

8
Geheime Kommandosache!

S-12
Group C
Item 4
T 667

DF-36

D-525

Vorläufige Betriebsvorschrift

für den

Schlüssel-Zusatz 42

zum

Fernschreiber

TOP SECRET "U"

TICOM DOCUMENT N-667

NO MARK OF ANY KIND SHOULD
BE MADE ON IT.

ANNOTATIONS SHOULD BE MADE
ON A SEPARATE SHEET OF PAPER.

S-30,094 TL

RECORD OF WORK DONE

No. T667

B37

Title:

Vorlaeufige Betriebsvorschrift fuer den
Schluessel-Zusatz 42 zum Fernschreiber.

[Red folder: almost an exact copy of T664
Wirh additional diagrams]

(Received from Berchtesgaden)

Date

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By

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T O P S E C R E T

dupe

Tentative Rules for Cipher Attachment 42

- I. General (purpose, brief statement of principle, handling, care)
- II. Setting up and making connections, initial operation
- III. Establishing a connection for secret operation
- IV. What to do in case of trouble
- V. Taking down and transporting
- VI. Security
- VII.
 - a) Figures 1 to 4
 - b) Instructions for oiling, with sketches
 - c) Switching rules for altering teleprinter connector [Fernschreibanschlussgeraet] with ac reversing [Vertauschung]
 - d) Testing rules for setting receiver magnet system, and a separate pamphlet:

"Key materials for cipher attachment 42"

I. General

These regulations belong in the hands of the operating personnel which must be pledged to maintain secrecy.

Note: SZ42 cannot be used in conjunction with other teleprinters used in army and airforce nets (T type 52) or attachment 40 (G-Zusatz 40). SZ42 serves for fully automatic encipherment of Secret or Secret Military teletype messages and for carrying on enciphered teletype conversations.

The attachment causes the five impulses characterizing a symbol to be so changed that a different symbol is sent out over the wire, e.g. A becomes R, +, S or something else.

Like all such machines, SZ42, despite its sturdy construction, requires careful handling and regular care (oiling, cleaning) by responsible personnel. Oiling is to follow instructions in this pamphlet. In this connection all security regulations under Section VI are to be observed.

-1-

T O P S E C R E T

S-52,472 Copy No. 1

TL

Do NOT destroy this copy when no longer needed

SZ42 requires good operating conditions in the general teleprinter set-up, especially of the line. If frequent errors or interruptions are met in normal plain text operation, use of SZ42 is impossible under these conditions. The set-up must first be restored to good working order.

The same holds true for wireless operation.

The plain text limitation (switch KT at the right of the upper part in a closed case marked "KT-Schalter") normally remains switched off. The attachment is secure even without the plain text limitation if instructions are followed exactly. With good connection (wire or radio) and little interference the KT-Funktion may be switched on; it affords increased security. With switch set on "KT", communication is possible only with a station likewise set on "KT". Hence this setting is only to be used when expressly commanded.

II. Setting up and making connections

a) Removal from case and setting up

The attachment, which comes in an armored case, is removed as follows:

- 1) Cautiously insert key in the lock (do not use force).
- 2) Press against middle edge of door and turn key once to right.
- 3) Open both doors wide.
- 4) Take out felt pad and lay where you intend to place the attachment.
- 5) Unlatch the bar across front of machine and lift to left until it latches firmly.
- 6) Two men take hold with one hand under the front edge, pull the machine half way out, take hold of the side grips with the other hand and draw all the way out, taking care to distribute the weight evenly. Set it on the felt pad in the place desired.

Caution! Do not set on the cords!

A complete cipher teletype station requires:

- 1) a teleprinter,
- 2) a cipher attachment 42,
- 3) a Fernschreibanschlussgeraet or Fernschaltgeraet,
- 4) a reading table 40 for the message key sheet,
- 5) the valid message key sheet,
- 6) the valid basic key sheet,
- 7) the valid motor key sheet.

For operation there must be provided

a connection to the line
(for wireless units: connection to the "WTZ" $\left[\begin{smallmatrix} ? \\ \end{smallmatrix} \right]$)
a connection for 200 volt ac.

T O P S E C R E T

b) Connecting up

The plug of the high voltage lead and that of the telegraph lead are inserted in the corresponding sockets of the Fernschaltgeraet or the Fernschreibanschlussgeraet (see fig. 1). The two plugs from the teleprinter are entered in the proper sockets of the SZ42 in rear of base (see fig. 2).

c) Initial operation

After connecting up all apparatus have the usual practice current sent through to test the devices - or switch the WTZ correspondingly, disconnecting the keys from the sender. The machines start. If the automatic fuse [Sicherung] of the FA-Geraet will not carry the additional load of SZ42, the high voltage supply can be taken from a separate 220 volt ac socket. Set operating switch of SZ 42 on Aus. Check

- 1) Whether KT switch is on 0.
- 2) The accuracy of speed of teleprinter and SZ42.
Warning! Cold machines may take up to 20 minutes to reach proper speed (due to hardening of oil). Speed control according to IVa.
- 3) Voltage of line and local circuits, if necessary adjust according to IVb.
- 4) Lug settings of cipher wheels 1 - 12 by the basic and motor wheel key table.
All machines leave the factory with the same lug setting.

- d) If for security reasons SZ42 is to be operated in the armored case, remove attachment as under IIa, set case in desired position. Leave doors open. Open cover lid in rear wall. Two men lift machine while a third man puts cables through opening in back of case and keeps taut while machine is inserted to prevent injuring the cables. Connect as under IIb. During pauses in operation or when finished the machine can be safeguarded by locking the case.

III. Establishing a connection for secret operation

- a) Before calling the other station the sending station must set up the message key on reading table 40 by the aid of the 12 riders. For this purpose six sets of two letters are selected at random on the valid message key sheet; these must make no sense or show any regularity, e.g.,

AC DR NK LX MA DB

Absolutely forbidden are such formations as

or HA LD EN SL EB EN
 LI EB LI NG ME IN

or AA AA AA AA AA AA or the like, or number indications of the wheel settings (e.g., "all 01" etc.).

- b) To call the other station throw the operating switch to Aus. The call is then made in normal fashion.
- c) When the other station answers, the sending station writes - if operating by wire:

"QEP, AC, DR, NK, LX, MA, DB"

According to the case, the other station responds:

"RR" (O.K.) or
"NN, AC, DR, NK, LX, MA, DB"

With wireless the Q signals are employed and the key letters are spelled out, i.e., Anton Caesar, etc.

When the other station finally responds "RR" the key numbers determined by aid of the riders on reading table 40 are set up on the wheels from left to right (do not turn wheel forcibly, switch from Aus to Ein to Aus). When the other station has finished setting its wheels and the sending station has checked the reading of the table and the setting of the wheels then the sending station calls: "QRV"

the other station, after setting the wheels, responds:

"UM"

and both stations throw the switch of SZ42 to Ein. After a brief pause the sending station begins to transmit.

The secret connection is made unless there has been some mistake in reading the table or setting the wheels.

With teletype conversations the correspondents must be close to the machines so as to dictate to the operator or else operate the machines themselves.

For perfectly secure cipher operation, especially by radio, the following must be observed:

- 1) With SZ42 set on "Ein" no long sequence of like symbols, e.g. RY RY RY ..., (no perforation in tape) "Alles blank" or (five holes in each tape position) "Alles voll" or spaces, etc., is to be sent for security reasons, especially when starting secret operation.
- 2) Stereotype expressions at the beginning must be avoided:
e.g.,
"An hoeh. Nachr. Fuehrer Heeresgr. A"
"An hoeh. Nachr. Fuehrer Heeresgr. B"

T O P S E C R E T

If such beginnings cannot be avoided, then - as provided in the teletype regulations due to appear shortly (H.Dv.g.422 or L.Dv. 704/3b or M.Dv. 924a) - some arbitrarily selected words, different for each message, are to be sent before the text.

The length of this arbitrary text shall be not less than 10 nor more than 60 letters, it shall have no connection with the message text (e.g. *Rasselbande verfluchte*). Transmission of the text shall follow the nonsense without noticeable pause.

- d) In case of interference the switch is to be thrown to Aus, whereupon procedure depends on manner of operation:

With line operation break in on the other station; if the other station notes this it will interrupt sending and likewise throw switch to Aus so that plain text communication can ensue.

With wireless operation proceed according to instructions for teletype units, observing regulations for radio plain text traffic. For security reasons it is forbidden to converse with the other station regarding cause of disturbances etc. when the switch is on Aus.

If the secret connection is not established at once, then with line operation, after passing to plain text operation, the sending station must select a new key and transmit it to the other station. Then proceed as under IIIc. In radio operation proceed in corresponding fashion (see above). If, despite calm checking of the reading of the table and the setting of the wheels by both stations, no success is achieved, the connection and the condition of both machines are to be checked according to Section IV.

- e) Change of direction of traffic.

Contrary to usual teletype practice, breaking in /Dazwischenschreiben/ is forbidden in secret teletype traffic, except to ask the sender to switch to Aus.

To avoid unintentional breaking in it is ordered that when a change of direction is not clearly indicated by the text the erstwhile receiving station leave a suitable pause before beginning to write.

Proper secret operation depends in large measure on observance of this rule since breaking in disturbs the synchronization (?) of the instruments and the connection then has to be re-established.

T O P S E C R E T

IV. What to do in case of trouble

If difficulty is experienced in receiving secret traffic, the following steps are to be taken to check your own machine and limit the source of error:

a) Check speed of teleprinter and SZ42.

For the teleprinter the check - as well known - is made by observing the black-white target ring on the outer rim of the motor governor through the prongs of a tuning fork which is provided. With vibrating fork the ring must appear to stand still. If necessary this condition must be produced, in the Lorenz system by moving one or the other setting bar on the governor, or in the S.H. system by turning the regulator knob.

With SZ42 the position of the tachometer indicator is to be watched (this is over the milliammeter in the center) and the reading brought to 0 by turning the regulator knob. These parts are readily accessible upon opening the front window (see fig. 3). When using the tape sender the speed of SZ42 should be $\pm 1.5\%$.

b) Testing the local and line circuits.

Testing is by the meter in the center front of SZ42 (see fig. 3) which is switched in by pressing the red button. Local circuit between teleprinter and SZ42 is checked with main switch of SZ42 on Ein. Reading must be 43ma and the indicator must be in the blue field. Any deviation must be corrected by adjusting with a screwdriver the setting screw in the left side of the base (see fig. 4). Turning clockwise increases voltage.

Line circuit is checked with main switch on Aus. When the red button is pressed the reading must not be less than 43 ma and the indicator - as when testing local current - must be in the blue field. Adjustment must be made by the line connection /Vermittlung/ or in the FA-geraet transformer tapping /Trafo anzapfung/.

If the indicator is in the red field, the polarity is wrong. This ac reversing lies in the FA-geraet and does not occur when operating with normal teleprinter. When hooking up an SZ the FA-geraet must be correctly set (switches etc.) according to the accompanying instructions "Umschaltung des Fernschreib-Anschlussgeraets fuer den Betrieb eines G-Schreibers." When using a Fernschalt-Geraet the reversing of the poles must be made by the line connection.

c) Checking the left hand, local magnet EMO (fig. 3).

1) Switch off connection with the line (cf. page 4 IIIc).

