SIEMENS
745 E 310a

SAIT ELECTRONICS

745Ea	I

C O N T E N T S

1. GENERAL 1

2. TECHNICAL DATA 1

2.1 - FREQUENCY RANGE 2

2.2 - TUBE COMPLEMENT 2

2.3 - SCALE GRADUATION 3

2.4 - RF INPUT 3

2.5 - INTERMODULATION 5

2.6 - AUDIO OUTPUTS 6

2.7 - POWER SUPPLY 6

2.8 - DIMENSIONS AND WEIGHT 6

3. BASIC FUNCTION 7

3.1 - BANDS 1 AND 2 7

3.2 - BANDS 3 AND 5 7

3.3 - BAND 4 8

3.4 - BANDS 6 TO 12 8

3.5 - BLOC DIAGRAM 8

3.6 - FREQUENCY SCHEDULE 9

4. FUNCTIONS OF THE SUBASSEMBLIES 10

4.1 - RF SECTION 11

4.2 - CALIBRATING OSCILLATOR 11

4.3 - FIRST MIXER STAGE AND FIRST OSCILLATOR 12

4.4 - DOUBLER 13

4.5 - INTERMEDIATE FREQUENCY 1, 2nd MIXER STAGE AND 2nd OSCILLATOR 13

4.6 - INTERMEDIATE FREQUENCY 2, DEMODULATION, GENERATION OF THE AUTOMATIC CONTROL VOLTAGE 14

4.7 - AUDIO STAGE, NOISE LIMITER 15

4.8 - AUDIO STAGE AND FINAL STAGE 15

4.9 - TUNING INDICATION 15

4.10- POWER SUPPLY UNIT 16

5. LAYOUT 16

6. OPERATION 18

6.1 - PROCEDURES PILOR TO PLACING INTO OPERATION 18

6.2 - PLACING THE RECEIVER INTO OPERATION 20

7. MAINTENANCE 21

7.1 - CLEANING, SERVICING, SUPERVISING 21

7.2 - CHECKING THE CRYSTAL OSCILLATOR 22

7.3 - REMOVING THE FRONT PANEL 23

7.4 - REPLACING PARTS 24

7.5 - ALIGNMENT 25

7.6 - ALIGNMENT OF FREQUENCIES FOR TRACKING 30

7.7 - GUIDING VALUES FOR THE CORE POSITIONS 31

7.8 - TROUBLE SHOOTING 32

8. COMPONENTS LIST 36

8.1 - INPUT SECTION (STAGE 1 TO 4) 36

8.2 - FREQUENCY CONVERTER SECTION (STAGES 5, 6 and 7).. 43

8.3 - AMPLIFIER SECTION (STAGES 8 TO 14) 46

8.4 - POWER SUPPLY SECTION (STAGE 15) 51

SAIT ELECTRONICS

745 Ea	1

ALL WAVE MARINE RECEIVER

745 Ea

1 - GENERAL

The superheterodyne all wave communications receiver is of the highest grade and covers the frequency ranges 14 to 21 Kc/s and 85 Kc/s to 30,3 Mc/s in twelve bands ; in its shortwave bands it operates with double frequency conversion. The frequency bands are selected with pushbuttons. For incremental control of receiving frequencies above 15 Mc/s the second oscillator can be detuned by up to 100 Kc/s in ganged tuning with the circuits of the first intermediate frequency. Each 100 Kc/s scale division on the main scale can be checked against a built-in crystal spectrum generator.

Temperature-compensated layout of the frequency-determining stages, temperature-resistant materials and components and impregnation of moisture-sensitive components makes the receiver widely immune to climatic conditions and suitable even for deep-sea navigation.

The receiver may be operated from AC or DC ship's main or from 24 volts storage battery.

It may be supplied either as a separate unit contained in a robust metal cabinet for bench mounting or be incorporated in the SAIT console as Main or Emergency receiver.

2 - TECHNICAL DATA

Types of reception :

A1	Unmodulated telegraphy in all frequency bands
A2	Modulated telegraphy in the frequency bands between 170 and 30.300 Kc/s
A3	Telephony in the frequency bands between 170 and 30.300 Kc/s

2.1.- FREQUENCY RANGE

14 to 21 Kc/s and 85 Kc/s to 30.3 Mc/s in twelve bands.

Band 1	14 to 21 Kc/s (xx)
2	85 to 175 Kc/s
3	170 to 350 Kc/s
4	340 to 730 Kc/s
5	720 to 1540 Kc/s
6	1500 to 3100 Kc/s (x)
7	3100 to 6300 Kc/s (x)
8	6000 to 0,200 Kc/s (x)
9	9700 to 15,200 Kc/s (x)
10	14,700 to 20,200 Kc/s (x)
11	19,700 to 25,200 Kc/s (x)
12	24,700 to 30,200 Kc/s (x)

(x) The up to 100 Kc/s that can be set on the frequency interpolator scale have to be added to the frequency values read on the main scale.

(xx) 14 to 25 Kc/s optional.

2.2.- TUBE COMPLEMENT

	European type	U.S.A.type
4 tubes	EF 93	6BA6
3 tubes	EK 90	6BE6
4 tubes	ECC 82	12AU7
2 tubes	EAA 91 or EB 91	6 AL5
1 tube	EL 90	6AQ5

1 tube	EM 34	6 CD7
1 stabilizer tube (input protection)	108 C1	OB2

2.3.- SCALE GRADUATION

in band 1 with 1-kc/s divisions	≤	100 kc/s per mm
2 with 5-kc/s divisions	≤	1 kc/s per mm
3 with 10-kc/s divisions	≤	1.5 kc/s per mm
4 with 10-kc/s divisions	≤	3 kc/s per mm
5 with 20-kc/s divisions	≤	5 kc/s per mm
in bands 6 to 12 with 100-kc/s divisions	≤	25 kc/s per mm
with incremental control		1 kc/s per mm

2.4.- R.F. INPUT

Bands 1 to 6	high-impedance, unbalanced
7 to 12	75 , unbalanced
Receiver is operation	after about one minute
Warmup for full calibrating accuracy	two hours
Setting error in the bands 6 to 12 after calibrating the main tuning control agains the 100-Kc/s spectrum	1 Kc/s

Frequency drift (measured during a 10-hour operating period after 2hours of warmup) with mains voltage variations of ± 5 %

and 5 C temperature variation in the range + 10 C to + 40 C

in the bands 1 to 5	$\pm 10^{-3}$
6 to 12	$\pm 2 \times 10^{-4}$

Parasitic oscillator voltage at the receiver input

(fundamental plus harmonics)

with termination into a dummy antenna

Bands 1 to 11	100 v
Bands 12	200 v

Selectivity :

Band	Class-of-emission	Attenuation 6 db for a detuning of f_1 (kc/s)	Attenuation 46 db for a detuning of f_2 (kc/s)	Edge steepness $F = \frac{40}{f_2 - f_1}$ (db per kc/s)
1 and 2	A1	± 0.3	± 1.6	30
3 to 12	A1	± 0.8	± 3.1	17
3 to 12	A2/A3narrow	± 1.1	± 4.4	12
3 to 12	A2/A3 wide	± 3.0	± 7.0	10

Image frequency rejection :

Band 1	70 db
2	50 db
3	60 db
4	80 db
5	50 db
6 to 11 (12)	50 (40) db

IF rejection at input :

Band 1	= 70 db
2	= 50 db
3	= 80 db
4	= 60 db
5	= 60 db
6 to 12	= 50 db

2.5.- INTERMODULATION

For an unmodulated useful signal of 100 µv

and an interfering signal of 10 mv with 50% modulation,
20 kc/s away 10 %

Sensitivity and signal-to-noise ratio for 1 into 10 kΩ(at audio output)

Band	Class-of-emission	signal-to-noise ratio (db)	Input EMF (µv)
1	A1	10	≤ 3.0
2 to 4	A1	10	≤ 2.0
6 to 12	A1	10	≤ 0,6
4 and 5	A3	20	≤ 40
6 to 12	A3	20	≤ 10

Range of control for the pitch of the beat note = ± 3000 c/s

Audio gain control manual

RF gain control automatic (AVC)or manual

Variation of the audio output voltage

With a change in RF input voltage
from 10 µv to 50 mv < 4 db

Charging time constant of the AVC system

With classes-of-emission A1 and A2/A3 0.1 sec

Discharge time constant of the AVC

With class-of-emission A1 0.5 to 1 sec
With class-of-emission A2/A3 0. 1 sec

Noise limiting action continuously adjustable and disconnectable

Bandwidth of the audio amplifier

At the 3-db-down points
With respect to the 1 kc/s response 300 to 5000 c/s

Distortion factor with 1.5 µ audio output ≤ 10%

Unweighted noise at the loudspeaker

With full audio gain and minimum RF gain ≤ 90 mv
Corresponding to a signal-to-noise ratio ≤ 60 db

2.6.- AUDIO OUTPUTS

Headphone terminal	1 mw; 3_i = 500 Ω
Internal on/off loudspeaker	2 w / 5 Ω
Terminal for external loudspeaker	0.6 w / 5 1Ω
Line output	1 mw / 600 Ω

2.7.- POWER SUPPLY

AC Mains :

Via built-in power sypply unit.
may be adjusted for 110 - 125 - 220 - 250 volts
operation at 40 to 60 c/s - Input power :
about 100 VA.

DC Mains : Receiver fitted as independent unit

opération from DC Mains 110 - 220 volts
or 24 volts storage battery via vibrator, inverter
or rotary converter.

Receiver included in SAIT Console

When the ship's mains is DC, the receiver is
powered by the Console's Main Converter 110 volts
single phase output.

Permissible voltage variation of the power supply ± 10 %

2.8.- DIMENSIONS AND WEIGHT

Front panel (When the receiver is included in SAIT Console)

Width : 52 cm
Height : 30,4 cm.

In metal cabinet with shock absorbers (When fitted as independent Unit)

Width : 55 cm
Height : 35,0 cm
Depth : 38 cm
Weight : approx. 35 Kgs.

3.- BASIC FUNCTION

The receiver performs in different ways in the twelve bands. Four different functional patterns can be distinguished; they are associated with the various bands as follows :

Functional pattern A with bands 1 and 2

B with bands 3 and 5

C with band 4

D with bands 6 to 12

The differences by reference to functional circuit diagrams showing merely the subassemblies activated at the time, not however switches and relays, are described hereafter.

3.1.- BANDS 1 AND 2

(See DWG 4.92 Fig. 2)

In the bands 1 and 2 only signals of class A1 are to be received. The set operates with single frequency conversion. The frequency of the tunable first oscillator is 50 kc/s above the receiving frequency. The intermediate frequency of 50 kc/s so generated in the mixer stage is doubled in the following stage to give 100 kc/s, i.e. raised to the frequency position of the following IF amplifier.

This IF signal passes trough the second half of a quadruple-tuned band filter. Subsequently the IF channel splits into a narrowband and a wide-band branch. In the wide-band branch the AVC voltage is produced; in the narrow-band branch the A1 signal is amplified once more and finally translated to the audio position with a carrier differing but slighty from 100 kc/s. Audio stages with noise limiter and a final stage amplify the audio signal (difference of intermediate frequency and variable heterodyning frequency) to be output level desired.

3.2.- BANDS 3 AND 5

(See DWG 4.62 Fig. 3)

Also in these bands the receiver operates with single frequency conversion, but the first oscillator frequency is now 100 kc/s above the receiving frequency so that the 100-kc/s IF signal comes about already in the first mixer stage. It travels trough both halves of the quadruple-tuned filter. Subsequently the signal passes the same subassemblies as with bands 1 and 2. The narrow-band IF amplifier branch (Dwg.4.9.1) heterodynes and demodulates the signal (anode bend detection) in receiving signals of class A1, the upper wideband IF amplifier branch supplying the AVC voltage. In the reception of signals

of class A2/A3 the upper IF amplifier path effects the demodulation (diode detection); in the lower IF amplifier path the AVC voltage is gained.

3.3.- BAND 4

(See DWG 4.6.2 Fig. 4)

In this band the receiver operates with double frequency conversion with the second oscillator set at a fixed frequency. The first oscillator is of variable frequency and operates 1180 kc/s above the receiving frequency. The IF1-signal of 1180 kc/s so generated in the first mixer stage is applied to the second mixer stage via a double-tuned filter. The fixed-tuned second oscillator operates at 1280 kc/s that an IF signal of 100 kc/s comes about in the second mixer stage. The quadruple-tuned filter and the stages following in the signal path equal those for bands 3 and 5.

3.4.- BANDS 6 TO 12

(See DWG 4.6.2.Fig. 5)

The receiver operates with double frequency conversion also in these bands. If it is tuned with the main scale alone, the electrical conditions are the same as described for band 4.

With the incremental tuning scale, however, (frequency interpolator) the IF1 filter and the second oscillator can be ganged-tuned trough up to 100 kc/s, their frequency difference always equalling the constant second intermediate frequency (see also paragraph 4.3.6). Since the incremental tuning control does not affect the frequency of the first oscillator, the receiving frequency changes to the same extent (but in opposite direction) as the first intermediate frequency. The RF circuits need not be returned, for they are sufficiently wideband.

The class-of-emission switch varies the couplings in the quadruple-tuned filter of the IF2 amplifier and thus the bandwidth according to the three positions "A1", "A2/A3 Narrow" and "A2/A3 Wide". The following circuitry again equals that for the other groups of bands.

3.5.- BLOCK DIAGRAM

" The functional circuit diagram (Dwg.4.9.1) shows the basic interconnection of the individual receiver stages and control elements.

At the antenna input the protective measures against overload of the input circuits are symbolized (neon lamp, protective lamps, cut-off relay A). The input signal reaches the RF preselector

stage which is switched to the band desired at the time with twelve pushbuttons. By pressing the callibrating key a signal of 100 kc/s or a multiple thereof can be applied from the calibrating oscillator to the control grid of the first tube. In this procedure the antenna, the BFO and the incremental frequency control are automatically disconnected.

Contacts of the relays B and C lead the signal from the first mixer stage via the doubler to the second half of the quadruple-tuned filter (IF2), or directly to the input of the quadruple-tuned filter, or via IF1-filter and the second mixer stage with second oscillator to the input of the quadruple-tuned filter. The operating condition of the relays B and C depends on the band selected with the pushbuttons. The quadruple-tuned filter feeds into a narrow-band and a wide-band IF stage. In class-of-emission A1 the narrow-band (lower)IF path supplies the signal voltage which is heterodyned with a frequency of about 100 kc/s in the A1-demodulator, while the AVC voltage comes about at a diode behind the wide-band(upper)IF path. In class A2/A3 this diode supplies the demodulated signal, and the other diode which is fed by the lower IF stage, derives the AVC voltage.

The AVC voltage controls the preselector stage, first mixer stage, second mixer stage and last IF stage. The gain can also be adjusted by hand with the control "RF Gain".

A common switch for class-of-emission and bandwith connects the demodulator activated at the time to the volume control which is followed by the audio section with noise limiter and final stage.

3.6.- FREQUENCY SCHEDULE

Band	Receiving frequency in kc/s	Frequency of 1st oscillator in kc/s	1st intermediate frequency in kc/s	Frequency of 2nd oscillator in kc/s
1	14 to 21	64 to 71	(50)	-
2	85 to 175	135 to 225	(50)	-
3	170 to 350	270 to 450	(100)	-
4	340 to 730	1520 to 1910	1180	1280
5	720 to 1540	820 to 1640	(100)	-

6	1500 to 3100 + (0 to 100)	2680 to 4280	1180 -(0 to 100)	1280 -(0 to 100)
7	3100 to 6300 + (0 to 100)	4280 to 7480	1180 -(0 to 100)	1280 -(0-to 100)
8	6000 to 10,200 + (0 to 100)	7180 to 11,380	1180 -(0 to 100)	1280 -(0 to 100)
9	9700 to 15,200 + (0 to 100)	10,880 to 16,380	1180 -(0 to 100)	1280 -(0 to 100)
10	14,700 to 20,200 + (0 to 100)	15,880 to 21,380	1180 -(0 to 100)	1280 -(0 to 100)
11	19,700 to 25,200 + (0 to 100)	20,880 to 26,380	1180 -(0 to 100)	1280 -(0 to 100)
12	24,700 to 30,200 +(0 to 100)	25,880 to 31,380	1180 -(0 to 100)	1280 -(0 to 100)

2nd intermediate frequency : 100 kc/s for each band

Frequency doubling : for bands 1 and 2 only

4.- FUNCTIONS OF THE SUBASSEMBLIES

4.1 - RF SECTION

(See DWG.4.9.4, stages 1 and 3)

A neon stabilizer tube V101 (1 R62) is connected across the antenna terminal of the device to prevent overvoltage across the antenna coils.

The antenna lead passes via contact aII.2 of relay K-101. This relay is controlled via de keying line of the transmitter of the same station; for the time this transmitter operates, the antenna input of the all-wave receiver is connected to chassis ground. Contact aII.2 is also opened, when the calibrating key is depressed, with simultaneous energization of the indicating lamp I-101 "Cal." by contact AI-1. The protective lamp I-102 limits the current in the antenna coils and so protects the input circuit from overload due to neighboring transmitters of higher power. The protective lamp I-501 performs in addition the same function for the bands 1 to 5.

With operation in the bands 6 and 7 two wavetraps for the first intermediate frequency (L-525 = C-530 with f_o=1150 kc/s and L-500 = C-500 with f_o=1110 kc/s) are connected across the input; in band 3 a 100-kc/s wavetrap (L-526 = C-531) and in the bands 1 and 2 a 50-kc/s wavetrap (L-551 = C-563) are effective. The preselector section 1 C-102 of the main tuning capacitor and the control grid of the preselector tube V103 (1 Rö1) are connected via the pushbutton assembly to the preselector coil used at the time. To suppress parasitic resonances, the six tuning coils not used at the time are connected to chassis ground. The anode lead of the preselector tube includes the interstage circuit corresponding to the band chosen; via the pushbutton assembly it is connected to the second control grid of the first mixer stage 3 V104 (Rö1) and the second section of the variable capacitor. All tuned circuits except the one activated at the time are connected to ground via the pushbutton assembly.

4.2 - CALIBRATING OSCILLATOR

(See Dwg. 4.9.4, stage 2)

The calibrating oscillator is energized via the contact E3 by pressing the calibrating button. Cathode, control grid and screen grid of tube V101 (2 Rö1) function as a triode section that produces a crystal-controlled fundamental of 100 kc/s. The following section screen grid - suppressor grid - anode amplifies this wave with simultaneous shaping of its waveform in a way that its anode circuit carries all harmonics required for calibration at frequencies up to 30 mc/s. Via capacitors C-106 and C-105 the calibrating wave passes to the control grid of tube V101 (1 Rö1); the output coupling is so proportioned that all harmonics appear with about the same amplitude at tube V101 (1 Rö1).

Independently of the beat-frequency oscillator V305b (11 Rö2) whose anode voltage is disconnected when the calibrating button is pressed, the audible calibrating beat note comes about by heterodyning the IF2 wave with the 100-kc/s crystal wave. Via the variable voltage divider R-106, R-107 (for adjusting the volume of the calibrating notes) it is taken from the control grid of tube V103 (2 Rö1) and applied via C-109 to the last IF stage with tube V302 (9 Rö1).

For accurate setting of the frequency to 100 kc/s or a harmonic thereof, the beat note pitch must be zeroed with the main tuning capacitor.

For offsetting crystal tolerances, the crystal frequency can be slightly pulled with the trimmer C-106.

The contact E6 is independent of the calibrating button and serves for energizing the calibrating oscillator if its

frequency is to be checked without disconnecting the antenna (see par. 4.7.2).

4.3.- FIRST MIXER STAGE AND FIRST OSCILLATOR

(See Dwg 4.9.4. stages 3 and 4)

The first mixer stage with tube V104 (3 Rö1)translates the receiving signal with the wave produced in the first oscillator tube V105a (4 Rö1). With the capacitor C-135 this oscillator is ganged-tuned together with the preselector circuit and interstage circuit. Depending on the band chosen, the frequency of the oscillator wave is above the receiving frequency by 50, 100 or 1180 kc/s (or in operation with frequency interpolator by some value between 1180 and 1080 kc/s). (Paragraph 4.3.6). The need for producing in the first stage of conversion different intermediate frequencies depending on the band used at the time is due to the wide over-all frequency range of the all-wave receiver. In the bands 1 and 2 the first mixer stage produces a difference frequency of 50 kc/s which does not coïncide with any receiving frequency. After doubling its frequency, this signal is applied directly to the IF2 section which is fixed-tuned at 100 kc/s. Since in the bands 1 and 2 only A1 reception is desired, such doubling of the sideband-to-carrier interval, i.e. of the audio signal frequency is inconsequential.

In band 3 the signal is translated to the 100 kc/s position in the first mixer stage so that no doubling is required. This band is therefore suitable for A2/A3-signals as well.

In band 4 the receiver operates with double frequency conversion. The first intermediate frequency of 1180 kc/s secures high image frequency rejection, and the second intermediate frequency of 100 kc/s provides excellent rejection of interfering signals at nearby frequencies.

In band 5 the signal is translated directly to the 100-kc/s position, for an intermediate frequency of 1180 kc/s would fall in the receiving range.

In the bands 6 to 12 the receiver operates as in band 4 with double frequency conversion, but for incremental detuning the IF1 filter and the second oscillator can be simultaneously detuned by up to 100 kc/s. Since the input circuits are sufficiently wideband, they do not participate in this incremental tuning procedure.

In all bands the first oscillator operates in a Hartley circuit with cathode feedback (anode grounded). The oscillator wave is extracted in the cathode circuit forapplication to the first control grid of the first mixer tube.

4.4 - DOUBLER

(See Dwg.4.9.4, stage 5)

The anode circuit of the first mixer tube V104 (3 Rö1) includes the contacts c^{II} and b^{I} of the relays K-201 and K-202. In the contact positions c^{II2}, b^{I1} (bands 1 and 2) the mixer tube feeds into a 50-kc/s circuit (L-201/C-204). Via a 100-kc/s wave-trap (L-203/C-205) and another 50-kc/s circuit (L-204/C-206) the signal reaches the control grid of the doubler tube V201 (5 Rö1)which is loaded by the second half of the 100-kc/s quadruple-tuned filter. This tube receives the screen grid voltage via contact T1...2b of the push-button assembly ; the tube receives its anode voltage via switch SW301a for bandwidth control.

In the bands 3 and 5 the first frequency conversion produces an IF signal of 100 kc/s which via the relay contacts c^{II2}, b^{I2} reaches the input of the quadruple-tuned filter in stage 9. In these bands no anode current flows in the second mixer tube V202 (6 Rö1), since the contact set c^{I} disconnects the screen grids from their supply voltage. Also disconnected is the doubler stage V201 (5 Rö1) by T1 ... 2b.

In the bands 4 and 6 to 12 the variable double-tuned filter of the first intermediate frequency is in the anode lead of the first mixer stage V104 (3 Rö1).

4.5 - INTERMEDIATE FREQUENCY 1, 2nd MIXER STAGE AND 2nd OSCILLATOR

(See Dwg.4.9.4., stage 6 and 7)

In the bands with single frequency conversion these stages are inactivated. In those bands with double frequency conversion the double-tuned filter of the 1st IF (1180 kc/s or 1080 to 1180 kc/s) is connected via the contact c^{II1} of relay K-201 to the anode of the first mixer tube V104 (3 Rö1). The output of this filter goes to the control grid of the second mixer tube V202 (6 Rö1). Dwg.4.9.4 shows the condition "Interpolator On". When the relays K-203, K-204 now receive a pulse of current, the associated contacts transfer and the fixed capacitors C-216 and C-219 are connected in parallel to the filter coils L-205 and L-206. The double-tuned filter is so fixed-tuned to 1180 kc/s. At the same time the contact d^{II1} connects the oscillator coil L-209 to the trimmer capacitor C-233. The second oscillator now operates permanently at 1280 kc/s; i.e. the frequency intermolator is inactivated.

The relays K-203 and K-204 are energized either via the contact E1 when the calibrating button is pressed or via the pushbutton contacts T1 ... 5 or T4b when any of the lower bands is selected. The relays receive further a pulse of current by the momen-

tary contact T1 to T12 of the pushbutton system when a band is changed, or via the control contact S11 with any minute shift of the main tuning control.

With energization of relay K-204 the contact set d^{I1} closes to act as a holding contact via the normally closed pushbutton contact S12 on the frequency interpolator knob assembly. The indicating lamp"Interpolator On" (I-101) goes out.

The second oscillator and the second mixer stage are applied via c^{I1} to the regulated operating voltage 450 v only, if the relay K-201 is energized by pushing any of the buttons 4 and 6 to 12.

4.6 - INTERMEDIATE FREQUENCY 2, DEMODULATION, GENERATION OF THE AUTOMATIC CONTROL VOLTAGE.

(See Dwg.4.9.4., stages 8, 9, 10, 11)

The anode lead of the second mixer stage V202 (6 Rö1) goes to the input circuit of the quadruple-tuned 100-kc/s filter, whose bandwith can be varied in three steps with the class-of-emission switch SW302a/b/SW301a, depending on the class-of-emission selected. At the output of this filter two amplifier stages are arranged with tubes V302 (9 Rö1) (with L-307/L-308) and V301 (8 Rö1) (with L-309/L-310) of which the latter is narrower in bandwidth. In class A1 it is used for amplifying the signal. In this setting the control grid of tube V301 (8 Rö1) is connected to the AVC voltage lead via L-305 and switch S1b; the gain of tube V302 (9 Rö1) is not controlled, however. The filter in the anode circuit of tube V302 (9 Rö1) is of greater bandwidth and followed by the diode section V303a (10 Rö1) which in class-of-emission A1 produces the AVC woltage for application to the AVC line via the switches SW304b and SW305.

In the position A2/A3 the switch SW301b disconnects the AVC line from tube V301 (8 Rö 1). The primary of the IF2 filter after tube (Rö1) is connected to the diode section V303b (10 RO2) at whose anode the AVC voltage is taken in class-of-emission A2/A3. The signal is here amplified by tube V302 (9 Rö1) whose contrd grid is connected to the AVC line via R-307, SW304a. The tubes V101 (1 Rö1), V104 (3 Rö1) and V202 (6 Rö1) are connected to the AVC line in all classes-of-emission.

In class-of-emission A1 the narrow-band branch is thus used for amplification of the signal, and the wide-band branch for deriving the AVC voltage; with the classes A2 and A3 conditions are reverse.

In class-of-emission A1 the switch SW 303a which connects the volume control R-323 to the demodulator active at the time is applied to the anode of tube V305a (11 Rö1). The control grid of this tube which operates in the lower bend of the characteristic,

receives beside the input signal a 100-kc/s wave generated by the beat-frequency oscillator (tube V305 (11 R62)). The capacitor C-342 can vary the frequency of this oscillation by ± 3kc/s. An additive mixing os this wave with the on/off keyed carrier results in an audio beat note whose pitch depends on the setting of capacitor C-342.

With the switch SW303b the BFO is disconnected from its supply potential in the classes-of-emission A2/A3; it is also disconnected with contact E4 whenever the calibrating button is pressed.

The RF and IF gain of the receiver can also be controlled by hand. For this purpose the switch SW305 disconnects the AVC line from the regulating diode and applies it to the wiper of the potentiometer R-320 which is connected to a negative potential. A depression of the calibrating button connects with contact E2 the AVC line always to the regulating diode, irrespective of the position of SW305.

4.7 - AUDIO STAGE, NOISE LIMITER

(See Dwg.4.9.4, stages 10 and 12).

After amplification in tube V304a (10 R63) the audio signal is applied in stage 12 to a double diode whose cathodes are interconnected and applied to a variable negative bias. The diode section V307a (12 R61) becomes conducting only at voltages exceeding a minimum depending on the cathode bias; negative peaks beyond a certain value thus are limited. On the other hand the diode section V307b (12 R62) becomes conducting only at voltages not exceeding a certain maximum; positive peaks beyond a certain value thus are limited as well. The onset point of the limiting action can be adjusted with the aid of the potentiometer R-346 corresponding to the respective receiving conditions. With the switch SW306 the limiting action can be disabled.

4.8 - AUDIO STAGE AND FINAL STAGE

(See Dwg.4.9.4, stages 12, 13 and 14).

After the noise limiter the audio signal reaches the second amplifier stage V304b (12 R63) and ultimately the final stage V308 (13 R61). The anode circuit of the final tube includes an output transformer which besides the winding for the built-in loudspeaker has terminals for the connection of 600Ω lines as well as high-impedance outputs for a second loudspeaker and headphones. The built-in loudspeaker can be silenced with the push-pull switch SW307 combined with the volume control R-323.

4.9 - TUNING INDICATION

(See Dwg. 4.9.4, stage 11)

The control grid of the tuning indicator tube V306 (11 R63) (magic-eye tube) is connected to the AVC line. With reconnection of the receiver for manual control the indicating tube remains connected to the AVC line so that a tuning indication is possible also with manual control.

4.10 - POWER SUPPLY UNIT

(See Dwg.4.9.4., stage 15).

The power supply unit, stage 15, feeds the receiver. The power transformer can bereconnected for primary voltages of 110, 125, 220, and 250 v. Operation from DC mains or storage battery is possible via a vibrator inverter or rotary converter. Its input circuit can be looped via two switch contacts in the receiver that are ganged with the switch of the power transformer. The vibrator inverter (or rotary converter) is so also under control of the receiver on/off switch.

The power transformer has three secondary windings The heater winding is so designed that apart from the 6.3-v tap for the heater supply of the receiver tubes a voltage of about 9.5 v is available which supplies regulated 6.3 v for heating the two oscillator tubes via the Thernewid resistor (resistance with negative temperature coefficient) R-402 and ballast resistor R-401. From the 9.5-v AC the DC supply voltage for the relay circuits is also derived via a rectifier 403 and filter capacitor C-401.

A secondary winding (220 v AC) produces 230 v DC for the anode and screen grid supply via a rectifier bridge 401 and filter network C-402/C-403, L-401.

A regulated voltage of 150 V is taken at the neon stabilizer tube V401 (15 R61) for the anode supply of the oscillator tubes and the screen grid supply of the mixer tubes. Via a rectifier bridge 402 and filter chain C-404/C-405, R-404 another secondary winding (127 v AC) produces a voltage of 115 v for manual control and noise limiting which is negative with respect to chassis ground.

5.- LAYOUT

The all-wave receiver consists of five different subassemblies mounted in a common frame of strong angle iron.

1. Input section
2. Calibrating oscillator
3. Converter section
4. Amplifier section
5. Power supply unit.

The annexed Figs.1 and 2 show top and bottom views of the receiver slide-in chassis. The left of the slide-in chassis accomodates the input section which comprises the RF and oscillator circuits with pushbutton assembly and three-section variable capacitor for coarse tuning. The associated tubes V101 (1 Rö1), V104 (3 Rö1) and V105a/b (4 Rö1/2) (RF prestage, first mixer stage, and first oscillator) are arranged at the bottom of the chassis below the variable capacitor.

Behind the variable capacitor the calibrating oscillator is arranged which produces a 100-kc/s spectrum with the aid of a crystal and the oscillating and harmonic-generating stage V103 (2 Rö1).

At the right beside the variable capacitor the converter section is arranged with doubler stage V201 (5Rö1), second mixer stage V202 (6 Rö1), second oscillator with buffer stage V203a/b (7 Rö1/2) as well as a three-section variable capacitor for the frequency interpolator.

All stages of the IF2 section (filters,amplifier stages V301 (8 Rö1) and V302 (9 Rö1), demodulator and AVC voltage diodes V303a/b (10 Rö1/2) as well as the additionally shielded BFO V305a/b (11 Rö1/2) are in the amplifier section in the righthand half of the frame. This subassembly contains further the audio stages : Amplifier V304a (10 Rö3), noise limiter V307a/b (12 Rö1/2), amplifier V304b (12 Rö3) and final stage V308 (13 Rö1) with output transformer. The indicating tube V306 (11 Rö3) mounts above the amplifier section on the front panel.

The power supply unit (annexed Fig.1) is arranged at the rear of the frame. It comprises the power transformer (rear right) the filter choke (rear left) and in-between a neon stabilizer tube, ballast resistor, filter capacitors and rectifiers. The layout plan (annexed Fig. 4) shows the details of the setup.

For DC the subassemblies are interconnected via wires (cableforms) decoupled with lead-trough capacitors and for AC via shielded cables. Apart from the power supply all subassemblies have separate electrical shielding; after removal of the cableforms and shielding cables they can be taken down singly. It should be noted that the input section requires realignment after any dismounting and remounting, Sometimes need may even arise for a redrawn main scale. For this reason the input section should never be dismounted outside the factory, if possible.

The main tuning capacitor is controlled with the tuning knob via bronze strip and gearing on the bay frame. With knob pulled outward the coarse drive is activated for sweeping the scale range in $3\frac{3}{4}$ revolutions. With the knob pushed (fine drive) such coverage takes $15 \times 3\frac{3}{4}$ = about 56 revolutions.

With the front panel all subassemblies in the frame integrate to a slide-in chassis accomodated in a rugged dripwaterproof metal cabinet and attached to the latter by four screws at the corners of the front panel. When the receiver is fitted as independent unit, shock mounts are provided.

The receiver slide-in chassis can also be inserted into a bay.

6.- OPERATION

6.1 - PROCEDURES PRIOR TO PLACING INTO OPERATION

a) Equipping the slide-in chassis

The receiver is mostly supplied with tubes inserted. Insert into the correspondingly lettered holders electron tubes, stabilizer tubes, and the control crystal supplied as separate items. For this purpose loosen the four red-ringed screws at the corners of the front panel and withdraw the slide-in chassis in a forward direction from the casing by the two handles.

b) Setting the operating voltage

The receiver leaves the factory adjusted for 220-v AC mains. For operation from 110, 125 or 250 v AC supplies the mains voltage adjuster should be shifted accordingly. It is accessible at the rear of the slide-in chassis after withdrawing the latter from the casing. The mains voltage value, for which the unit is set, appears in a window at the rear of the cabinet.

If only DC mains are available in case of an independent fitting, a corresponding vibrator inverter or rotary converter should be connected in tandem with the power lead of the receiver. The mains and the vibrator inverter should be connected to the three-terminal safety sockets at the rear of the receiver. In this way the vibrator inverter input is also brought under control of the on/off switch of the receiver.

For operation on DC mains the receiver incorporated in SAIT Console is powered by the Console's main converter.

c) Antenna and ground

Connect a reliable ground lead to the grounding terminal at the rear of the device. Connect the antenna via the coaxial antenna jack to the device.

d) Headphone, loudspeaker, audio line.

A geadphone ($\leq$ 2 kΩ) can be connected to the jack pair on the front panel.

Two additional jack pairs at the rear of the device serve for the optional connection of an external loudspeaker ($\leq$ 5 kΩ)

and a 600-Ωline (audio power 1 mw.)

