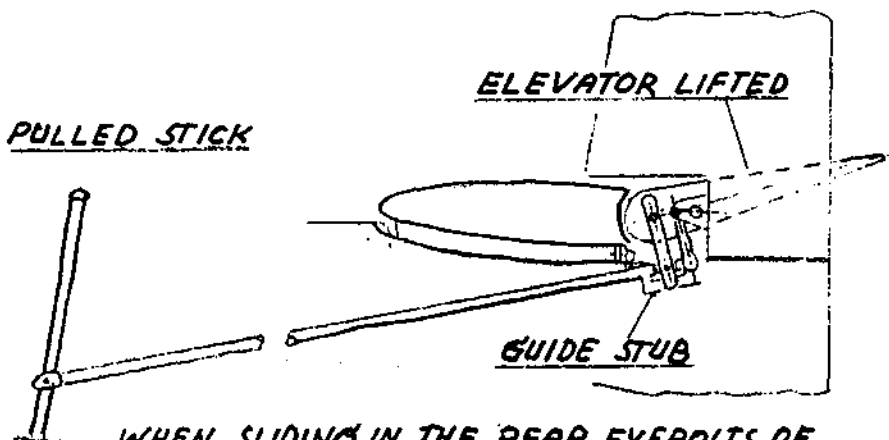
Alle übrigen Gelenke u. die Kupplungen bei Bedarf oelen.

Kugellager werden bei Grundüberholungen mit Benzin ausgewaschen u. neu gefettet.





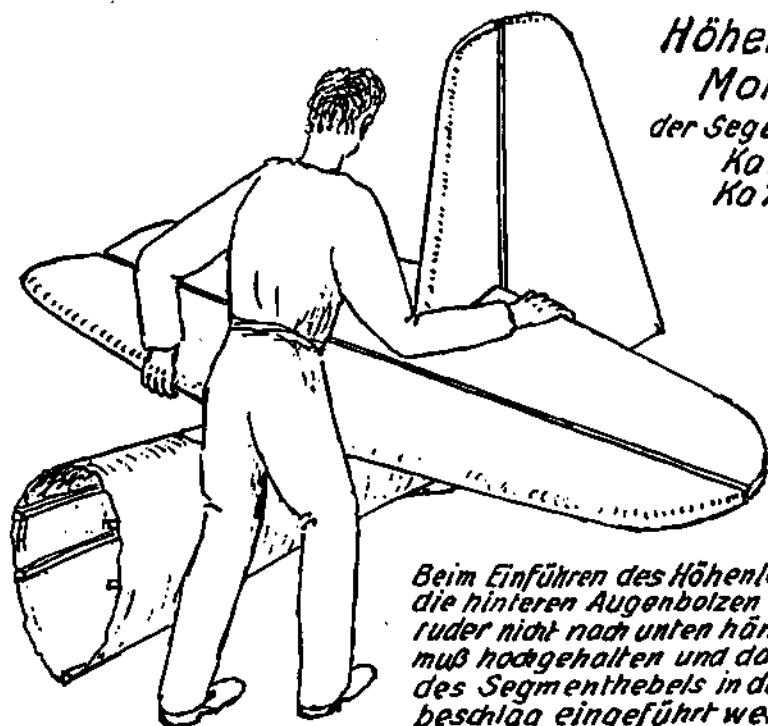
**ELEVATOR UNIT
ASSEMBLY
SCHLEICHER K8**