T O P S E C R E T

- 2) Set own switch on Ein.
 - 3) With the FM (teleprinter ?) send a series of "RYRY RYRY...." as test signal and watch the arms of the set of swords of EMO. These must change their relative positions in regular sequence. If this is not the case, loosen the thumbscrew of the left range finder Teilkreis and - sending RYRY all the while - slowly turn the range finder lever Teilkreishebel and determine the two limits at which regular operation ceases. The value midway between the extreme limits is set and the thumbscrew tightened. (Example: upper limit 90 degrees, lower limit 20 degrees, middle value 55 degrees.)
- d) Checking the right hand, line receiver system EMf (fig. 3).
- 1) Switch on connection with the line.
 - 2) Ask other station to send "RYRYRYRY..." with switch of its SZ on Aus.
 - 3) Set own switch on Ein.
- Meanwhile make the same check on EMf obtaining limit values and middle value, set for this latter and tighten thumbscrew.
- e) Other station makes same checks (a - d) in the same sequence. If perfect registration is observed in all four receiver systems one may conclude that the cipher attachments of the two stations are working perfectly and that - unless other troubles exist - perfect secret communication must be possible.
- f) A further method of testing, which permits control of the functioning of the instruments, can be employed by all stations equipped with automatic tape perforating sender and receiver perforator (in place of the receiving perforator the SH teleprinter with built-in perforator may be used). This method has the advantage that one can make the check without calling in a second station or having a second cipher attachment. Procedure is as follows:
- 1) Hook up machines exactly as in fig. 1c. If the intermediate coupling in 1c "Zwischenkupplung fuer ZB 33 Stecker" (three way connection) is not available, a ZB 33 plug and two ZB 33 sockets connected according to the attached "Stromlauf fuer Zwischenkupplung (fuer ZB 33 Stecker)" may be used instead. "Eintonbetrieb" (single tone ?) switch set on "Schreiben."
 - 2) SZ42 switch on Aus.
 - 3) Note the numbers showing for all 12 cipher wheels.

- 4) Get punch ready for operation and set SZ switch on Ein.
- 5) Mark starting point of tape by a pencil mark vertical to tape along the punch guide /Stansabfall-fuehrung/.
- 6) Send any text you please either by teleprinter or by prepared plain text tape through the automatic tape sender whereby on the receiver punch the cipher text is punched.
- 7) Remove the completed receiver tape.
- 8) Operating switch on Aus.
- 9) Remove receiver punch. Remove automatic sender and substitute in hook-up for the receiver punch.
- 10) The cipher tape is inserted in the automatic sender according to the marking so that the first punched combination after the stroke, which in the cipher may be blank (no holes), will lie on the reading holes.
- 11) Set the 12 wheels according to the initial setting noted.
- 12) Set SZ switch on Ein.
- 13) Set motor switch and finally the sender switch of automatic sender on Ein.

If the apparatus is in order both in the sending and receiving elements, the teleprinter will now write out the plain text without errors. Then the machine enciphers and deciphers perfectly.

Errors in lug setting are not shown by this method of testing. These must be checked using the keys.

Failures of illumination

If the illumination of one of the transparencies Aus or Ein fails, the fuse is defective and must be changed. The fuse connection is in the rear of the base and accessible from the outside. Spare fuses are found in the accessories box inside the right door of the case.

Watching the oiling system

From time to time the various points in the oiling instructions, in the appendix, are to be observed.

In particular the airspace between the receiver magnet and its armature in both receiver systems is to be checked to make sure it is free of dust and particles of oil.

The airspace with armature attracted should be from 0.1 to 0.15 mm and can be controlled with a piece of punch-tape. This must be drawn through without any considerable friction with the armature attracted.

If any disturbances which occur cannot be remedied in this way, the machine is to be sent for inspection to the Heereszeugamt (N), Berlin, Naumannstr. observing security regulations. Meddling with the cipher part of SZ42 is forbidden since new adjustments must be made with great precision and this cannot be done without special tools.

V. Taking down and shipment

Switch of SZ on Aus. Disconnect from teleprinter and Fernschaltgeraet or Fernschrieb-Anschlussgeraet. Disconnect low and high voltage leads. Close window. Draw both connecting cables to front over the hood, then to the back again, insert plugs in empty sockets (see sketch on inside of left door of case), get case ready, open both doors wide.

Close tight the opening in rear wall of case. Two men lift machine by grips at sides and in front of base and push slowly into armored case until it hits stops. Warning: do not tip. Slide reading table 40 between machine and side of case. Pull down holding bar from left and latch securely in the double latch. Place felt pad in front of machine and tuck in edges carefully. Close both doors. Pressing lightly against middle edges, turn key once to the left. Make sure disc is over keyhole to keep out dust.

When ready for transportation the machine is easily carried by four men.

VI. Security

SZ42 is a secret military object and along with the pertinent key material is to be treated according to Classified material regulations H DV 99. Operating and repair personnel must be informed of these regulations and pledged to obey them.

VII. Key material, figures, oiling instructions, and rules for testing and setting receiver magnet system follow as appendices.

Army High Command
(Chief of Army Equipment and
Commander of the Replacement
Army)
Heereswaffenamt - Pruef. 7

.....
Colonel and Section Chief

Instructions for Oiling SZ42A. Upper part

- I. After every 100 hours of operation the individual parts of the upper part should be oiled by a teletype mechanic.
- II. Before oiling clean the machine of oil residue and dirt.
- III. For oiling use the same oils and greases as for teleprinter. (Cf. D 745/2 Instructions for oiling teleprinter T 36 Lo.)

Use bearing oil (?) for:

- a) gears of sender (freely)
- b) uncoupler with its bearing point (lightly)
- c) intermediate lever to uncoupler (lightly)
- d) stop lever (lightly)
- e) oil hole of sender (till it overflows)
- f) all coupling felts and blocking disc felts (freely, repeat several times)
- g) all other bearings and friction surfaces, as well as points where springs are hooked in.

Use Waehlschienen (?) oil for:

Both receiver magnet systems as in the Lorenz teleprinter T 36 Lo according to D 745/2 Instructions for oiling teleprinter.

Use grease on:

- a) worms and worm gears between motor and drive shafts
- b) all toothed gears.

- IV. After oiling, the sender contacts and the armatures of the receiver magnet systems are to be cleaned to remove any oil thereon. The carbon brushes of the motor are to be checked for wear and replaced in good season.

B. The cipher unit

- I. After about 1000 hours of operation a teletype mechanic is to oil the cipher part as follows:
 - a) The lever switch on Aus.
 - b) Remove high voltage plug.
 - c) Loosen the four thumbscrews holding hood and remove hood.
 - d) Open lid of cipher unit, loosen and remove the two holding screws.

- e) Working from the back between the cipher case and the foot of the upper part with the wooden handle of a screwdriver, push the cipher unit forward until the plugboard is free from the jackboard. (Do not push the cipher unit too far forward!)
- f) Take hold of the cipher unit with both hands, remove and set on table.
- g) Remove the four screws of the plate with contact spring pile-ups and lift off the plate.
- h) Remove screws from cover plate and take this off.

II. For oiling use the oils usual with teleprinters.

First wipe away with a rag all dirty oil on the plate. Oiling of the cipher unit should cover the following points:

With bearing oil:

- a) all cogwheels and their bearings (lightly)
- b) the cams on the cam shaft with the rollers attached (freely)
- c) all bearing points and "reading" rollers of contact levers (freely)
- d) the bearings of the blocking lever arrangements and the front and rear angle guide Fuehrungswinkel (freely)
- e) the blocking levers of the blocking lever shaft (lightly)
- f) the grooves Nuten of blocking wheels 1 - 6 (lightly)
- g) all gliding and friction points, also points where springs are hooked in (lightly).

For this purpose the large drive wheel is to be turned by hand from front to back.

With Waehlschienen oil:

all lugs of the cipher wheels (lightly).

With bearing grease:

the ball bearings as far as accessible.

III. After oiling the cipher unit is to be reassembled as follows:

- a) The cover is pushed into place and screwed down.
- b) The plate with contact spring pile-ups is to be put on vertically pressing the contacts into place, then screw down the 6 screws.
- c) Connect the machine to its hook-up and power supply Netzspannung and Linienstrom, see that the sender coupling is in end (stop) position.

- d) Set cipher unit carefully on rails and push in until there is a space of about 1 mm between the drive wheel of the upper part and that of the cipher unit.

The large drive wheel of the cipher unit is to be turned from front to back until the mark on the outer side of wheel 12 coincides precisely with the edge of the base position strip.

When pushing the unit further back, see that the drive wheel engages the corresponding gap in the gear wheel of the upper part, otherwise bring the drive wheel of the cipher unit into the proper position.

- e) Now push the unit in until it is stopped.
f) There should be little play between the gear of the upper part and that of the unit.
g) To test the basic position of the unit, set the lever switch on Ein, send a few impulses with the teleprinter so that the unit moves ahead a few steps, turn wheel 12 to see if in this stop position of the machine the mark still coincides with the edge of the basic position piece; if not, remove the unit once more and repeat the checks already given.
h) Replace and tighten the two holding screws. Lower the lid and lock.