With simultaneous operation of the internal and external loudspeakers each receives 0.6 watts at most.

e) Keying line

If a transmitter is operated together with the receiver, it may happen that it feeds considerable power into the receiving antenna. In such case connect the jack pair "Keying Line" at the rear of the receiver via a two-wire line to the corresponding jacks of the transmitter. When its carrier appears, a relay closes the keying line circuit and so energizes relay 1 Rel A in the receiver to disconnect the antenna from the receiver input.

6.2 - PLACING THE RECEIVER INTO OPERATION

(See Dwg.4.9.5)

a) Energization

Operate the power switch to "On". Illumination of the scale indicates the energized condition of the receiver; within about one minute it is ready for operation. Its full frequency stability is attained after about two hours of warmup.

b) Preparatory settings

With one of the twelve pushbuttons select the desired band as a first step. Before tuning-in on the desired station, operate the other controls as follows :

Operate the class-of-emission and bandwidth switch to "A1", "A2/A3" "Narrow"or "A2/A3 Wide" corresponding to the desired class-of-emission. Bring the control "RF Gain" to its zero position; this simultaneously activates the automatic volume control (AVC). Operate the control for the noise limiter to "Off". Turn on the loudspeaker by pushing the audio control and set the latter for a medium volume.

c) Tuning in the bands 1 to 5

In these bands the frequency interpolator is inactive. Tune the receiver with the control knob; in so doing set the scale index directly to the desired frequency (control knob pulled : coarse tuning; control knob pushed : fine tuning). Checking of the 100-kc/s points against the built-in crystal spectrum is possible by pressing the calibrating button; the red display "Calibration" becomes lighted in such case. Set the main tuning control for zero beat. The deviation between index and scale mark can so be determined and taken into account in setting the desired frequency.

Check the tuning conditions against the "Magic-Eye-Tube" In class-of-emission A1 set the control "A1 Pitch" for the desired pitch. To eliminate interfering noise the noise limiter can be activated and set correspondingly.

d) Tuning in the bands 6 to 12

In all these bands the incremental fine scale with its high reading accuracy can be used beside the main scale. This "heterodyning frequency interpolator" is established by the tunable second oscillator.

By reference to an example let us explain the setting to a given frequency. A frequency 13,678 kc/s is assumed as desired. Such setting requires only the following few operations :

- Press pushbutton 9 for the range 9700 to 15,300 kc/s.
- Set the control "Tuning" in the coarse drive (knob pulled) to the 100-kc/s value of the desired frequency, i.e. 13,600 kc/s.
- By pressing the pushbutton "Calibration" (red display "Calibration" becomes lighted) and slow rotation of the knob "Tuning" in the fine drive (knob pushed) make the beat note zero by reference to the crystal spectrum. The index of the incremental tuning scale may be in any position; it is of no influence onto the calibrating procedure.

Important : After releasing the pushbutton "Calibration" the index of the main scale must no longer be shifted.

- By temporary pushing of the knob "Frequency Interpolator" (White display "Frequency Interpolator" becomes lighted) activate the incremental tuning action and set its control now for the tens and units. (i.e. the figure "78" in this case).

This leaves the receiver accurately tuned to the desired frequency 13,678 kc/s. The index of the interpolator scale need not be set to "0" beforehand. The white display "Frequency Interpolator" indicates that any kilocycle value set on the fine scale has to be added to the setting of the main scale in the bands 6 to 12.

Whenever a new frequency is being set, i.e. the knob "Tuning" is rotated or some other band selector button is pushed, the "Frequency Interpolator" is automatically disconnected and the display "Frequency Interpolator" becomes dark. The value just set on the incremental scale is new inconsequential.

e) Setting for the classes-of-emission
(See Dwg.4.9.5)

The position without AVC, i.e. with activated control "RF Gain" will be used, for instance, only if the received radio signals show slow lading or noneat all. Stations whose signals hardly are above the interfering noise can be better received with manual control, for in case of automatic control large noise peaks are liable to shut down the receiver gain.

By activating the control "Noise Limiting" such noise peaks can be widely suppressed. This control must be so set that the

useful signal is passed without distortion.

- Class-of-emission A1

Before tuning in on an A1-station, bring the index of the control "A1 Pitch" to a vertical upward position, hence between the two tapering arrow ends. With the main scale, and, if applicable, the incremental scale, tune the receiver to the station in a way that the frequency of the beat note becomes virtually zero (dead interval between audible beats). Subsequently adjust the control "A1 Pitch" for the desired pitch.

- Class-of-emission F1-Manual Morse

Operate the class-of-emission switch to "A1".

Before the tuning procedure itself the index of the control "A1 Pitch" must point upward. Adjust the RF gain with the control "Gain RF".

With the aid of the main scale and, if need arises, incremental scale tune the receiver to the transmitting station in a way that the lower of the two shifted carrier positions is associated with zero beat.

During reception adjust the pitch control or the incremental scale in a way that, if possible, only the mark elements are audible and the space elements are silent due to the zero beat method.

- Classes-of-emission A2 and A3

Corresponding to the demanded bandwith operate the class-of-emission switch to "A2/A3 Narrow" or "A2/A3 Wide".

In these classes-of-emission the control "A1 Pitch" is ineffective.

7.- MAINTENANCE

7.1 - CLEANING, SERVICING, SUPERVISING

Since the all-wave receiver is built for rough conditions of use, it needs servicing only at intervals of about 2 to 3 months under normal climatic environment and in dry operating rooms. Equipment permanently used in vehicles or under adverse climatic conditions should be serviced about every four weeks. The intervals stated do not for the indicating lamp "Frequency Interpolator" and the crystal oscillator (see paragraphs 4.7.1.e and 4.7.2)

Generally the following is required :

a) Cleaning the receiver inside and outside including servicing of the surfaces.

b) Servicing the bearing points onrotating parts.

c) Cleaning and servicing of exposed contacts (power switch and class-of emission switch)

d) Supervision of the operating voltage and tubes
(See table, Dwg.4.9.)

e) Supervision of the indicating, scale, and protective lamps.

Important : Check the lamp lighting the display "Frequency Interpolator" daily, if possible. When the frequency interpolator is activited, the display indicates by lighting that in the short-wave bands 6 to 12 the numerical values of the incremental scale, in kilocycles are to be added to the frequency getting of the main scale; satisfactory performances of this indicating lamp thus is of extreme importance.

The indicating and scale lamps have screw bases and are protected by paint against coming loose. For replacing lamps the holders can be galled off the holding brackets in the direction of the lamp exis.

All work must be carried out with care by well (trained personnal, observing the demands applying for fine mechanical equipment. Permissible tools are dry washed lintfree cloths, clean brushes with positively attached bristles, grease-free compreased air at a precessure not exceeding 1 at (14 lbsi) and satisfactory screwdrivers, pliers and pincers.

Near coils including adjusting screws, variable capacitors, trimmers, ans switch springs maximum care must be exercised in order to avoid mistune of frequency-determining parts.

Only a bare minimum of grease and oil should be used; as a rule "too little" will be preferable to "too much". Use always only best grease and oil free of resin and acid.

The tables in the annexed Fig.5 and Dwg.4.9.3 include all necessary information for supervision of the tubes and the operating voltage and for the measurement of the gain per stage.

If a tube should show deviations of more than 10% from the value stated, it must be checked in a tube tester. Should it pass that test, check whether the circuitry around the respective tube has developed a fault.

7.2 - CHECKING THE CRYSTAL OSCILLATOR

At regular intervals of about four weeks the frequency of the crystal oscillator must be compared against a standard frequency. For this purpose withdraw the slide-in chassis from the casing after loosening the four screws at the corners of the front panel, and place the chassis into operation again with antenna connected. (Caution : Receiver is under operating voltage). Tune the receiver subsequently

in band 3 to the station Droitwich I at 200 kc/s. Activate the crystal spectrum generator with the pushbutton at the rear of the chassis.

The 100-kc/s wave of the crystal and the IF wave generated from the crystal harmonics heterodyne to give a beat note. As a first step set the main tuning control of the receiver approximately to zero beat. The ordinarily small difference between the second harmonic of the crystal and the standard frequency of the transmitter is evident from a beat note indicated by the magic-eye tube. Minimize the beat frequency by varying the pulling trimmer on the crystal spectrum generator (lettered "100-kc/s Cal.Freq.") (minimum pulsation period about 2 to 3 sec.)

The volume of the 100-kc/s beat notes can be varied with the control "Cal. Oscillator level" inside the set. It must be checked in particular in the shortwave bands with the highest numbers.

After checking and aligning reinsert the chassis into the casing and bolt it in position.

7.3 - REMOVING THE FRONT PANEL

To gain access with repair work to those components that are controlled from the front (e.g. potentiometers, pushbuttons, power switch), the front panel must be removed.

After loosening their tops all controls can be pulled off easily : only in the case of the knob driving the index of the main scale it is requisite to proceed according to the following instruction (Dwg.4.9.2, Fig. 1)

1- Place the receiver with front panel facing upward.

2- Turn the knob in a way that access is gained to one after the other of the two grub screws (1) in the slot (2) of the ring. Loosen the grub screws.

3- Grip and withdraw the slipped-on protective cover (3) with finger nails or pocket knife.

4- Push the knob to the rear position.

5- Screw out the tapered-head screw (4).

6- Pull off the knob slowly and gently from the driving axle. If it should refuse to come off smoothly, open the grub screws about another quarter turn.

After repair and reapplication of the front panel and the other controls reassemble the main tuning control knob in the following order :

1- Place the receiver with front panel facing upward.

2- Slip the knob onto the driving axle.

3- Turn the knob in a way that the two grub screws (1) become accessible one after the other; tighten the screws.

4- Push the knob to the rear position.

5- Screw the tapered-head screw (4) into the axle.

6- Slip the cover (3) onto the control.

7.4 - REPLACING PARTS

1. Notes on mounting work

In replacing defective parts the following should be observed :

a- To avoid connecting errors, it is advisable before taking down a defective part or larger structural unit, to draw a situation plan of the wires and components that must be unsoldered.

b- Screws loosened for repair must be tightened again firmly after repair and protected against coming loose.

c- If need arises for replacing parts, use if possible only original parts and mount and fix them in accurately the same position.

By reference to the annexed photographs in Fig.1 resistors and capacitors can be easily located, and by reference to the annexed Fig.4 coils, switches, relays and lead-trough capacitors.

2. Replacing a coil or a trimmer in the pushbutton assembly

Unsolder the connections to the respective pushbutton strip. After bending up the fastening tabs, take out the strip and replace the coil or the trimmer. Proceed with care and avoid jamming.

3. Dismounting of the pushbutton assembly with variable capacitor C-102/C-132/C-135.

a- Connect an RF generator of constant frequency to the receiver input and tune the receiver. Set the frequency in a way that the grub screws on the axle of the variable capacitor are accessible in this position of the index. Mark in a suitable manner the positions of the variable capacitor and the index, and loosen the connection between the variable capacitor and the gearing system.

In reassembling set the index, the gearing unit, and the variable capacitor to the aforementioned frequency and tighten the grub screws. Using the 100-kc/s crystal spectrum check the agreement between the positions of variable capacitor and index.

b- Unsolder and take down the bracket with the antenna jacks and the antenna relay K-101.

c- Open the connections between crystal spectrum and pushbutton assembly and taken down the box with the crystal spectrum generator.

d- Unsolder the shielded line to the converter.

e- Unsolder the cableform connections to the pushbutton assembly.

f- Unscrew the clips of the power cable from the pushbutton assembly.

g- Loosen the seven fastening screws and take down the pushbutton assembly plus variable capacitor.

h- In reassembling proceed in the reverse order.

4. Replacing the relays

If a relay should fail or give poor performance, replace it (adjustments on relay contacts are permissible only according to special instructions and with suitable tools and measuring facilities).

7.5 - ALIGNMENT

Measuring instruments required :
Frequency meter from 1 to 2 mc/s
Signal generator from 10 kc/s to 30 mc/s (Z_i= 60 Ω)
RF tube voltmeter 0.5 to 2 v
DC tube voltmeter 1 to 5 v.

1. Quadruple-tuned filter and narrow-band double-tuned filter L-309/ L-310 (IF2, 100 kc/s)

Preparation :

a- Unscrew both shielding baffles from the pushbutton assembly (T3 to T12). Unsolder the capacitor C-130 (250 µµf) from the pushbutton assembly. Connect the signal generator via the capacitor C-130 to grid 3 of V104 (3 R61). Disconnect the first oscillator by unsoldering the anode resistor R-122 from the lead-trough capacitor C-139. After the alignment restore the device to the original condition.

b- As a detector in the aligning procedure connect the RF tube voltmeter via 0.5 µµf to the soldering-lug 5 of L-310.

c- Set the receiver to band 3 or 5.

d- Open the RF gain control (R-320) all the way.

e- Set the signal generator accurately to 100 kc/s (check with frequency meter or 100-kc/s crystal) and during the aligning procedure

always readjust for a detector voltage of 0,1 v.

Alignment procedure :

In the position "A2/A3 Narrow" of the class-of-emission switch align the filters without additional damping several times in succession for maximum detector voltage (L-309, L-310, L-310, L-301, L-302, L-304, L-305).

2. Double-tuned filter 10Sp1/10Sp2 (100 kc/s).

Preparation :

a- Proceed as under 1.1; 1.3; 1.4; 1.5.

b- Connect the RF tube voltmeter via .5 µµf to soldering lug 5 of L-308 as a detector in the aligning procedure.

c- Prepare a damping network (1000 µµf with 500 Ω in parallel).

Alignment procedure :

Operate the class-of-emission switch to position "A2/A3 Narrow" ; damp down L-307 (terminals 2 and 1) and adjust L-308 for maximum detector indication (core below the chassis)

Subsequently damp down L-308 (terminals 5 and 6) and align L-307 for maximum deflection (core above the chassis).

3. Beat-frequency oscillator (BFO for class A1)

Preparation

a- Proceed as under 4.7.5 - 1a, c and d

b- Turn the control "A1 Pitch" on its axle until the index at the left stop points towards the end of the left-hand arrow; screw the knob in position and turn the pitch control subsequently to the mid-position between the arrows.

c- Set the signal generator accurately to 100 kc/s (check with frequency meter or 100-kc/s crystal).

Alignment procedure :

In position "A1" of the class-of-emission switch align the BFO with L-311 for zero beat in headphone or loudspeaker.

Check : The pitch at the counterclockwise stop shall about equal that at the clockwise stop.

4. Filter L-201/L-204 (50 kc/s); L-203 (100 kc/s)

An alignment is only possible after the alignment under 1.

Preparation

a- Proceed as under 4.7.5- 1a, b and d.

b- Operate the class-of-emission switch to position "A2/A3 Narrow".

c- Set the receiver to band 1 or 2.

d- In aligning always adjust the signal generator with an input signal of 50 kc/s (100 kc/s) for a detector voltage of 0.1 v.

Alignment procedure :

a- At 50 kc/s align L-201 and L-204 for maximum detector voltage.

b- At 100 kc/s align L-203 for minimum detector voltage.

Shuttle several times between the procedures (a) and (b), until no further aligning with L-201, L-204, L-203 is possible.

5. Second oscillator 1280 kc/s (1280 to 1180 kc/s)

Effect the alignment only after a warmup of about two hours. In aligning do not remove the shielding plate or else detuning will occur.

Preparation

a- Connect the frequency meter via about 5 µµf to anode of the tube V202 (6 R61) (soldering-lug 2 of L-301).

b- Set the receiver to band 6 (or 7 to 12).

Alignment procedure

Turn on the frequency interpolator (second oscillator tunable).

a- With the index in position 100 kc/s adjust L-209 for the oscillator frequency 1180 kc/s.

b- With the index in position 0 kc/s adjust the trimmer C-232 to the oscillator frequency 1280 kc/s.

Shuttle between the procedures (a) and (b) until no further alignment with L-209 and C-232 is possible.

c- Turn off the frequency interpolator (second oscillator is fixed). The index position is inconsequential. With the trimmer C-233 adjust to the oscillator frequency 1280 kc/s.

6. Variable intermediate frequency (1180 to 1080 kc/s) and fixed intermediate frequency (1180 kc/s)

An alignment is only possible if the IF2 filters and the second oscillator are aligned. In the aligning procedure do not remove

the shielding plate or else detuning will occur.

Preparation :

a- Proceed as under 4.7.5 - 1a, b and d.

b- Set the receiver for band 6 (or 7 to 12).

c- In the aligning procedure always adjust the 1080-kc/s or 1180-kc/s input signal for a detector voltage of 0.1 v.

Alignment procedure :

Activate the frequency interpolator (IF1 variable).

a- In the position "100 kc/s" of the index and with a signal generator frequency of 1080 kc/s adjust L-205 and L-206 for maximum detector voltage.

b- In the position "0 kc/s" of the index and for a signal generator frequency of 1180 kc/s adjust C-215 and C-218 for maximum detector voltage.

Shuttle several times between the procedures (a) and (b) above, until an alignment of L-205, L-206, C-215 and C-218 is no longer possible.

c- Turn off the frequency interpolator (IF1 fixed) index position arbitrary.

At the signal generator frequency 1180 kc/s adjust C-216 and C-219 several times in succession for maximum detector voltage.

7. First heterodying oscillator

Align only after a warmup of about two hours.

Preparation :

a- Screw the shielding plate firmly in position. Check the tube shielding cap for firm seat.

b- No backlash is permissible between the driving axle and the variable capacitor. Check the take-up of the gears and the firm seat of the fastening screws on the axle.

c- Check the adjustment of the index. When the plates of the variable capacitor are enmeshed 15°, the index must be on the second marking line from the upper right-hand scale edge. A 15-degree gauge is supplied with a replacement capacitor. At the right-hand and left-hand stops of the gearing unit the index must be equally away from the end division in each case.

Alignment procedure :

Begin with band 12, subsequently check band 11, etc.,

to 1 or align them, as the case may be. Align the oscillator at the right-hand end of the scale with the trimmer C 5..., at the left-hand end of the scale with coil L 5... in a way that the scale calibration holds accurately (check against the built-in 100-kc/s calibrating oscillator).

Caution : Beware from aligning to the image frequency in the bands 9 to 12. Check with method (a) or (b).

a- Check with a frequency meter whether the oscillator frequency is the sum of input frequency plus first intermediate frequency.

b- Set the index to the input frequency. Set the signal generator to the image frequency, i.e. the input frequency plus two times the intermediate frequency and connect it to the receiver input. Upon application of a sufficiently high input voltage it must be possible to receive the image frequency; if such is not the case, the oscillator is misaligned (input frequency less intermediate frequency). In such case turn out the trimming core and effect a realignment.

8. IF wavetraps

Preparation :

a- Set the RF gain control R-320 for -3 v at the AVC line. Measure with DC tube voltmeter, connecting "+" to chassis ground and "-" to the white wire at the lead-through capacitor C-243 (lead-in to the shielding box, variable IF).

b- Tuning indication with DC tube voltmeter; connecting "+" to chassis ground and "-" to R-331 (510 kΩ, at the right-hand rear, viewed from the front panel, below the chassis in the corner; clamp the lead to the point where brown and green wires leave).

c- In the bands 1 to 6 connect the signal generator to the input via the CCIR dummy antenna (Dwg.4.9.2, Fig. 6).

In the bands 7 to 12 connect the signal generator via 15 Ω resistor to input (Dwg.4.9.2, Fig. 7).

Alignment procedure :

In band 2 set the receiver to 90 kc/s and the signal generator to 50 kc/s. Align the coil L-551 for minimum voltage indication.

In band 3 set the receiver to 180 kc/s and the signal generator to 100 kc/s. Align the coil L-526 for minimum voltage indication. In band 6 set the receiver to 1.52 mc/s (coarse scale).

a- Activate the frequency interpolator and set it to +70 kc/s (i.e. IF1 = 1110 kc/s); set the signal generator to 1110 kc/s. Align the

coil L-500 for minimum voltage indication.

b- Activate the frequency interpolator and set it to +30 kc/s; operate the signal generator to 1150 kc/s. Align the coil L-525 for minimum detector voltage.

9. Input circuits and interstage circuits

Preparation :

a- Proceed as under 8a, 8b, 8c. The lids of the pushbutton assembly must be closed.

b- In the bands 6 to 12 activate at each aligning point the frequency intermolator and set the index to the mid-position (+50 kc/s).

7.6 - ALIGNMENT OF FREQUENCIES FOR TRACKING

Band	Inductive alignment with coarse scale setting and input frequency	Capacitive alignment with coarse scale setting and input frequency
1	14.5 kc/s	20.5 kc/s
2	90.0 kc/sd	165.0 kc/s
3	176.0 kc/s	335.0 kc/s
4	362.0 kc/s	685.0 kc/s
5	745.0 kc/s	1450.0 kc/s
6	1.58 mc/s	3.02 mc/s
7	3.25 mc/s	6.05 mc/s
8	6.2 mc/s	9.8 mc/s
9	10.0 mc/s	14.7 mc/s
10	15.0 mc/s	19.9 mc/s
11	20.0 mc/s	24.7 mc/s
12	25.0 mc/s	29.7 mc/s

Caution : In aligning the input and interstage circuits a correct core position is of primary importance. The following table gives guiding values for the core position in millimeters

above the coil body (+) or down in the coil body (–).

7.7 - GUIDING VALUES FOR THE CORE POSITIONS

Band	Input circuit		Interstage circuit		First oscillato	
1	L-502	+2	L-528	-7	L-552	-3
2	L-504	-8.5	L-530	-7.5	L-553	-3
3	L-506	-15	L-532	-6	L-554	-3
4	L-508	-16	L-534	-16	L-555	-4.5
5	L-510	-16.5	L-536	-5	L-556	-2.5
6	L-512	-5	L-538	-6	L-557	-3.5
7	L-514	+3.5	L-540	-4	L-558	-4
8	L-516	-1.5	L-542	-6	L-559	-2.5
9	L-518	+3	L-544	-1	L-560	-1.1
10	L-520	+2.5	L-546	-1.5	L-561	-3
11	L-522	+2	L-548	-2	L-562	-3
12	L-524	-1	L-550	-4	L-563	-1.5

Alignment :

With the coils and the trimmers align the input and interstage circuits for maximum voltage reading at the prescribed alignment of frequencies in the corresponding band; a capacitive adjustment should be the last in each case of alignment. The order in which the bands are aligned is inconsequential. After alignment secure the coil cores and trimmers against rotation.

Fault	Probable cause	Tracking down and detecting the fault	Fault elimination
Receiver remains dead despite application of power	Fuse blown	Check voltage adjuster and fuse	Set the correct mains voltage and insert fuses.
No reception in any band	a. Ballast resistor defective, oscillator receives no heating coltage	a. Check-ballast resistor for continuity	a. Replace the unit, if defective
	b. Relay K.101 fails to restore	b. Check K.101	b. Replace the unit, if defective; clean the contacts of the calibrating pushbutton
	c. Tube V.105a (4 RÖ1) is defective	c. Check tube V.105a (4 RO1)	c. Replace the unit, if defective
	d. Lamp I-102 is defective	d. Check I-102	d. Replace the unit, if defective
In the bands 6 to 12 rotation of the main tuning control activates and inactivates the frequency interpolator temporarily	Control contact on the axle of the frequency interpolator fails	By-pass control contact	Clean the contact and adjust it properly
Frequency interpolator fails to be automatically inactivated with turning of the main tuning control	Take-along switch on the main driving exle fails	Remove front panel and check switching contacts	Clean the switching contacts and replace the lead-in Litz wire, if need arises

Reception in the bands 6 to 12, but pressing and turning of the frequency interpolator knob fails to change the frequency incrementally. The lamp frequency interpolator "On" remains dark	The relays K.203 and K.204 fail	a.The lead-trough capacitors C.224 and C.225 must be at +10V. with respect to chassis ground. If such is not the case, one or both capacitors have a fault to chassis ground b.Check the momentary contact T6-12 in the pushbutton assembly for proper performance	a.Replace the capacitors C.224 and C.225, if defective b.Readjust the momentary contact
In all bands and classes-of-emission settings reception is weak and distorted; limiter fails to operate.	Limiter blocks because of defective electrolytic capacitor C.356	The voltage across capacitor C.356 be 40 V.	Replace the defective components C.356 and R.345
No calibrating beats are audible when the calibrating button is pressed	a.Incorrect setting of the output coupling from the crystal spectrum b.Calibrating crystal defective c.Tube V103 (2 R61)defective	a.Check whether heterodyning beats are lacking in the higher bands only b.Check whether calibrating beats are lacking in all bands c.Check tube V103(2 R61)	a.Turn the setting potentiometer at the rear of the crystal spectrum generator for maximum volume of the calibrating beat notes b.Replace the calibrating crystal c.Replace tube V103(2R61)

In class of emission A1 on/off-keyed carriers cannot be made audible with the pitch control	Stage 11, BFO fails	a.Measure the supply voltages of V.305a(11 Rö1) and V 315b (11 Rö2) b.Check K 201	a.If the anode voltage is missing repair switch SW 303b b.Replace K.201 if defective
Bands 1 and 2 show poor sensitivity	a.Relay K.202 fails b.Tube V.201 (5 Rö1) defective	a.Check the contacts b^{11} and b^{12} with actuation of the band pushbuttons b.Check tube V.201 (5 Rö1)	a. Replace relay K.202 b. Replace tube V.201(5Rö1
Bands 1 to 5 show poor sensivity	I 501 defective	Disassemble I 501 and check for DC continuity	Interrupted: Replace I 501
No reception in the bands 1 and 2; the other bands are in order	a. Relay K.202 fails to be energized b. Contact fault on relay K. 201	a.Energize relay K.202 via a test cord from C.230.If this eliminates the fault it is due to the pushbuttons 1 and 2 of the assembly b.Check the contact sets of relay K.201 for continuity	a. clean contact slide and look for proper adjustment b. Replace relay K.202 or K.201
Equipment output remains dead but magic-eye tube operates	a. In class A1:tube V.305b (11 Rö2) defective b. In class of emission A2/A3 : tube V.303b (10 Rö2) defective	a.Receiver operates in classes A2/A3 b.Receiver operates in class A1	a. Replace tube V.305b (11 Rö2) b. Replace V.303b(10 Rö2)

Class-of-emission switch at A1/A3. Equipment output remains dead, magic-eye tube does not operate, but lights.	Switch S.305 on potentiometer R.320 defective	Receiver operates only with manual control	Replace potentiometer R.320

8.- COMPONENTS LIST

8.1 - INPUT SECTION (STAGES 1 - 2 - 3 AND 4)

(1) References on diagram 4.9.4
(2) References marked on components.

References (1)	(2)	Description	Value	Remarks
STAGE 1				
C 500	C34	Plastic Foil Capacitor	170 pF	-
C 501	C 1	Air Dielectric Trimmer	25 pF	82753/25EV alvo(1)
C 502	C 2	" " "	16 pF	82753/16EV alvo(1)
C 503	C 3	" " "	16 pF	" " "
C 504	C 4	" " "	16 pF	" " "
C 505	C 5	" " "	16 pF	" " "
C 506	C 6	" " "	16 pF	" " "
C 507	C 7	" " "	25 pF	82753/25EV alvo(1)
C 508	C 8	" " "	25 pF	" " "
C 509	C 9	" " "	25 pF	" " "
C 510	C10	" " "	25 pF	" " "
C 511	C11	" " "	25 pF	" " "
C 512	C12	" " "	25 pF	" " "
C 513	C13	Plastic Foil Capacitor	70 pF ±2,5% 125V.	DN 70/2. 5/125B310
C 514	C14	Ceramic Capacitor	15 pF Sirutit 10	Sad 15/0.4/700B371
C 515	C15	" "	15 pF Rd D 50 2.5%	Stettner (2)
C 516	C16	" "	50 pF Konstit 100 2%	Rd 50/2/250-2x16 B 3714
C 517	C17	" "	50 pF Rd D 20 2%	Stettner 250V. (2)
C 518	C18	" "	50 pF Rd D 20 2%	" "
C 519	C19	" "	20 pF Rd D 20 2%	" "
C 520	C20	Plastic Foil Capacitor	1000pF ±2.5% 125V.	DN 1000/2.5/125B 3101
C 521	C21	" " "	700 pF ±2.5% 125V.	DN 700/2.5/125B 3101
C 522	C22	" " "	200 pF ±2.5% 125V.	DN 200/2.5/125B 3101
C 523	C23	" " "	140 pF ±2.5% 125V.	DN 140/2.5/125B 3101
C 524	C24	" " "	80 pF ±2.5% 125V.	DN 80/2.5/125B 3101
C 525	C25	" " "	20 pF ±1 pF 125V.	DN 20/1/125B3101
C 526	C26	" " "	" " "	" " "
C 527	C27	" " "	" " "	" " "
C 528	C28	" " "	25 pF ±2.5% "	DN 25/2.5/125B3101

C 529	C29	Plastic Foil Capacitor	25 pF ±2.5% 125V.	DN 25/2.5/125B3101
C 530	C30	" " "	160 pF ±2.5% 125V.	DN 160/2.5/125B3101
C 531	C31	" " "	90 pF ± 2.5% 125V.	DN90/2.5/125B3101
C 532	C32	Ceramic Capacitor	5 pF Sirutit 10	Sad 5/0.4/700B3777
C 533	C33	Plastic Foil Capacitor	100 pF ±2.5% 500V.	DN100/2.5/500B3101
C 101	C39	Soldering Lead-trough capacitor	2500/350V.	Duko 2500/350B 3705
C 102	C40	3 Gang Variable Capacitor	250 pF 1 Paket	C002 DC/3x250E Valvo
C 103	C41	Plastic Foil Capacitor	250 pF/2.5% 500V.	EN/250/2.5/500B 3101
C 104	C43	Metallized-Paper Capacitor	0.1 µF 200 V.	6 ko mpd 843 aaB2611
R 101	W 1	Carbon-film Resistor	560 KΩ 10% 0.5W.	SBT Vitrohm (3)
L 500	L28			
L 501	L1	Antenna Coil I	Funk by empf/115 U1	
L 502	L2	Preselector Coil I	" " " U2	
L 503	L3	Antenna Coil II	" " " U3	
L 504	L4	Preselector Coil II	" " " U4	
L 505	L5	Antenna Coil III	" " " U5	
L 506	L6	Preselector Coil III	" " " U6	
L 507	L7	Antenna Coil IV	" " " U7	
L 508	L8	Preselector Coil IV	" " " U8	
L 509	L9	Antenna Coil V	" " " U9	
L 510	L10	Preselector Coil V	" " " U10	
L 511	L11	Antenna Coil VI	" " " U11	
L 512	L12	Preselector Coil VI	" " " U12	
L 513	L13	Antenna Coil VII	" " " U13	
L 514	L14	Preselector Coil VII	" " " U40	
L 515	L15	Antenna Coil VIII	" " " U39	
L 516	L16	Preselector Coil VIII		
L 517	L17	Antenna Coil IX		
L 518	L18	Preselector Coil IX		
L 519	L19	Antenna Coil X		
L 520	L20	Preselector Coil X		
L 521	L21	Antenna Coil XI		
L 522	L22	Preselector Coil XI		
L 523	L23	Antenna Coil XII.		
L 524	L24	Preselector Coil XII		
L 525	L25	Wavetrap coil 1130 kc/s		
L 526	L26	Wavetrap coil 100 kc/s		
L 101	L27	Heater choke		
I 101	LA1	Pilot lamp	7V 0.3 A.	Osram(4)L.N.3341
I 102	LA2	Protective lamp	40V 10/Elektromobil	Osram 6340BA 20d

I 501	LA3	Protective lamp	260/220V 10/7	Osram BZM E 14
K 101	Re1A	Antenna Relay	Trls.151 y	TBV 65018/74d
V 101	T1	Input tube	EF 93/6BA6	Siemens
V 102	R2	Protective neon gap	108 C1/0B 2	"
	STAGE 2			
C 105	C 1	Ceramic Capacitor	Sad 1 pF ±0.4pF Elit	B 3711
C 106	C 2	" "	Sad 0.5 pF/20% Elit	B 3711 700 V.
C 107	C 3	" "	8000 pF ±20% 250V.	SKR 16/8000D 3000 St(2)
C 108	C 5	Plastic Foil Capacitor	80 pF/2.5% /500 V.	EN 80/2.5/500 B3101
C 109	C 6	Ceramic Capacitor.	40 pF Rd D 20 2%	Stettner 250 V (2)
C 110	C 7	Plastic Foil Capacitor	50 pF/2.5/125 V. VK 122 ME	DN 50/2.5/125VB 3101
C 111	C 8	Tubular Trimmer	C3/60 VK 64023	Valvo (1)
C 112	C 9	Soldering Lead-trough Capacitor	2500 pF 350 V.	Duko 2500/350B3705
C 113	C10	" " "	" " "	" " "
C 100	C11	" " "	" " "	" " "
R 102	R 1	Carbon Film Resistor	1.2KΩ 10% 0.5 W	SBT Vitrohm (3)
R 103	R 2	" " "	68 KΩ 10% 0.5 W	" " "
R 104	R 3	" " "	100 KΩ 10% 0.5 W	" " "
R 105	R 4	" " "	68 KΩ 10% 0.5 W	Vitrohm (3)
R 106	R 5	" " "	390 KΩ 10% 0.5 W	" "
R 107	R 6	Setting Potentiometer	10 KΩ lin 0.2 W	LN 100 Ruwido (6)
V 103	T 1	Calibrating Oscillator Tube	EF 93/6BA6	Siemens
XTAL 101	Q 1	Control Crystal	100 kc/s	Rel BV 673 R 8
	STAGE 3			
C 534	C 1	Air-dielectric Trimmer	25 pF	82753/25E Valvo (1)
C 535	C 2	" "	16 pF	82753/16E Valvo (1)
C 536	C 3	" "	16 pF	" " "
C 537	C 4	" "	16 pF	" " "
C 538	C 5	" "	16 pF	" " "
C 539	C 6	" "	16 pF	" " "
C 540	C 7	" "	25 pF	82753/25E Valvo (1)
C 541	C 8	" "	25 pF	" " "
C 542	C 9	" "	25 pF	" " "
C 543	C10	" "	25 pF	" " "
C 544	C11	" "	25 pF	" " "
C 545	C12	" "	25 pF	" " "
C 546	C13	Plastic Foil Capacitor	90 pF ±2.5% 125 V.	DN 90/2.5/125VB 3101