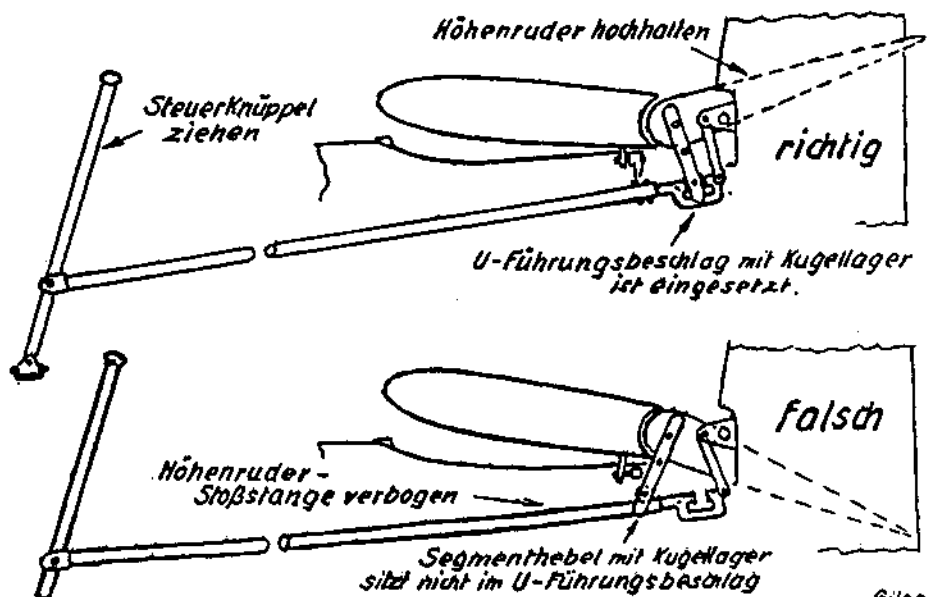
WHEN SLIDING IN THE REAR EYEBOLTS OF THE STABILIZER IT IS ADVISABLE TO LIFT THE ELEVATOR SOMEWHAT. THE BALL BEARING OF THE ELEVATOR CONTROL LEVER MUST FIT INTO THE GUIDE STUB OF THE PUSH-PULL TUBE TO AVOID THE RISK OF BENDING THE TUBE.

Höhenruder- Montage

der Segelflugezeuge
Ka 2b, Ka B,
Ka 7 und Ka 8.



Beim Einführen des Höhenleitwerkes in die hinteren Augenbolzen darf das Höhenruder nicht nach unten hängen, sondern muß hochgehalten und das Kugellager des Segmenthebels in den U-Führungsbeschlag eingeführt werden!



Glider model: ES 49 TN-No. 3
Ka 2, Ka 2b TN-No. 12
K 7 TN-No. 20
K 10A TN-No. 3

Subject: New production series tow release couplings for aerotow and winch launch.

Serial number applicability: ES 49, Data Sheet No. L-102, all serial no.s
Ka 2, Data Sheet No. L-140, all serial no.s
Ka 2b, Data Sheet No. L-203, all serial no.s
K 7, Data Sheet No. L-211, all serial no.s
K 10A, Data Sheet No. L-239, all serial no.s

Compliance: None; applicable to new built gliders and in case of replacement of tow release couplings.

Reason: According to the company TOST they have stopped the previous production series of the tow release couplings "Nose tow release coupling E 72/75" and "Safety tow release coupling G 72/73". These have been replaced by the new tow release coupling productions series "Nose tow release coupling E 85" and "Safety tow release coupling Europa G 88". In order to guarantee a problem-free exchange of the previous productions series against the new one, the new tow release couplings show externally almost no differences.

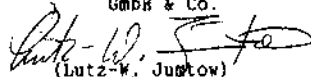
Action:

1. Where replacement is required or where a corresponding installation location is provided the new tow release coupling production series can be installed instead of the previous ones.
2. When this mod is accomplished, a copy of this Technical Note must be inserted as Annex into the Flight and Maintenance Manual of the glider (Operations Manuals respectively). The accomplishment of this action must be entered into the corresponding table in the manuals (the table headline reads: Additions to . . . , Amendments to . . . , Record or Log of Revisions ..).

Notes: The glider owners must regard the "Operating and Maintenance Instructions" for the new production series tow release couplings issued by TOST and giving the service time until the next overhaul !

Poppenhausen, April 12, 1990

ALEXANDER SCHLEICHER
GmbH & Co.


(Lutz-W. Justow)

The German original of this Technical Note has been approved by the LBA under the date of May 10, 1990 (signature: SCHMALJOHANN). The translation into English has been done by best knowledge and judgement: in any case of doubt the German original is controlling.

Wir besorgen diese Übersetzung dieser Unter-
züge. Verwendet wird die Originalausfertigung. Nicht
gegründet sind die Verantwortlichkeiten für die
Zusammenstellungen, verpackten, zu Seil-
sätze. Alle Rechte für den Fall der Patent-,
oder Gebrauchsmuster-Erfindung vorbehalten.