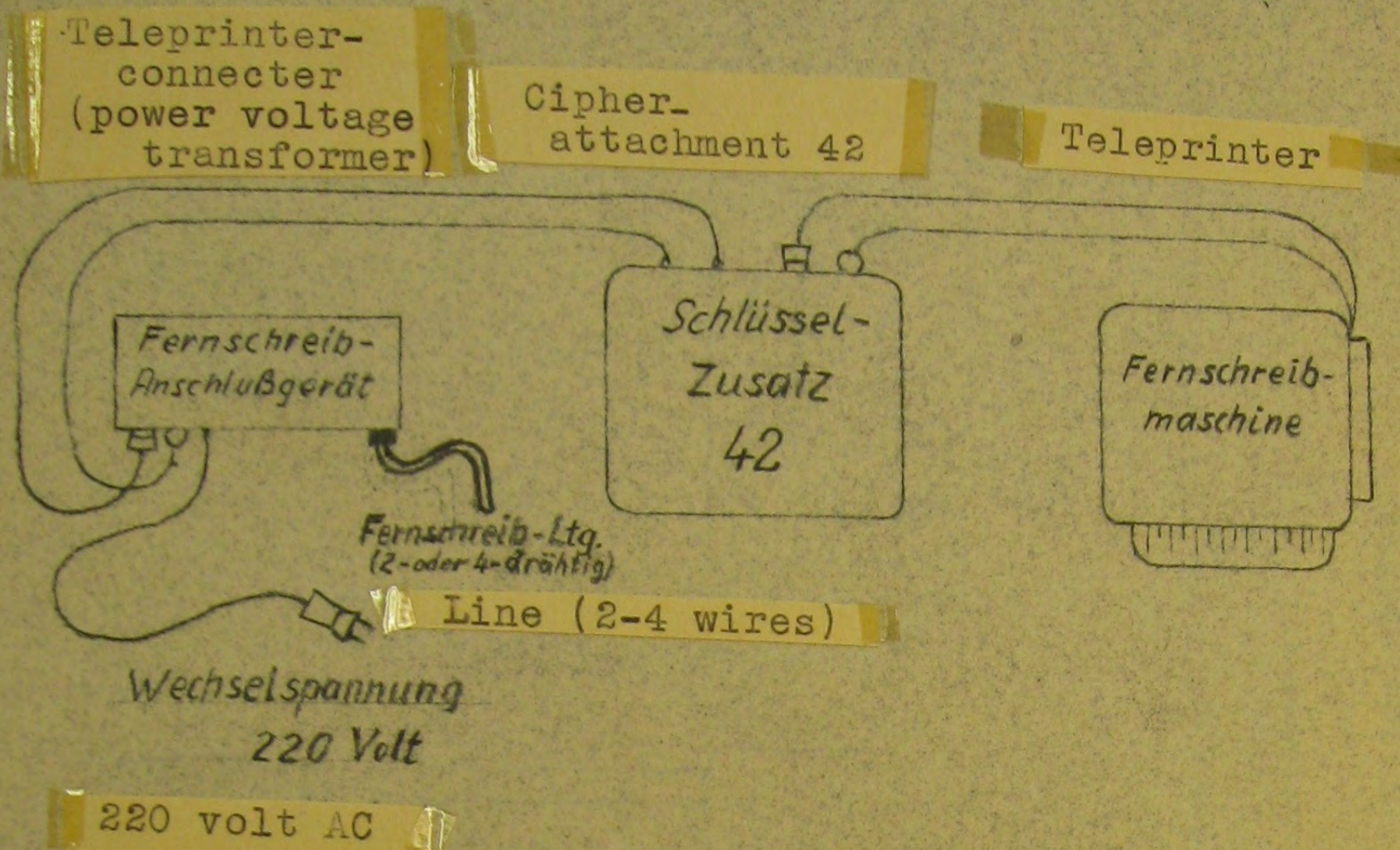


Abb. 1a

FIG. 1a

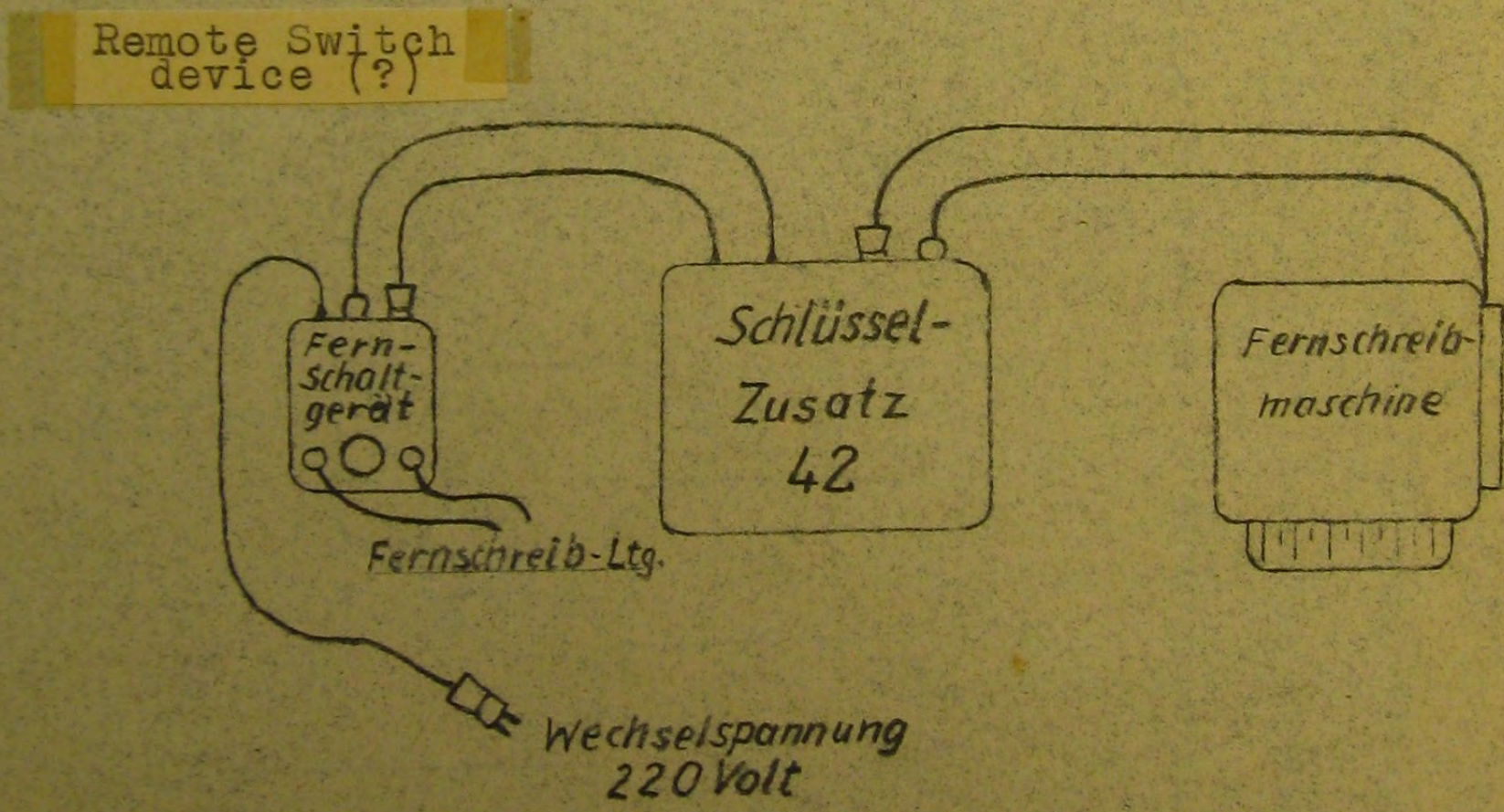


FIG. 1b

Abb. 1b

Wa Prw 7/III h

Rückka

Schlüssel-Zusatz 42

Blatt 1
dazu Bl. 2

Diese Zeichnung ist ein geheimer Gegenstand im Sinne des § 1 d. Gesetzes gegen den Verrat militärischer Geheimnisse v. 3. Juni 1914. Vervielfältigung, Verbreitung, Weiterverbreitung, Mitteilung an andere ohne Genehmigung d. Reichsverwaltung ist nach Maßgabe d. §§ 1, 15, 36 des Urheberrechtsgesetzes v. 19. Juni 1901 und der §§ 18, 19 des Gesetzes gegen den unlauteren Wettbewerb v. 7. Juni 1909 strafbar.

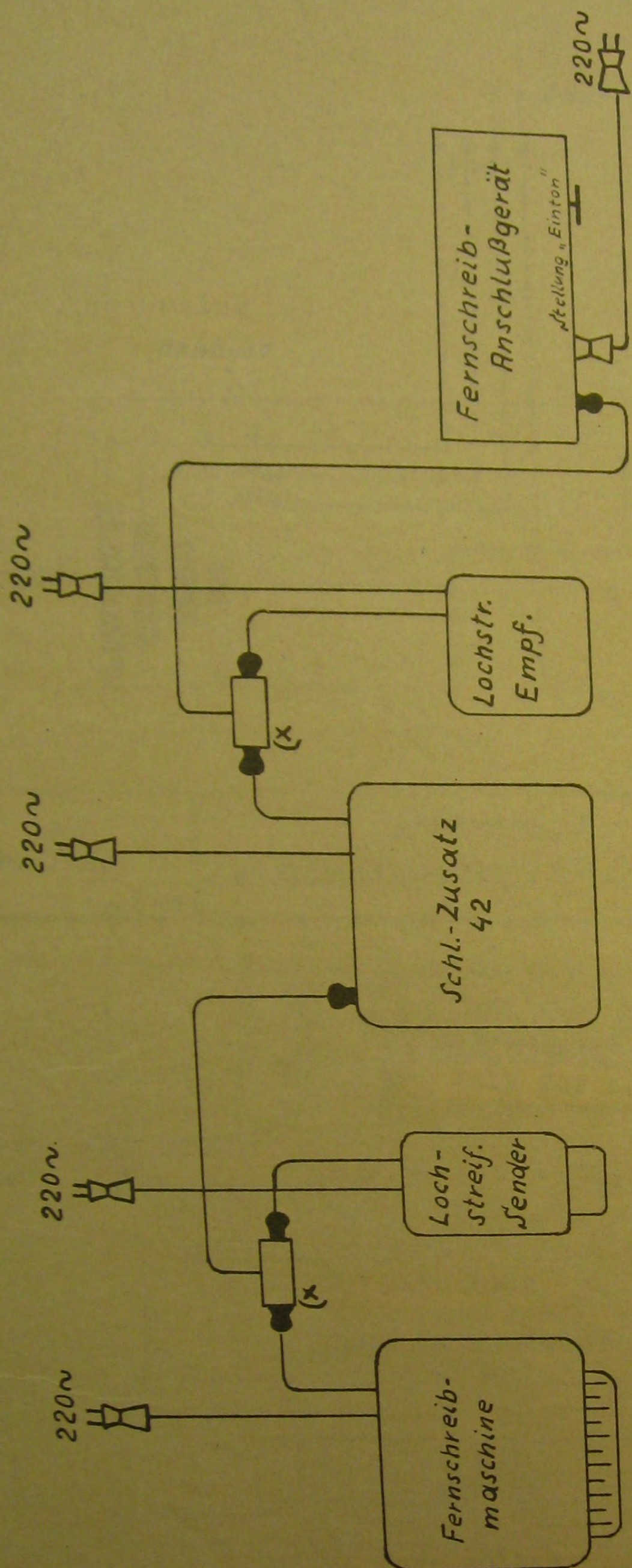
V. K. 961 36 IIa 4
V. K. 761 36 IIa 4

11.7.43 Sgt.

Diese Zeichnung ist ein geheimer Gegenstand im Sinne des § 1 d. Gesetzes gegen den Verrat militärischer Geheimnisse v. 3. Juni 1914. Vervielfältigung dieser Zeichnung sowie Verwertung od. Mitteilung an andere ohne Genehmigung d. Heeresverwaltung ist nach Maßgabe d. §§ 1, 15, 36 des Urheberrechtsgesetzes v. 19. Juni 1901 und der §§ 13, 10 des Gesetzes gegen den unlauteren Wettbewerb v. 7. Juni 1909 strafbar.

Abb. 1c

Wa Prw 7/IIIh



Zusammenschaltung der Geräte zur Prüfung des Schlüsselzusatzes 42.