C 547	C14	Ceramic Capacitor	15 pF Sirutit	Sad 15/0.4/700B 3717
C 548	C15	" "	20 pF ± 2.5% SKR 12	Sad 20/2.5/700 D50 Stettner (2)
C 549	C16	" "	50 pF ± 0.4pF RD Konstit	50/0.4/500 B 3714
C 550	C17	" "	50 pF ±2% D20 Rd2%	250V.Stettner (2)
C 551	C18	" "	40 pF ±2% D20 Rd2%	" "
C 552	C19	" "	20 pF ±2% D20 Rd2%	" "
C 553	C20	Plastic Foil Capacitor	1000pF ±2.5% 125 V.	DN1000/2.5/125B 3101
C 554	C21	" " "	700 pF ±2.5% 125 V.	DN700/2.5/125B301
C 555	C22	" " "	200 pF ±2.5% 125 V.	DN200/2.5/125B301
C 556	C23	" " "	140 pF ±2.5% 125 V.	DN140/2.5/125B301
C 557	C24	" " "	80 pF ±2.5% 125 V.	DN80/2.5/125B3101
C 558	C25	" " "	20 pF ± 1 pF 125V.	DN20/1/125B3101
C 559	C26	" " "	" " "	" " "
C 560	C27	" " "	" " "	" " "
C 561	C28	" " "	25 pF ±2.5% 125 V.	DN25/2.5/125B3101
C 562	C29	" " "	" " "	" " "
C 114	C30	Metallized Paper Capacitor	0.1 µF 250V.Sicatrop	0.1/250V.B2530
C 115	C31	Ceramic Capacitor	Sad 160 pF 500 V. Sibatit	Sad 160/500B3721
C 116	C32	Matellized Paper Capacitor	0.1 µF250V.Sicatrop	0.1/250V.B2530
C 117	C33	Ceramic Capacitor	8000 pF ±20% 250 V.	SKR 16/8000pF/D3000
C 118	C34	Ceramic Soldering lead-trough Capacitor	2500 pF 350 V.	B 3705
C 119	C35	" " "	" "	"
C 120	C36	" " "	" "	"
C 121	C37	" " "	" "	"
C 122	C38	" " "	" "	"
C 123	C39	" " "	" "	"
C 124	C40	" " "	" "	"
C 125	C41	" " "	" "	"
C 126	C42	" " "	" "	"
C 127	C43	Ceramic Capacitor	3000 pF 20% 250 V.	SKR 16/8000 D3000 (2)
C 128	C44	Metallized Paper Capacitor	0.1 µF 200V.6 kompd	843 aa B 2611
C 129	C45	" " "	" " "	" " "
C 130	C46	Platic Foil Capacitor	250 pF 2.5% 125 V.	DN 250/2.5/125B 3101
C 131	C47	" " "	40 pF 2.5% 125 V.	DN40/2.5/125B3101
C 132	C48	3 gang variable Capacitor	(2nd.Capsection (contained in C102	Valvo (1)

C 563	C49	Plastic Foil Capacitor	140 pF ±2.5% 500 V.	DN 140/2.5/500B 3101
C 133	C50	Soldering lead-trough Capacitor	2500 pF 350 V.	B 3705
C 138	C62	" " "	" "	"
C 140	C64	" " "	" "	"
C 141	C65	" " "	" "	"
C 564	C51	Ceramic Capacitor	5 pF Sirutit 10	Sad 5/0.4/700B3717
C 134	C52	Metallized Paper Capacitor	0.1 µF 200 V ±5 Kompd	843 aa B 2611
R 503	R 1	Carbon Film Resistor	2.2 KΩ 10% 0.5 W	SBT Vitrohm (3)
R 108	R 2	" " "	150 KΩ 10% 0.5 W	" "
R 109	R 3	" " "	12 KΩ 10% 1 W	ABT "
R 110	R 4	" " "	1 KΩ 10% 0.5 W	SBT "
R 111	R 5	" " "	560 KΩ 10% 0.5 W	" "
R 112	R 6	" " "	220 KΩ 10% 0.5 W	" "
R 113	R 7	" " "	12 KΩ 10% 1 W	ABT "
R 114	R 8	" " "	560 KΩ 20% 0.5 W	SBT "
R 115	R 9	" " "	100 KΩ 10% 0.5 W	" "
R 116	R10	" " "	100 KΩ 10% 0.5 W	" "
R 117	R12	" " "	22 KΩ 10% 0.5 W	" "
R 118	R13	" " "	12 KΩ 10% 0.5 W	" "
R 119	R16	" " "	12 KΩ 10% 0.5 W	" "
R 120	R17	" " "	1 KΩ 10% 0.5 W	" "
R 121	R18	" " "	100 KΩ 10% 0.5 W	" "
R 124	R 4	" " "	100 KΩ 10% 0.5 W	" "
R 126	R14	" " "	24 KΩ 10% 1.0 W	" "
R 127	R15	" " "	24 KΩ 10% 1.0 W	" "
L 527	L 1	Anode Coil) Interm.	Funk bv emf.115U15	
L 528	L 2	Grid Coil) Circuit I		
L 529	L 3	Anode Coil) " II	" " U16	
L 530	L 4	Grid Coil)		
L 531	L 5	Anode Coil) " III	" " U17	
L 532	L 6	Grid Coil)		
L 533	L 7	Anode Coil) " IV	" " U18	
L 534	L 8	Grid Coil)		
L 535	L 9	Anode Coil) " V	" " U19	
L 536	L10	Grid Coil)		
L 537	L11	Anode Coil) " VI	" " U20	
L 538	L12	Grid Coil)		
L 539	L13	Anode Coil) " VII	" " U21	
L 540	L14	Grid Coil)		
L 541	L15	Anode Coil) " VIII	" " U22	
L 542	L16	Grid Coil)		

L 543	L17	Anode Coil)Interm.	Funk bv empf.11	5U23
L 544	L18	Grid Coil)CircuitIX		
L 545	L19	Anode Coil) " X	" "	U24
L 546	L20	Grid Coil)		
L 547	L21	Anode Coil) " XI	" "	U25
L 548	L22	Grid Coil)		
L 549	L23	Anode Coil) " XII	" "	U26
L 550	L24	Grid Coil)		
L 551	L25	100 Kc/s Wave trap 50 Kc/s	" "	U14
L 102	L26	Heater choke	" "	U39
V 104	T 1	1st.Mixer Tube	EK 90/6 BE6	Siemens
		STAGE 4		
C 565	C 1	Air Dielectric Trimmer	25 pF	82753/25E Valvo(1)
C 566	C 2	" "	"	" " "
C 567	C 3	" "	"	" " "
C 568	C 4	" "	"	" " "
C 569	C 5	" "	16 pF	82753/16E "
C 570	C 6	" "	25 pF	82753/25E "
C 571	C 7	" "	"	" " "
C 572	C 8	" "	"	" " "
C 573	C 9	" "	"	" " "
C 574	C10	" "	"	" " "
C 575	C11	" "	"	" " "
C 576	C12	" "	16 pF	82753/16E Valvo(1)
C 577	C13	Plastic Foil Capacitor	440pF±2.5% 125 V.	DN440/2.5/125B3101
C 578	C14	" " "	637pF " "	DN637/ " "
C 579	C15	" " "	603pF " "	DN603/ " "
C 580	C16	" " "	171pF " "	DN171/ " "
C 581	C17	" " "	2645pF " "	DN2645/ " "
C 582	C18	" " "	490pF " "	DN490/ " "
C 583	C19	" " "	986pF " "	DN986 " "
C 584	C20	" " "	615pF " "	DN615 " "
C 585	C21	" " "	570pF " "	DN570 " "
C 586	C22	" " "	184pF " "	DN184 " "
C 587	C23	" " "	125pF " "	DN125 " "
C 588	C24	" " "	71 pF " "	DN71.2/ " "
C 589	C25	" " "	500pF " "	DN490 " "
C 590	C26	" " "	10 pF± 21pF 125 V.	DN10/1/125B 3101
C 591	C27	" " "	15 pF± 21pF 125 V.	DN15/1/125B 3101
C 592	C28	Ceramic Capacitor	25pF±0.4pF Sirutit	Sad 25/0.4/700B37
C 593	C29	" "	15pF± " "	Sad 15/ " "

C 594	C30	Ceramic Capacitor	25pF ±0.5pF Rd/D45	250V Stettner (2) Rd 65/2/250
C 595	C31	" "	65pF ±2%Konstit 100	3x20 B 3714
C 596	C32	" "	50pF ±2% Rd/D20	250V Stettner (2)
C 597	C33	" "	60pF ±2% Rd/D20	" "
C 598	C34	" "	20pF ±2% Rd/D20	" "
C 599	C35	Plastic Foil Capacitor	1000pF±2.5% 125 V.	DN1000/2.5/125B 3101
C 600	C36	" " "	500 pF " "	DN 500/ " " "
C 601	C37	" " "	360 pF " "	DN 360/ " " "
C 602	C38	" " "	140 pF " "	DN 140/ " " "
C 603	C39	" " "	120 pF " "	DN 120/ " " "
C 604	C40	" " "	100 pF " "	DN 100/ " " "
C 605	C41	" " "	80 pF " "	DN 80/ " " "
C 606	C42	" " "	50 pF " "	DN 50/ " " "
C 607	C43	" " "	40 pF " "	DN 40/ " " "
C 608	C44	" " "	30 pF " "	DN 30/ " " "
C 609	C45	" " "	25 pF " "	DN 25/ " " "
C 610	C46	" " "	20 pF ± 1 pF 125V	DN 20/1/125 B3101
C 611	C47	" " "	16 pF ± 1 pF 125V	DN 16/1/125 "
C 612	C48	" " "	10 pF ± 1 pF 125V	DN 10/1/125 "
C 613	C49	" " "	25 pF ±2.5pF 125V	DN 25/2.5/" "
C 614	C50	" " "	" " "	" " "
C 615	C51	" " "	" " "	" " "
C 616	C52	" " "	" " "	" " "
C 617	C53	" " "	" " "	" " "
C 618	C54	Ceramic Capacitor	15 pF ±0.4 Sirutit	15/0.4/700 10 Sad B3717
C 619	C55			
C 620	C56	Plastic Foil Capacit.	12 pF ±1 pF 125 V.	DN 12/1/125 B3101
C 621	C57	" " "	10 pF ±1 pF 125 V.	DN 10/1/125 B3101
C 622	C58	Ceramic Capacitor	15 pF ±0.4pF Sirutit Sad	15/0.4/700 B 3717
C 135	C59	3 Gang Variable Capacitor	3rd Cap section contained in C102	
C 136	C60	Soldering Lead-trough Capacitor	2500 pF 350 V.	B 3705
C 137	C61	" " "	" "	"
C 139	C63	" " "	" "	"
C 142	C66	Metallized Paper Capacitor	0.01 µF 200 V.	6 kompd843 aaB2611
C 143	C67	" " "	" "	" "
R 121	R 1	Carbon film resistor	22 KΩ 10% 0.5 W.	SBT Vitrohm (3)
R 122	R 2	" " "	470 Ω " "	" "
R 123	R 3	" " "	20 KΩ " "	" "
R 506	R 5	" " "	220 Ω " "	" "
R 507	R 6	" " "	2.2KΩ " "	" "

R 125	R 7	Carbon film resistor	20 KΩ 10% 0.5W.	SBT Vitrohm (3)
L 552	L 1	Osc. Coil I	Funk bv.empf.115U27	
L 553	L 2	" " II	" " " U28	
L 554	L 3	" " III	" " " U29	
L 555	L 4	" " IV	" " " U30	
L 556	L 5	" " V	" " " U31	
L 557	L 6	" " VI	" " " U32	
L 558	L 7	" " VII	" " " U33	
L 559	L 8	" " VIII	" " " U34	
L 560	L 9	" " IX	" " " U35	
L 561	L10	" " X	" " " U36	
L 562	L11	" " XI	" " " U37	
L 563	L12	" " XII	" " " U38	
L 103	L13	Heater choke	" " " U39	
V105a V105b	T1) T2)	1st.Osc.Tube	ECC82/12 AU7	Siemens

8.2 - FREQUENCY CONVERTER SECTION (STAGES 5 - 6 AND 7)

(1) References on diagram 4.9.4
(2) References marked on components.

References (1)	(2)	Description	Value	Remarks
STAGE 5				
C 201	C 1	Ceramic Soldering lead-trough capacitor	2500 pF 350 V.	Duko2500/350B3705
C 202	C 2	" " " "	" "	" " "
C 203	C 3	Paper Capacitor	0.01 µF 250 V.	Kf 310/2 Roederstein (5)
C 204	C 4	Plastic Foil Capacitor	1000pF±2.5% 125 V.	DN1000/2.5/125B 3101
C 205	C 5	" " "	10000pF±2.5%125 V.	DN10000/ " " "
C 206	C66 7 8	" " "	1000pF±2.5% 125 V.	DN1000/ " " "
C 207	C 9	Paper Capacitor	0.1 µF 250 V.	KF 410/2 Roederstein (5)
C 208	C10	Ceramic Soldering Lead-trough capacitor	2500 pF 350 V.	Duko2500/350B3705
C 209	C11	id.	2500 pF 350 V.	" " " "
C 210	C12	id.	" "	" " " "
C 211	C13	id.	" "	" " " "

R 201	R 1	Carbon Film Resistor	1 KΩ 10% 0.5 W.	SBT Vitrohm (3)
R 202	R 2	" " "	" " "	" "
R 203	R 3	" " "	820Ω " "	" "
R 204	R 4	" " "	68 KΩ " "	" "
L 201	L 1	1st.Circuit)50Kc/s	Funk by empf 115M1	
L 202	L 2	Coupling Coil)filter	" " " 115M2	
L 203	L 3	100 Kc/s Wavetrap	" " " 115M3	
L 204	L 4	2nd.Circuit 50 Kc/s filter		
K 201	Re1C	IF - Relay	Trls 151y	TBv 65018/74d
K 202	Re1B	" "	" "	" "
V 201	T 1	50 Kc/s IF-tube ,	EK 90/6BE6	Siemens
		STAGE 6		
C 212	C 1	Plastic Foil Capacitor	20 pF ± 1 pF 125V.	DN 20/1/125B3101
C 213	C 2	Paper Capacitor	0.01 µF 250 V.	Kf 310/2 Roederstein (5)
C 214	C 3	Gang variable Capacitor	1st.Cap section 0001AA/3 x 16E	Valvo (1)
C 215	C 4	Air Dielectr.Trimmer	25 pF	82753/25E Valvo(1)
C 216	C 5	" " "	"	" " "
C 217	C 6	3 Gang Variable Capacitor	2nd Cap.section contained in C 214	
C 218	C 7	Air Dielectr.Trimmer	25 pF	" " "
C 219	C 8	" " "	"	" " "
C 220	C 9	Plastic Foil Capacitor	20 pF ±1pF 125 V.	DN 20/1/125 B 3101
C 221	C10	Paper Capacitor	0.01 µF 250 V.	Kf 310/2 Roederstein (5)
C 222	C11	Plastic Foil Capacitor	50 pF ±1 pF 125 V.	DN 50/1/125 B 3101
C 223	C12	Paper Capacitor	0.01 µF 250 V.	Kf 310/2 Roederstein (5)
C 224	C 13	Ceramic Soldering Lead-trough Capacitor	2500 pF 350 V.	Duko2500/350B3705
C 225	C14	" " " "	" "	" " "
C 226	C15	" " " "	" "	" " "
C 227	C16	Plastic Foil Capacitor	50 pF 2.5% 125 V.	DN 50/2.5/125B3101
C 228	C17	Ceramic Soldering Lead-trough Capacitor	2500 pF 350 V.	Duko2500/350B3705
C 229	C18	" " " "	" "	" " "
C 230	C19	" " " "	" "	" " "

R 205	R 1	Carbon Film Resistor (3)	1 MΩ ± 10% 0.5 W.	SBT Vitrohm (3)
R 206	R 2	" " "	150Ω " "	" "
R 207	R 3	" " "	27KΩ " "	" "
R 208	R 4	" " "	6.8KΩ " "	" "
R 209	R 5	" " "	27KΩ " "	" "
	6			
	7			
	8			
L 205	L 1	Anode Coil)variable	Funk by empf 115M4	
L 206	L 2	Grid Coil)IF-filter	" " " 115M5	
L 207	L 3	Coupling Coil	" " " 115M8	
L 208	L 4	" "	" " " "	
K 203	ReE	Relay	Trls 15ly	TBv 65018/74d
K 204	ReD	Relay	Trls 15ly	TBv 65018/74d
V 202	R61	2nd. Mixer Tube	EK 90/6 BE 6	Siemens
STAGE 7				
C 231	C 1	3 Gang Variable Capacitor 3rd.Cap.	is contained in C 214	
C 232	C 2	Air Dielectric Trimmer	25 pF	82753/25E Valvo(1)
C 233	C 3	" " "	" "	" " "
C 234	C 4	Ceramic Capacitor	50 pF 2% 250 V.	RdD20/Stettner (2)
C 235	C 5	Plastic Foil Capacitor	500 pF ±2.5% 125V.	DN 500/2.5/125 B 3101
C 236	C 6	" " "	500 pF ±2.5% 125V.	DN 500/2.5/125 B 3101
C 237	C 7	" " "	100 pF ±2.5% 125V.	DN 100/2.5/125 B 3101
C 238	C 8	Ceramic Soldering-Lead-trough Capacit.	2500 pF 350 V.	Duko 2500/350 B 3705
C 239	C 9	" " "	" "	" " "
C 240	C10	Plastic Coil Capaci	5 pF ± 1 pF 500 V.	DN 5/1/500 3101
C 241	C11	Paper Capacitor	0.1 µF 250 V.	Kf 410/2 Roederstein (5)
C 242	C14	Ceramic Soldering Lead-trough Capacit.	2500 pF 350 V.	Duko 2500/350 B 3705
C 243	C15	" " "	" "	" " "
C 244	C16	" " "	" "	" " "
C 245	C17	" " "	1600 pF 250 V.	Bypass 1600/250B 370
C 247	C19	Paper Capacitor	0.05 µF 125 V.	Kf 350/1 Roederstein (5)
C 248	C20	Ceramic Capacitor	10 pF 10% 250 V.	Rd Elit B 3712

R 210	R 1	Carbon Film Resistor (3)	100 KΩ ±10% 0.5W.	SBT Vitrohm (3)
R 211	R 2	" " "	220 KΩ ±10% 0.5W.	" "
R 212	R 3	" " "	1 KΩ ± 10% 0.5W.	" "
R 213	R 4	" " "	10 KΩ ± 10% 0.5W.	" "
L 209	L 1	Oscillator Coil II	Funk bv empf 115M6	
L 210	L 2	Anode choke	" " 115M7	
L 211	L 3	Kathode choke	" " "	
V 203a	T 1	2nd.Osc.Tube	ECC82/12AU7	Siemens
V 203b	T 2	Osc.and buffer stage		
I201	LA1	Indicating lamp for	7V/0.3A	Osram L.Nr 3341(4)
SW201	S12	frequency interpolat.		

8.3 - AMPLIFIER SECTION (STAGES 8 - 9 - 10 - 11 - 12 - 13 and 14)

(1) References on diagram 4.9.4.
(2) References marked on components.

STAGE 8				
C301	C 1	Paper Capacitor	0.025/250V.Minityp 85	Kf 325/2 Roeder-stein (5)
C 302	C 2	" "	0.005/250V. " "	Kf 250/2 "
C 303	C 3	" "	0.1/125 V. " "	Kf 410/1 "
R 301	R 1	Carbon Film Resistor	1 KΩ ± 10% 0.5 W.	SBT Vitrohm (3)
R 302	R 2	" " "	68 KΩ ± 10% 0.5W.	" "
R 303	R 3	" " "	150 KΩ ± 10% 0.5W.	" "
V 301	T 1	IF ampl.tube for A1	EF 93/6BA6	Siemens
STAGE 9				
C 305	C 2	Plastic Foil Capacit.	500 pF 2.5% 125 V	DN 500/2.5/125B 3101
C 306	C 3	" " "	500 pF 2.5% 500 V	DN 500/2.5/500B 3101
	C 4			
C 307	C 5	" " "	500 pF 2.5% 500 V.	DN 500/2.5/500B 3101
C 308	C 6	" " "	0.03 µF 2.5% 125V.	HN0.03/2.5/125B 3107
C 309	C 7	" " "	0.016 µF 2.5%125V.	HN0.016/2.5/125B 3101
C 310	C 8	" " "	500 pF ± 2.5%125V.	DN 500/2.5/125B 3101
C 311	C 9	Paper Capacitor	0.025 µF 125 V Minityp 85	Kf 325/1 Roeder-stein (5)
C 312	C10	" "	0.1 µF 125 V. id.	Kf 410/1 "

C 313	C11	Paper Capacitor	0.05 µF 250V. id.	Kf 350/2 Roederstein (5)
C 314	C12	Plastic Foil Capacitor	100 pF 2.5% 125 V.	DN 100/2.5/125 B 3101
R 304	R 1	Carbon film Resistr	22 KΩ ± 10% 0.5 W.	SBT Vitrohm (3)
R 305	R 2	" " "	150KΩ ± 10% 0.5 W.	" "
R 306	R 3	" " "	1 KΩ ± 5% 0.5 W.	" "
R 307	R 4	" " "	1 MΩ ± 5% 0.5 W.	" "
R 308	R 5	" " "	22 Ω ± 10% 0.5 W.	" "
R 309	R 6	" " "	22 Ω ± 10% 0.5 W.	" "
L 301	L 1	Anode Coil)	Funk by empf 115V.1	(
L 302	L 2	Circuit Coil II)		(
L 303	L 3	Coupling Coil I/II)		(
L 304	L 4	Circuit Coil III)		(4 Kreisfilter
L 305	L 5	Grid Coil)		(
L 306	L 6	Coupling Coil III/IV)	Funk by empf 115V.2	(
SW301a	S1a	Bandwidthswitch 1st deck	Range switch A9	Fa. Mayr. (7)
SW301b	S1b	" 1st deck	" "	" "
SW302a	S2a	" 2nd "	" "	" "
SW302b	S2b	" 2nd "	" "	" "
SW304a	S4a	" 4th "	" "	" "
V 302	T	IF ampf.tube for A2/A3	EF 93/6 BA 6	Siemens
	STAGE 10			
C 315	C 1	Paper Capacitor	5000pF 250V Minityp 85	Kf 250/2 Roederstein (5)
C 316	C 2	" "	0.025/250V " "	" " "
C 317	C 3	Plastic Foil Capacitor	600/2.5% 125 V.	DN 660/2.5/125 B 3101
C 318	C 4	Paper Capacitor	0.025 pF 125 V." "	Kf 325/1 Roeder stein (5)
C 319	C 6	Plastic Foil Capacitor	600 pF 2.5% 125 V.	DN 600/2.5/125B 3101
C 320	C 7	" " "	100 pF 2.5% 125 V.	DN 100/ " " "
C 321	C 8	" " "	300 pF " "	DN 300/ " " "
C 322	C 9	" " "	300 pF " "	DN 300/ " " "
C 323	C10	Paper Capacitor	0.01 µF 125 V.	Kf 310/1 Roederstein (5)
C 324	C11	Plastic Foil Capacitor	300 pF 2.5% 125 V.	DN 300/2.5/125 B 3101
C 325	C12	Paper Capacitor	0.05/125 V.Minityp 85	Kf 350/1 Roederstein (5)
C 326	C13	" "	0.5 /125 V. " "	Kf 450/1 "
C 327	C14	" "	0.01/125 V. " "	Kf 310/1 "

C 328	C15	Electrolytic Capacitor	25 µF 35 V	Elko 25 µF 35 V B 4177-1
C 329	C16	Paper Capacitor	0.1/125 V.Minityp85	Kf 410/1 Roederstein (5)
C 330	C17	" " "	" " " "	" "
C 331	C18	Plastic Foil Capacitor	300 pF 2.5% 125 V.	DN 300/2.5/125B 3101
R 310	R 1	Carbon Film Resistor (3)	68 KΩ ± 10% 0.5 W.	SBT Vitrohm (3)
R 311	R 2	" " "	2.2KΩ " "	" "
R 312	R 3	" " "	560KΩ " "	" "
R 313	R 4	" " "	51 KΩ " "	" "
R 314	R 5	" " "	330KΩ " "	" "
R 315	R 6	" " "	150KΩ " "	" "
R 316	R 7	" " "	39 KΩ " "	" "
R 317	R 8	" " "	820KΩ " "	" "
R 318	R 9	" " "	1 KΩ " "	" "
R 319	R10	" " "	100KΩ " "	" "
R 320	R11	Potentiometer	100KΩ neg.log.0.2W	Funk empf 115T 228
R 321	R12	Carbon Film Resistor	10KΩ ± 10% 0.5 W.	SBT Vitrohm (5)
R 322	R13	Potentiometer	100KΩ " "	" "
R 323	R14	Potentiometer	1 MΩ pos. log.	Funk empf
R 324	R15	Carbon Film Resistor	2.2KΩ ± 10% 0.5 W.	SBT Vitrohm (3)
R 325	R16	" " "	1 MΩ " "	" "
R 326	R17	" " "	100 KΩ " "	" "
R 327	R18	" " "	51 KΩ " "	" "
R 328	R19	" " "	150 KΩ " "	" "
R 329	R20	" " "	1 KΩ " "	" "
R 330	R21	" " "	220 KΩ " "	" "
R 331	R22	" " "	510 KΩ " "	" "
R 359	R23	" " "	5.6 KΩ " "	" "
L 307	L 1	Bandfilter Coil A2/3	Funk bv empf 115V	
L 308	L 2	" " "		
SW303a	S3a	Class of emission switch 3rd deck	A 9	Fa. Mayr (7)
SW304a	S4d	Class of emission switch 4th deck	A 9	Fa. Mayr (7)
SW305	S 5			
V 303a	T 1	AVC diode	EB 91/6A1 5	Siemens
V 303b	T 2	Demod. A2/A3		
V 304a	T 3	AF-stage	ECC82/12 AUT	Siemens
	STAGE 11			
C 332	C 1	Paper Capacitor	0.025 µF 250 V.	Kf 325/2 Roederstein (3)

STAGE 11

C 332	C 1	Paper Capacitor	0.025 uF 250 V.	Kf 325/2 Roeder-stein (3)
C 333	C 2	Plastic Foil Capacitor	1000 pF 2.5% 100 V.	DN1000/2.5/500B3101
C 334	C 3	" " "	500 pF 2.5% 125 V.	DN 500/2.5/125B3101
C 335	C 4	" " "	500 pF 2.5% 125 V.	DN 500/2.5/125B3101
C 336	C 5	Paper Capacitor	0.025 uF 125 V.	Kf 325/1 Roeder-stein (5)
C 337	C 6	Ceramic Soldering Lead-through Capacitor	2500 pF 250 V.	Duko 2500/350 B3705
C 338	C 7	Paper Capacitor	5000 pF 250 V.	Kf 250/2 Roeder-stein (5)
C 339	C 8	Electrolytic Capacitor	4 uF 350 V.	Elko 4/350 B4371-5 S
C 340	C 9	Plastic Foil Capacitor	100 pF 2.5% 125 V.	DN 100/2.5/125B3101
C 341	C10	" " "	150 pF 2.5% 125 V.	DN 150/2.5/125B3101
C 342	C11	Variable Capacitor	100 pF AC	L.Nr.210 Fa. Hopt (8)
C 343	C12	Paper Capacitor	0.025 uF 125 V.	Kf 325/1 Roeder-stein (5)
C 344	C13	Ceramic disc Capacitor	2.5pF 500V. ± 0.4pF	SKR 2/2.5/D20 Stettner
C 345	C14	Ceramic Soldering Lead-through Capacitor	2500 pF 350 V.	Duko 2500/350 B3705
C 346	C15	" " "	2500 pF 350 V.	Duko 2500/350 B3705
C 347	C16	Paper Capacitor	5000 pF 250 V.	Kf 250/2 Roeder-stein (5)
C 348	C17	" "	0.025 uF 125V. Minityp 85	Kf 325/1 Roeder-stein (5)
C 349	C18	Plastic Foil Capacitor	1000 pF 2.5% 500 V.	DN1000/2.5/500 B3101
C 350	C19	Paper Capacitor	0.025 uF 250 V.	Kf 325/2 Roeder-stein (5)
R 332	R 1	Carbon Film Resistor	2.2 kohm ± 10% 0.5W.	SBT Vitrohm (3)
R 333	R 2	" " "	820 ohm ± 10% 0.5 W.	" "
R 334	R 3	" " "	10 kohm ± 10% 0.5 W.	" "
R 335	R 4	" " "	2.7 kohm ± 10% 0.5 W	" "
R 336	R 5	" " "	100 kohm ± 10% 0.5 W	" "
R 337	R 6	" " "	33 kohm ± 10% 0.5 W.	" "
R 338	R 7	" " "	10 kohm ± 10% 0.5 W.	" "
R 339	R 8	" " "	22 kohm ± 10% 0.5 W.	" "
R 340	R 9	" " "	4.7 kohm ± 10% 0.5 W	" "
R 341	R10	" " "	1 Mohm ± 10% 0.5 W.	" "
R 342	R11	" " "	1 Mohm ± 10% 0.5 W.	" "
SW303b	S3b	Class of emission switch 3rd deck	A 9	Fa. Mayr (7)
L 309	L 1	Anode Coil) IF band-	Funk bv empf 115V 3	
L 310	L 2	Grid Coil) filter A1		
L 311	L 3	Grid Coil) Oso.coil	Funk bv empf 115V 4	
L 312	L 4	Anode Coil) A1		
V 305a	T 1	Mixer tube for A1)	ECC 82/12 AU7	Siemens
V 305b	T 2	Osc.tube for A1)		
V 306	T 3	Tuning indicator tube	EM 34/6 CD 7	Siemens

STAGE 12

C 351	C 1	Electrolytic Capacitor	2 uF 350V.	Elko 2/350 B4371
C 352	C 2	Paper Capacitor	0.025 uF 250V.	Kf 325/2 Roeder stein (5)
C 353	C 4	Electrolytic Capacitor	0.5 uF 350V. 385	B 4371-1
C 354	C 5	Paper Capacitor	0.025 uF 125 V.	Kf 325/1 Roeder-stein (5)
C 355	C 6	Electrolytic Capacitor	2 uF 250 V.	Elko 2/250V.B4371-5
C 356	C 7	Electrolytic Capacitor	2 uF 250 V.	Elko 2/250V.B4371-5
R 343	R 1	Carbon Film Resistor	100 kohm ± 10% 0.5W.	SBT Vitrohm (3)
R 344	R 2	" " "	100 kohm ± 10% 0.5W	" "
R 345	R 3	" " "	10 kohm ± 10% 0.5W	" "
R 346	R 4	Potentiometer	5 kohm lin 0.2 W.	Funk empf 115 T 228
R 347	R 5	Carbon Film Resistor	68 kohm ± 10% 0.5W	SBT Vitrohm (3)
R 348	R 6	" " "	330 kohm ± 10% 0.5W	" "
R 349	R 7	" " "	56 kohm ± 10% 0.5W	" "
R 350	R 8	" " "	1 Mohm ± 10% 0.5W	" "
R 351	R 9	" " "	2.2 kohm ± 10% 0.5W	" "
R 352	R10	" " "	10 kohm ± 10% 0.5W	" "
V 307a	T 1	Noise limiting diode)		
V 307b	T 2	Noise limiting diode)	EB 91/6 AL 5	Siemens
V 304b	T 3	AF-stage contained in V 304a		

STAGE 13

C 357	C 1	Electrolytic Capacitor	2 uF 350 V.	Elko 2/350 B 4371-5
C 358	C 2	Paper Capacitor	0.01 uF 250 V.	Kf 310/2 Roeder-stein (5)
R 353	R 1	Carbon Film resistor	100 kohm ± 10% 0.5W	SBT Vitrohm (3)
R 354	R 2	" " "	10 kohm ± 10% 0.5W	" "
R 355	R 3	" " "	330 kohm ± 10% 0.5W	" "
R 356	R 4	" " "	270 ohm ± 10% 1 W.	ABT "
R 357	R 5	" " "	51 kohm ± 10% 0.5W	SBT "
V 308	T 1	Final stage tube	EL 90/6 AQ 5	Siemens

STAGE 14

C 359	C 1	Paper Capacitor	5000 pF 1000 V.	Kf 250/10 Roeder-stein (5)
R 358	R 1	Carbon Film Resistor	560 ohm ± 10% 0.5W	SBT Vitrohm (3)
R 359	R 2	" " "	4.7 kohm ± 10% 2 W	BBT "
R 360	R 3	" " "	5 ohm ± 5% 2 W.	Zub wd 4c DIN 41404
TR301	Tr1	Output transformer	6 Zub Bv 714055/20 1732	
LS301	Lsp1	Loudspeaker	PM 95/19 CT Trop.	Wigo

STAGE 15

T 401	Tr1	Power transformer	6 Zub.Bv 724 102/35/2468	
L 401	L 3	Power choke	6 Zub.Bv 734 065/27/999	
Rect.401	Rect1	Flat rectifiers	B 250 C 150 Trop.	Siemens
Rect.402	" 2	Rectifier	B 250 C 85 Trop.	Siemens
Rect.403	" 3	Rectifier	E 15 C 250 Trop.	Siemens
C 401	C 1	Electrolytic Capacitor	500 uF 12/15 V.	Elko N 500/12 B 4101
C 402	C 2	" "	32 + 32 uF 350 V.	B 4373-5
C 403	C 3	" " contained in C 402		
C 404	C 4	Electrolytic Capacitor	16 + 16 uF 350 V.	B 4373-5S
C 405	C 5	" " contained in C 404		
C 406	C 6	Paper Capacitor	0.05 uF 500 V.	Kf 350/10 Roederstein (5)
I 401	LA1	Scale lamp main scale	7 V. 0.3 A.	Osram (4)L. Nr. 3341
I 402	LA2	" " " "	7 V. 0.3 A.	" "
I 403	LA3	" " " "	7 V. 0.3 A.	" "
I 404	LA4	" " " "	7 V. 0.3 A.	" "
R 401	EW1	Osram balast resistor (double-ended tubular form with blade contact).		Caps Osram (4)
R 402	Th1	Thernewid Resistor	A32 3/400 OR 1/600	Siemens
R 403	R 1	Wire wound resistor with clamp	4 kohm 4 W. ± 10%	Zub.wd.240g.
R 404	R 2	Carbon film resistor	3.3 kohm 1 W ± 10%	ABT Vitrohm (3)
F 401	Si1	Fuse for 220 V.AC	0.6 DIN 41571	Fa.Wickmann (10)
V 401	Rö1	Stabilizer tube	150 C2/0A 2	Siemens
ACCESSORIES				
F 401	Si1	Fuse for 110 V. AC	0.8 DIN 41571	Fa. Wickmann (10)