SHEET:
1 of 3

**Technical Note
for**

**Alexander Schleicher
GmbH & Co.
Sagelflugzeugbau
D-6416 Poppenhausen**

Glider model:

Ka 2 u. Ka 2B	TN-No. 11
Ka 6, 6/0, 6B, 6BR, 6CR, 6B-S . . .	TN-No. 21
K7	TN-No. 18
K8, K 8B, K 8C	TN-No. 23
K9	TN-No. 1
K11	TN-No. 1
ASK 13	TN-No. 12
ASK 18, ASK 18B	TN-No. 6

Serial number
applicability:

Ka 2,	Data-Sheet No. 140,	all serial no.s
Ka 2B,	Data-Sheet No. 203,	all serial no.s
Ka 6,	Data-Sheet No. 205,	all serial no.s
Ka 6/0,	Data-Sheet No. 205,	all serial no.s
Ka 6B,	Data-Sheet No. 205,	all serial no.s
Ka 6BR,	Data-Sheet No. 205,	all serial no.s
Ka 6CR,	Data-Sheet No. 205,	all serial no.s
Ka 6BS,	Data-Sheet No. 205a,	serial no. E1
K7,	Data-Sheet No. 211,	all serial no.s
K8,	Data-Sheet No. 216,	all serial no.s
K8B,	Data-Sheet No. 216,	all serial no.s
K8C,	Data-Sheet No. 216,	all serial no.s
K9,	Data-Sheet No. 221,	serial no. 1
K11,	Data-Sheet No. 668,	serial no. V1
ASK 13,	Data-Sheet No. 267,	all serial no.s
ASK 18,	Data-Sheet No. 307,	all serial no.s
ASK 18B,	Data-Sheet No. 307,	all serial no.s

Subject:

Elevator.

Compliance:

Prior to the next take-off.

Reason:

A glider of the model K7 failed to gain normal flight attitude immediately after tow rope release on winch launch. With the stick full back only the left elevator could be actuated in the correct direction; the right elevator deflected downwards. The reason for this was a loose glue bond at the elevator rib 1 at which the elevator fitting is attached. Similar incidents lead already before to the issue of the LTA 72-7 dated Feb.9,1972.

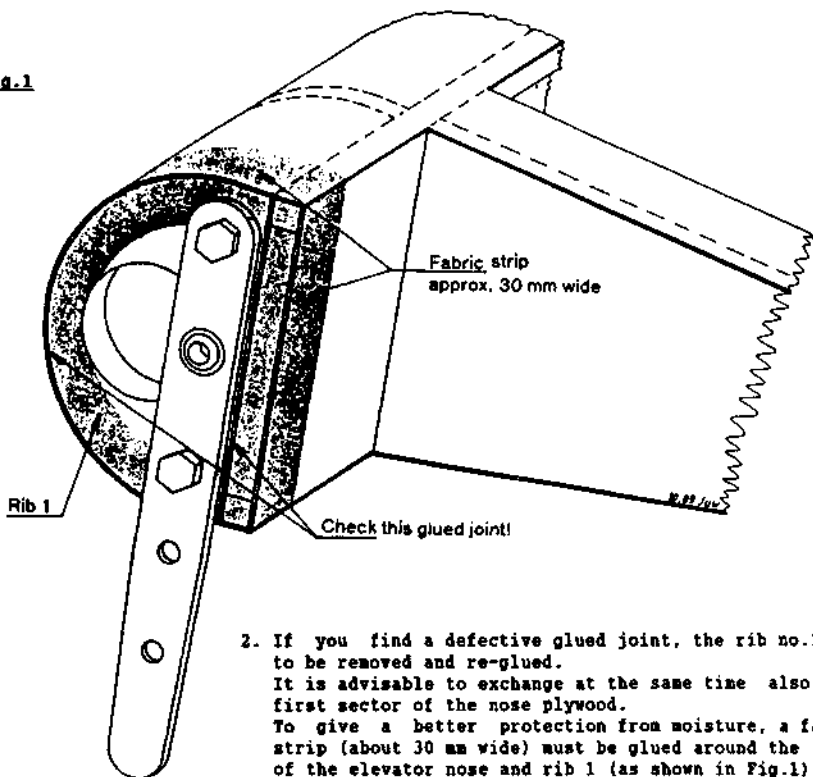
Action:

1. Remove elevator.

Check that the glued joint between rib 1 and the leading edge plywood and the elevator spar respectively is in good condition (see Fig.1). Before doing so check whether the LTA 72-7 of Feb.9, 1972 was already previously accomplished (this is not applicable to K9, K11 and ASK 18); if yes then the fabric strip first carefully has to be detached in order to be able to check the glued joint.