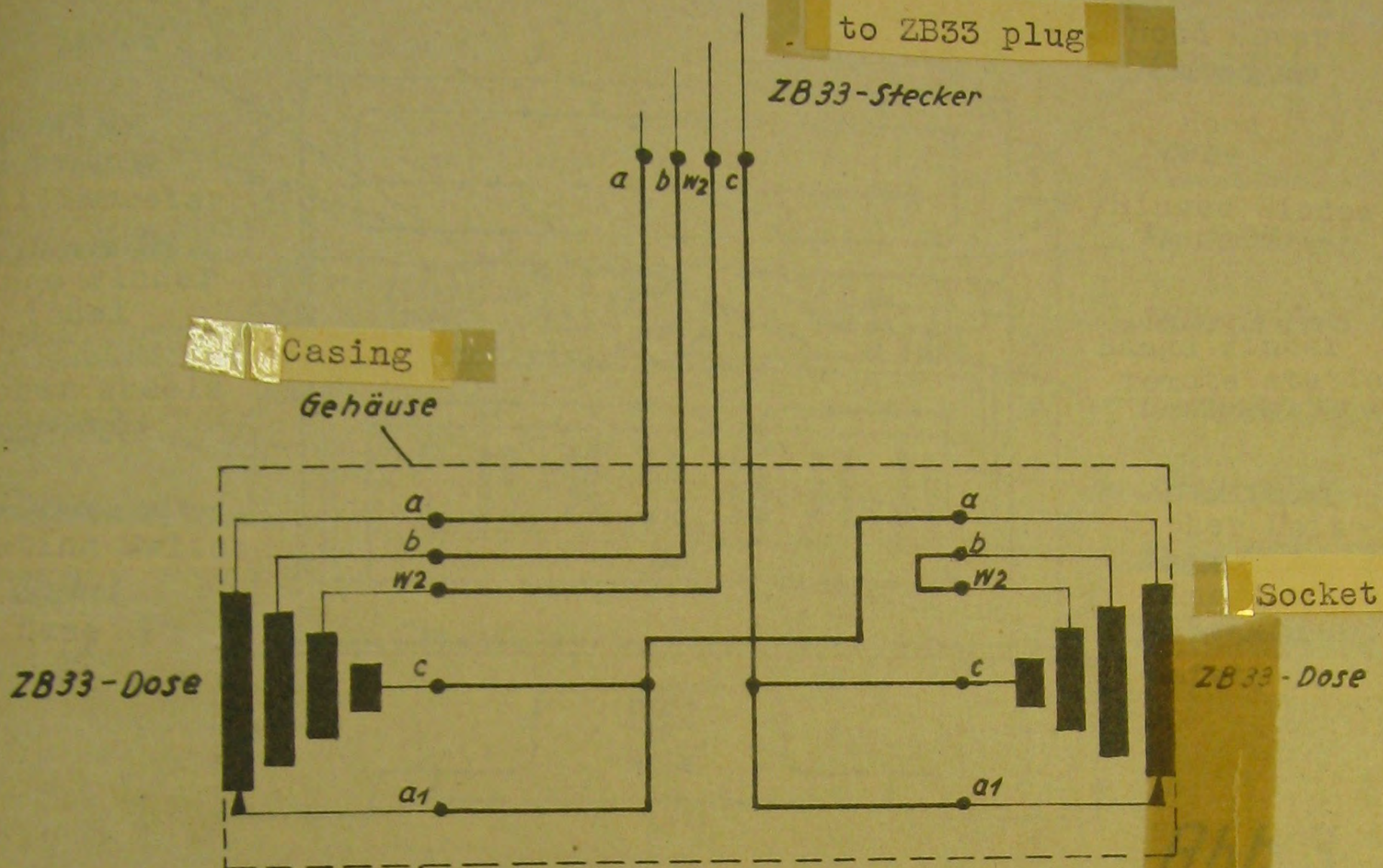
Die gezeigte Schaltung gilt für die Erzeugung des verschlüsselten Lochstreifens, für die Entschlüsselung

kommt an die Stelle des Lochstreifenempfängers der Lochstreifensender.

Hook-up for testing Cipher Attachment 42.
The hook-up shown is for producing the cipher tape, for decipherment
move the tape sender to the position of the tape receiver.

Teleprinter Tape Sender SZ42 Tape Receiver Power voltage transformer.
Set "Single tone" FIG. 1c

Circuit of coupling (for ZB33 plug)



Wa Prü 7/IIc

8.1.43.

Stromlauf
Zwischenkupplung (für ZB33-Stecker)

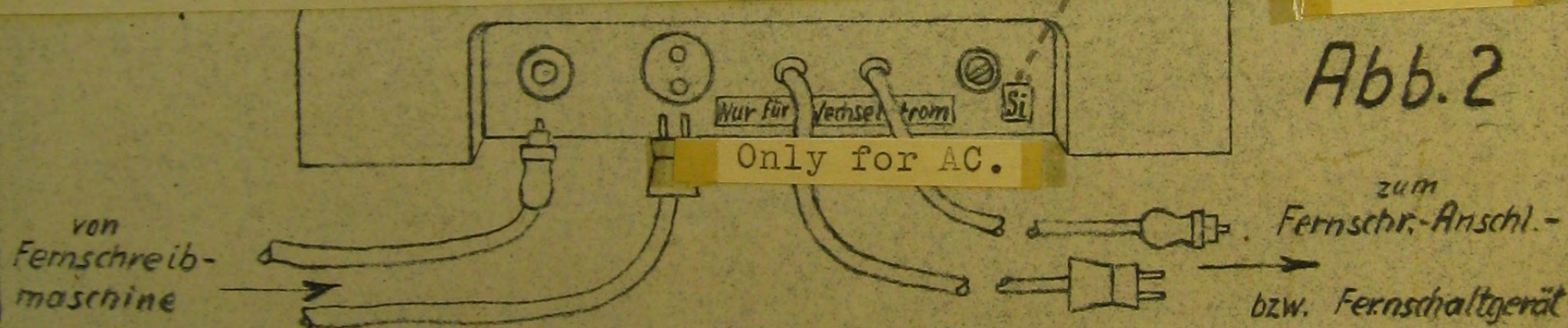
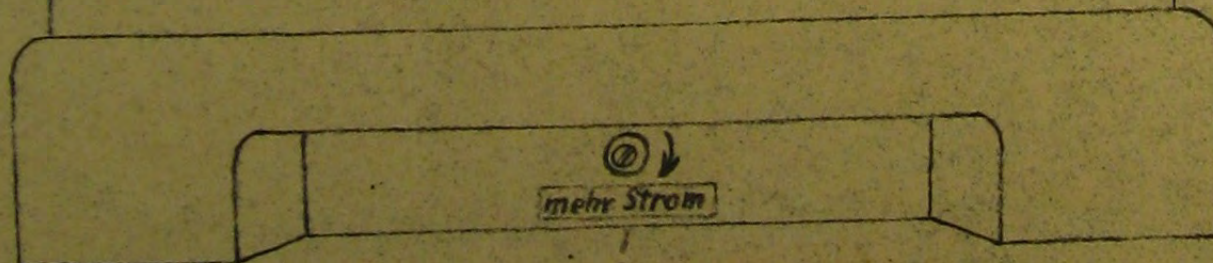


Abb. 2

Left Side

linke Seitenansicht



More voltage

Abb. 4

FIG. 4

Wa Prw 7/IIIh

Rück

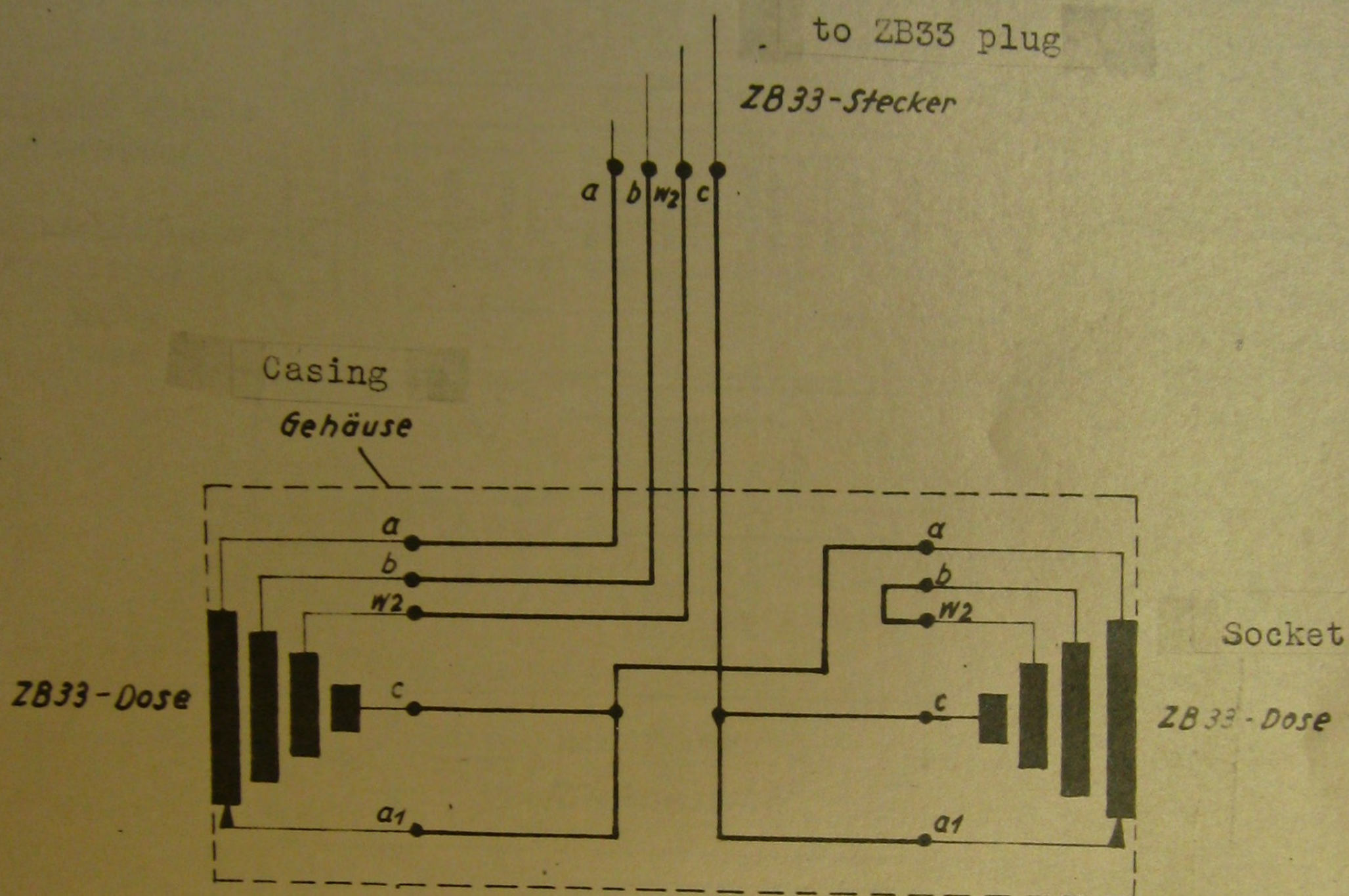
Schlüssel-Zusatz 42

Blatt 2

Diese Zeichnung ist ein geheimer Gegenstand im Sinne des § 1 d. Gesetzes gegen den Verrat militärischer Geheimnisse v. 3. Juni 1914. Vervielfältigung dies. Zeichnung sowie Verwertung od. Mitteilung an andere ohne Genehmigung d. Heeresverwaltung ist nach Maßgabe d. §§ 1, 15, 36 des Urheberrechtsgesetzes v. 19. Juni 1901 und der §§ 13, 18 des Gesetzes gegen den unlauteren Wettbewerb v. 7. Juni 1909 strafbar.

V. K. 761 36 11a4

Circuit of coupling (for ZB33 plug)



Wa Prü 7/IIc

8.1.43.