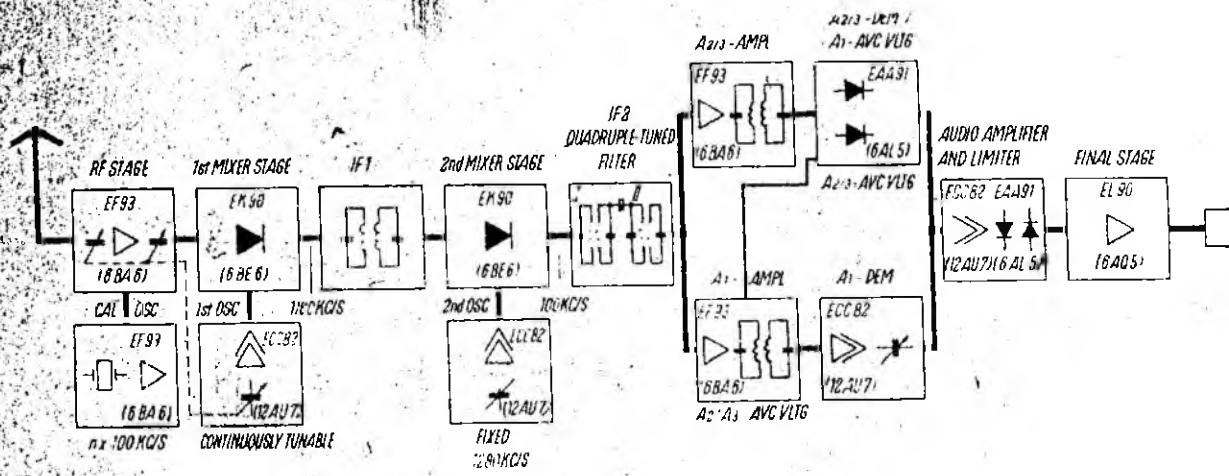


Fig. 4 Functional circuit diagram for band 4

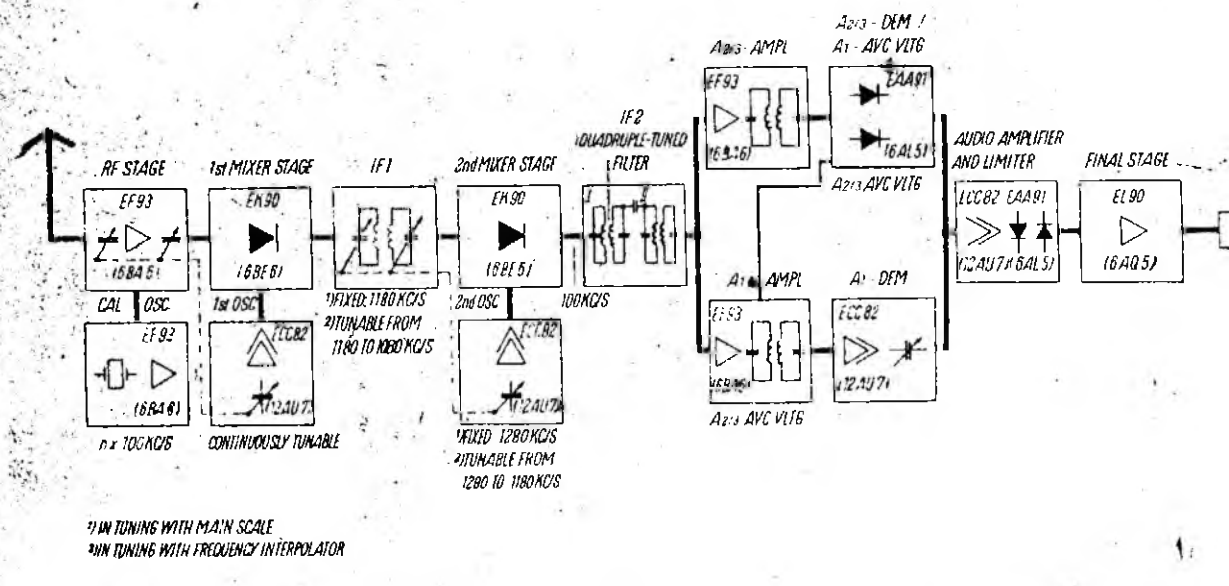


Fig. 5 Functional circuit diagram for bands 6 to 12

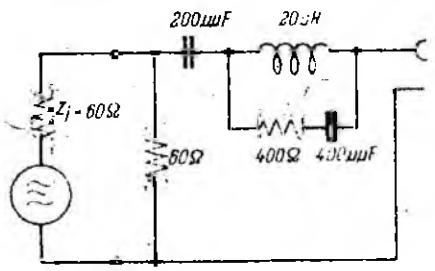


Fig. 6 CCIR dummy antenna

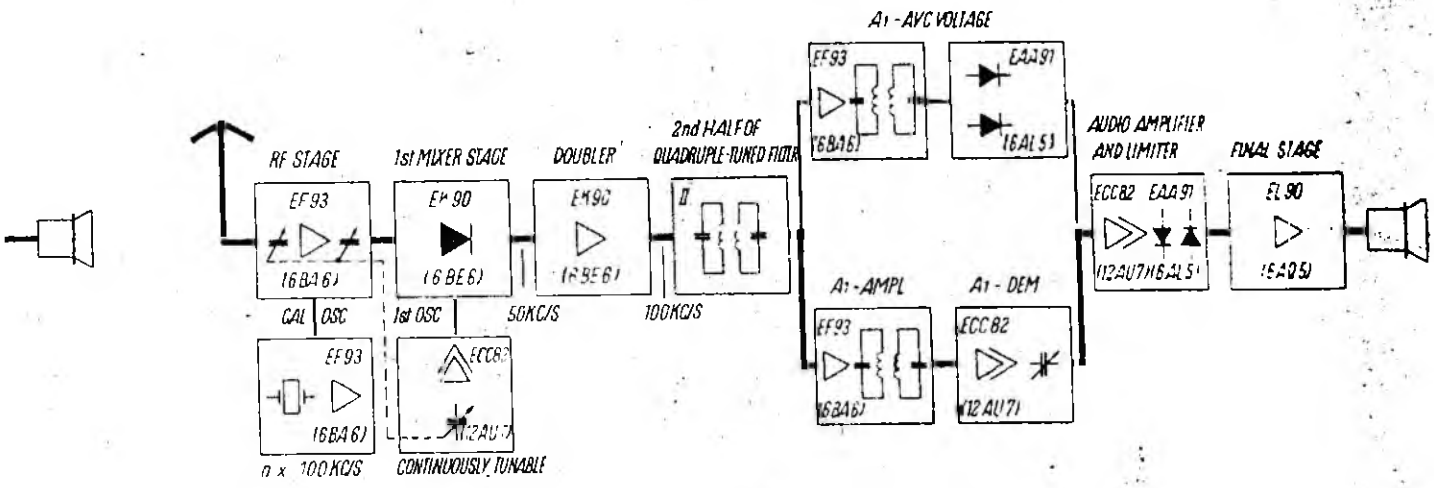


Fig. 2 Functional circuit diagram for bands 1 and 2

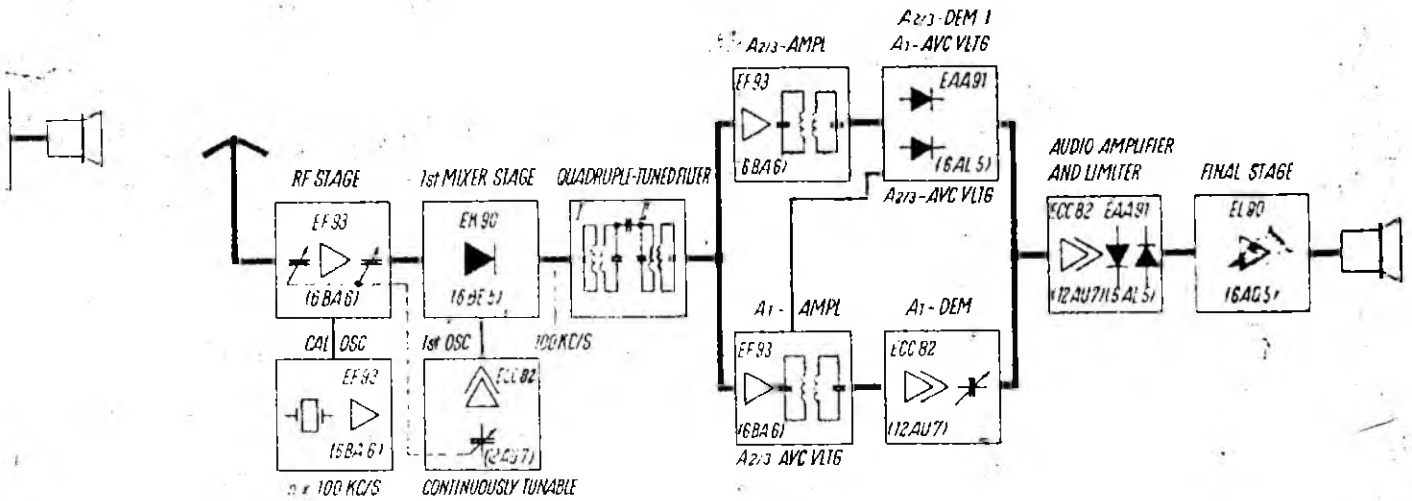


Fig. 3 Functional circuit diagram for bands 3 and 5

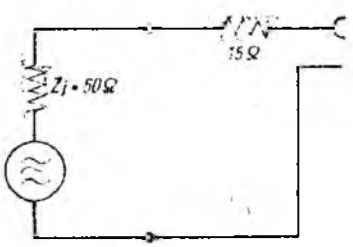


Fig. 7 Dummy antenna for the shortwave bands

Nr	M
US	
S.A.I.T. Conso	
S.A.I.T. Conso	
S.A.I.T. Conso	
S.A.I.T. Conso	
Material	
Drawn	
2. 5. 61	

Drw. 4.9.2.

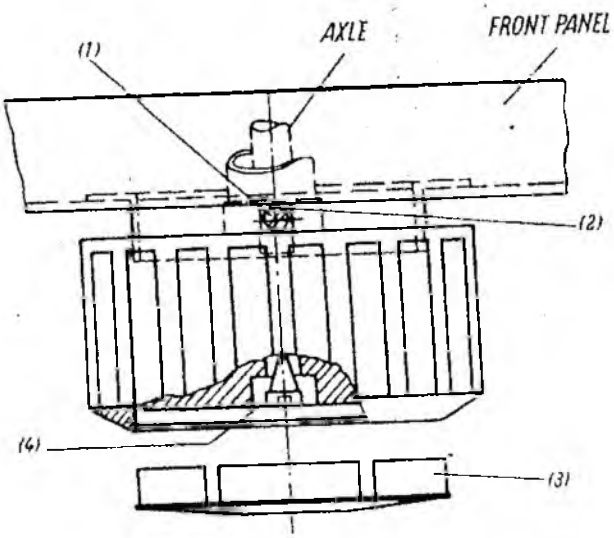


Fig. 1 Control knob for the Index of the main scale

Nr	MODIFICATIONS	Date	Nr	DESIGNATION	Stock Nr

USED FOR

S.A.I.T. Consoles Type C2 (A-530)
S.A.I.T. Consoles Type P1 (A-529)
S.A.I.T. Consoles Type P2 (A-531)
S.A.I.T. Consoles Type M2 (A-535)

Main Receiver

Control Knob and

Block Diagrams of Receiving Bands

Material	Nbr. of pieces	Replaces	Replaced by

Drawn	Checked
2.5.61	

SAIT

FILE N°: 6-304

DWG. N°: 20.921

ITEM DESIGN.	ELEC-TRODE	PIN	MEAS VALUE Ω
1 TUBE 1 EF 93	A	5	1.1k (3.2k)
	G_2	6	10k
	K	7	150
	G_1	1	1.55M
2 TUBE 1 EF 93	A	5	ET 168k (>100M)
	G_2	6	ET 168k (>100M)
	G_1	1	400k
3 TUBE 1 EK 90	A	5	1k
	$G_{2/4}$	6	9.5k
	K	2	220
	G_3	1	175M
4 TUBE 1 ECC 82	A	6	13.5k
	G_1	7	22k
5 TUBE 1 EK 90	A	5	1k
	$G_{2/4}$	6	68k (>100M)
	K	2	820
	G_1	1	12
6 TUBE 1 EK 90	A	5	1k
	$G_{2/4}$	6	>100M
	K	2	150
	G_3	1	1.9M
7 TUBE 1/2 ECC 82	A_{II}	1	>100M
	A_I	6	18
	G_{II}	2	100k
	G_I	7	220k
	K_I	8	1k
8 TUBE 1 EF 93 A1-A2/3	A	5	3k
	G_2	6	68k
	K	7	150
	G_1	1	900k-22k
9 TUBE 1 EF 93 A1-A2/3	A	5	2.2k
	G_2	6	68k
	K	7	150
	G_1	1	1M-1.9M
10 TUBE 1/2 EB 91	K_I	1	1k
	K_{II}	5	1k
11 TUBE 1/2 ECC 82 A1-A2/3	A_{II}	1	46k
	K_{II}	3	10k
	G_{II}	2	28
	A_I	6	43k-280k
	K_I	8	2.7k
	G_I	7	100k
11 TUBE 3 EM 34	A_1	3	1M
	A_2	6	1M
	G_1	4	1.4M
	L	5	0
10 TUBE 3 12 TUBE 3 ECC 82	A_{II}	1	120k
	K_{II}	3	2.2k
	G_{II}	2	1M
	A_I	6	110k
	K_I	8	2.2k
	G_I	7	1M
12 TUBE 1/2 EB 91	K_I	1+5	330k
13 TUBE 1 EL 90	A	5	385
	G_2	6	0
	K	2	270
	G_1	1+7	330k

Anode and screen grid resistors measured against + filter capacitor C402. All other resistances and voltages measured against chassis ground. Unless specified otherwise, one button (T1 to T12) pressed. Values in parantheses: No pushbutton pressed, ET: Calibrating button pressed.

ITEM DESIGN.	ELEC-TRODE	PIN	MEAS VALUE V
1 TUBE 1 EF 93	A	5	220 (200)
	G_2	6	95
	K	7	1.7
2 TUBE 1 EF 93	A	5	42
	G_2	6	56
3 TUBE 1 EK 90	A	5	225
	$G_{2/4}$	6	95
	K	2	2.2
4 TUBE 1 ECC 82	A	6	90
5 TUBE 1 EK 90	A	5	225
	$G_{2/4}$	6	65
	K	2	2.4
6 TUBE 1 EK 90	A	5	225
	$G_{2/4}$	6	85
	K	2	1.9
7 TUBE 1/2 ECC 82	A_I	1	110
	A_{II}	6	230
	K_{II}	8	7.2
8 TUBE 1 EF 93	A	5	210
	G_2	6	70
	K	7	1.1
9 TUBE 1 EF 93	A	5	215
	G_2	6	80
	K	7	1.15
10 TUBE 1/2 EB 91	K_I	1	1.1
	K_{II}	5	0.8
11 TUBE 1/2 ECC 82	A_I	1	110
	K_I	3	6.2
	A_{II}	6	85
	K_{II}	8	7.0
11 TUBE 3 EM 34	A_1	3	32
	A_2	6	25
	L	5	230
10 TUBE 3 12 TUBE 3 ECC 82	A_I	1	50
	K_I	3	1.3
	A_{II}	6	60
	K_{II}	8	1.6
12 TUBE 1/2 EB 91	K_I	1+5	-0.4
13 TUBE 1 EL 90	A	5	210
	G_2	6	230
	K	2	10.5
HEAT REG			6.3

Voltage measured with AVO-Multizet meter (1000Ω/v). Resistances measured with suitable measuring bridge. Voltages at anode and screen grid measured in the 300-v range. Unless specified otherwise, T12 pressed, without RF input signal.

Drw. 4.9.3.

Nr	MODIFICATIONS	Date	Nr	DESIGNATION	Stock Nr

USED FOR

S.A.I.T. Consoles Type C2 (A-530)
S.A.I.T. Consoles Type P1 (A-529)
S.A.I.T. Consoles Type R2 (A-531)
S.A.I.T. Consoles Type M2 (A-535)

Main Receiver

Voltage and Resistance Values in Trouble Shooting

Material	Nbr. of pieces

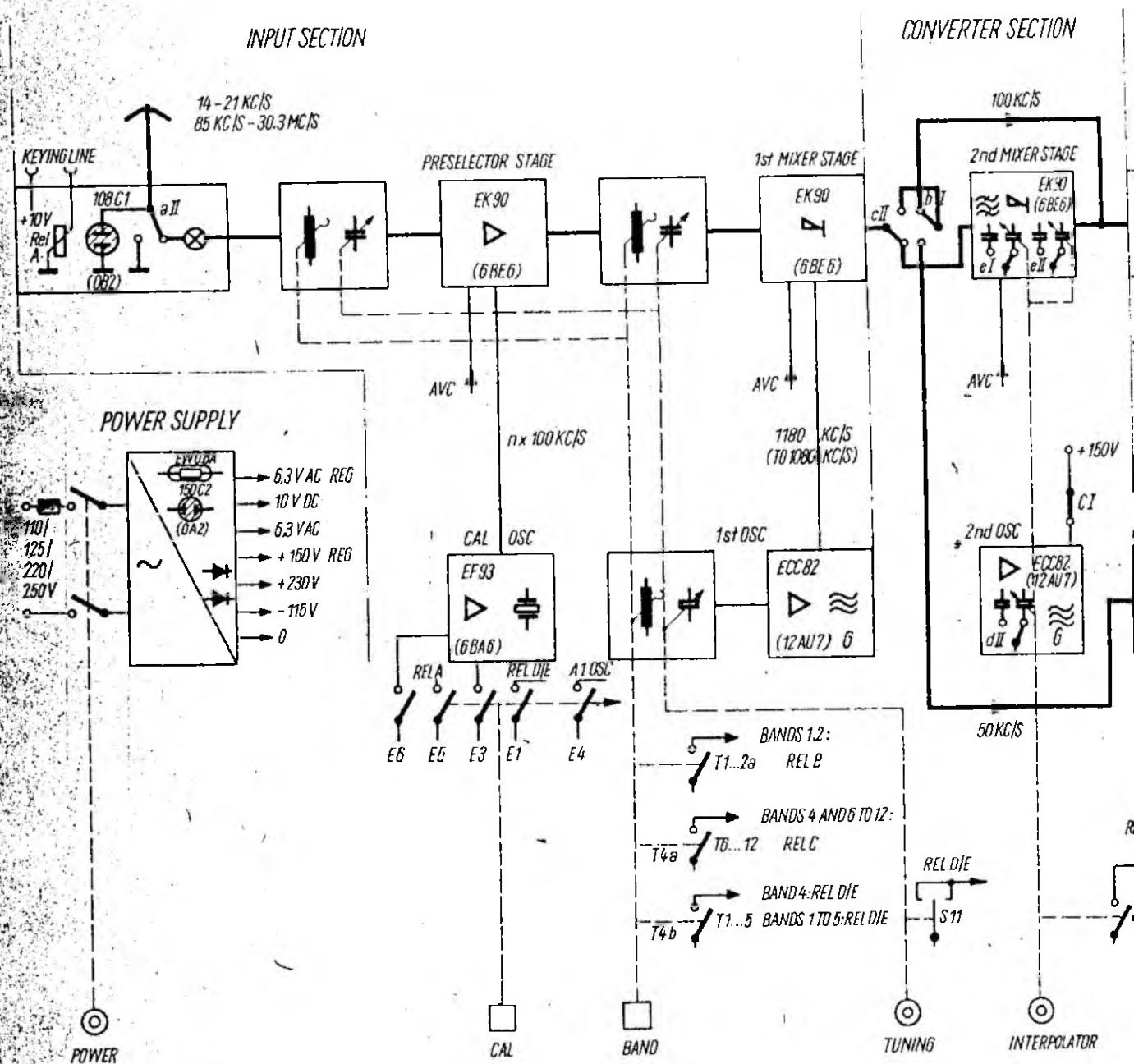
Drawn	Checked
2.5.61	

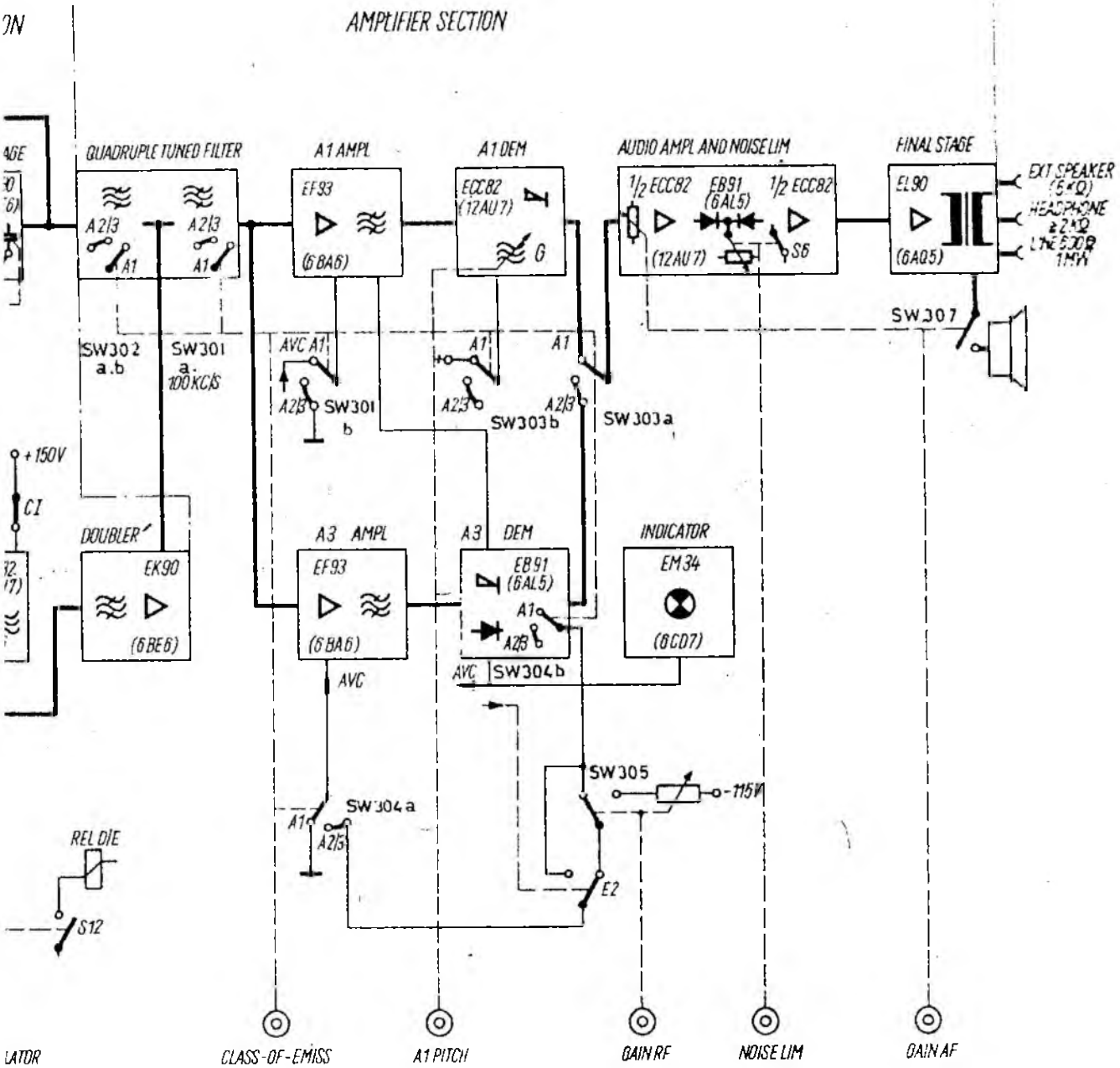
SAIT ELECTRONICS

Replaces	Replaced by

Fit. ex N°: 6-304

Drwg. N°: 20.922





Nr

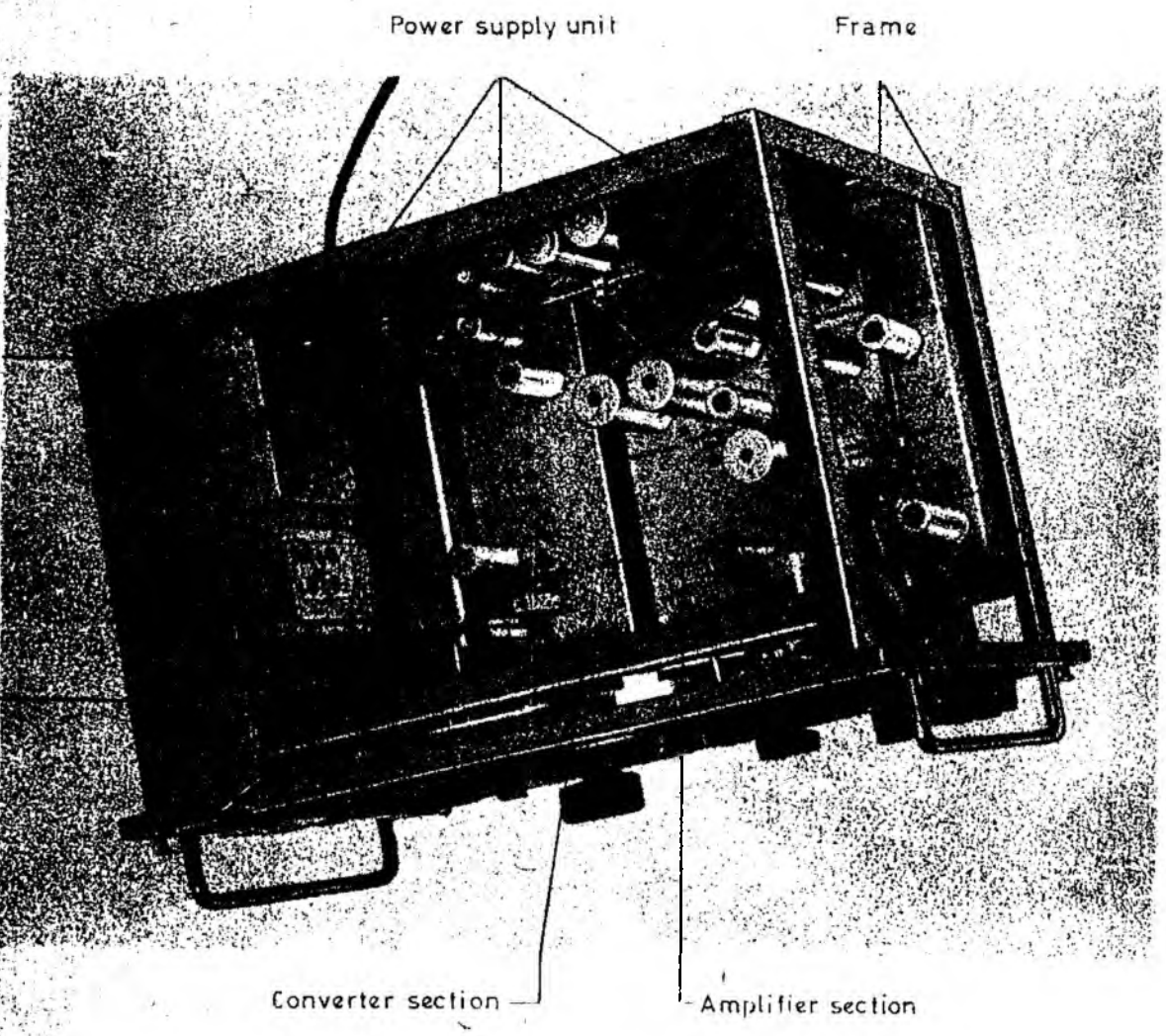
S.A.I.T. Co
S.A.I.T. Co
S.A.I.T. Co
S.A.I.T. Co

Mate

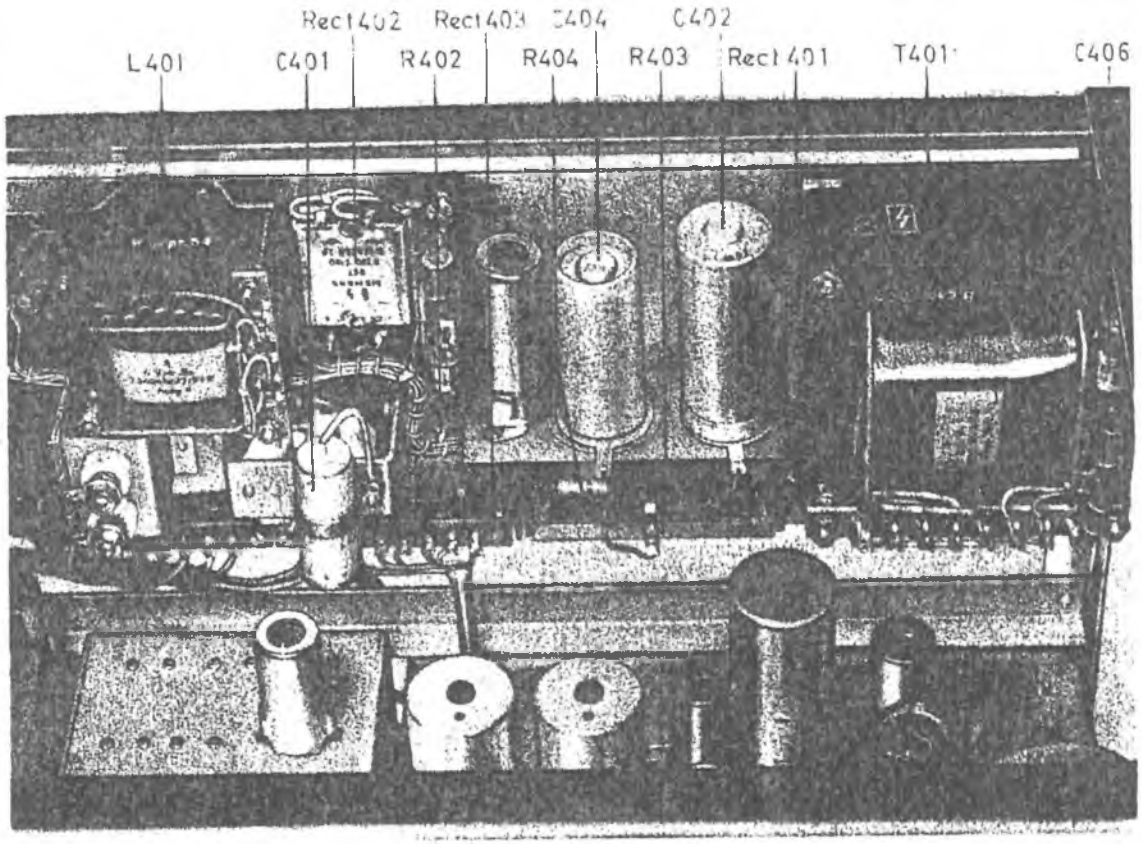
Draw

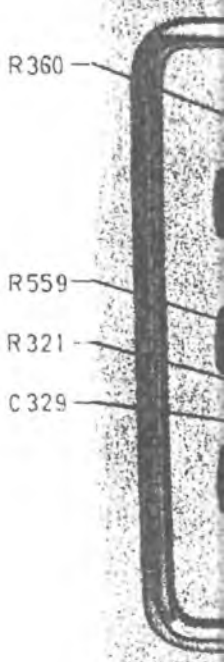
2. 5

Top view of receiver chassis.

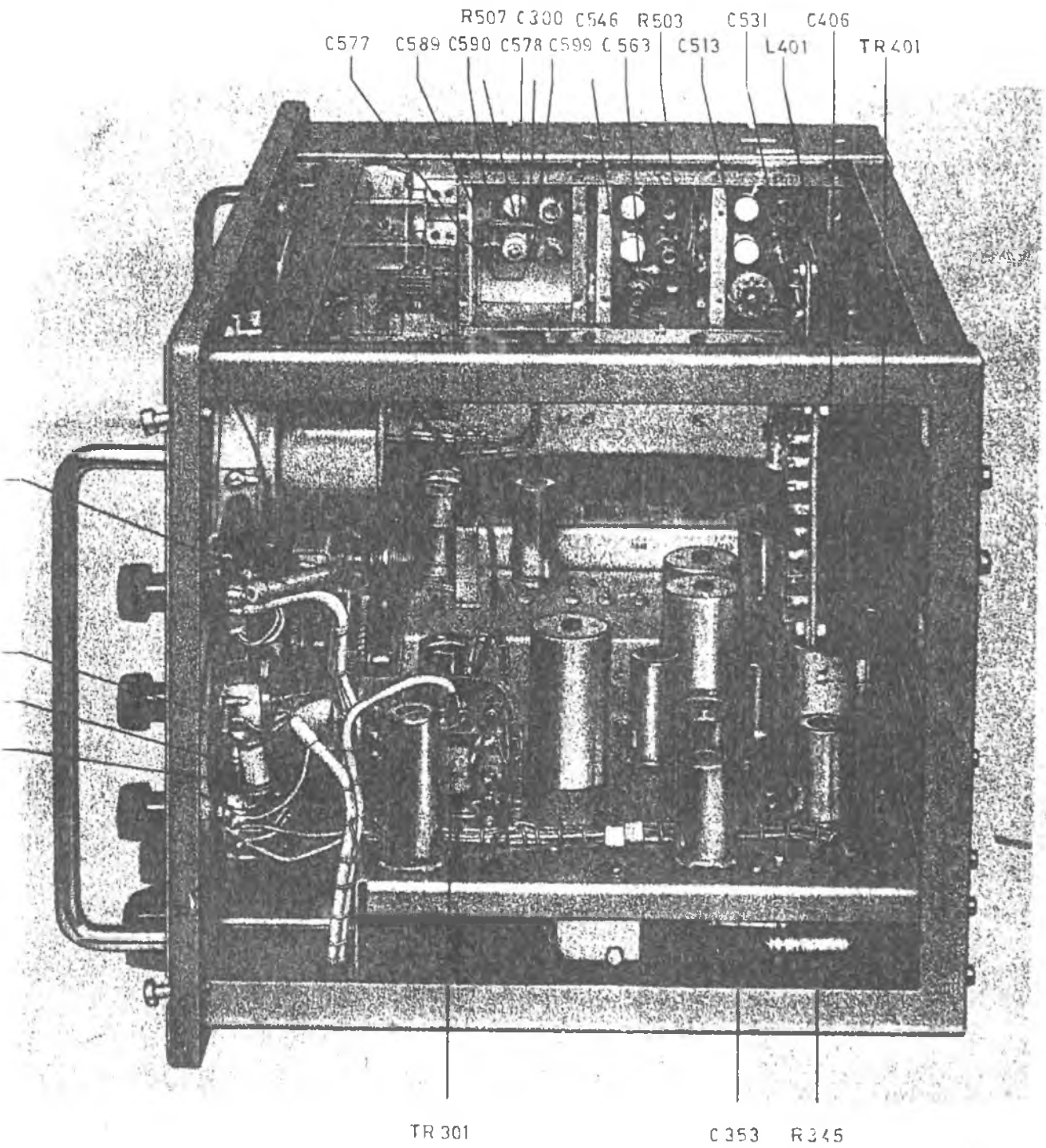


Power supply unit.