Wiederhole diese Veredelung des LTA-
Logo, Veranwortung und Warnung erst wenn recht
gebilligt, kann nicht aufdrucklich festgelegt
werden. In anderen Fällen, wie z.B. bei
Zusatzbestellungen, empfehlen wir Schrift-
satz Alle Rechte für den Fall der Patentverletzung
oder Deliktverletzung vorbehalten.

Fig.1



2. If you find a defective glued joint, the rib no.1 has to be removed and re-glued.
It is advisable to exchange at the same time also the first sector of the nose plywood.
To give a better protection from moisture, a fabric strip (about 30 mm wide) must be glued around the edge of the elevator nose and rib 1 (as shown in Fig.1).
3. The above action under points 1. and 2. must be repeated every three years during the annual re-inspection.
This copy of the Technical Note must be inserted in the Flight and Operations Manual of the respective glider as an annex and a corresponding entry must be made into the "Amendments to the Manual".

Material & drawings:

Rib 1 made from multi-plywood, 15 mm thick, and nose plywood, 1 mm thick, according to DIN L 182/183, class 1/2 or WL 9128, 6.1013. Drawing as above.

Mass and C.G.:

It is not necessary to redetermine the mass and C.G. data.

SHEET:
3 of 3

**Technical Note
for
Glider Models as per Sheet 1**

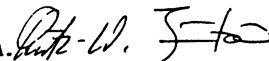
**Alexander Schleicher
GmbH & Co.
Segelflugzeugbau
D-6416 Poppenhausen**

Notes:

Actions 1. and 3. can be accomplished by a person who is familiar with such work.
Action 2. must only be accomplished by a technical aviation service station holding an appropriate license; the accomplishment of all actions must be certified by a licensed aviation inspector in the glider logbook and in the inspection certificates.

Poppenhausen, October 4, 1989

**ALEXANDER SCHLEICHER
GmbH & Co.**

i.A. 
L.-W. Juntow.

The German original of this Technical Note has been approved by the LBA under the date of Oct.17, 1989 (signature: FRIESS). The translation into English has been done by best knowledge and judgement; in any case of doubt the German original is controlling.

Zumdenkungen verpflichten zu Schaden
oder Schadenhaftung des Herstellers
oder des Luftfahrzeugführers/Entwerfers

Wiedergabe sowie Vervielfältigung dieser Unter-
lage Verletzung und Haftung des Herstellers
oder des Luftfahrzeugführers/Entwerfers

AIRWORTHINESS DIRECTIVE

72-7/3 Schleicher

Date of issue:

13. Dez. 1989

Affected Sailplanes:

German Type Certificate

No. 140,	Ka 2,	all serial nos.
203,	Ka 2B,	all serial nos.
205,	Ka 6,	all serial nos.
205,	Ka 6/0,	all serial nos.
205,	Ka 6B,	all serial nos.
205,	Ka 6BR,	all serial nos.
205,	Ka 6CR,	all serial nos.
205a,	Ka 6BS,	serial no. E1
211,	K7,	all serial nos.
216,	K8,	all serial nos.
216,	K8B,	all serial nos.
216,	K8C,	all serial nos.
221,	K9,	serial nos. 1
660,	K11,	serial No. VI
267,	ASK 13,	all serial nos.
307,	ASK 18,	all serial nos.
307,	ASK 18B,	all serial nos.

Subject:

Elevator

Reason:

Loose glue joints on rip 1 of the elevator

Action:

In accordance with the respective Technical Note

Compliance:

Before the next start

Technical publications of the manufacturer:

Alexander Schleicher, Technical Note, October 4, 1989 "Elevator"

Model Ka 2 and Ka 2B	TN No. 11
Ka 6, 6/0, 6B, 6BR, 6CR, 6B-S	TN No. 21
K7	TN No. 18
K8, K 8B, K 8C	TN No. 23
K9	TN No. 1
K11	TN No. 1
ASK 13	TN No. 12
ASK 18, ASK 18B	TN No. 6

which become herewith part of this AD and may be obtained from Messrs. Alexander Schleicher GmbH & Co. Segelflugzeugbau, D-6416 Poppenhausen, Wasserkuppe, Federal Republic of Germany

Accomplishment and log book entry:

Action 1 and 3 to be accomplished by a skilled person.
Action 2 to be accomplished by an approved service station.
The accomplishment of this AD must be certified by a licensed inspector in the powered gliders inspection documents and in the log-book.

Note:

This Airworthiness Directive replaces AD-No. 72-7/2 of August 24, 1989.