Stromlauf
Zwischenkupplung (für ZB33-Stecker)

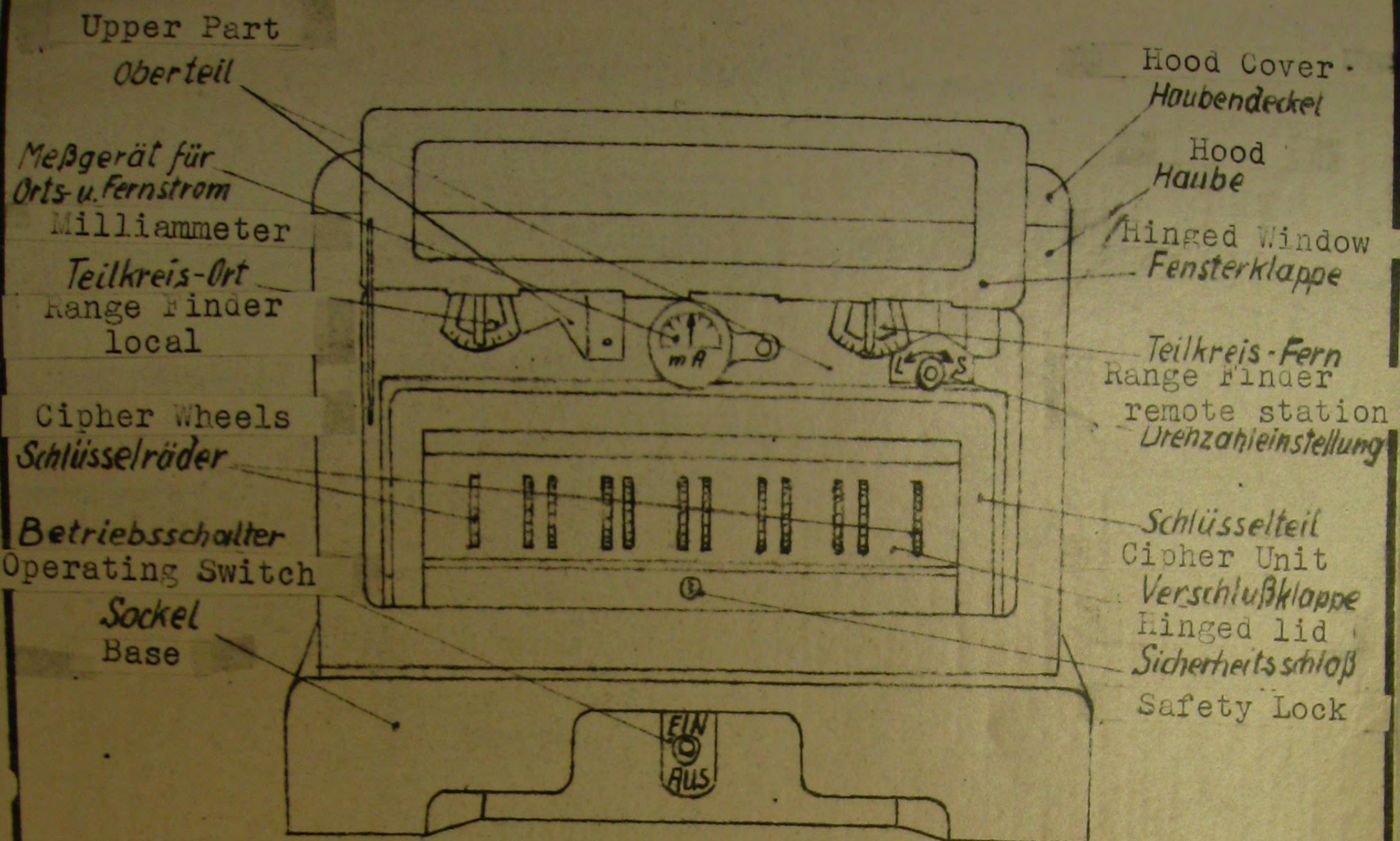


Abb. 3

Fig. 3

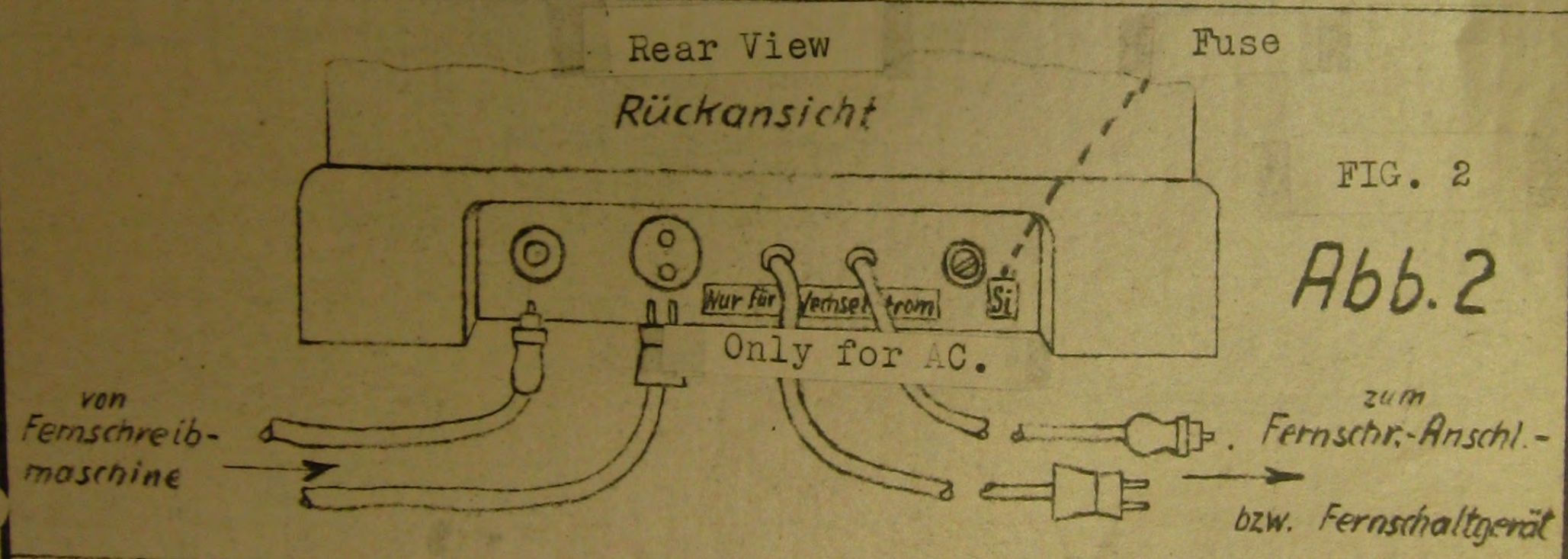


FIG. 2

Abb. 2

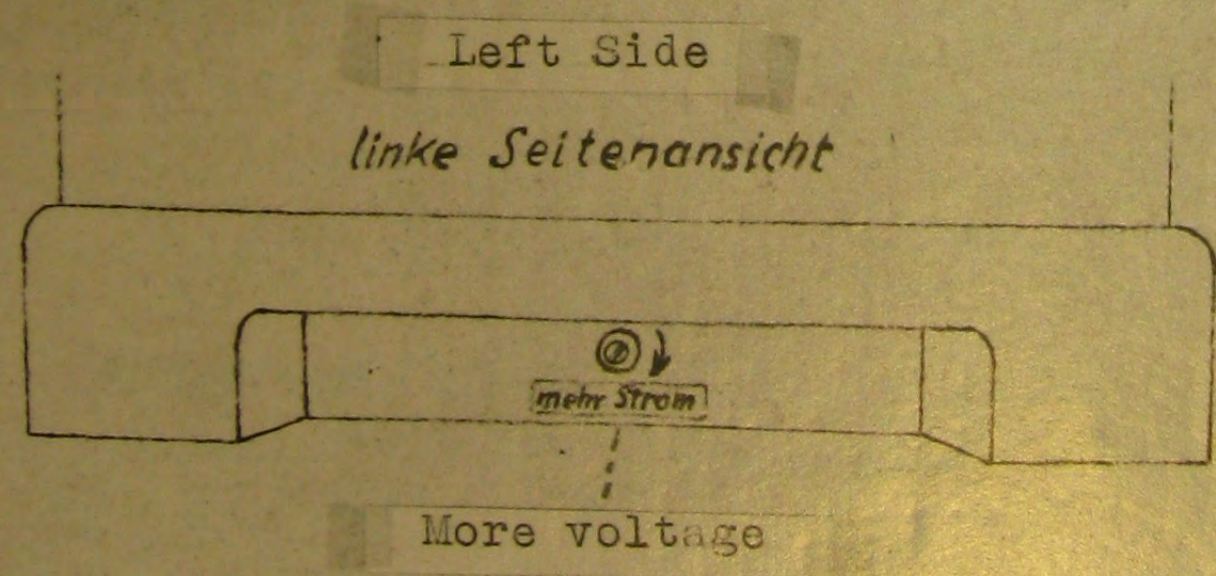


Abb. 4

FIG. 4

Diese Zeichnung ist ein geheimer Gegenstand im Sinne des § 1 d. Gesetzes gegen den Verrat militärischer Geheimnisse v. 3. Juni 1914. Ver-
vielfältigung dies. Zeichnung sowie Verwertung od. Mitteilung an andere ohne Genehmigung d. Reichsverwaltung ist nach Maßgabe d. §§ 1, 15, 36 des Urheberrechtsgesetzes v. 19. Juni 1901 und der §§ 18, 19 des Gesetzes gegen den unlauteren Wettbewerb v. Juni 1909 strafbar.

Schlüssel-Zusatz 42

Blatt 2

Wa Prw 7/IIIh

Rück

Cam assembly
(receiver)

Wähltaumenbuchse (Empfangssystem)