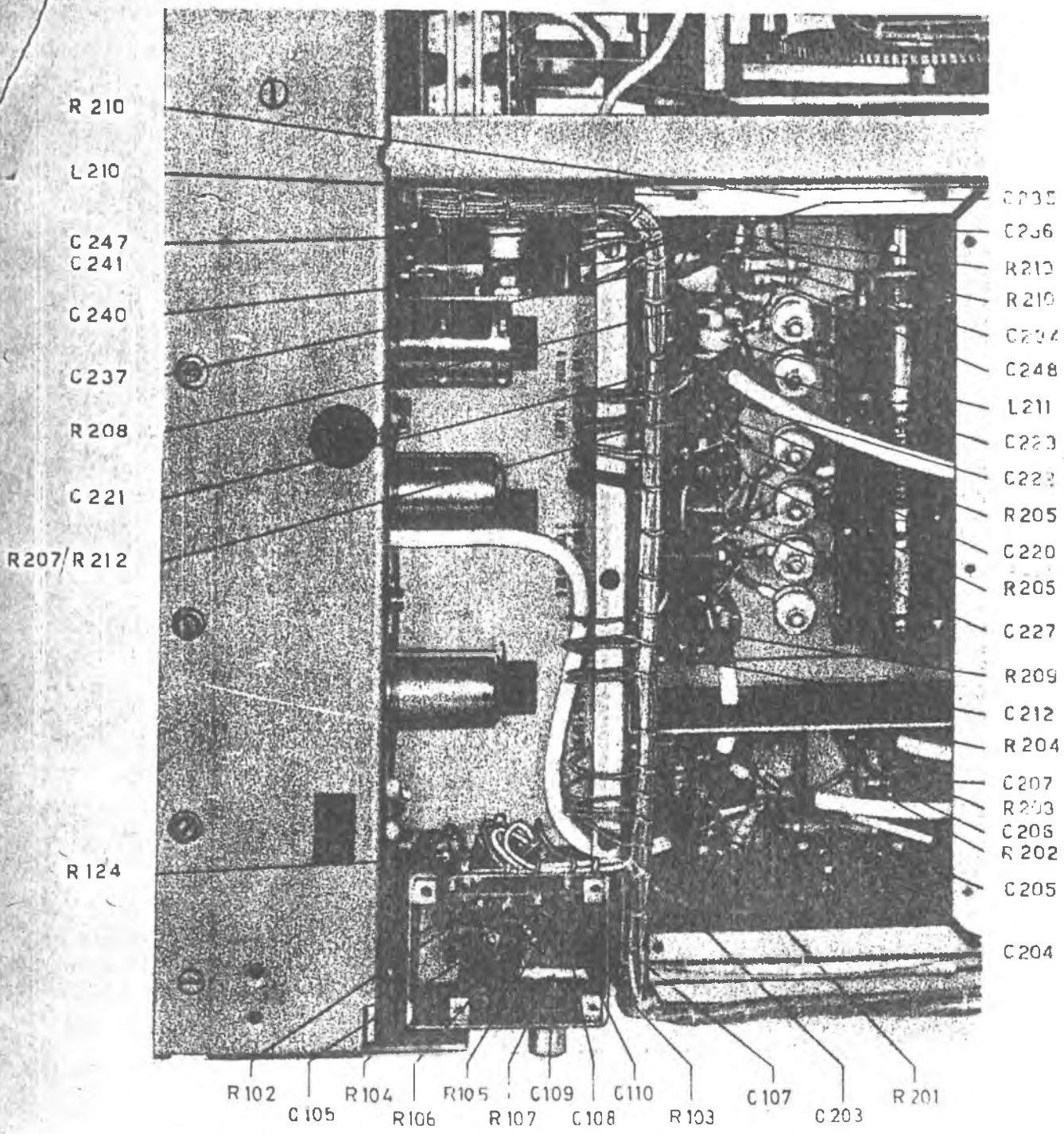


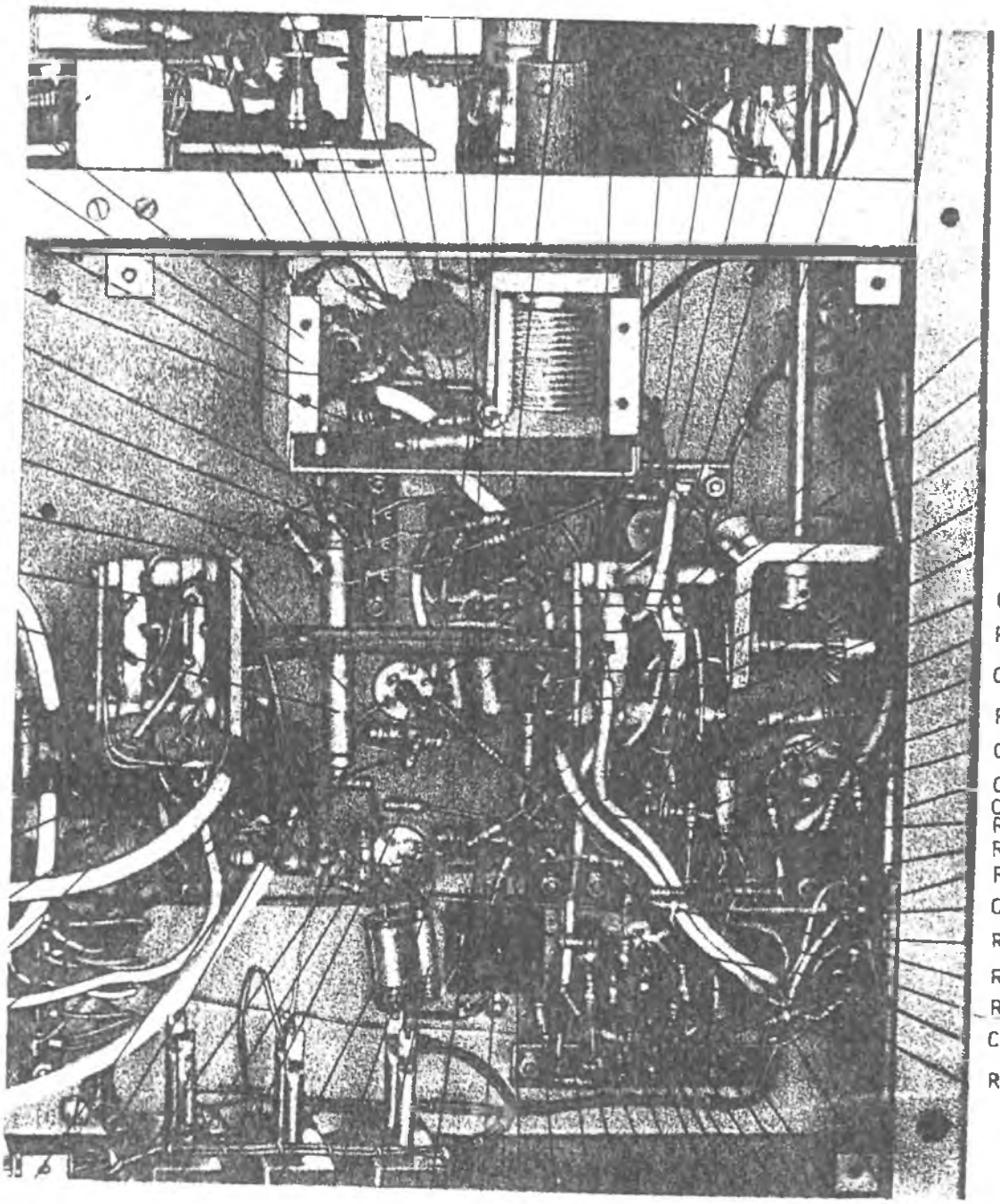


Right-hand view of receiver chassis.

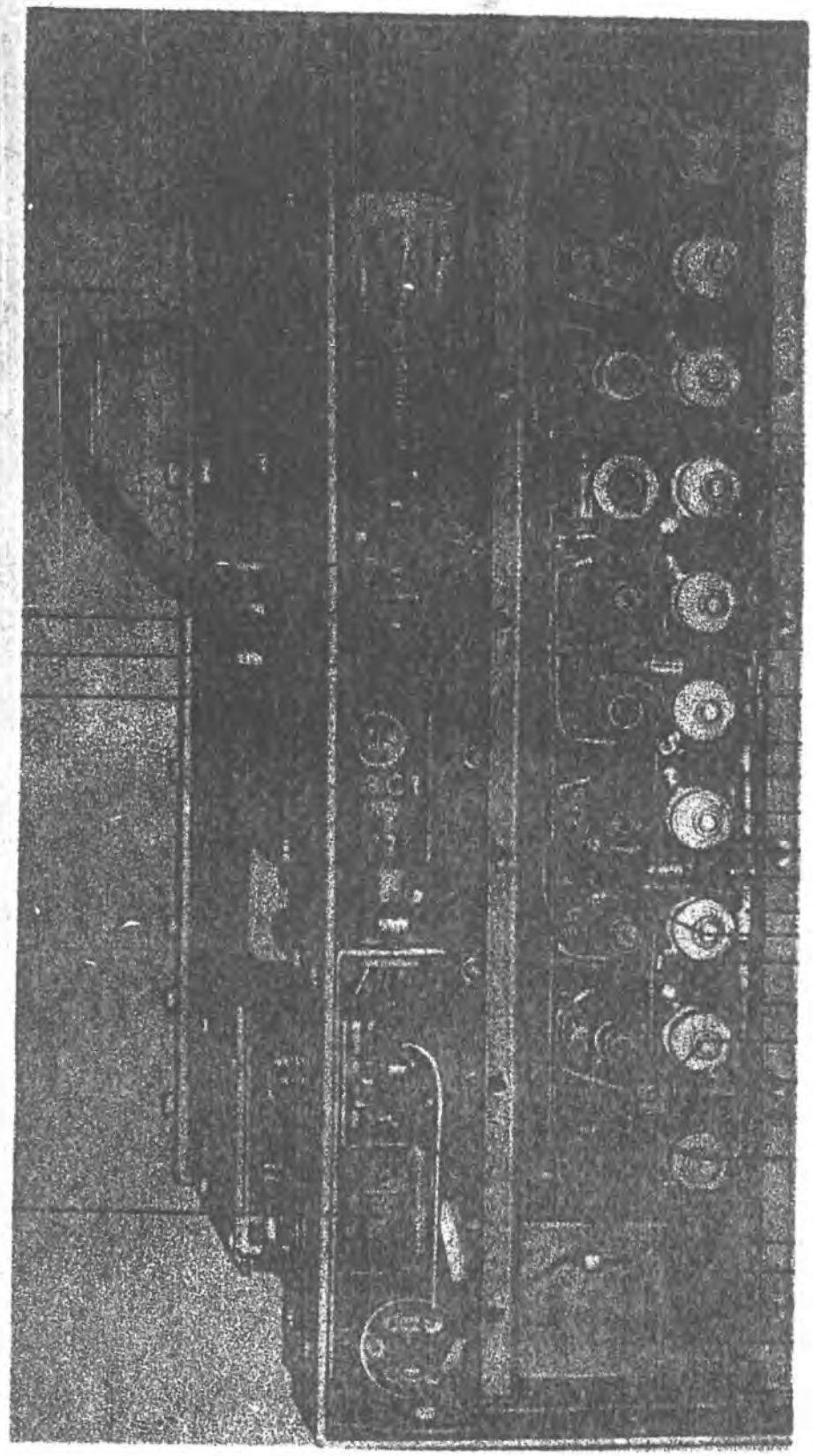


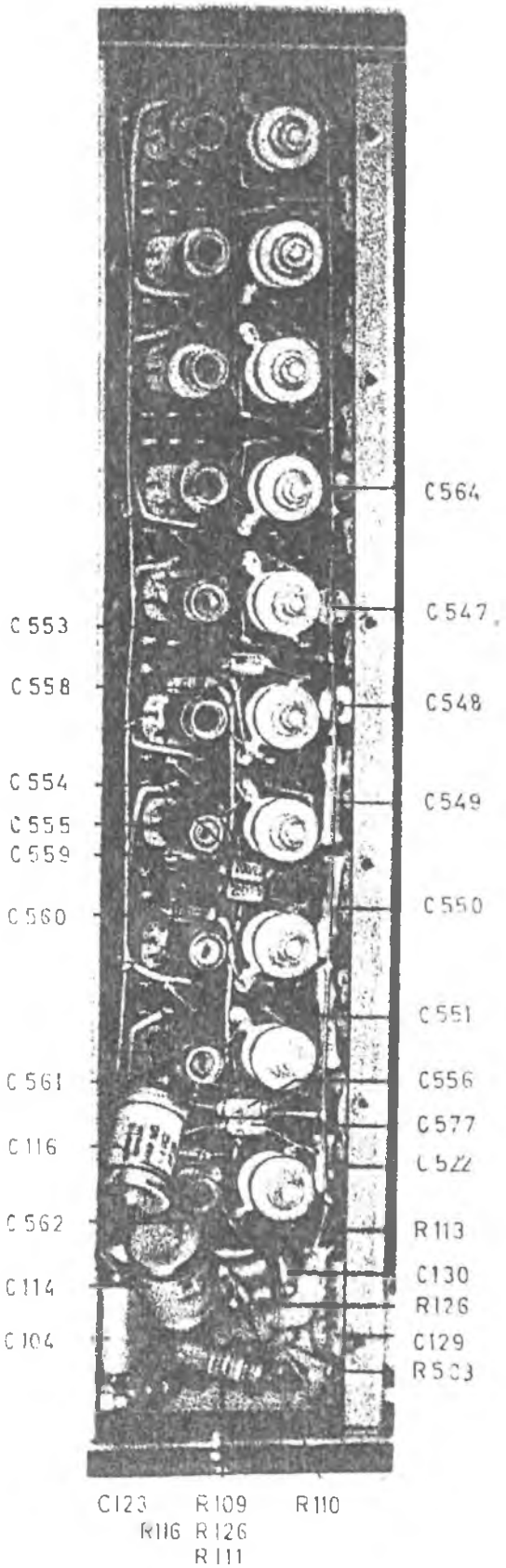
Annexed Fig. 1.

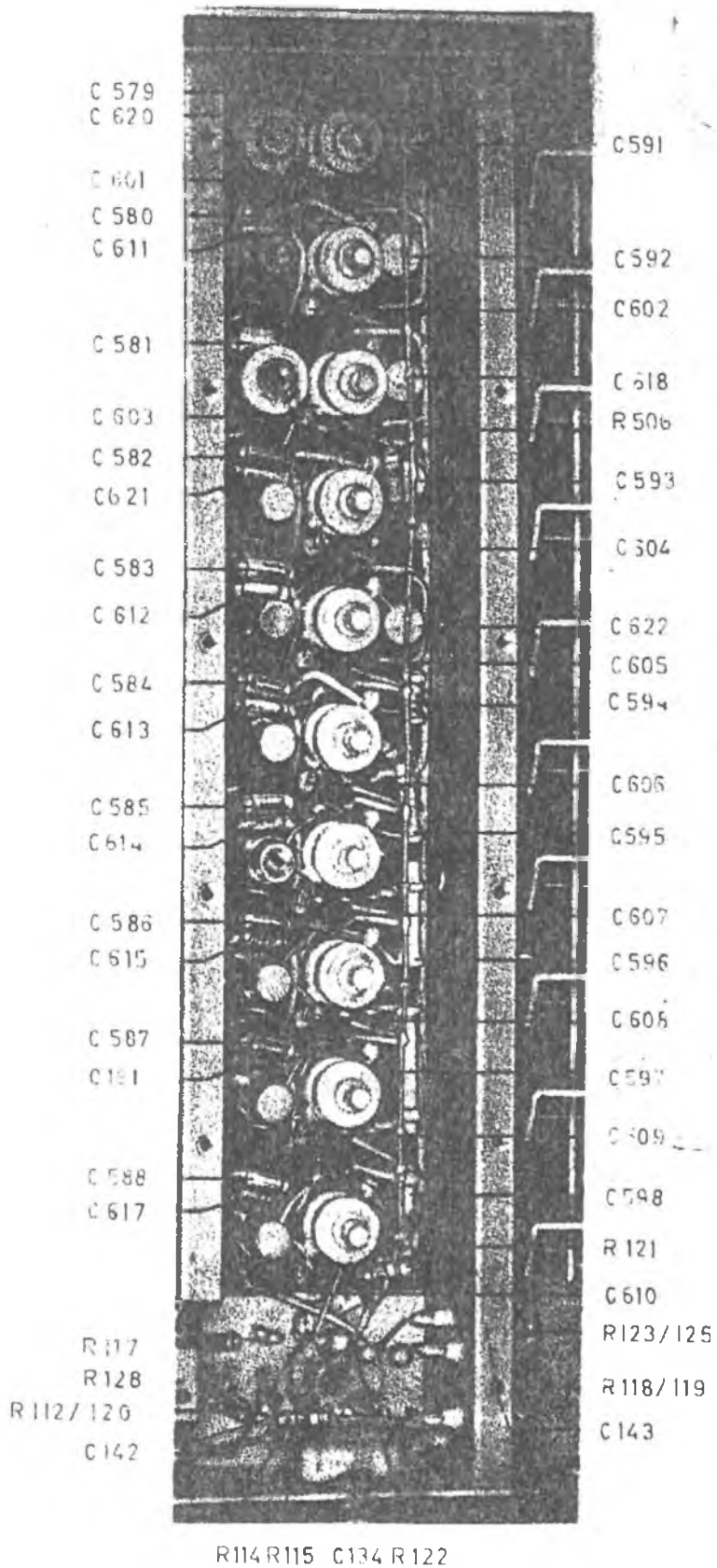




Bottom view of receiver chassis Annexed Fig. 2.







Input section Annexed. Fig. 3.

IF and RF level plan: Measuring conditions: Noise Limiter "Off"; full volume; RF manu
frequency interpolator "Off"; signal gene

Band	Dummy antenna (see figs. 6.7.) Type	Frequency (kc/s)	Volt. (µv)	G_1 / V102 / EF-93 Frequency (kc/s)	Volt. (µv)	G_3 / V104 / EK-90 Frequency (kc/s)	Volt. (µv)	G_1 / V201 / EK-90 Frequency (kc/s)	Volt. (µv)
1	CCIR	18	< 1	18	2	18	350	50	25
2	CCIR	130	< 1	130	2	130	380	50	25
3	CCIR	270	< 1	270	3	270	400	-	-
4	CCIR	550	< 1	550	3	550	50	-	-
5	CCIR	1160	3,5	1160	6	1160	450	-	-
6	CCIR	2400	2,5	2400	7	2400	50	-	-
7	15 Ω	4900	3	4900	4	4900	50	-	-
8	15 Ω	8400	6,5	8400	6,5	8400	60	-	-
9	15 Ω	13000	10	13000	10	13000	70	-	-
10	15 Ω	17700	6	17700	6	17700	70	-	-
11	15 Ω	22700	7	22700	7	22700	65	-	-
12	15 Ω	27300	5	27300	5	27300	65	-	-

AF level plan: Measuring conditions: Noise limiter "Off"; full volume; coupling c
5-Ω resistor, corresponding to 3 mw into hea

Hot-end Volume control R323 Frequency (c/s)	Voltage (mv)	G_1 / V304a / ECC-82 Frequency (c/s)	Vltg (mv)
1000	32	1000	28

manual gain control off; RF voltages for audio output power 50 mw ≙ 0.5 v across [illegible] Ω. generator Z_i = 60 Ω; coupling capacitor 10,000 µµf

90	G_3/V202/EK-90		G_1/V301/EK-93		G_1/V302/EF93		Notes
lt. ·)	Frequency (kc/s)	Volt. (µv)	Frequency (kc/s)	Volt. (µv)	Frequency (kc/s)	Volt. (µv)	
5	-	-	100	0,8	-	-	Bandwidth control at "A1"; signal generator unmodulated; BFO set for about 1000 c/s
5	-	-	100	0,8	-	-	
-	-	-	-	-	100	40	
-	1180	0,9	-	-	100	40	
-	-	-	-	-	100	40	
-	1180	0,9	-	-	100	40	
-	1180	0,9	-	-	100	40	Bandwidth control at "A2/A3 Narrow";
-	1180	0,9	-	-	100	40	Signal generator 1000 c/s; 30% modulation
-	1180	0,9	-	-	100	40	
-	1180	0,9	-	-	100	40	
-	1180	0,9	-	-	100	40	
-	1180	0,9	-	-	100	40	

ng capacitor 0.1 µf; audio voltages for 50 mw ≙ 0.5 v across internal loudspeaker or headphone jack with 10-kΩ load

	G_1 / V304 b / ECC-82		G_1/V308 / EL-90	
	Frequency (c/s)	Vltg (mv)	Frequency (c/s)	Vltg (mv)
	1000	270	1000	1900

LEVEL PLAN Annexed Fig. 5

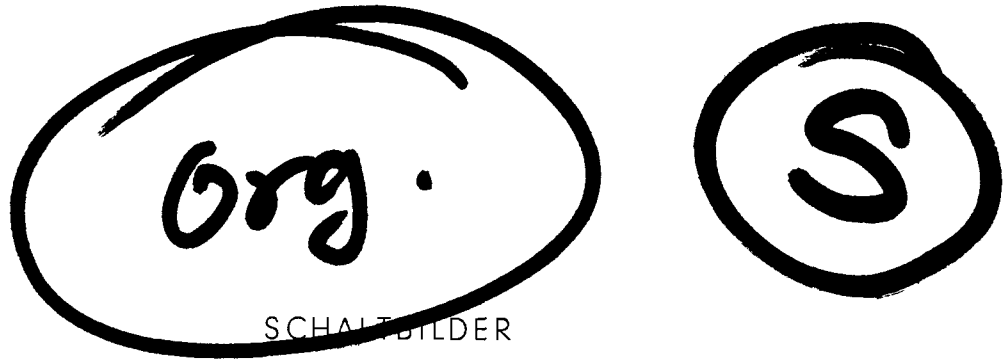
SIEMENS
FUNKTECHNIK

ALLWELLEN-EMPFÄNGER

14 bis 21 kHz · 85 bis 30300 kHz
Funk E 566 (745 E 310)

ALLWAVE RECEIVER

14 to 21 kc/s · 85 to 30300 kc/s
Type Funk E 566 (745 E 310)



SCHALTBILDER

CIRCUIT DATA

SIEMENS & HALSKE AKTIENGESELLSCHAFT
WERNERWERK FÜR WEITVERKEHRS- UND KABELTECHNIK · MÜNCHEN

I N H A L T/C O N T E N T S

Empfänger . . .
Receiver . . . . . ap, str, üstr, ms empf 115

Eingangsteil . . .
Input section . . . . . Sk, str, empf 115 U

Umsetzerteil . . .
Converter section . . . . . Sk, str, empf 115 M

Verstärkerteil . . .
Amplifier section . . . . . Sk, str, empf 115 V

Netzteil . . .
Mains section . . . . . Sk, str, empf 115 N

CONVERTER SECTION
Umsetzerteil

INPUT SECTION
Eingangsteil Funk empf. 115 U

Funk empf. 115 M

RF PRESTAGE
HF – Vorstufe

1st MIXER STAGE
1. Mischstufe

DOUBLER
Verdoppler

EF 93
5BA6

EK 90
(6BE6)

50 KC/S
50 kHz

EK 90
Z Kr. F (6BE6)

100 KC/S
100 kHz

108 C 1
(0B2)

n x 100 KC/S
n x 100 kHz

2nd MIXER STAGE
2 Mischst

DOUBLE-TUNED FILTE
2 Kreis F

EK 90
(6BE6)

100 KC/S

100 kHz VFO
Durchstimmosz.

CALIBRAT'G OSCILL
Eich – Oszill.

100 kHz
100 KC/S
EF 93
(6BA6)

ECC 82
(12AU7)

OSCILL
2 Oszill.

ECC 82
(12AU7)

+150 V

Rel A
Rel D/E
Ber. 1-2 Rel B
BANDS
BANDS 4 AND 6-12
Ber. 4 u. 6-12
Rel. C
Ber. 4 Rel D/E
BAND
A1/0
Rgl.
REGUL
E6
E5
E3
E1
E2
E4
D/E
Rel D/E

Eichtaste
CALIBRAT'G KEY

12 BAND
KEYS
12 Bereichtasten
14 - 21 kHz und
85 - 30 000 kHz
KC/S

TUNING
COARSE
Grob
FINE
fein
Abstimmung

FREQUENCY INTERPOLATOR
Frequenz-Lupe

Betriebsart
A1 u. A2/A
CLASS-OF-EMIS
A1 AND A2/A3

POWER SUPPLY UNIT
Stromversorgungsteil
Funk empf. 115 N

Netzschalter
POWER SWITCH

110 / 125 / 220 V / 250 V

AC MAINS ~ Netz
OR VIBRAT
INVERTER Wechsel-
OUTPUT richter – Ausg.

DC MAINS
– Netz
24 / 110 / 220 V

VIBRATOR
INVERTER Wechselrichter
INPUT Eingang

Si

Tr.

2 x B 250 C 150

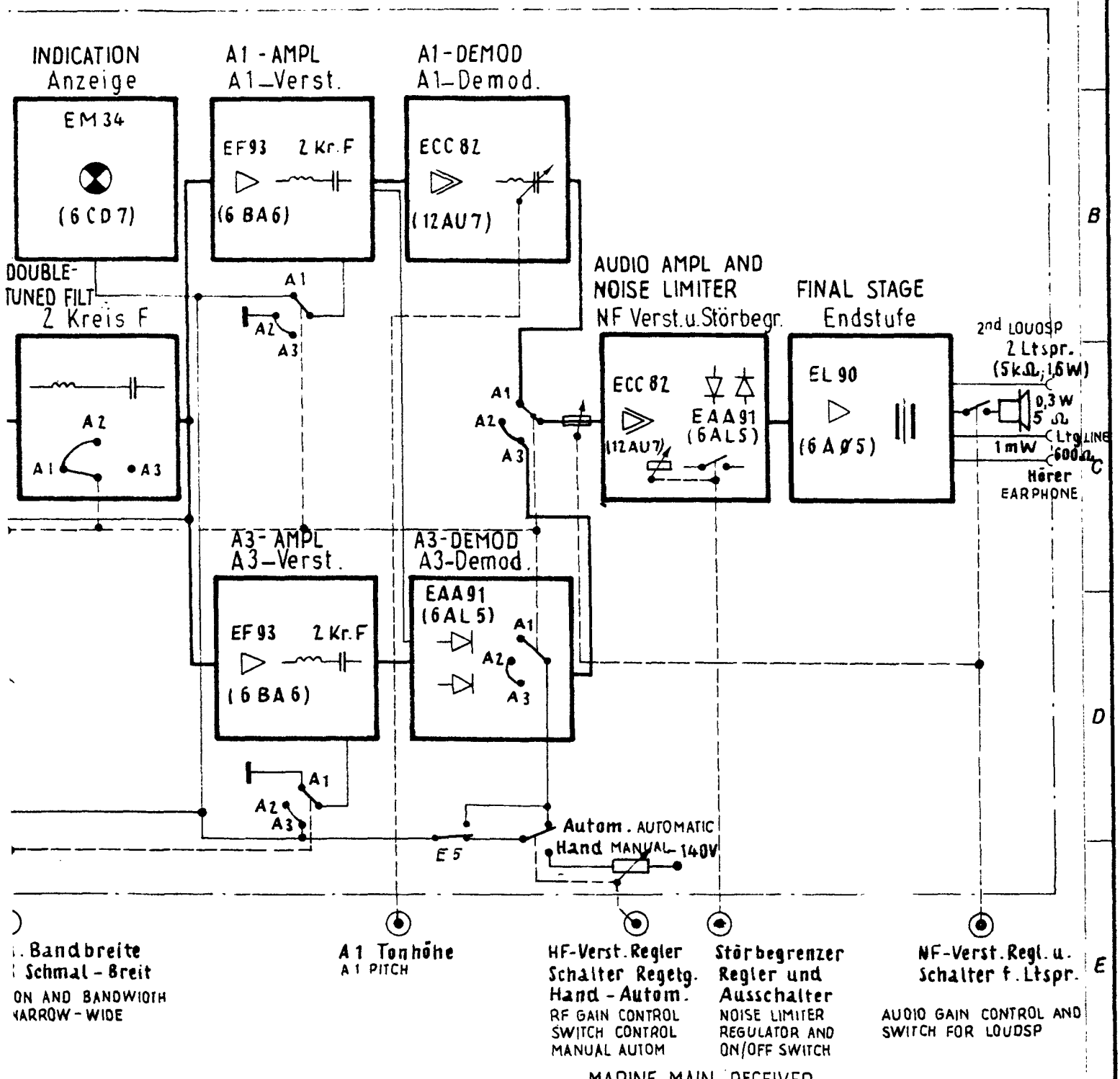
B 250 C 85

EW 0,6A

150 C 2
(0A2)

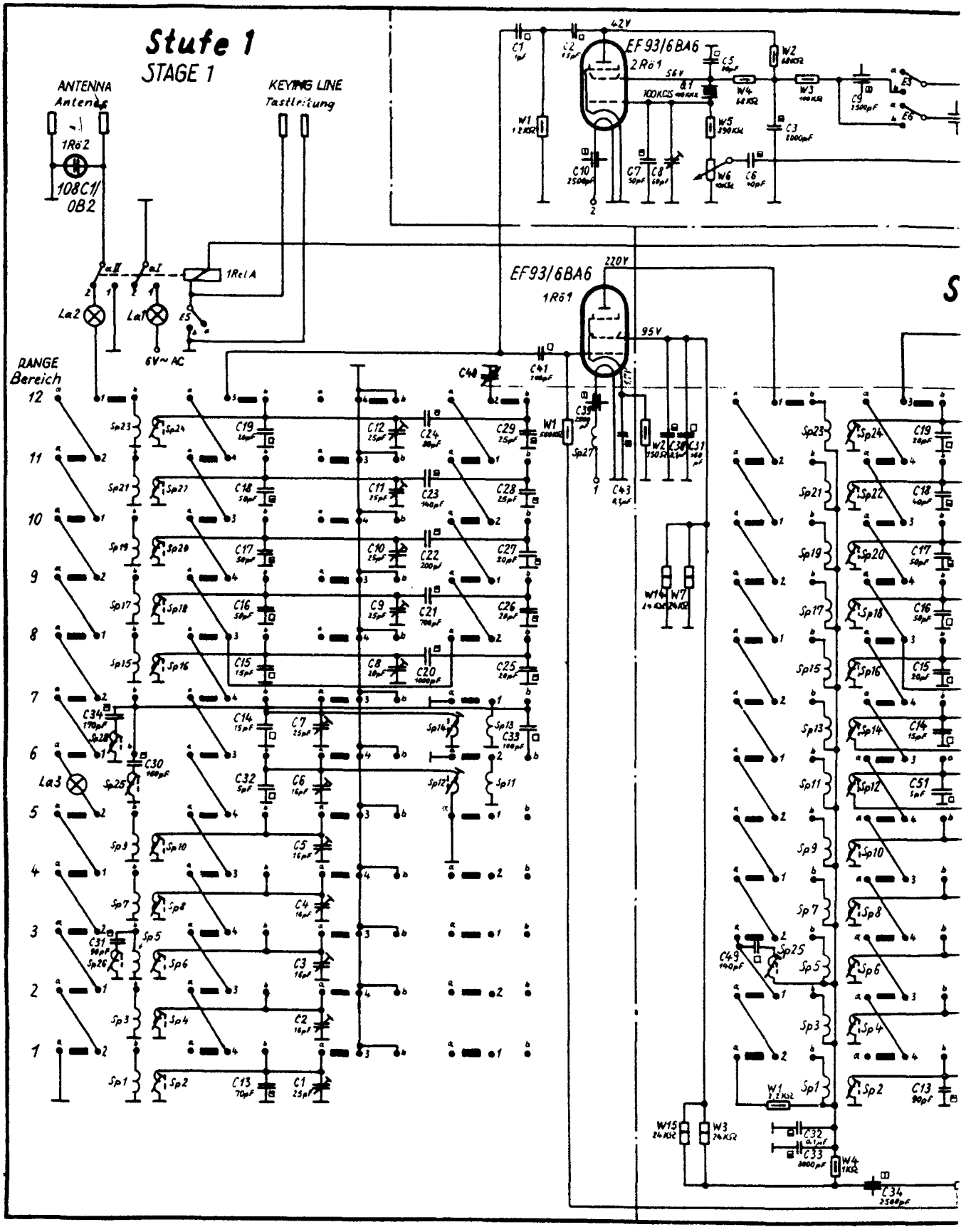
6,3 VAC REG
6,3 V ~ stab
6,3 V DC RELAY SUPPLY
6 V – Rel. Speis
6,3 VAC
6,3 V ~
REG
+ 150 V stab.
+ 235 V
– 140 V
0

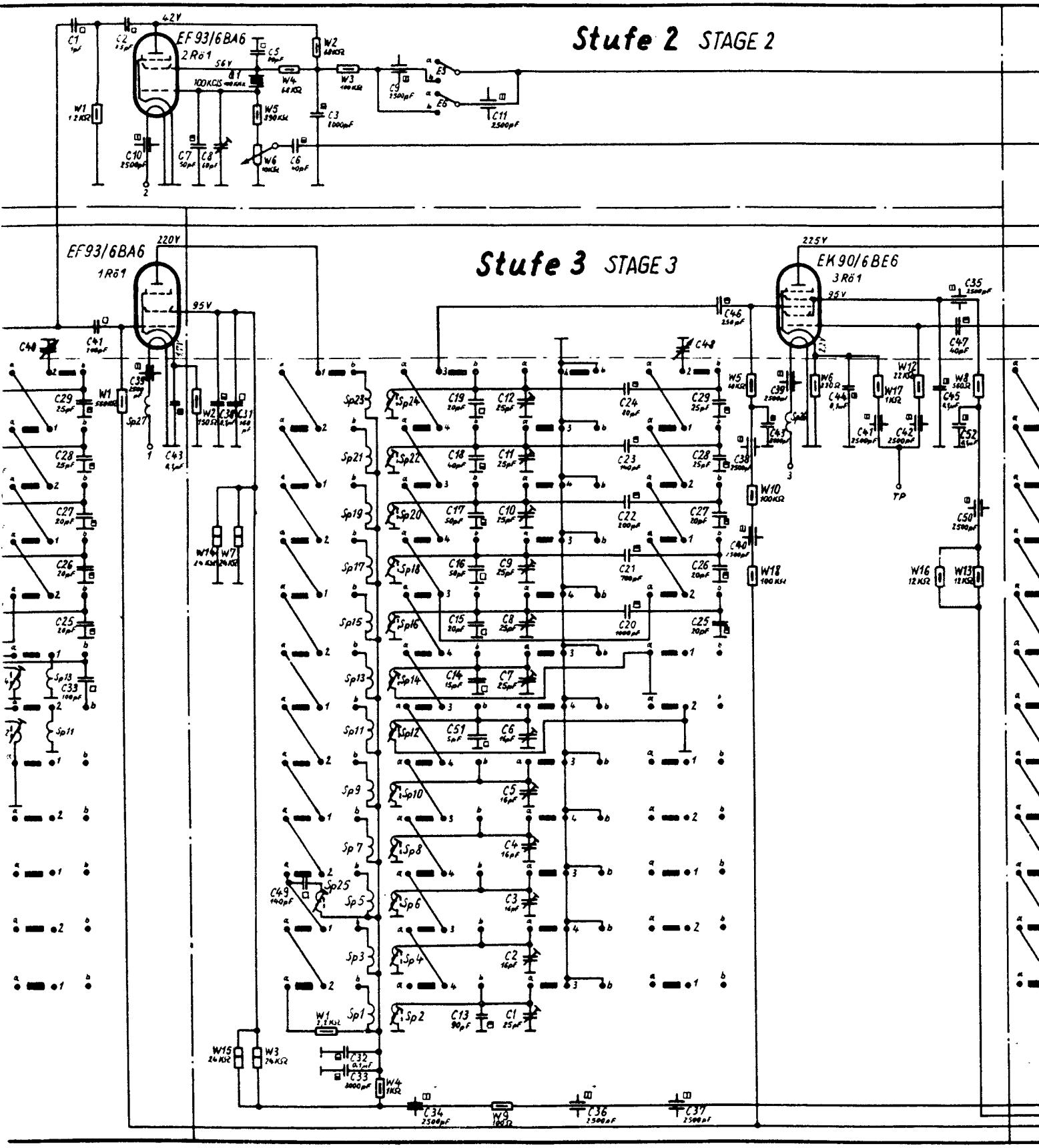
AMPLIFIER SECTION
Verstärkerteil Funk empf. 115 V