Friction felt

Reibungs-Filzscheibe

Stoparm

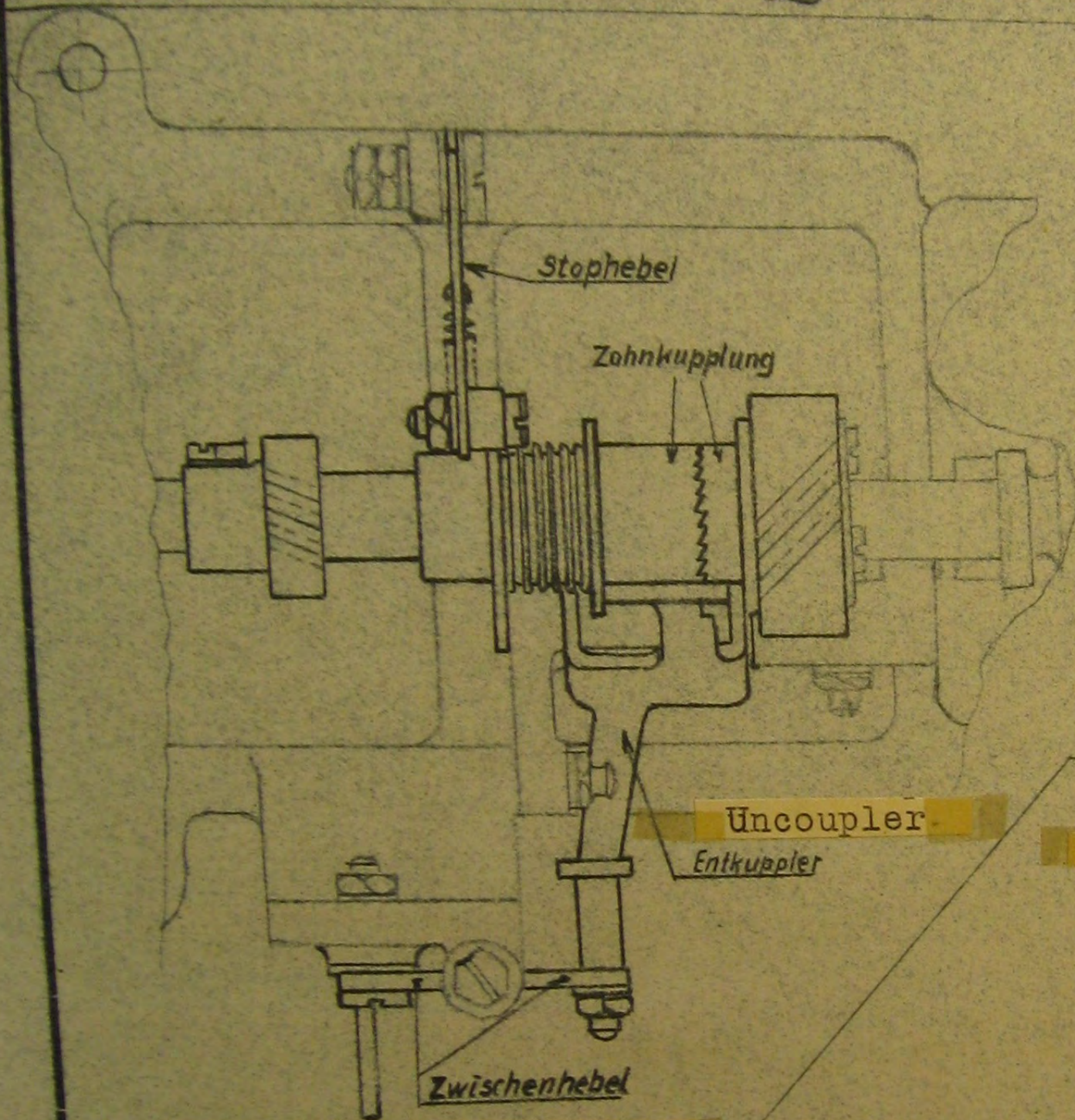
Öfflz

oil-felt

Cam assembly

Wähltaumenbuchse

Reibungs-Filzscheibe



Sender

Uncoupler

Entkuppler

Receiver System

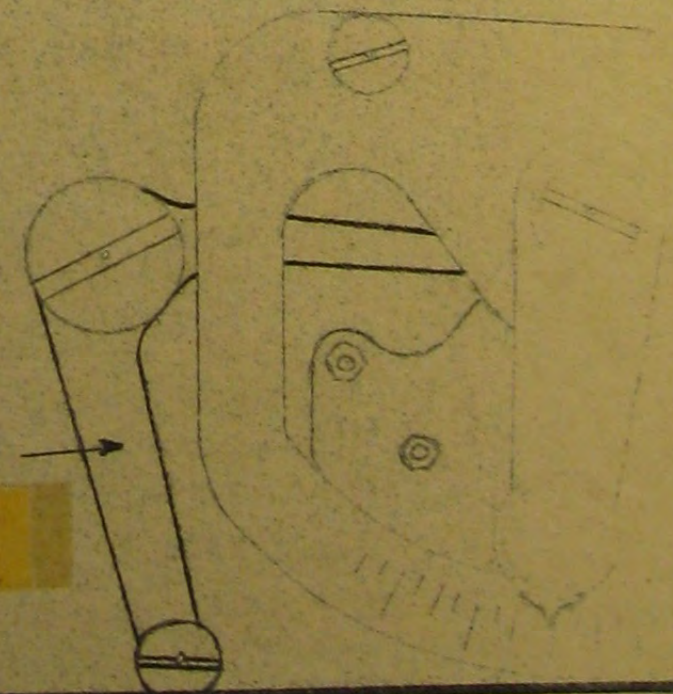
Empfangssystem

intermediate lever

Zwischenhebel

Zwischenhebel f. Entkupplgsstange

Intermediate lever for
Uncoupling bar.



Skizzen

zur

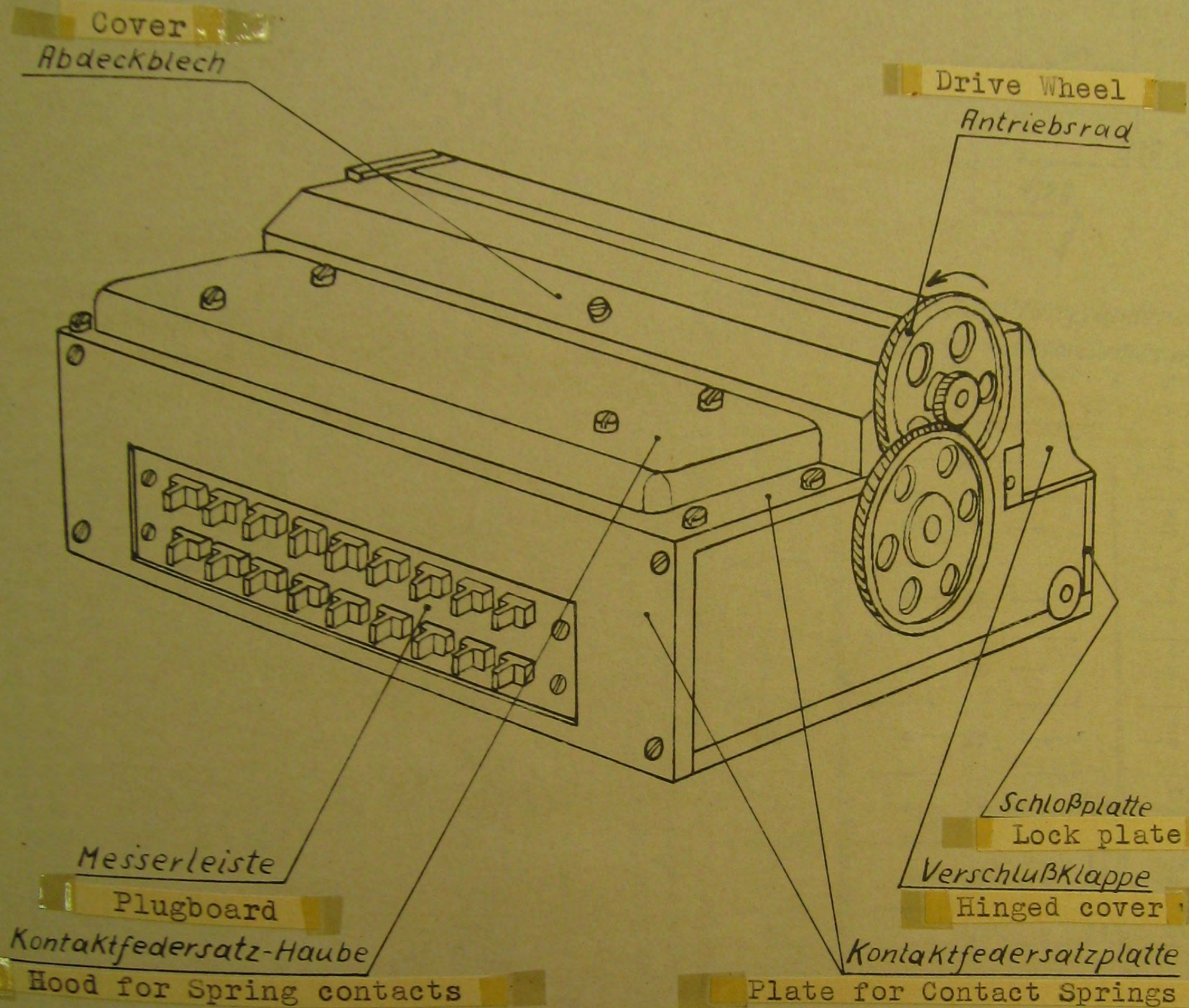
Öl - Anleitung

Oiling Instructions.

Wa Prw 7/IIIh

Rutka

Diese Zeichnung ist ein geheimer Gegenstand im Sinne des § 1 d. Gesetzes gegen den Verrat militärischer Geheimnisse v. 3. Juni 1914. Vervielfältigung dies. Zeichnung sowie Verwertung od. Mitteilung an andere ohne Genehmigung d. Heeresverwaltung ist nach Maßgabe d. §§ 1, 15, 36 des Urheberrechtsgesetzes v. 19. Juni 1901 und der §§ 18, 19 des Gesetzes gegen den unlauteren Wettbewerb v. 7. Juni 1896 strafbar.



30.12.42 Jg.

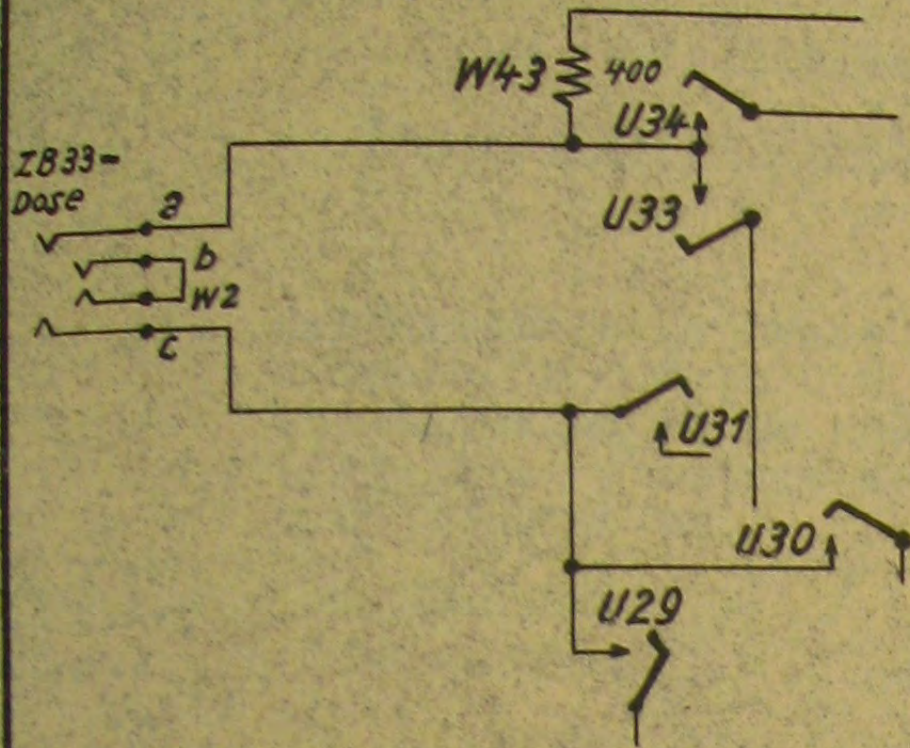
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lauteren Wettbewerb v. 7. Juni 1909 strafbar.

Schlüsselsatz

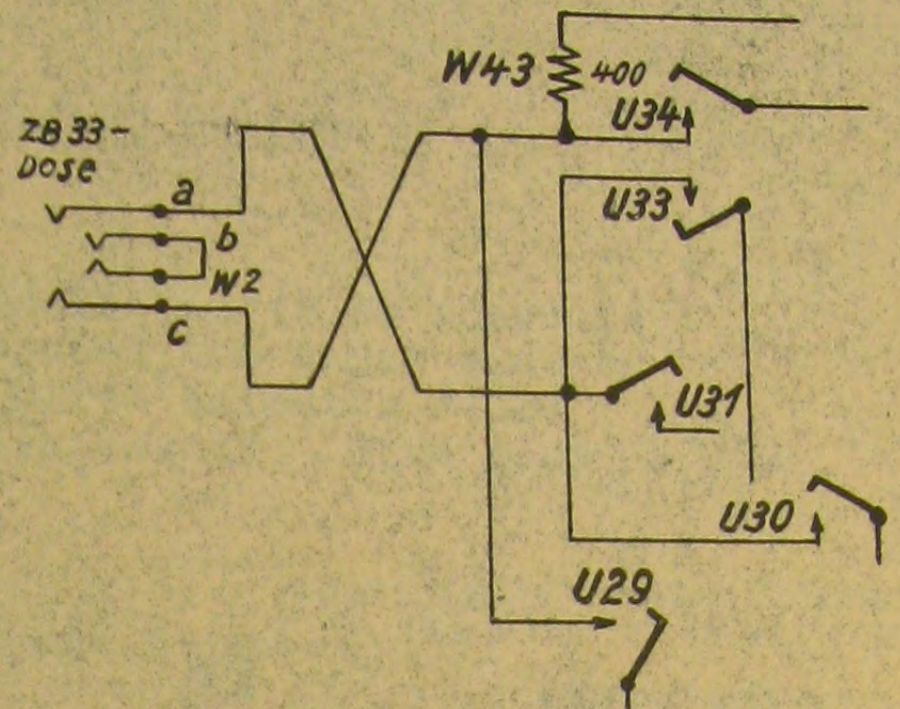
Cipher Attachment

Wa Prw 7/IIIh

Auszug der Grundschaltung
(Telegrafieteil)



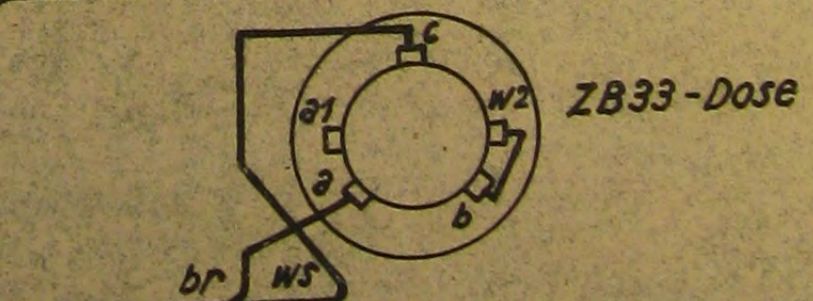
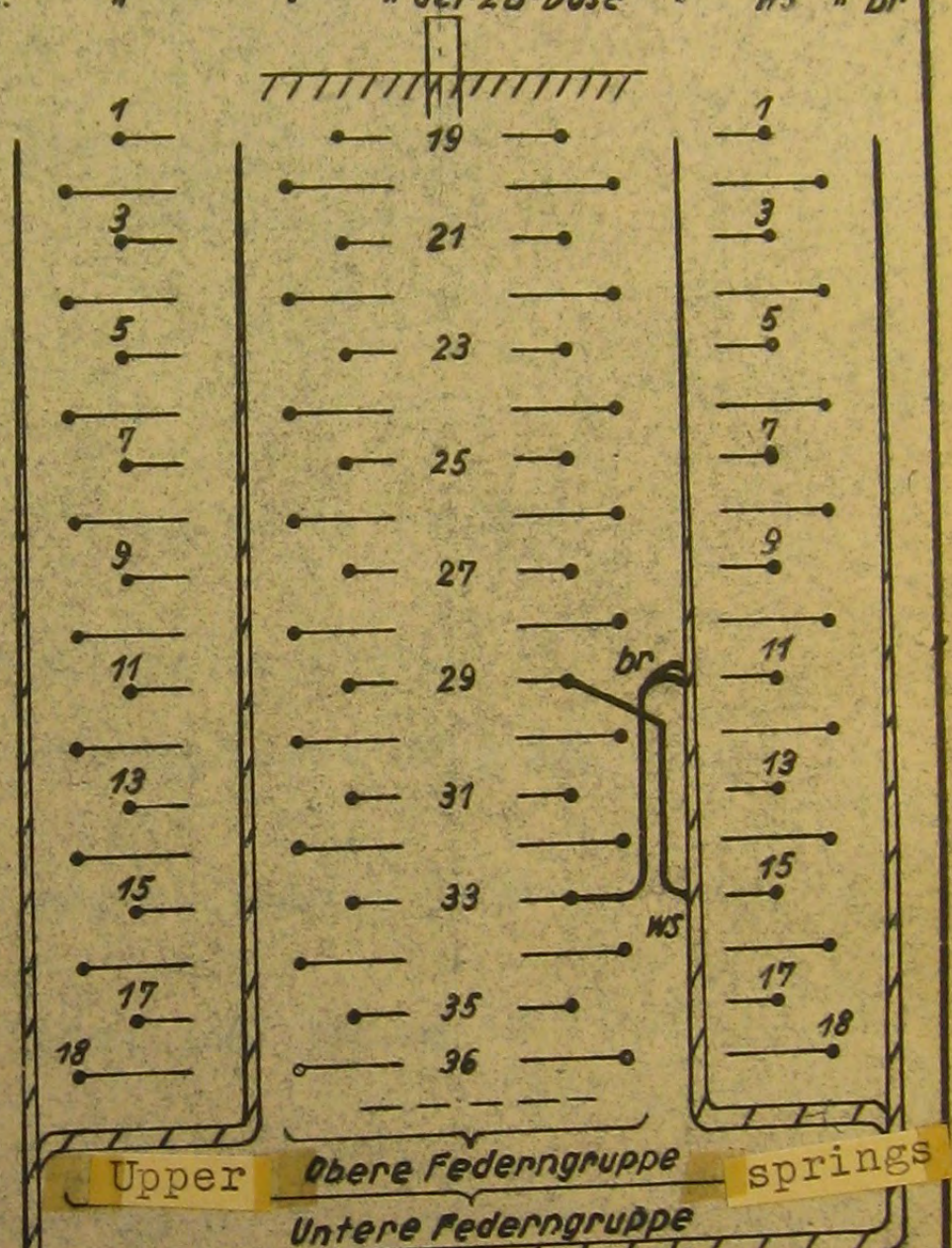
Schaltungsänderung für den G-Schreiber



Wiring Auszug der Drahtführung
Betriebsartenschalter „U“
Switch „U“



Ausführung der Schaltungsänderung
1. Vertauscht werden an U29 u. U33 die Drähte ws mit br
2. „ „ „ der ZB-Dose „ ws „ br



Circuit changes in
Teleprinter connector
for use with cipher
device

Nach der Schaltungsänderung ist das
Fernschreib-Anschlußgerät mit einem
gelben Punkt am Bezeichnungsschild
zu kennzeichnen.

After change in wiring mark device
with yellow dot.

Umschaltung
des Fernschreib-Anschlußgerätes
für den Betrieb eines G-Schreibers
WaPrüf 7 IIc/111

Testing Rules for Adjusting Receiver Magnet System

1. Set armature by means of bearing screw so there is a space of 0.2 to 0.5 mm between the under side of the blocking wedge and the first selector sword (fig. 1). Armature must move easily. Side play 0.05 to 0.08 mm.

Armature (0.05-0.08 mm side play)

Lagerschraube

Armature support

Ankerlagerbock

Anker (0.05 - 0.08 mm Achsenspielraum)

Armature extension

Ankerfortsatz

Blocking wedge

Sperrkeil

0.2-0.5 mm

1st sword

1. Schwert

Abb. 1

2. Adjust armature stop nut and stop screw so that interval is about 4 to 5 mm.
3. Loosen holding screws of armature support.
4. Loosen screw of excentric holding screw of armature adjustment lever.
5. Remove angle brackets with magnet spools from armature.
6. Unhook spring of blocking lever and spring of the armature release.
7. Turn multi circuit selector switch till tip of the upper selector cam is on tip of the selector lever (fig. 2).

1st selector lever

1. Wählhebel

Wähltaumen

Selector cam

1mm

Ankerfortsatz

Armature extension

Abb. 2

Blatt: 1

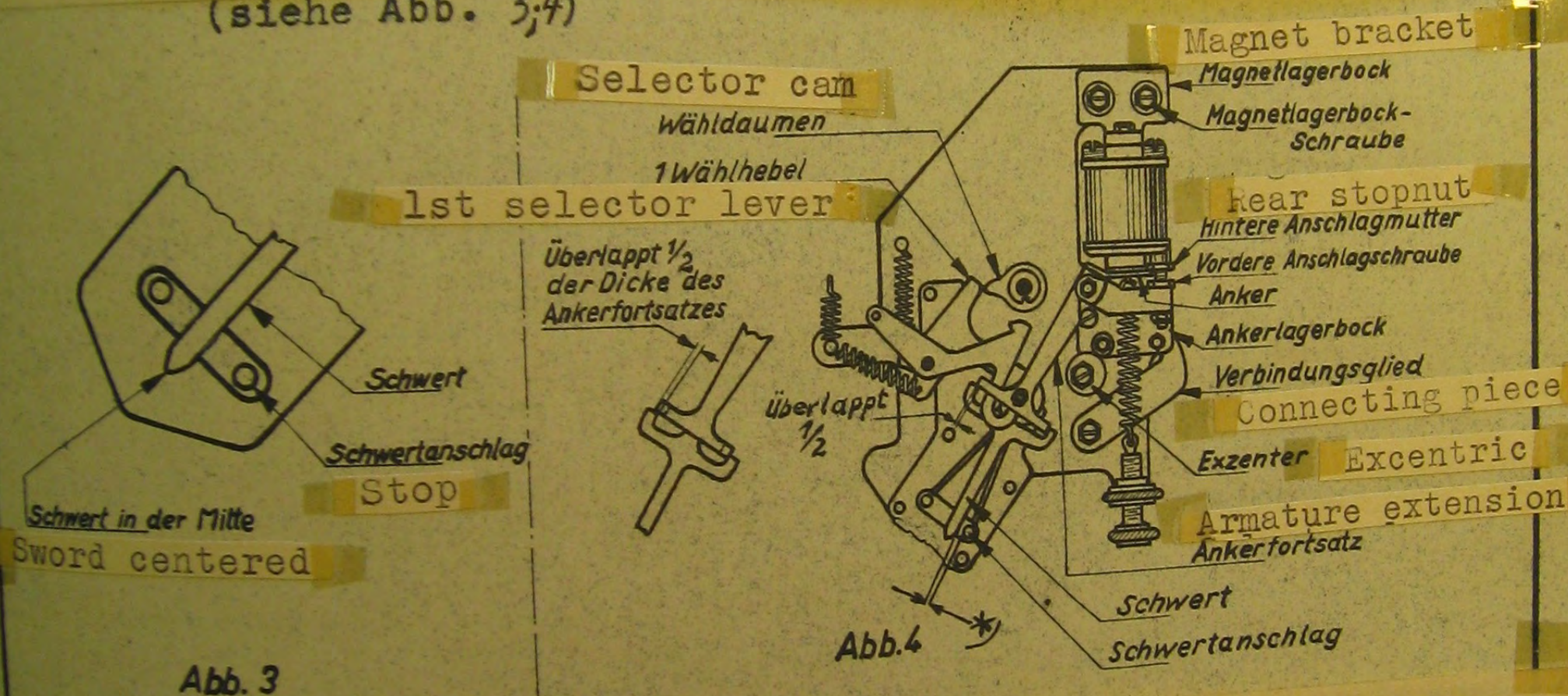
Kummer 16. 11. 41



Adjusting the Armature Support

The support with the armature is to be brought so near the sword that the armature extension throws the sword evenly in both directions. In pulling the armature extension away from the tips of the swordarm (left or right) see that between sword and guidepin there is a space of 0.4 to 0.8 mm (fig. 4). This clearance is to be maintained equally on both sides of the swordarm. Checking the clearance is to be carried out with all five swords (figs. 3, 4).