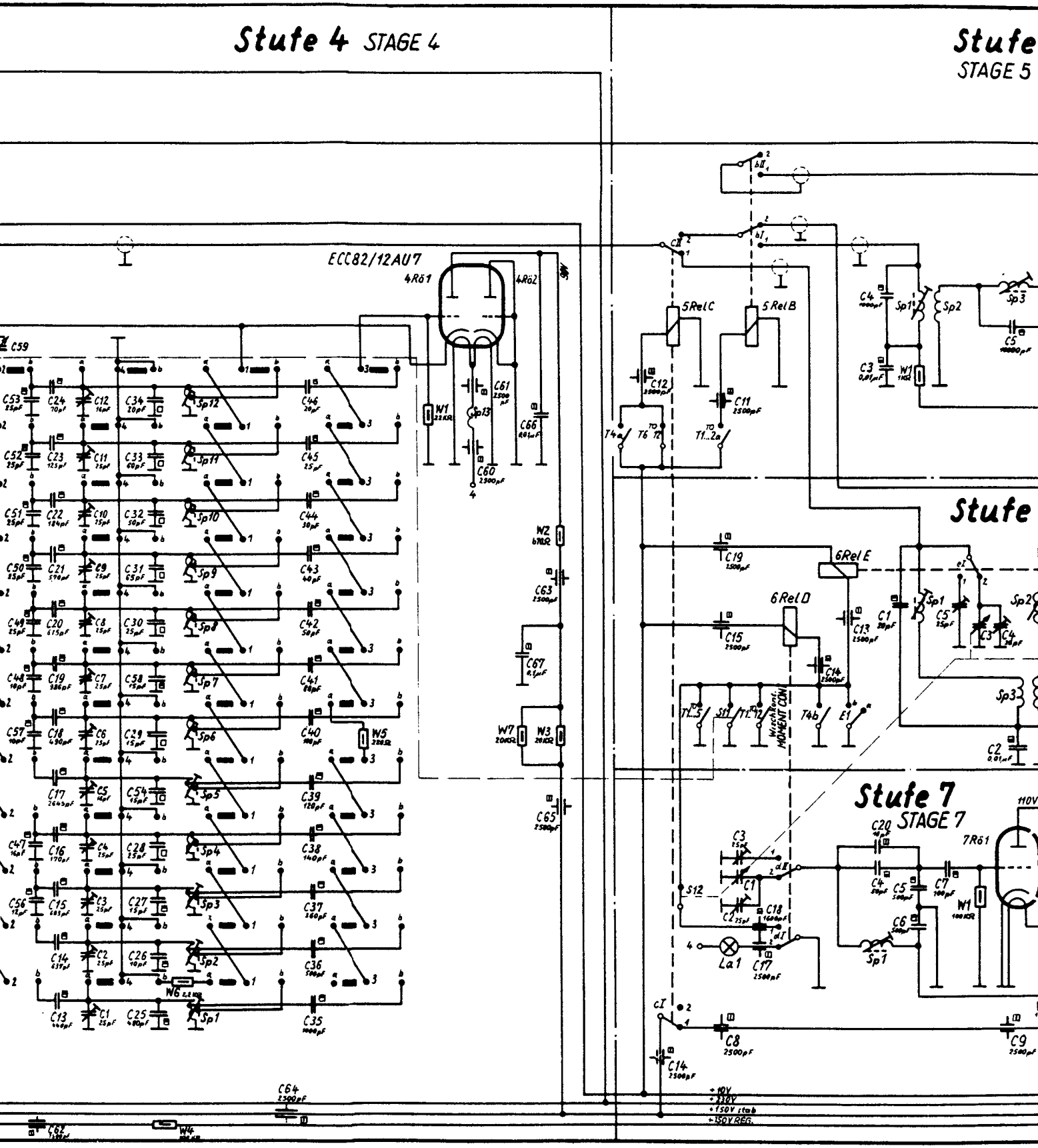


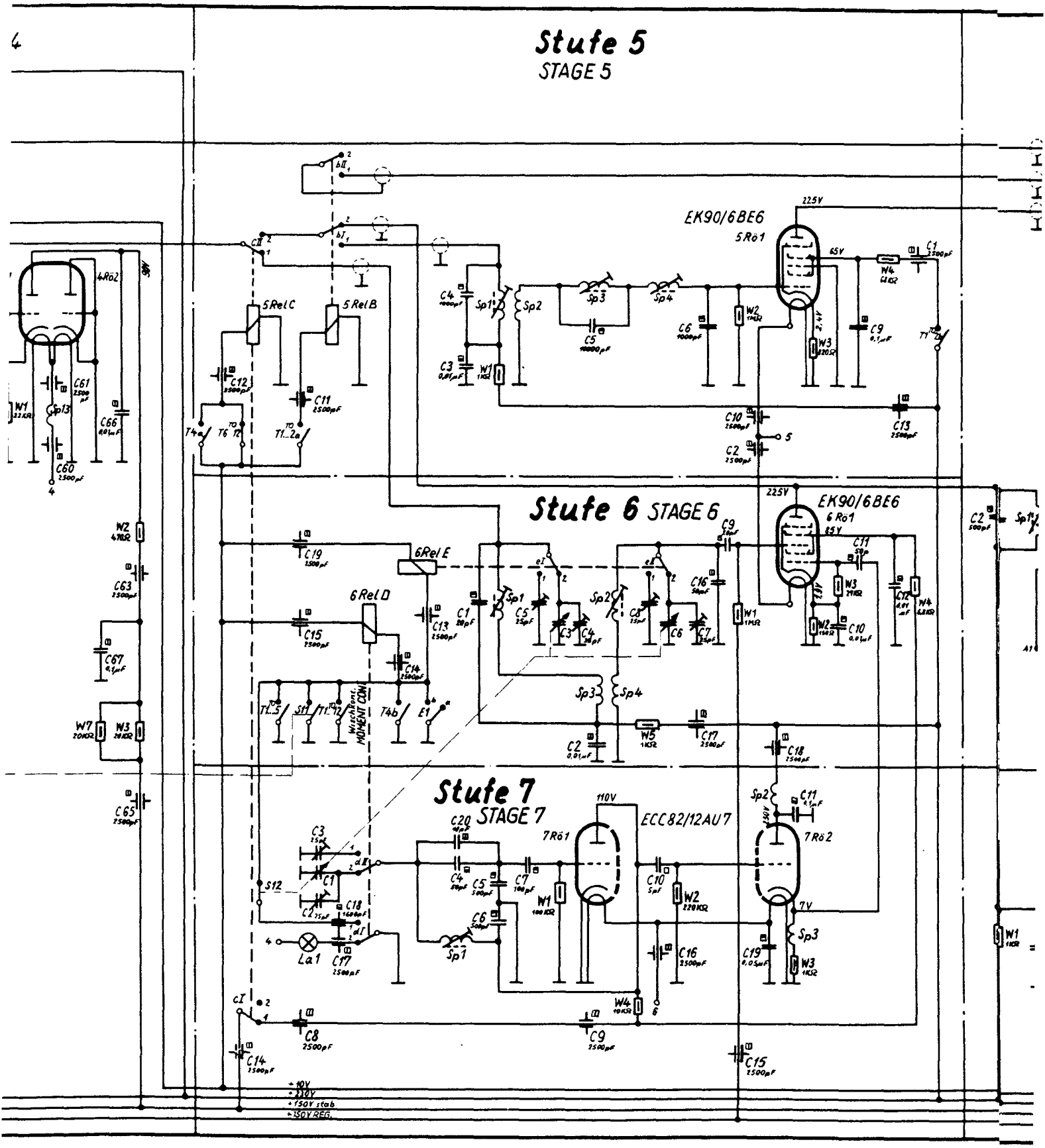
MARINE MAIN RECEIVER

				Nichttol. Maße	Seefunk–Hauptempfänger Funk 745 E 310 (Debeg Empf. E 566)
				Tag / Name	FUNCTIONAL CIRCUIT DIAGRAM / Übersichts-Schaltbild
				Bearb.	Maßstab
				Gepr.	
				N. gepr.	
c		19.11.59	Maier	SIEMENS & HALSKE AKTIENGESELLSCHAFT Wernerwerk	Funk Üstr. empf. 115 Dt,En
b					
a					
Ausg.	Änd.-Mitt.-Nr.	Tag	Name		Fu TuK KLA K'he



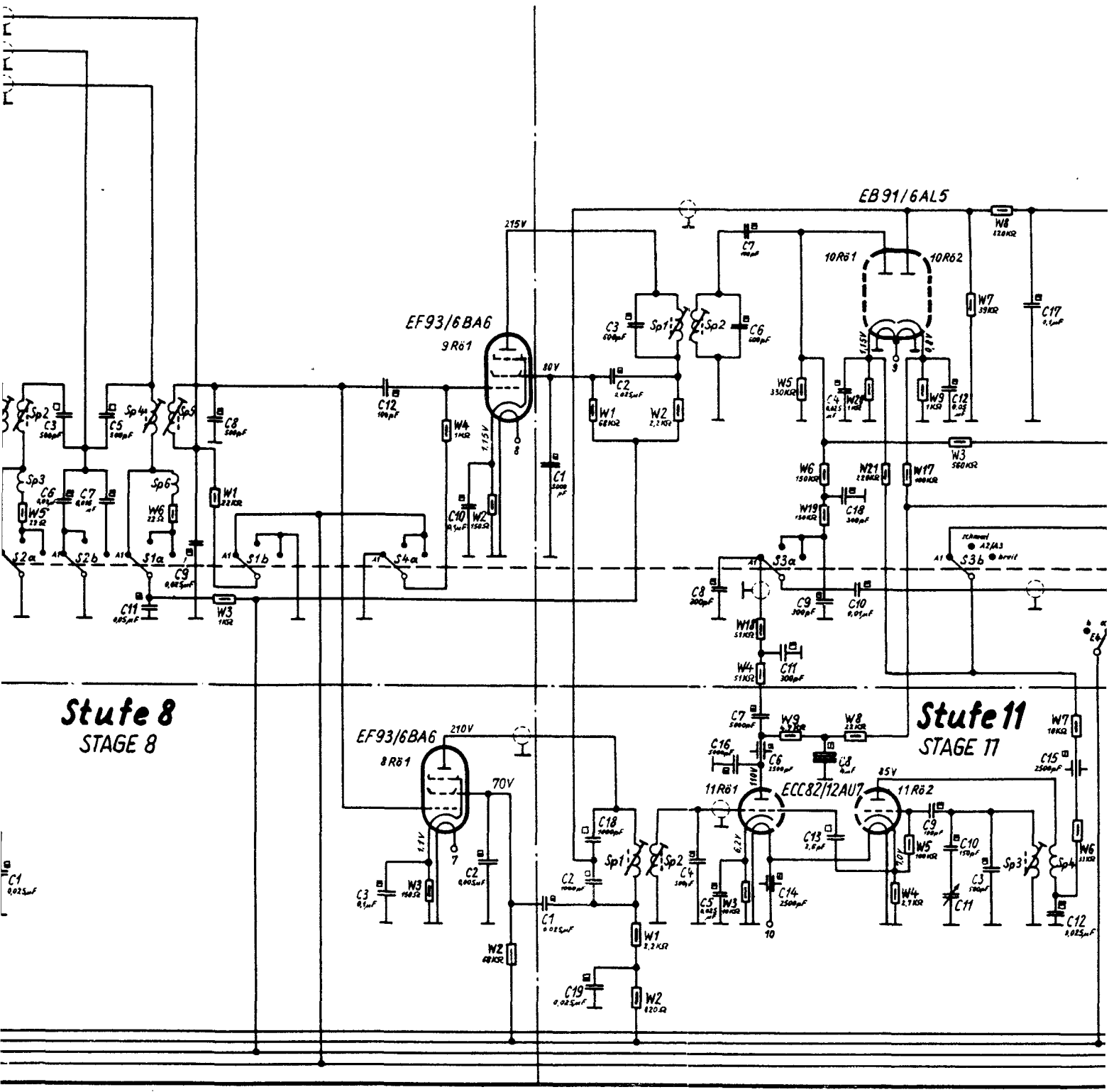






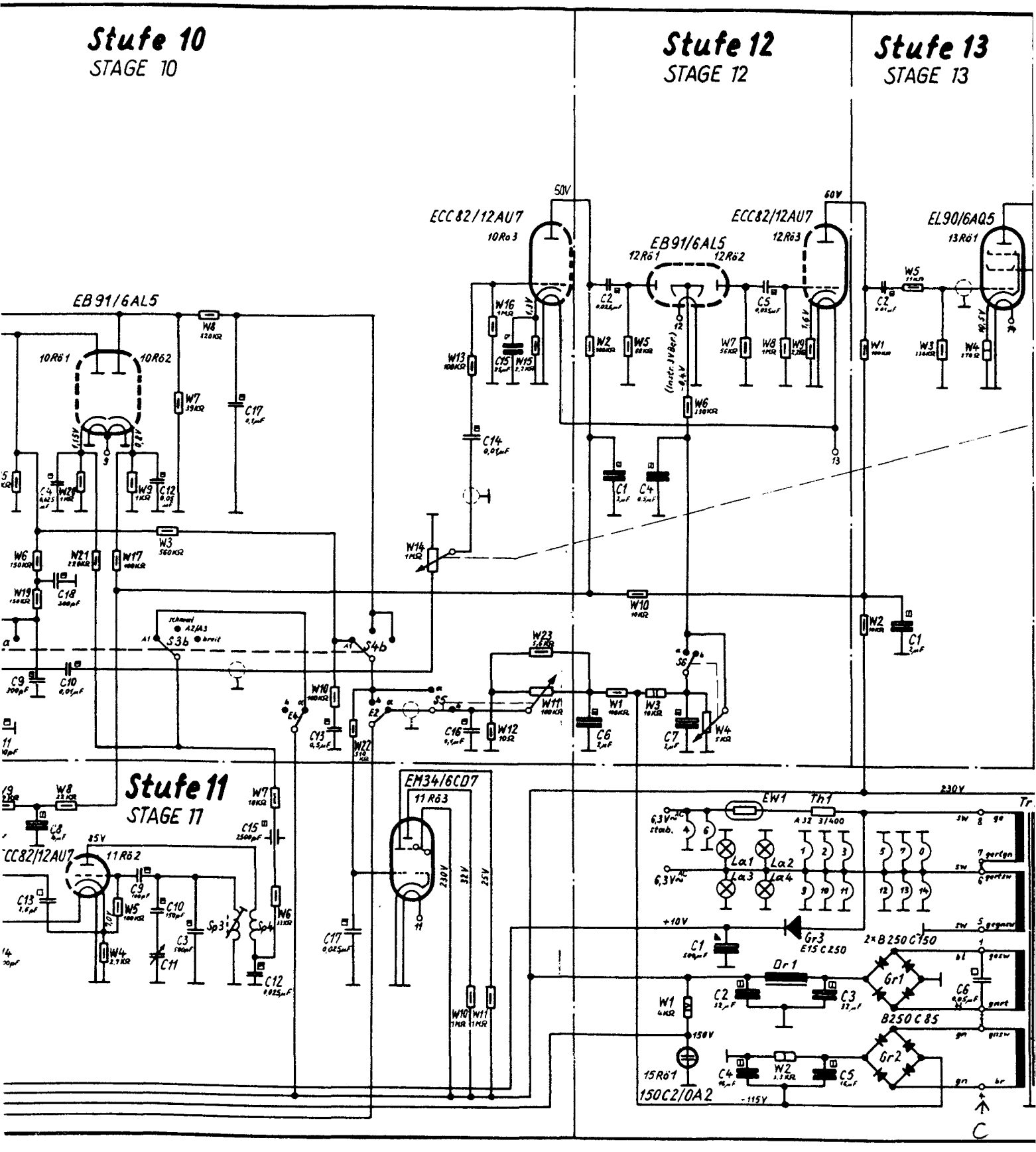
Stufe 9
STAGE 9

Stufe 10
STAGE 10

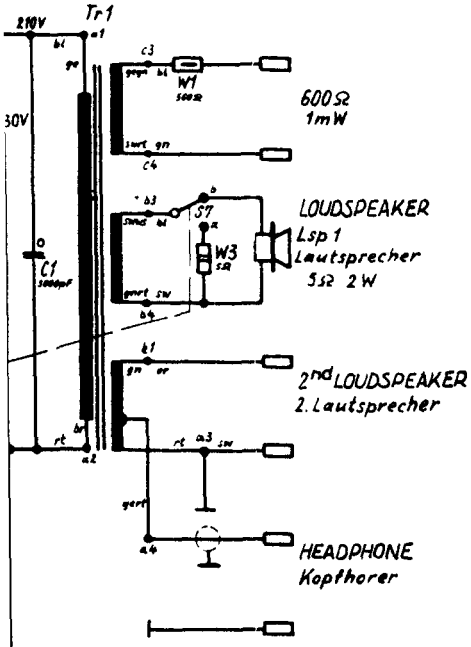


Stufe 8
STAGE 8

Stufe 11
STAGE 11



Stufe 14
STAGE 14



SYMBOLS DENOTING DC VLTG RAT'G OF CAPACITORS / LOAD RATING OF RESISTORS

Kennzeichng d Betriebs-gleichspg d. Kondens.			Belastbarkeit der Widerstände		
●	6 - 10 V	■ 100 - 165 V		0,25 W	3,0 W
◺	10 - 12 V	◨ 165 - 250 V		0,5 W	3,5 W
◣	12 - 20 V	▬ 250 - 350 V		1,0 W	4,0 W
◤	20 - 30 V	◫ 350 - 500 V		1,5 W	4,5 W
◸	30 - 60 V	□ 500 - 1000 V		2,0 W	5,0 W
◧	60 - 100 V	○ 1000 V		2,5 W	6,0 W

gez. Schalterstellung : Bereich 12, Bandbreitenschalter S1...S4 auf A1, Störbegrenzung „Ein" (S6b) HF-Verstärkungsregelung „Ein" (S5b), Frequenzlupe in Betrieb (Durch kurzzeitiges Öffnen von S12 sind 6 Rel D und 6 Rel E abgefallen,

SWITCH POSITION SHOWN : BAND 12, BANDWIDTH SELECTOR S1-S4 AT A1, NOISE LIMITER „ON" (S6b) RF GAIN CONTROL "ON" (S5b) FREQUENCY INTERPOLATOR ACTIVATED (BY TEMPORARY OPENING OF S12 THE RELAYS 6 Rel D AND 6 Rel E ARE RESTORED)

Relais: Kontakte 1 (z.B. cI1) geschlossen bei erregtem Relais
Kontakte 2 (z.B. aI2) geschlossen bei nicht erregtem Relais

RELAYS : CONTACTS 1 (e.g. cI1) CLOSED WITH ENERGIZED RELAY
CONTACTS 2 (e.g. aI2) CLOSED WITH NOT ENERGIZED RELAY

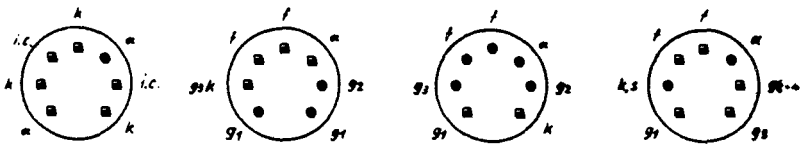
RANGE

Bereich	T1 ... 2a	T1 ... 2b	T1 ... 5	T6 ... 12	T4a	T4b
12				■		
11				●		
10				■		
9				■		
8				■		
7				■		
6				■		
5			■			
4			■		■	■
3			■			
2	■	■	■			
1	■	■	■			

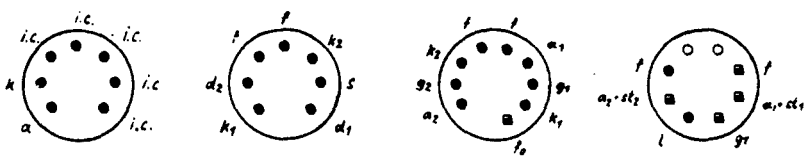
CONTACT CLOSED
■ = Kontakt geschlossen

Wischkontakt T1 12 schließt kurzzeitig beim Bereichswechsel
MOMENTARY CONTACT T1-T12 CLOSES TEMPORARILY IN CHANGING BETWEEN BANDS

108 C 1 / EL 90 / EF 93 / EK 90

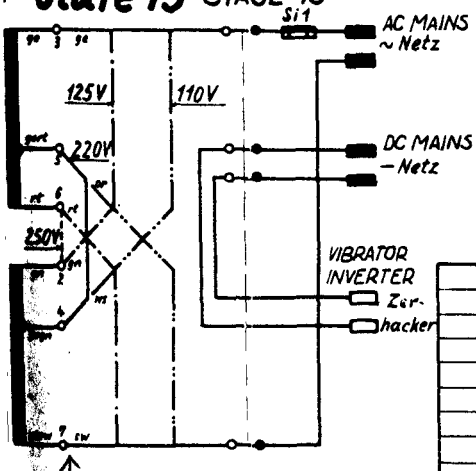


150 C 2 / EB 91 / ECC 82 / EM 34



TUBE BASE DIAGRAMS

Stufe 15 STAGE 15



n	T6Z	ern.	13.1.60	Trachsel	
Ausg.	Änd. Mitt Nr.		Tag	Name	

Seefunk-Hauptempfänger Funk 745 E 310 (Deberg E 566)
MARINE MAIN RECEIVER Funk 745 E 310 (Deberg E 566

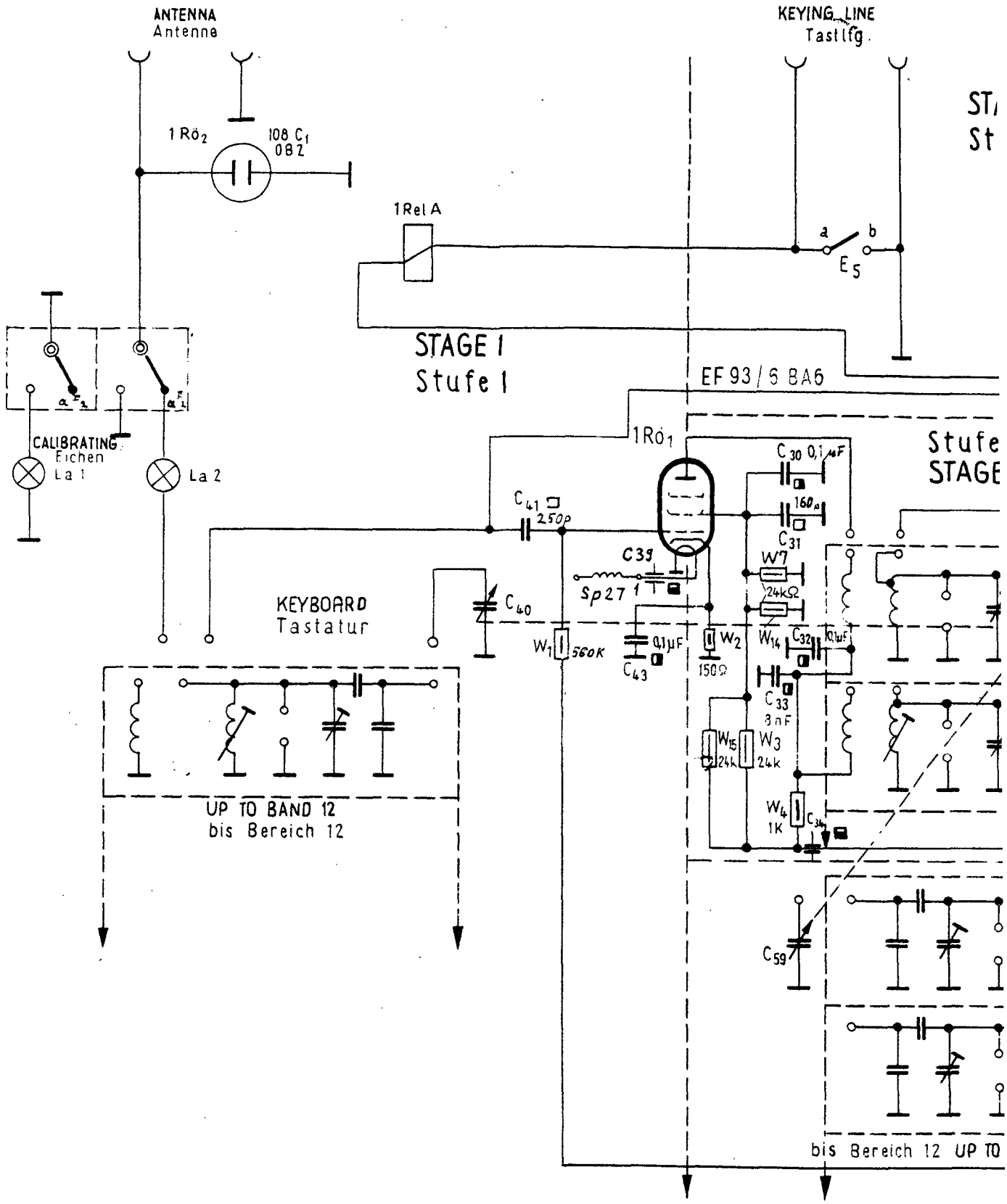
	Tag	Name
Bearb.		
Gepr.		Fa
M.Gepr.		

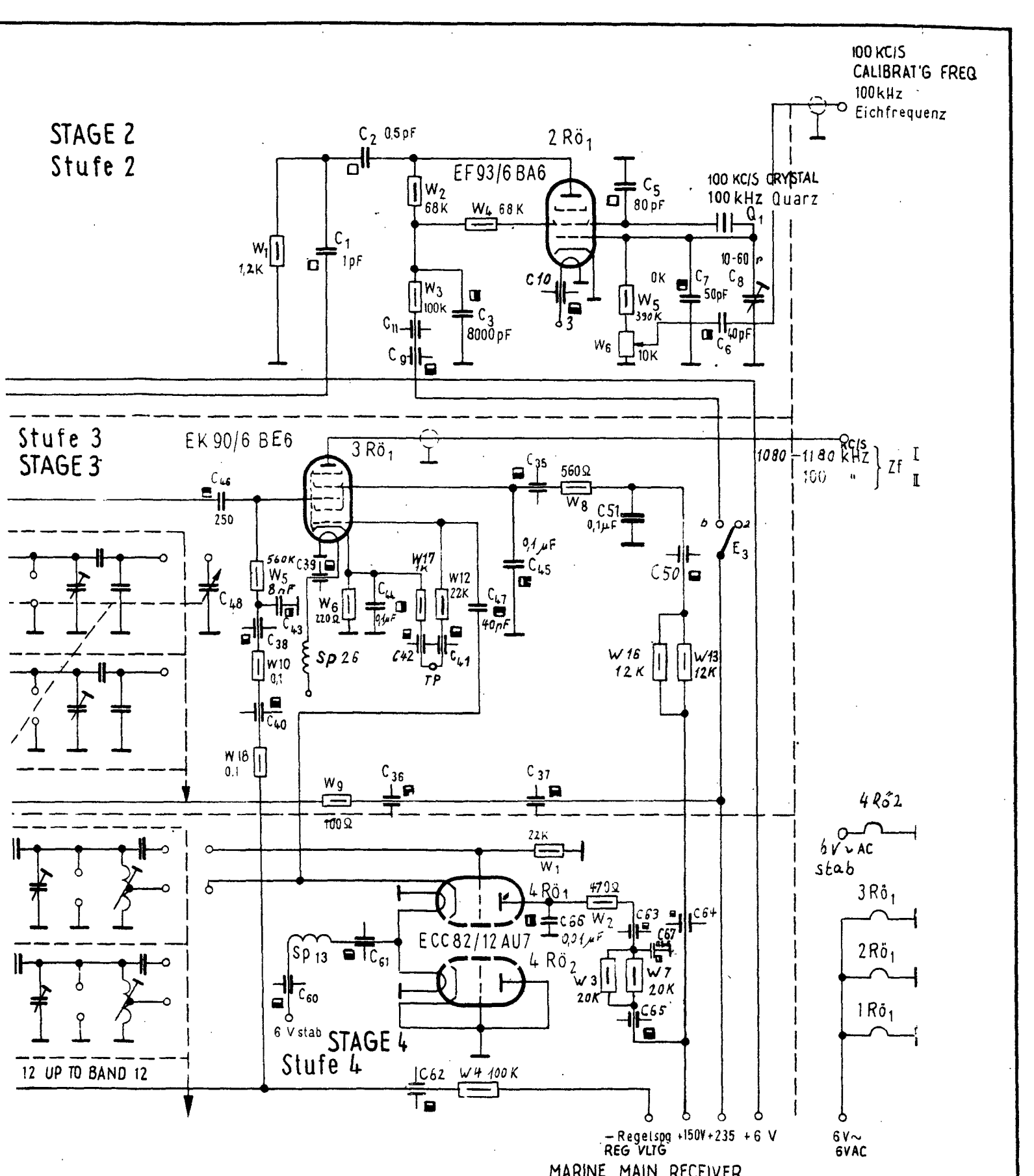
Schaltbild
CIRCUIT DIAGRAM

Funk str empf 115 Dt, En

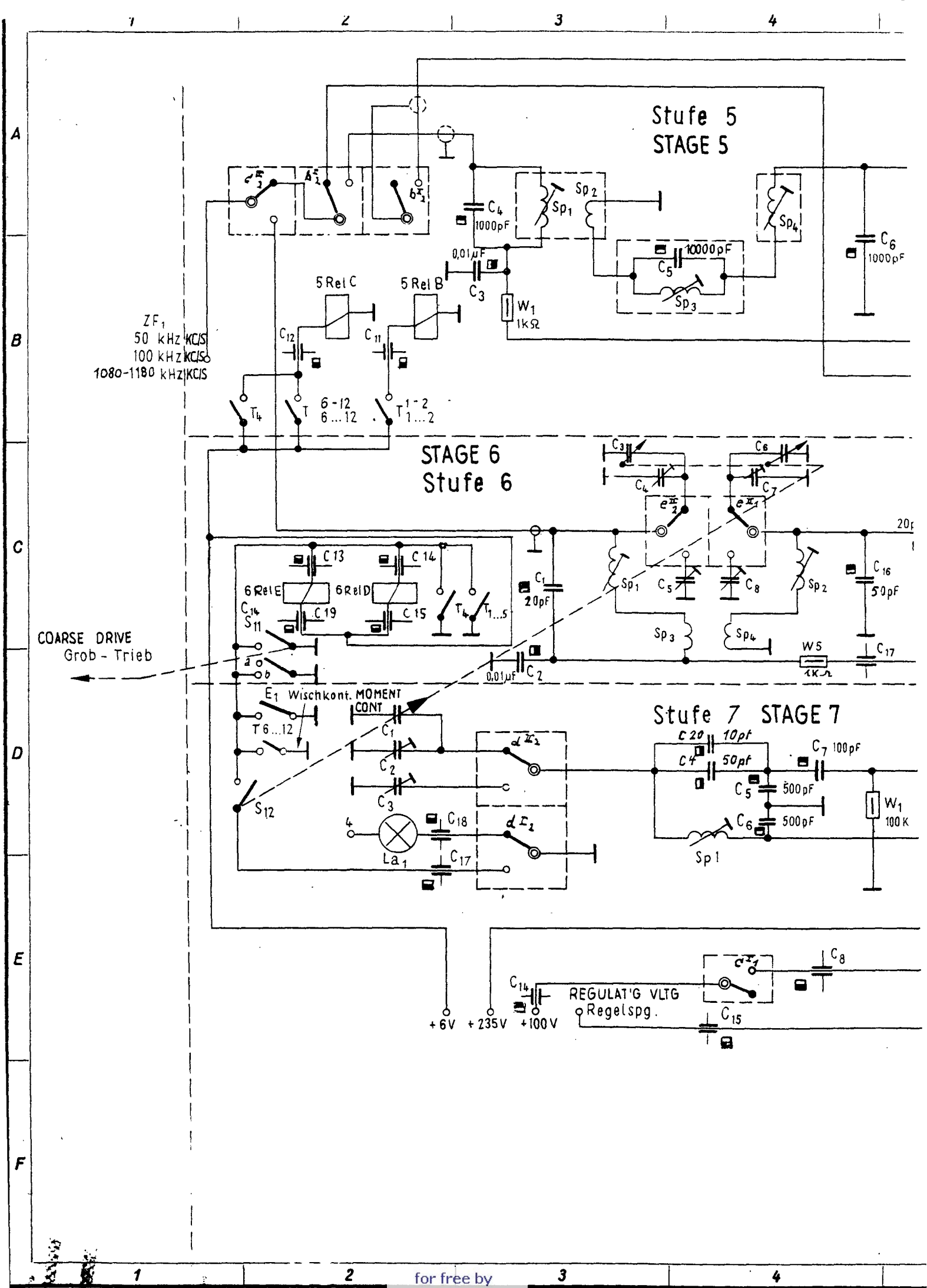
WWFn TuK KLA, Khe

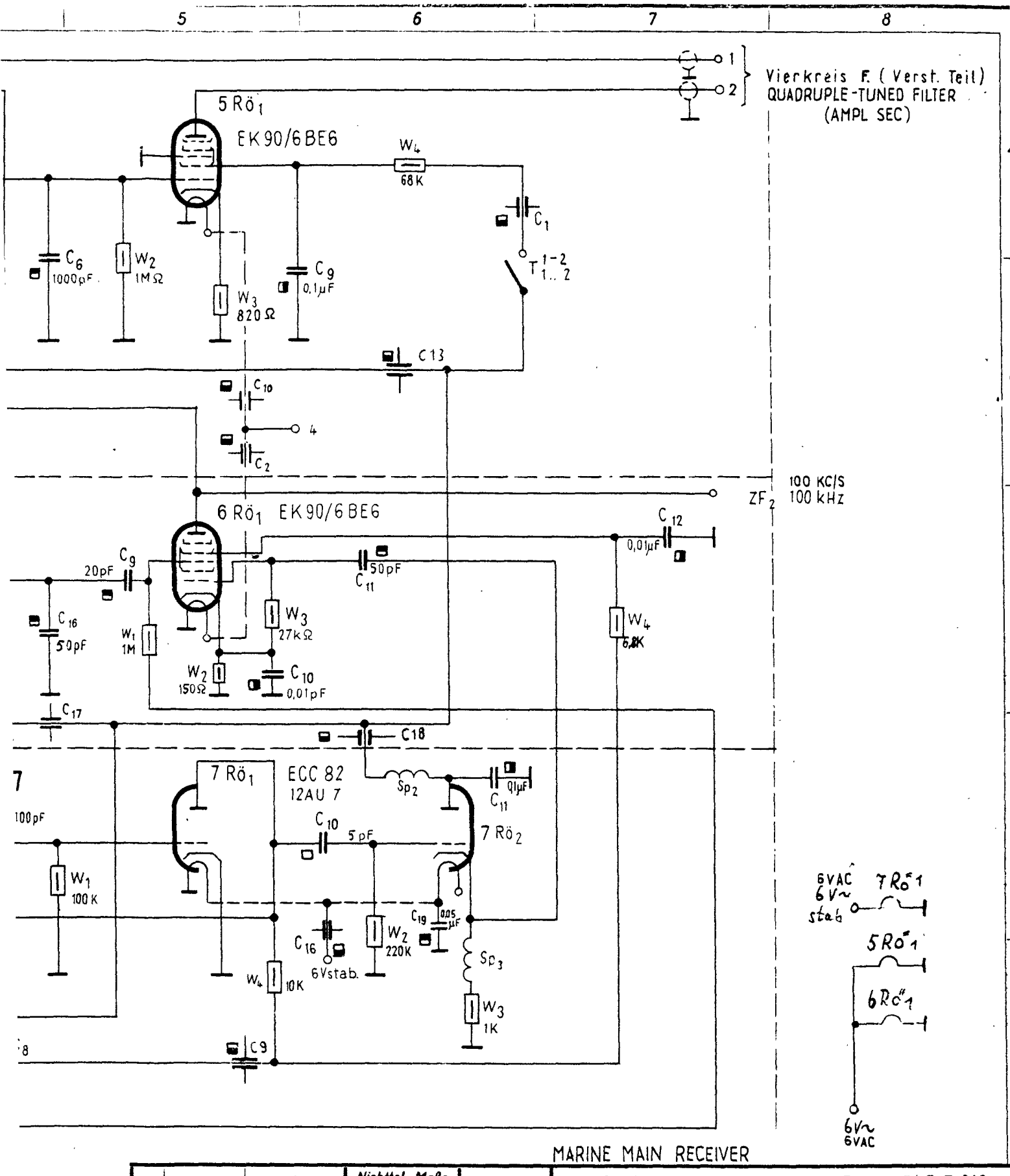
Fc

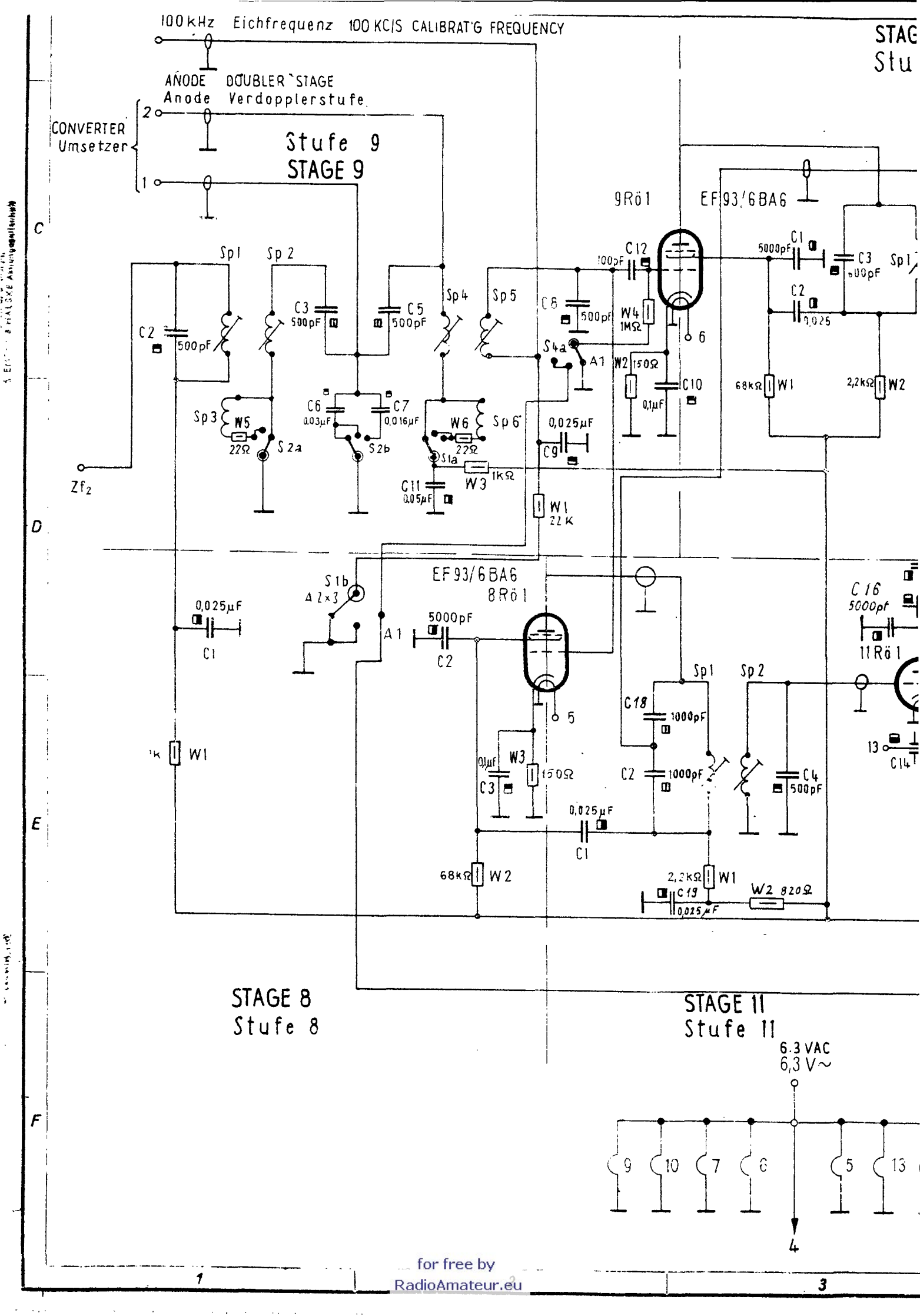


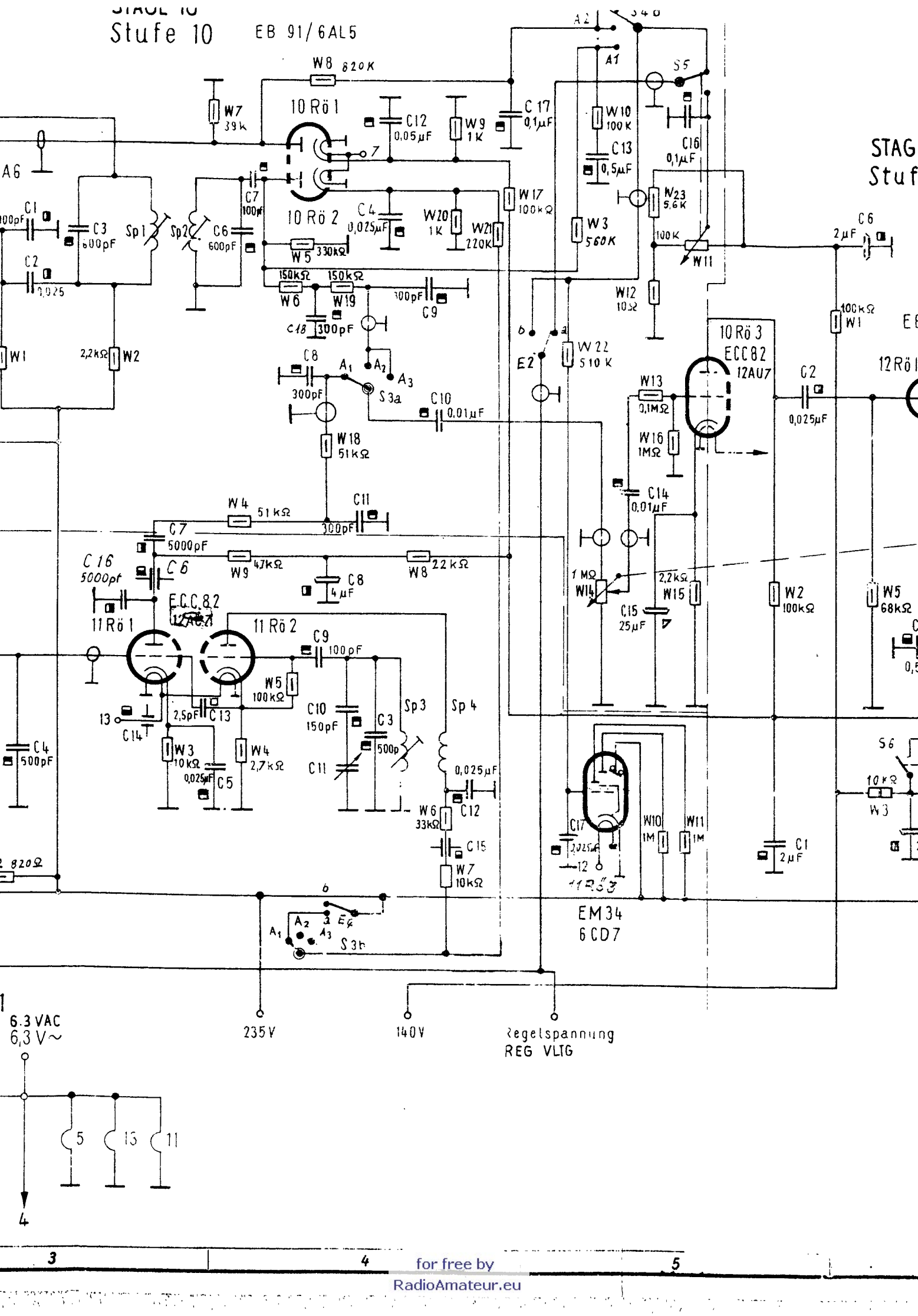


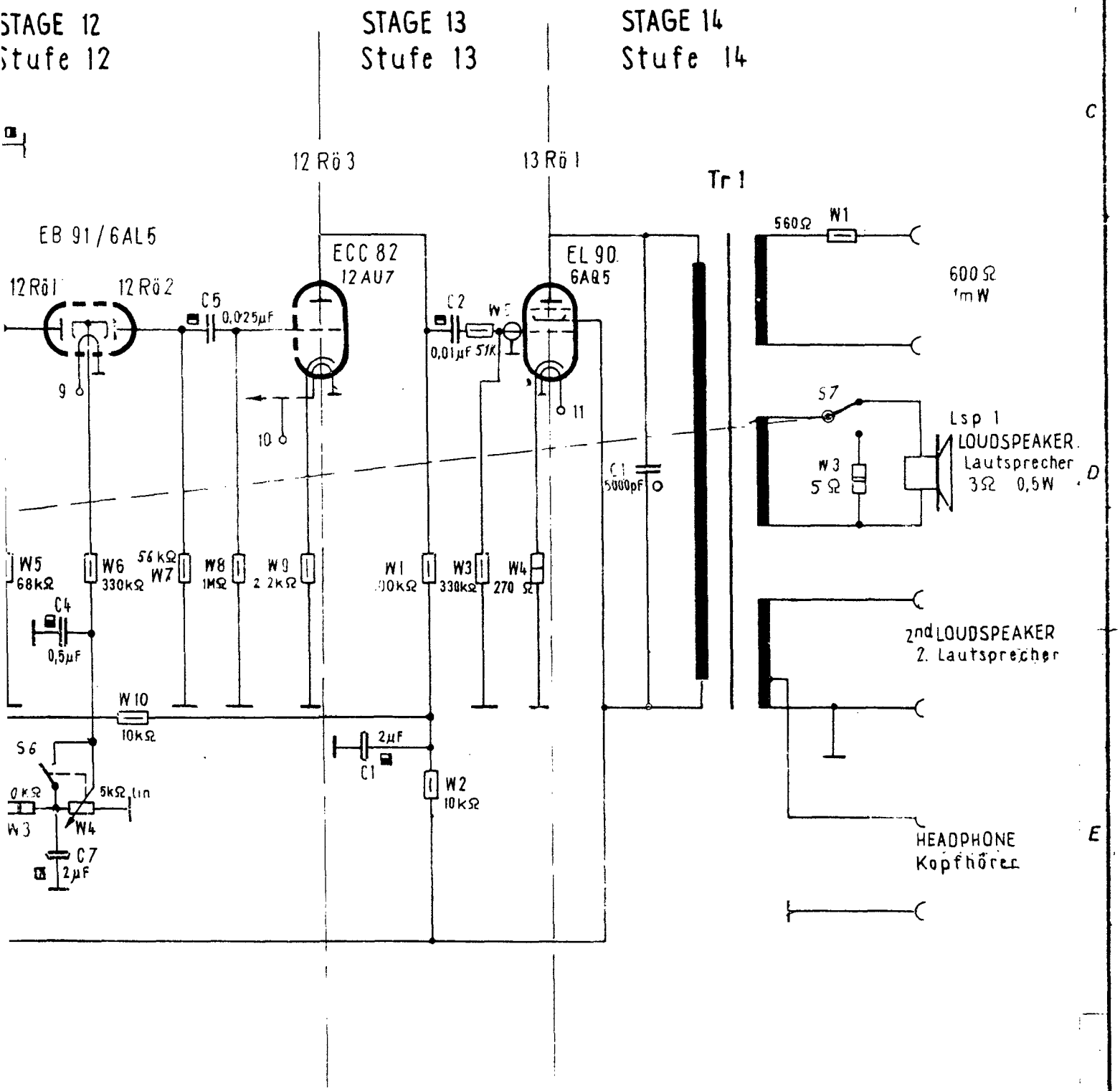
						Seefunk-Hauptempfanger Funk 745 E 310 (Debeg Empf. E 566)
		19.11.59	Maar		Tag	Name
				Bearb		
				Gepr.		
a				N. gepr		
c				SIEMENS & HALSKE AKTIENGESELLSCHAFT		INPUT SECTION Eingangsteil
b				Werner		Funk.str. empf. 115 UDtEn
a						Maßstab
Ausg.	Änd.-Mitt.-Nr	Tag	Name			TuK - KLA, K'he





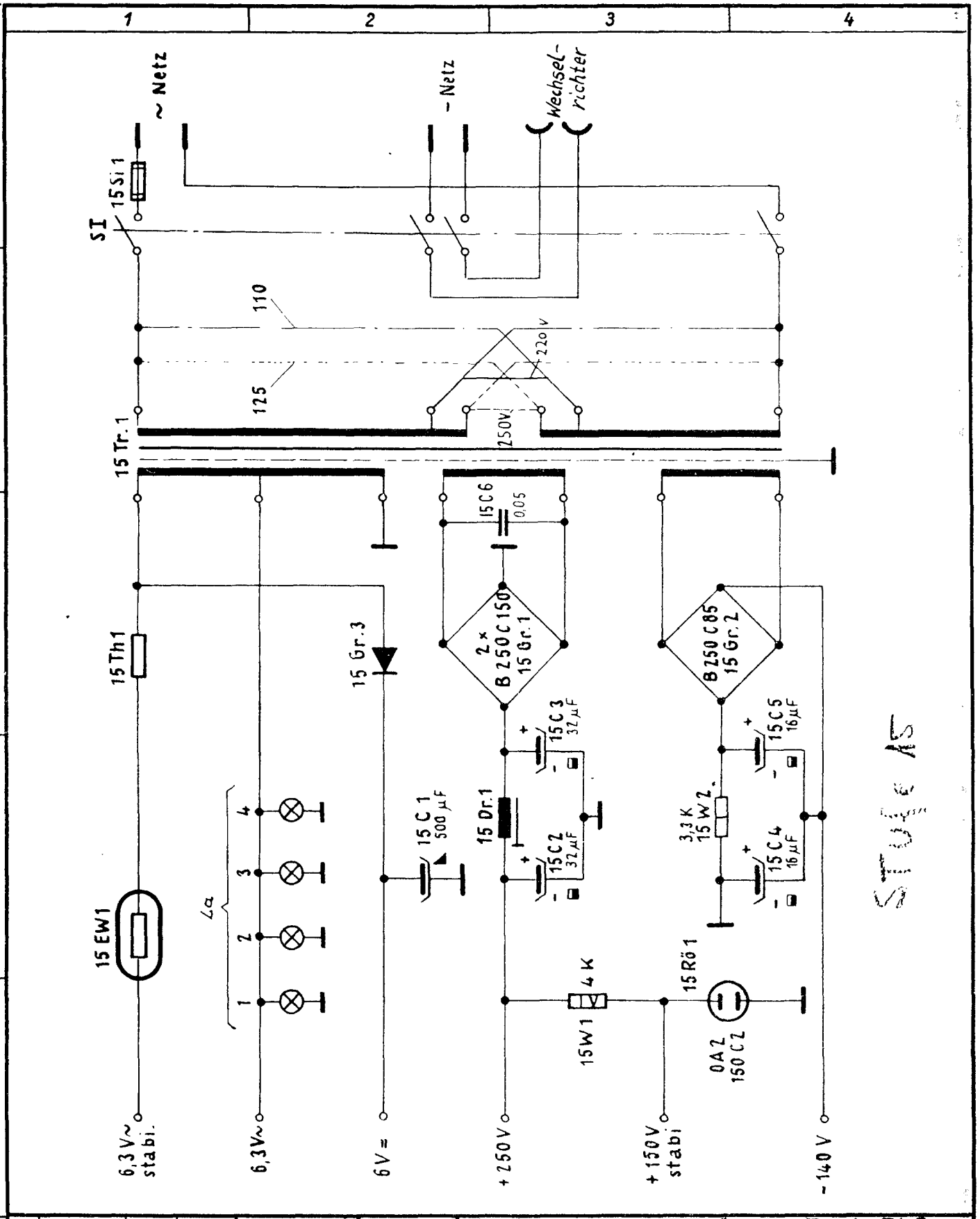






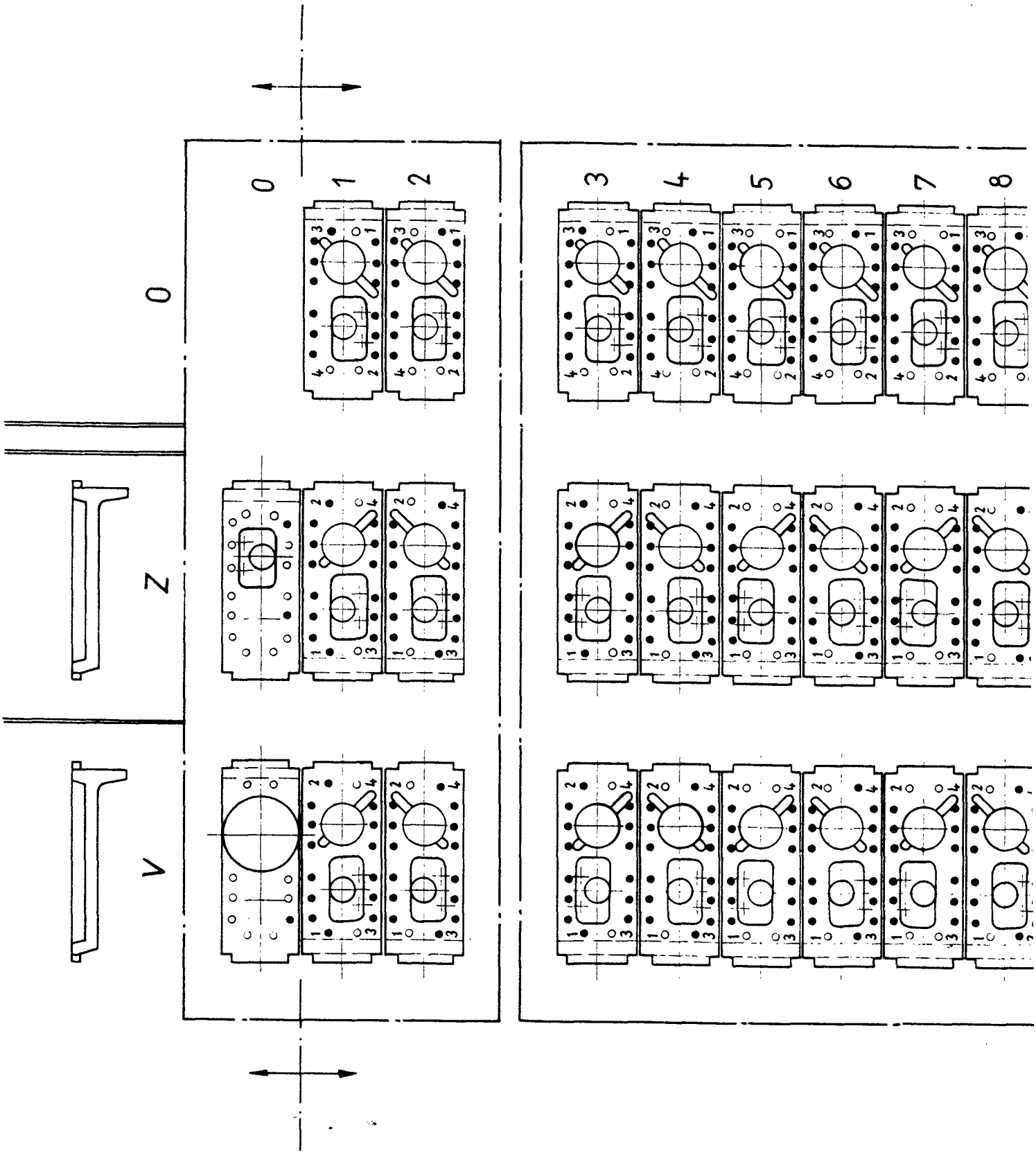
MARINE MAIN RECEIVER

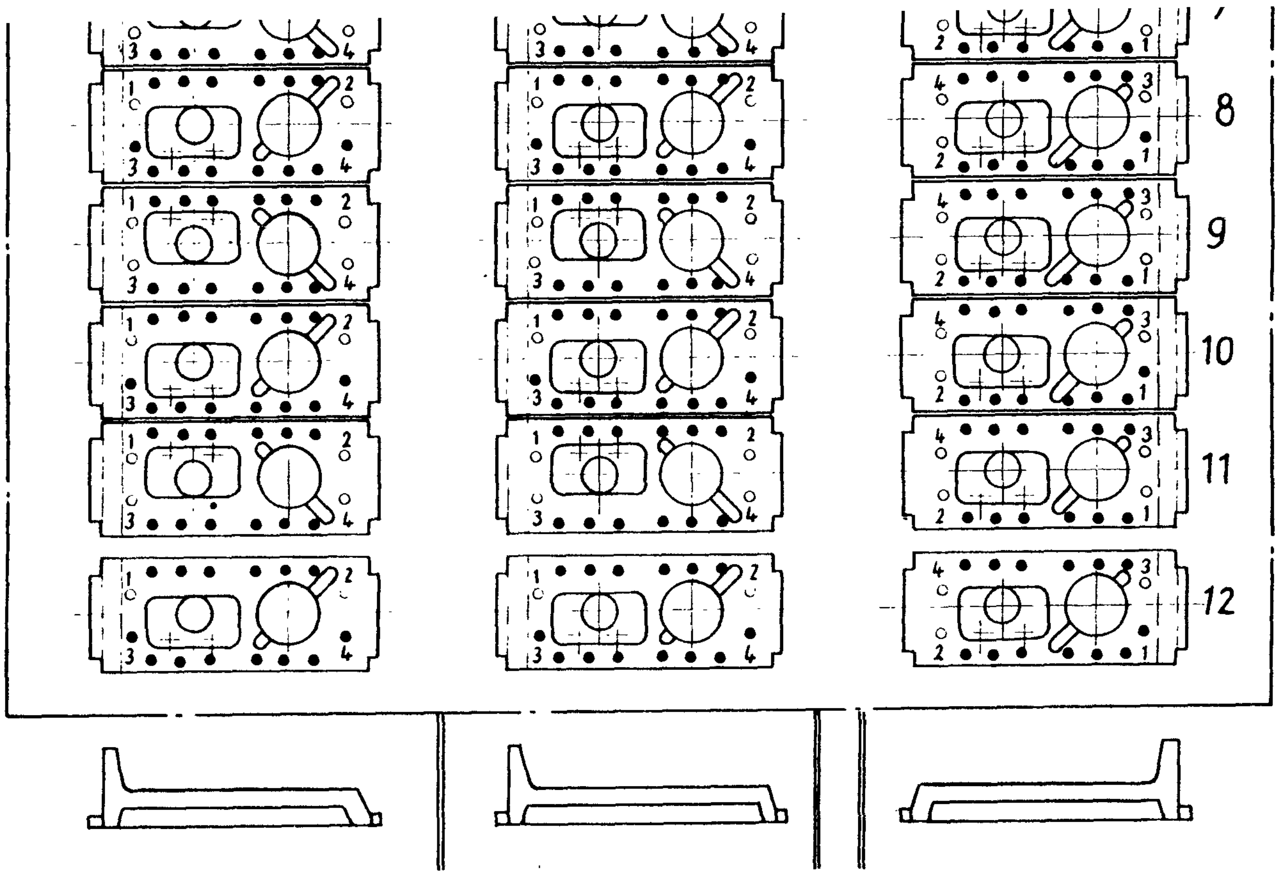
	Nichttol. Maße		Seefunk-Hauptempfänger Funk 745 E 310 (Debeg E 566)	
g 19.11.59 Mu-er		Tag	Name	AMPLIFIER SECTION Verstärkerteil	Maßstab
f	Bearb.				
e	Gepr.				
d	N. gepr	6.	Fa		
c					
b	SIEMENS & HALSKE AKTIENGESELLSCHAFT Wernerwerk			Funk str. empf. 115V Dt, En	
a				WWFu TuK KLA K'he	
Ausg.	Änd.-Mitt.-Nr	Tag	Name		



				Nichttol. Maße		Seefunkhauptempfänger Funk 745 E 310 (DEBEG E566)
					Tag	Name
				Bearb.	6.3.56	W. Müller
				Gepr.	7.3.56	Richter
				N.gepr.	7.3.56	Lindig
b	TGZ 79011	19.12.56	W. Müller	SIEMENS & HALSKE AKTIENGESELLSCHAFT Wernerwerk		Netzteil
a	TGZ 79001	11.10.56	Müller			Funk str. empf. 115 N
Ausg.	Änd.-Mittl.-Nr.	Tag	Name			WFu - TuK - KLA Khe

Maßstab





COIL Spule Funk.bv.empf.115	TRIMMER Trimmer	COIL Spule Funk.bv.empf.115	TRIMMER Trimmer	COIL Spule Funk.bv.empf.115	TRIMMER Trimmer	BAND Be-reich
U40	—	U14	—	—	—	0
U1	1C1	U15	3C1	U27	4C1	1
U2	1C2	U16	3C2	U28	4C2	2
U3	1C3	U17	3C3	U29	4C3	3
U4	1C4	U18	3C4	U30	4C4	4
U5	1C5	U19	3C5	U31	4C5	5
U6	1C6	U20	3C6	U32	4C6	6
U7	1C7	U21	3C7	U33	4C7	7
U8	1C8	U22	3C8	U34	4C8	8
U9	1C9	U23	3C9	U35	4C9	9
U10	1C10	U24	3C10	U36	4C10	10
U11	1C11	U25	3C11	U37	4C11	11
U12	1C12	U26	3C12	U38	4C12	12