(siehe Abb. 3, 4)



Adjusting the front stop screw

The front armature stop screw is to be set with the armature so that half the thickness of the armature extension overlaps the right swordarm. All swords are to be thus checked.

Adjusting the rear stop screw

The rear stop nut is to be turned until half the thickness of the armature extension overlaps the left swordarm; the armature must rest on the rear stop nut. All swords are to be thus tested. (Fig. 4)

Adjusting the blocking wedge

Hook in the spring of the blocking lever again. Turn the receiver shaft until the blocking lever rests on the circumference of the blocking cam disc and the coupling teeth are disengaged. Set the wedge, after loosening the nut which holds it to the armature extension, by moving along the slot until, with the edge of the wedge opposite the edge of the blocking lever, there is a space of 0.2 to 0.3 mm. (Fig. 5)

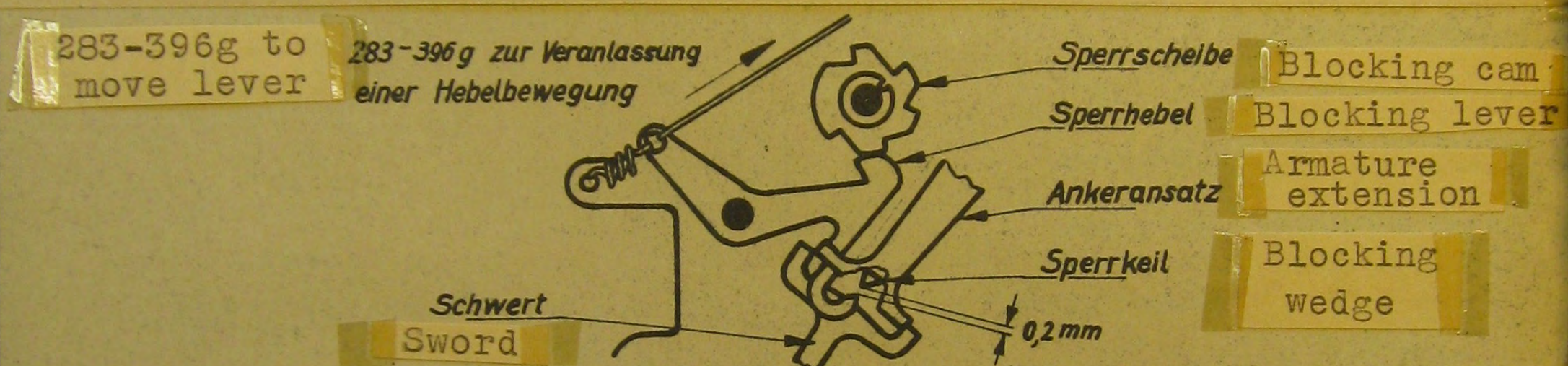
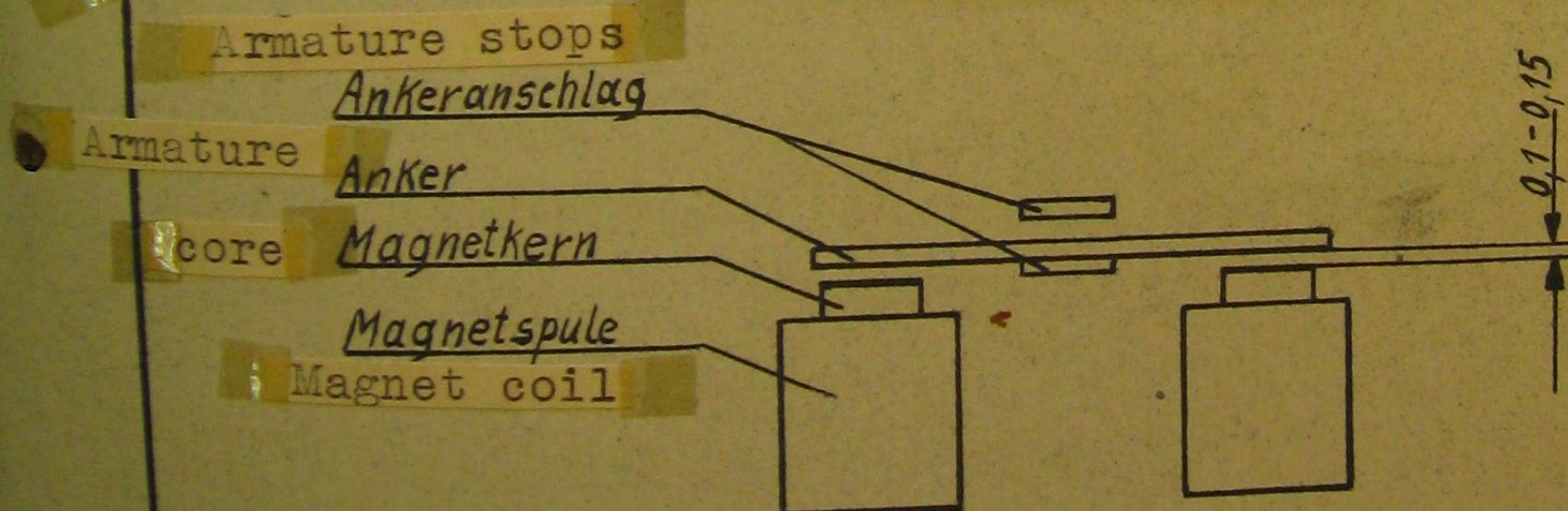


Abb. 5

Adjusting the magnet system

The cores of both coils must stand vertical and be parallel horizontally to the armature. The space between armature and pole is about 0.1 mm. (Fig. 6)



Adjusting the stop lever excentric

Set the excentric so that there is a play of 0.05 to 0.15 mm between the stop lever and the release latch. (Fig. 7)

Adjusting the excentric release screw

The distance between the surface of the stop lever and the release latch must not exceed 0.05 mm. The armature must be down and the blocking lever must not touch the blocking wedge. (Fig. 8)

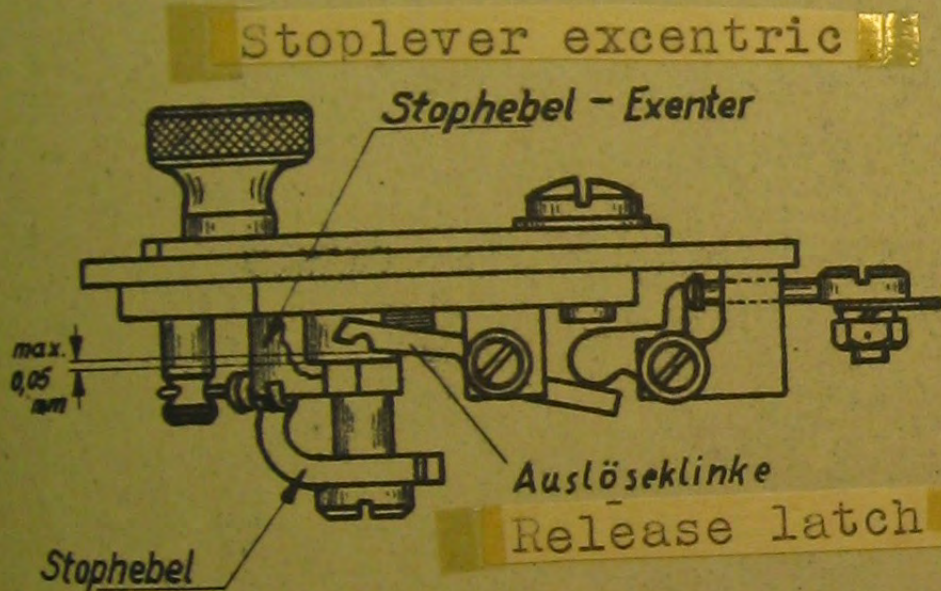


Abb. 8

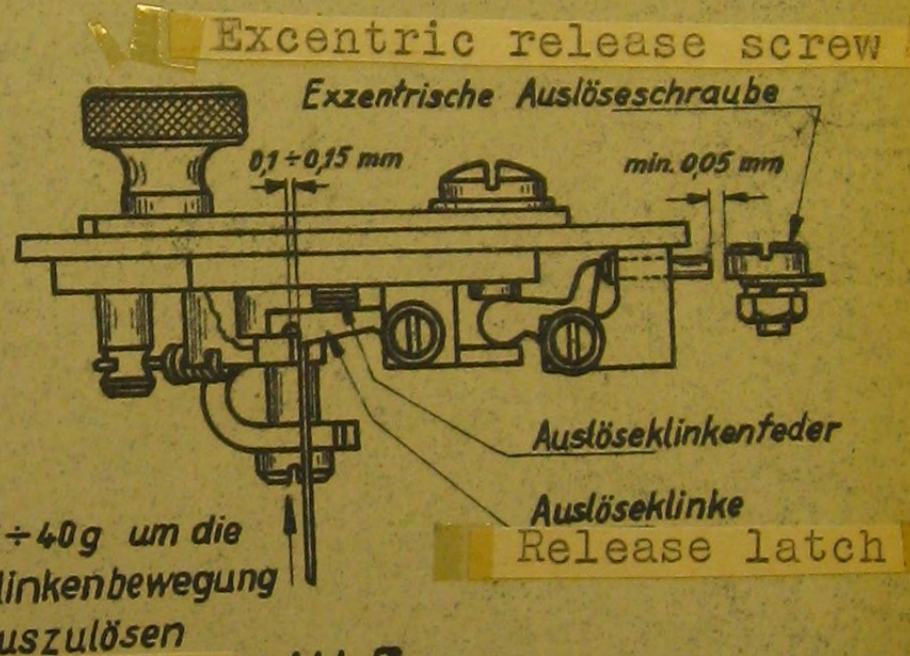


Abb. 7

35-40g to
release
latch motion
Teilkreisprüfung:

Testing the range finder

In testing the range finder and receiving RY's the range must be from 20 to 90 degrees. If the range is very low, e.g. 10 to 60, the magnet system must be moved away from the armature; if the range is too high, e.g. 50 to 100 degrees, the magnet system must be brought nearer the armature.

(Signed) Weber, Section 142.

Blatt 4
Kummer 16. 11. 41