LAYOUT PLAN FOR KEYBOARD

Nichttol. Maße

	Tag	Name
Bearb		
Gep:	Fe	
N.gepr		

19 11 53 Maar

SIEMENS & HALSKE
AKTIENGESELLSCHAFT
Wernerwerk

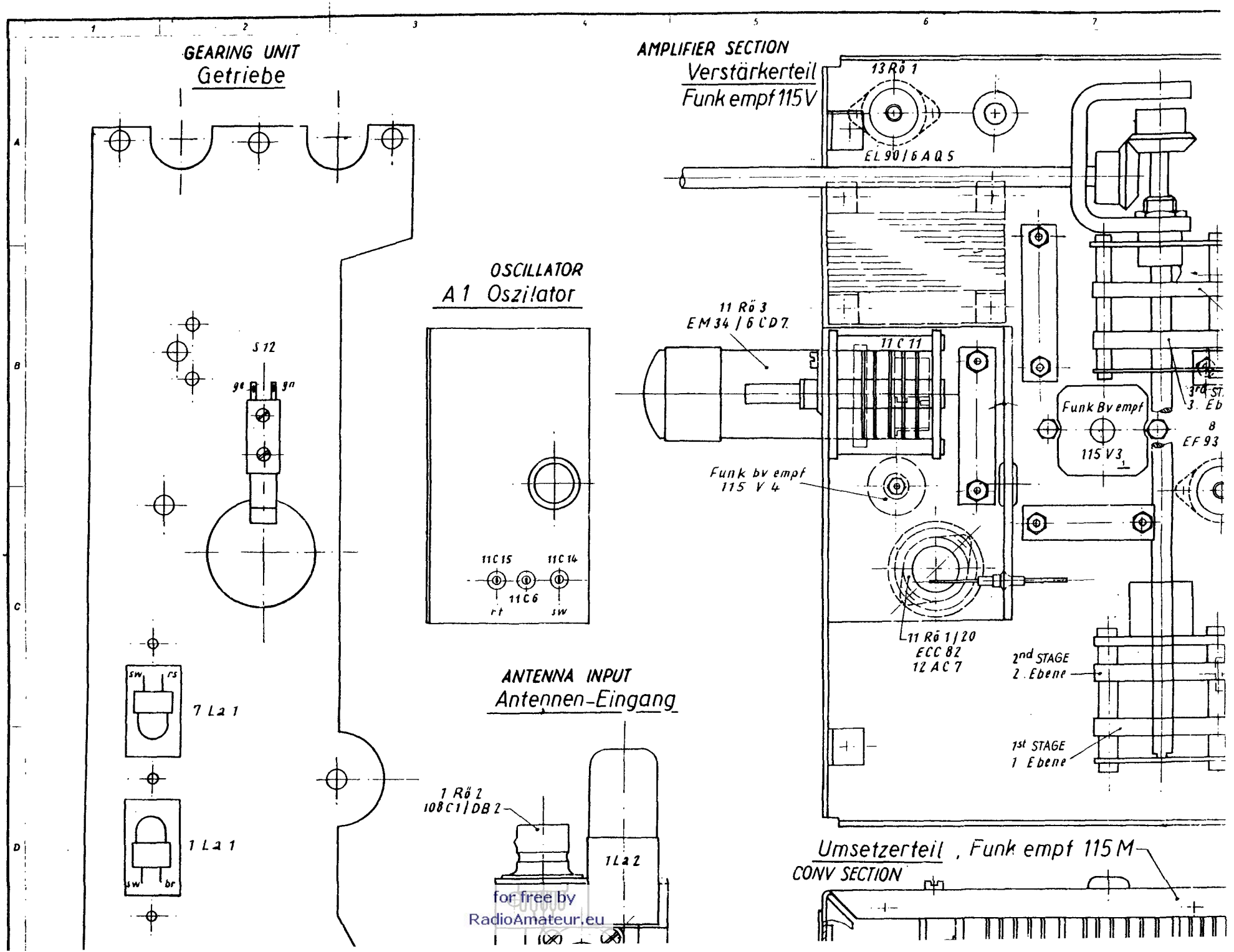
Aufbauplan für Tastatur

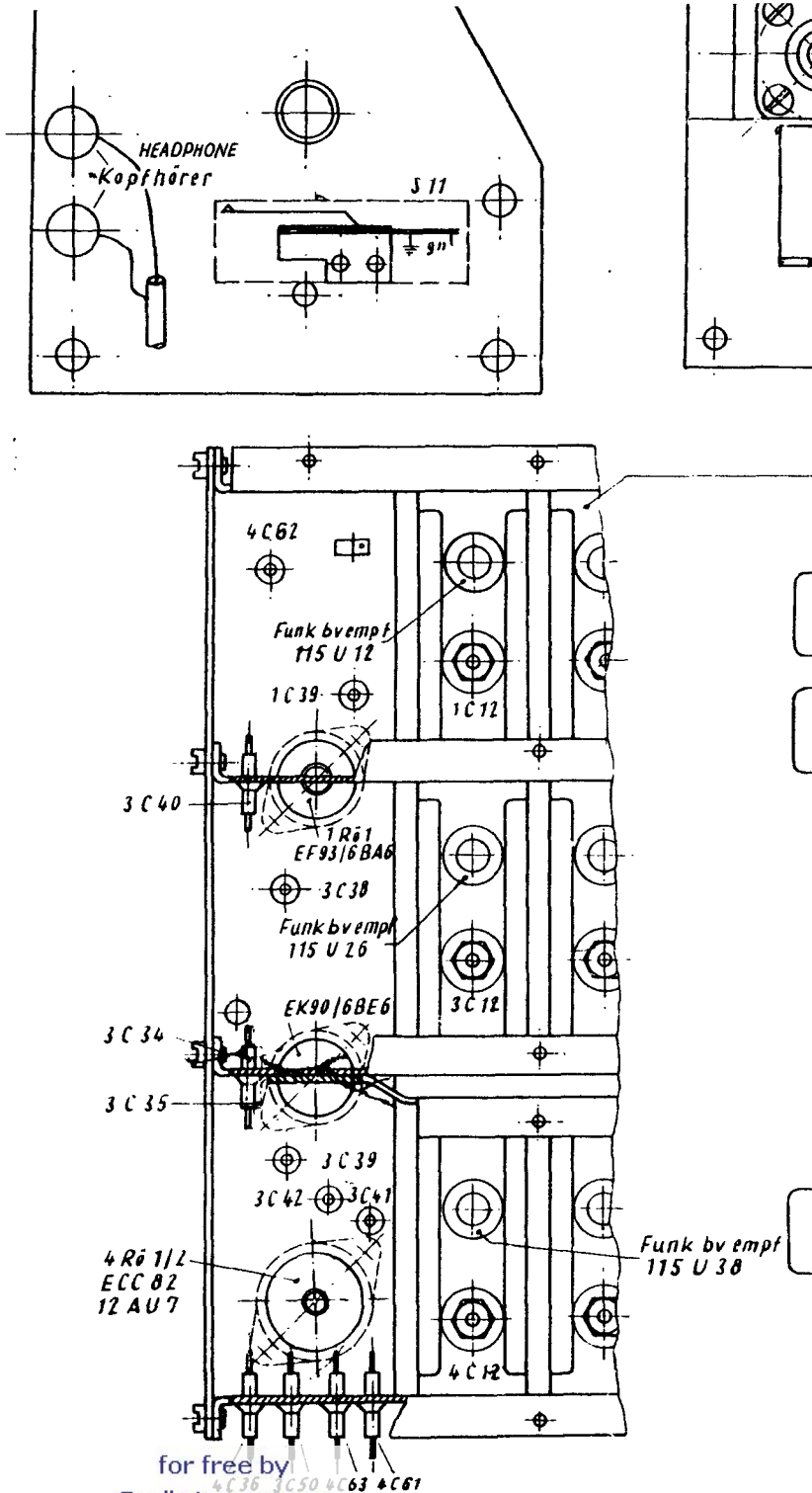
Maßstab —

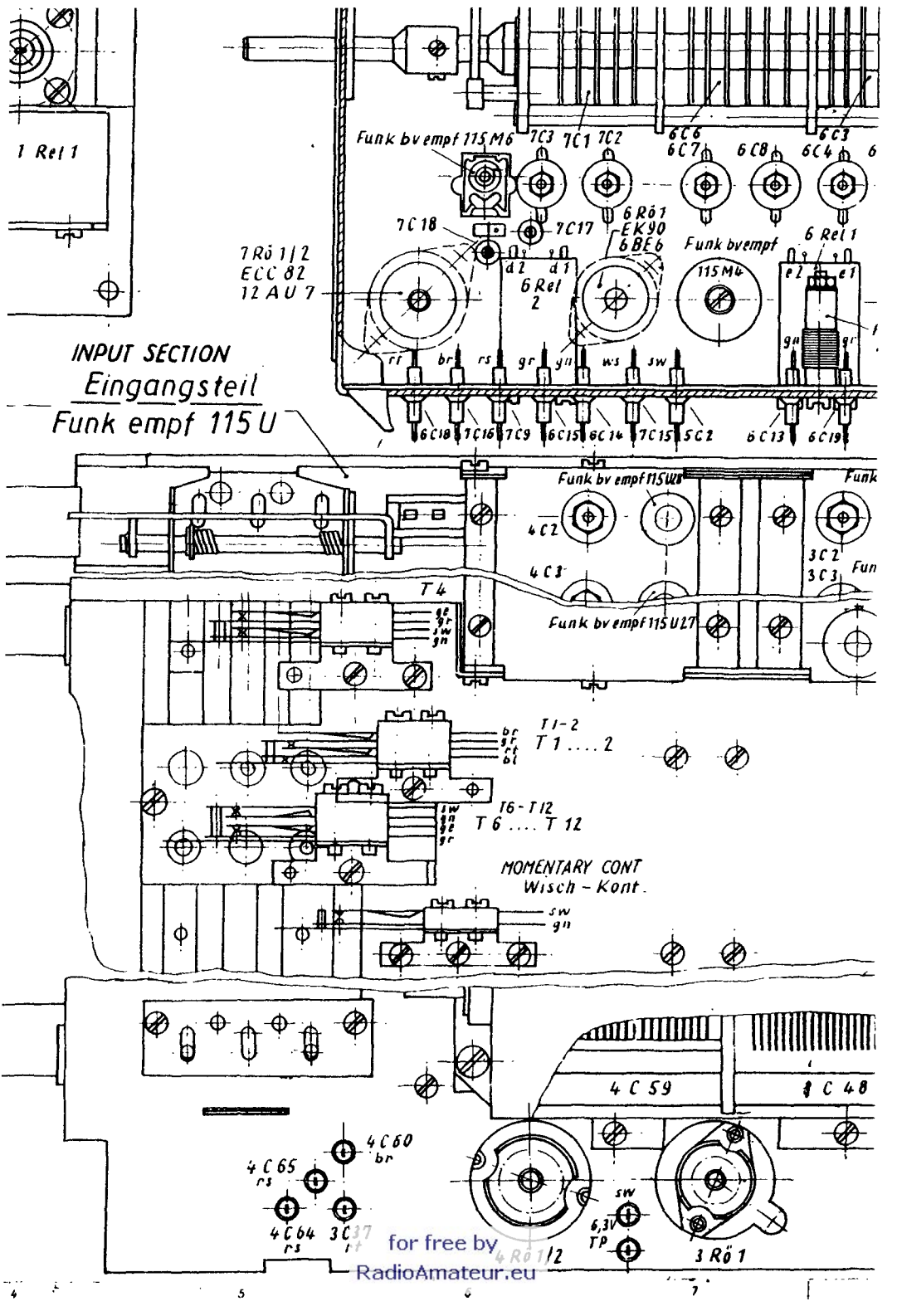
Funk. ap. empf. 115 Dt.En

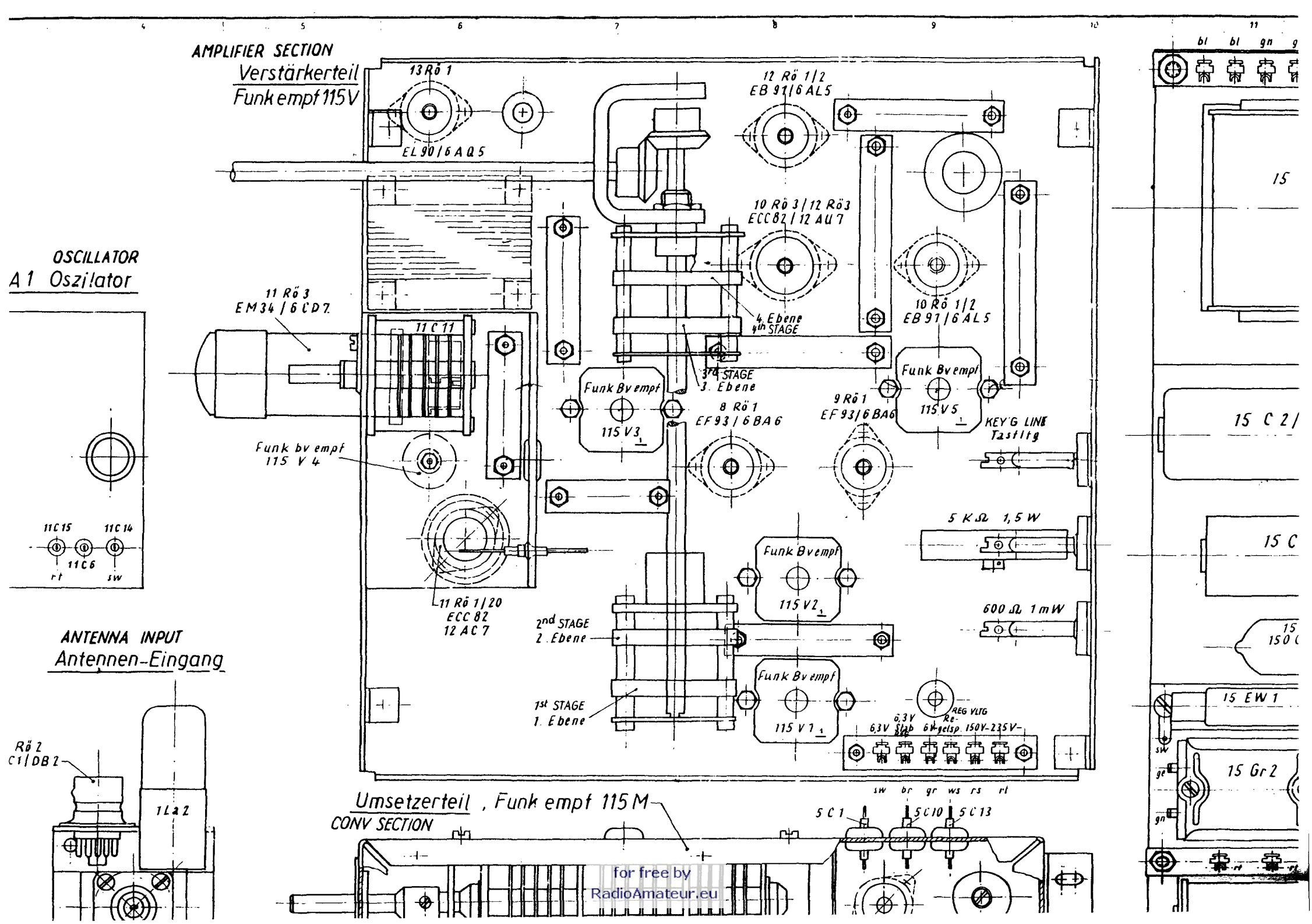
2 Bl
2 SHEETS
Bl 1
SHT 1

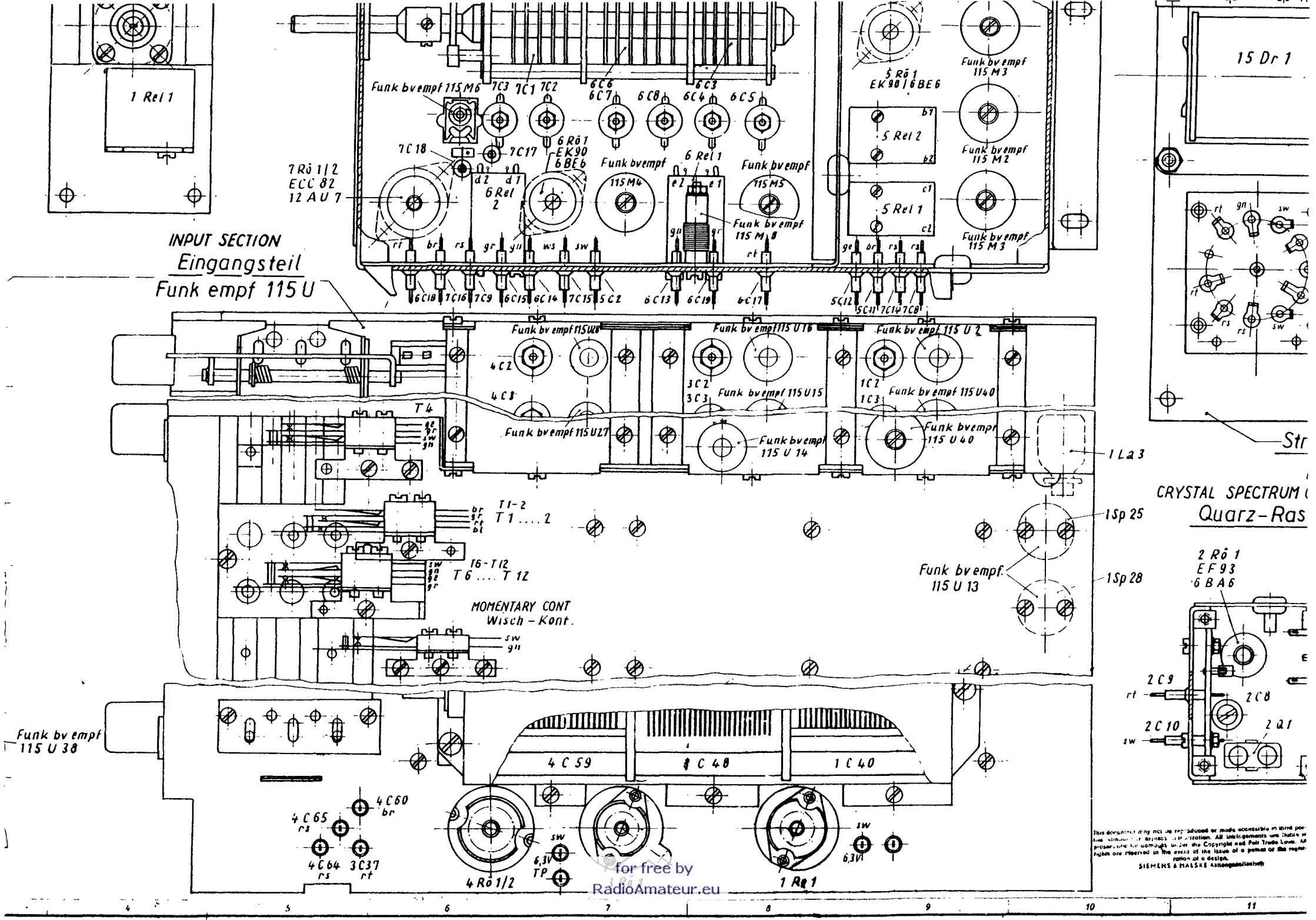
WWFu·TuK KlA K'he



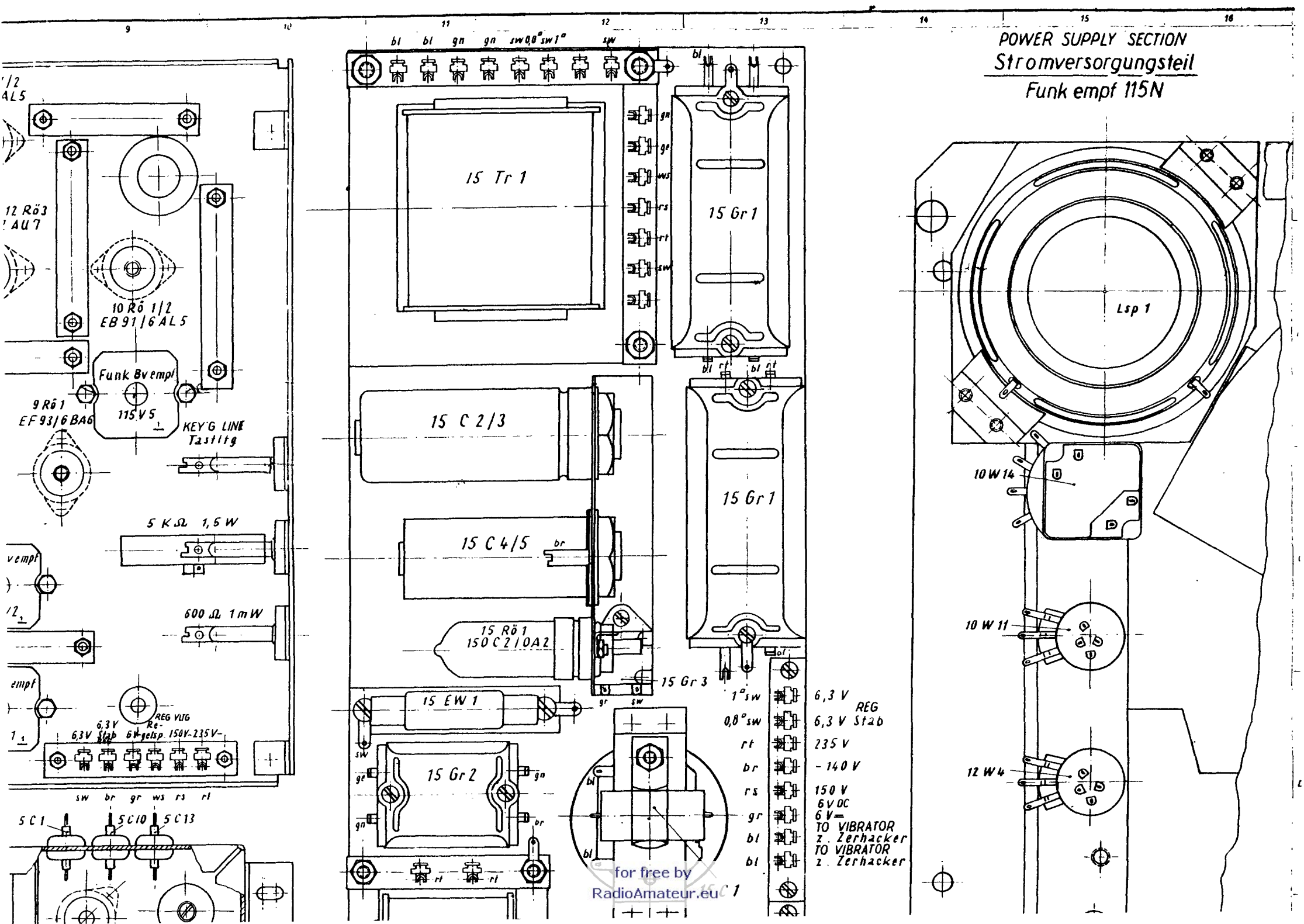


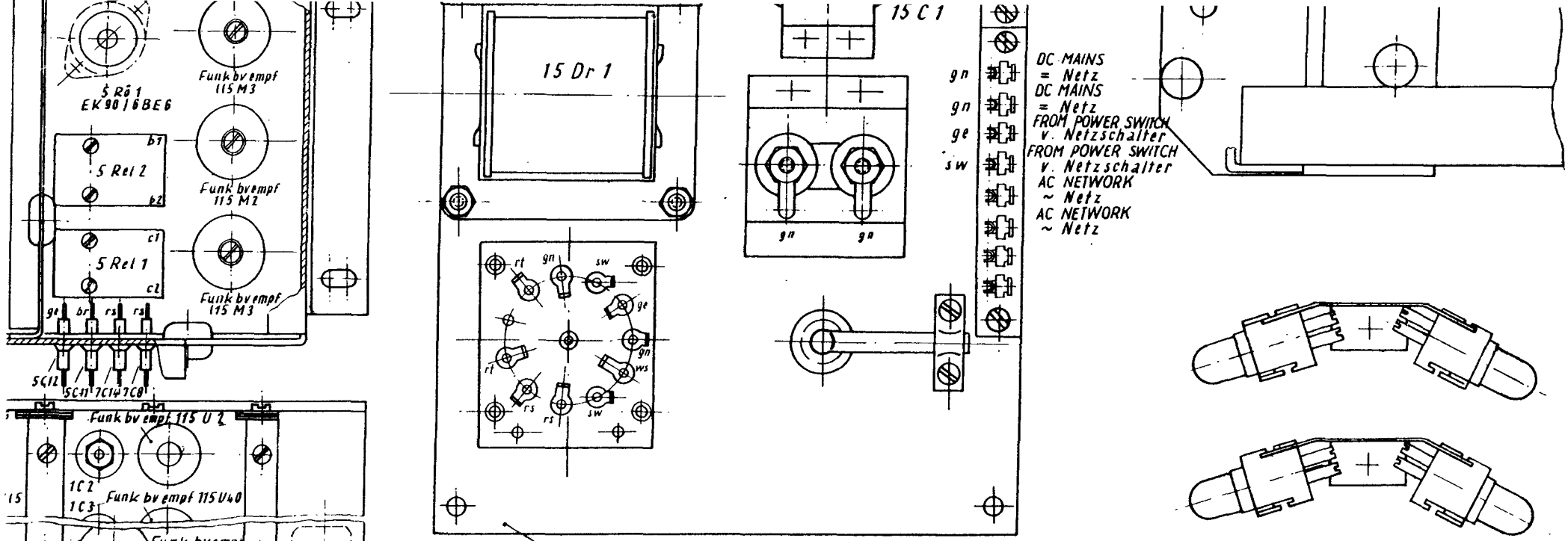


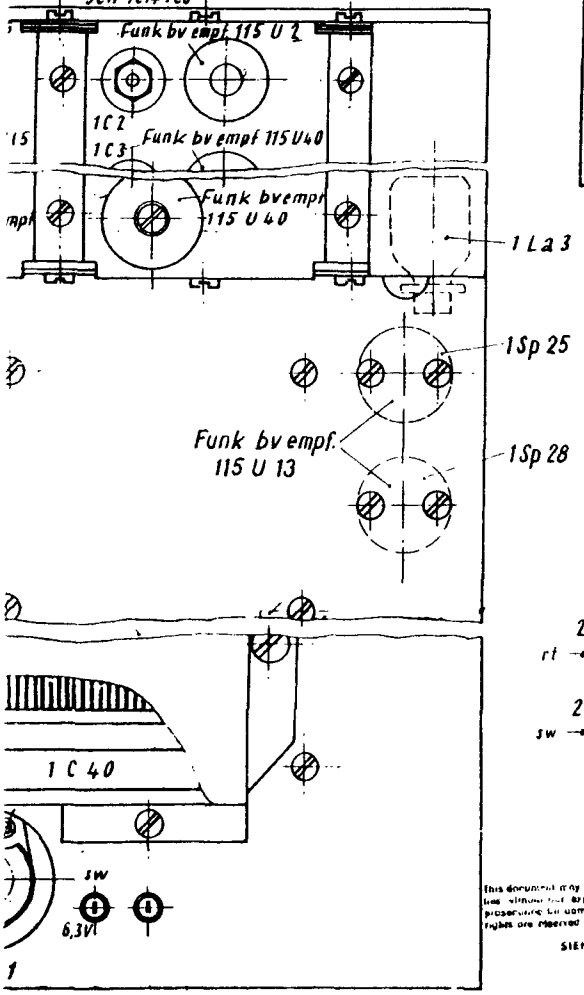




POWER SUPPLY SECTION
Stromversorgungsteil
Funk empf 115N





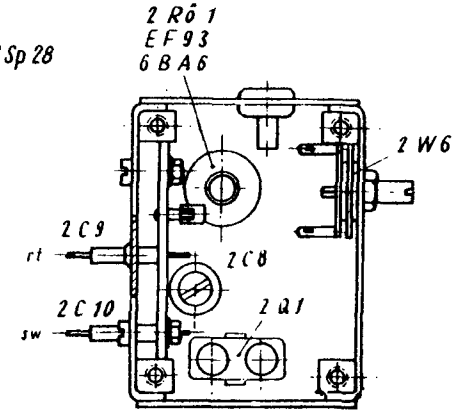


Stromversorgungsteil POWER SUPPLY SECTION

Funk empf 115 N

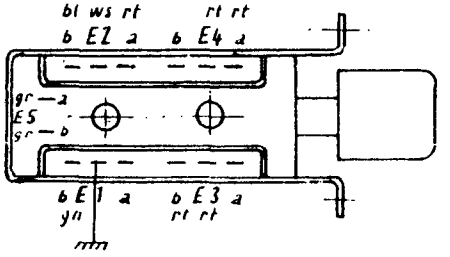
CRYSTAL SPECTRUM GENERATOR

Quarz-Raster



CALIBRATING KEY

Eich-Taste



MARINE MAIN RECEIVER

Nichttol. Maße		Seefunk-Hauptempfänger Funk 745 E 310 (Debeg E 566)	
	Tag / Name		Maßstab
Bearb.		Aufbauplan LAYOUT PLAN	—
Gepr.			
N. gepr.			
b	19.11.59		Bl 2 SHEET 2
a			
Ausg. And. Änd.-Nr.	Tag / Name	SIEMENS & HALSKE AKTIENGESELLSCHAFT Wernerwerk	Funk ap empf 115 Dt, En
		WWFv TuK KLA K'be	2 Bl 2 SHEETS

SIEMENS

Eingangsteil
Input section

Funk kk empf 115 U Dt,En

Bl. 1 Sheet 10 (10 Bl.) Sheets

Bestellangabe: Funk empf 115 U
Ordering data:

Ausg. Issue.	B			

Stromlaufplan: Circuit diagram:
Bauschaltplan: Wiring diagram:

Verwendung: Seefunk-Hauptempfänger Funk 745 E 310 (DEBEG E 566)
Application: Marine main receiver Funk 745 E 310 (DEBEG E 566)

Stck. Qty.	Gegenstand / Kurzbuchst. Description / Designation — Stückliste der elektrischen Teile List of electrical components	Bestellangaben Ordering data
1C1	Lufttrimmer Air-dielectric trimmer	25pF 82753/25E Valvo
2-6	Lufttrimmer Air-dielectric trimmer	16pF 82753/16E Valvo
7-12	Lufttrimmer Air-dielectric trimmer	25pF 82753/25E Valvo
13	Kf-Kondensator Plastic-foil capacitor	70pF±2,5% 125V DN 70/2,5/125B 3101
14	Keramik-Kondensator Ceramic capacitor	15pF B 3811-8 N750 A 15 K
15	Keramik-Kondensator Ceramic capacitor	15pF Rd D 50 2,5% Stettner
16	Keramik-Kondensator Ceramic capacitor	50pF B 3812-3 N 150 E 50 G
17 18	Keramik-Kondensator Ceramic capacitor	50pF Rd D 20 2% Stettner 250V
19	Keramik-Kondensator Ceramic capacitor	20pF B 3812-3 P 120 G 20 J
20	Kf-Kondensator Plastic-foil capacitor	1000pF±2,5% 125V DN 1000/2,5/125 B 3101
21	Kf-Kondensator Plastic-foil capacitor	B 3101 700pF±2,5% 125V DN 700/2,5/125
22	Kf-Kondensator Plastic-foil capacitor	200pF±2,5% 125V DN 200/2,5/125 B 3101
23	Kf-Kondensator Plastic-foil capacitor	140pF±2,5% 125V DN 140/2,5/125 B 3101
24	Kf-Kondensator Plastic-foil capacitor	80pF±2,5% 125V DN 80/2,5/125 B 3101
25	Kf-Kondensator Plastic-foil capacitor	20pF±1pF 125V DN 20/1/125 B 3101
26	Kf-Kondensator Plastic-foil capacitor	20pF± 1pF 125V DN 20/1/125 B3101
27	Kf-Kondensator Plastic-foil capacitor	20pF±1pF 125V DN 20/1/125 B 3101
28 29	Kf-Kondensator Plastic-foil capacitor	25pF±2,5% 125V DN 25/2,5/125 B 3101
30	Kf-Kondensator Plastic-foil capacitor	150pF±2,5% 125V150/2,5/125 B 3101
31	Kf-Kondensator Plastic-foil capacitor	90pF±2,5% 125V 90/2,5/125 B 3101
32	Keramik-Kondensator Ceramic capacitor	5pF B 3811-5N 750 A 5 D
33	Kf-Kondensator Plastic-foil capacitor	100pF ±2,5% 125V DN 100/2,5/500 B 3101
34	Kf-Kondensator Plastic-foil capacitor	170pF±2,5% 125V DN 170/2,5/125 B 3101
39	Keramik-Löt-Duko Ceramic soldering-type lead-through capacitor	2500/350 Duko 2500/350 B3705

Siemens & Halske Aktiengesellschaft Wernerwerk für Weitverkehrs- und Kabeltechnik	Vorläufig			Freigabe	Änderungen						
Ausgabe	A	B		I	II	III	IV	V	VI	VI	VIII
Datum		12.12.54									
Name		Rummelt									
Änd.-Mitteilg.		119a									
Vorteiler:				M:	Ersetzt durch:						

W 2081

Fm 20.11.59 Rummelt

SIEMENS

Eingangsteil Input section	Funk kk empf 115 U Dt, Em	Bl. 2 Sheet (BL) (10 Sheets)

Bestellangabe: Ordering data:	Ausg. Issue.	B			

Stromlaufplan: Circuit diagram:
Bauschaltplan: Wiring diagram:

Verwendung:
Application:

Stck. Qty.	Gegenstand / Kurzbuchst. Description / Designation	Stückliste der elektrischen Teile List of electrical components	Bestellangaben Ordering data
1C 40	3fach Drehko 250 pF 1.Paket Three-section variable capacitor		0002 DC/3x250 Valvo
41	Kf-Kondensator Plastic-foil capacitor		250pF/2,5%/500V MI/250/2,5/500 B 3101
43	MP-Kondensator Metallized-paper capacitor		0,1µF/200V 6 ko mpd 343 aa B2511
1W1	Schichtwiderstand Layer-type resistor		560kΩ 10% 0,5 WBT Vitrohm
2	Schichtwiderstand Layer-type resistor		10kΩ 10% 0,5 W WBT Vitrohm
1Sp 1	Antennenspule I Antenna coil I		Funk bv empf 115 U 1
2	Vorkreisspule I Preselector coil I		
3	Antennenspule II Antenna coil II		Funk bv empf 115 U 2
4	Vorkreisspule II Preselector coil II		
5	Antennenspule III Antenna coil III		Funk bv empf 115 U 3
6	Vorkreisspule III Preselector coil III		
7	Antennenspule IV Antenna coil IV		Funk bv empf 115 U 4
8	Vorkreisspule IV Preselector coil IV		
9	Antennenspule V Antenna coil V		Funk bv empf 115 U 5
10	Vorkreisspule V Preselector coil V		
11	Antennenspule VI Antenna coil VI		Funk bv empf 115 U 6
12	Vorkreisspule VI Preselector coil VI		
13	Antennenspule VII Antenna coil VII		Funk bv empf 115 U 7
14	Vorkreisspule VII Preselector coil VII		
15	Antennenspule VIII Antenna coil VIII		Funk bv empf 115 U 8
16	Vorkreisspule VIII Preselector VIII		
17	Antennenspule IX Antenna coil IX		Funk bv empf 115 U 9
18	Vorkreisspule IX Preselector coil XI		

Siemens & Halske Aktiengesellschaft Wernerwerk für Weitverkehrs- und Kabeltechnik		Vorläufig		Freigabe	Änderungen						
	Ausgabe	A	B		I	II	III	IV	V	VI	VII	VIII
	Datum		12.12.57									
	Name		Rumpelt									
	Ind.-Abtlg.											
	Vorleser:											

Erstellt durch:

W 2081

Em 20.11.59 Rumpelt

SIEMENS

Eingangsteil
Input section

Funk kk empf 115 U Dt,En

Bl. 3 Sheet 10 (Bl. Sheets)

Bestellangabe: Ordering data:

Ausg. Issue.	B			

Stromlaufplan: Circuit diagram:
Bauschaltplan: Wiring diagram:

Verwendung: Application:

Stck. Qty.	Gegenstand / Kurzbuchst. Description / Designation	Stückliste der elektrischen Teile List of electrical components	Bestellangaben Ordering data
1C19	Antennenspule X Antenna coil X		Funk bv empf 115 U 10
20	Vorkreisspule X Preselector X		
21	Antennenspule XI Antenna coil XI		Funk bv empf 115 U 11
22	Vorkreisspule XI Preselector XI		
23	Antennspule XII Antenna coil XII		Funk bv empf 155 U 12
24	Vorkreisspule XII Preselector XII		
25	Saugkreisspule 1150 KHz Wave trap coil 1150 kc/s		Funk bv empf 115 U 13
26	Saugkreisspule 100 KHz Wave trap coil 110 kc/s		Funk bv empf 115 U 14
27	Heizdrossel Heating choke		Funk bv empf 115 U 39
28	Saugkreisspule 1110 kHz Wave trap coil 1110 kc/s		Funk bv empf 115 U 15
1La 1	Eichlampe Calibrating lamp		7V 0,3A Osram L.Nr.3345
2	Schutzlampe Protection lamp		40V 10W Elektromobil Osram 6340 BA 20d
3	Schutzlampe Protection lamp		260/220 V 10/7 Osram BZM E 14
Rel A	Antennenrelais Antenna relay		T rls 151y T Bv 65018/74d
1Rö 1	Eingangsröhre Input tube		EF 93/6BA6 Siemens
2	Schutz-Glimmstrecke Protective neon stabilizer		108 C1/0B2 Siemens
2C1	Keramik-Scheibenkondensator Ceramic disk capacitor		Sad 1 pF±0,4pF B 3811-5 P 120 A 1 C
2	Keramik-Scheibenkondensator Ceramic disk capacitor		Sad 0,5pF/20% B 3811-5 P 120 A 0,5 C
3	Scheibenkondensator Disk-type capacitor		8000pF±20% 250V SKR 16/8000 D 3000
5	Kf-Kondensator Plastic-foil capacitor		80pF/2,5% 500V EN 80/2,5/500 B 3101
6	Keramischer Rohrkondensator Ceramic tubular capacitor		40pF/2%/250V/D20 Stettner
7	Kf-Kondensator Plastic-foil capacitor		50pF/2,5/125V DN 50/2,5/125V B 3101
8	Rohrtrimmer Tubular trimmer		VK 122 ME C3/60 VK 64023 Valvo
9-	Löt-Duko Soldering-type lead-through capacitor		2500pF/300V Duko 2500/350 B 3705

Siemens & Halske Aktiengesellschaft Wernerwerk für Weitverkehrs- und Kabeltechnik		Vorläufig			Freigabe	Änderungen						
	Ausgabe	A	B		I	II	III	IV	V	VI	VI	VIII
	Datum		12.12.54									
	Name											
	Änd.-Mitteilg.											
	Vorleiter:											

W 2681

Em 2.0. 11.59 Rumbold

SIEMENS

Eingangsteil Input section	Funk kk empf 115 U Dt,En	Bl. 4 Sheet (10 Bl.) (10 Sheets)

Bestellangabe: Ordering data:	Ausg. Issue.				

Stromlaufplan: Circuit diagram:
Bauschaltplan: Wiring diagram:

Verwendung:
Application:

Stck. Qty.	Gegenstand / Kurzbuchst. Description / Designation	Stückliste der elektrischen Teile List of electrical components	Bestellangaben Ordering data
2W1	Schichtwiderstnad Layer-type resistor		1,2kΩ 10% 0,5 W SBT Vitrohm
2	Schichtwiderstand Layer-type resistor		68kΩ 10% 0,5W SBT Vitrohm
3	Schichtwiderstand Layer-type resistor		100kΩ 10% 0,5W SBT Vitrohm
4	Schichtwiderstand Layer-type resistor		68kΩ ±10% 0,5W Vitrohm
5	Schichtwiderstand Layer-type resistor		390kΩ ±10% 0,5W Vitrohm
6	Einstellpotentiometer Setting potentiometer		10kΩ lin 0,2W LN 100 Ruwide
2Rö 1	Eichoszillatorröhre Calibrating oscillator tube		93/6BA6 Siemens
2Q1	Steur-Quarz 100 kHz Control crystal 100 kc/s		Rel Bv 673 R 8
3C1	Lufttrimmer Air-dielectric trimmer		15pF 82753/25E Valvo
2-6	Lufttrimmer Air-dielectric trimmer		16pF 82753/16E Valvo
7-12	Lufttrimmer Air-dielectric trimmer		25pF 82753/25E Valvo
13	Kf-Kondensator Plastic-foil capacitor		90pF±2,5% 125V DN 90/2,5/125V B 3101
14	Keramik-Kondensator Ceramic capacitor		15pF B 3811-8 N 750 A 15 K
15	Keramik-Kondensator Ceramic capacitor		20pF±2,5% SKR 12 B 3812-3 N 750 C 20 K
16	Keramik-Kondensator Ceramic capacitor		50pF±0,4pF B 3812-3 N 150 E 50G
17	Keramik-Kondensator Ceramic capacitor		50pF±2% D 20 Rd 2% 250V Stettner
18	Keramik-Kondensator Ceramic capacitor		40pF±2% D 20 Rd 2% 250V Stettner
19	Keramik-Kondensator Ceramic capacitor		20pF± B 3812-3 P 120 G 20 J
20	Kf-Kondensator Plastic-foil capacitor		1000pF±2,5% 125V DN 1000/2,5/125 B 3101
21	Kf-Kondensator Plastic-foil capacitor		700pF±2,5% 125V DN 700/2,5/125 B 3101
22	Kf-Kondensator Plastic-foil capacitor		200pF±2,5% 125V DN 200/2,5/125 B 3101
23	Kf-Kondensator Plastic-foil capacitor		140pF±2,5% 125V DN 140/2,5/125 B 3101
24	Kf-Kondensator Plastic-foil capacitor		80pF±2,5% 125V DN 80/2,5/125 B 3101
25	Kf-Kondensator Plastic-foil capacitor		20pF± 1pF 125V DN 20/1/125 B 3101

Siemens & Halske Aktiengesellschaft Wernerwerk für Weitverkehrs- und Kabeltechnik		Vorläufig		Freigabe	Änderungen						
	Ausgabe	A	B	I	II	III	IV	V	VI	VI	VIII
	Datum		12.12.54								
	Name		Rumpelt Ze								
	Änd.-Mitteilg.										
	Vorlieferer:			Nr:		Ersetzt durch:					

W 2681

Em 24.11.54 Rumpelt

SIEMENS

Eingangsteil
Input section

Funk kk empf 115 U
Dt,En

Bl. 5 Sheet (10 Sheets)

Bestellangabe:
Ordering data:

Ausg. Issue: B

Stromlaufplan: Circuit diagram:
Bauschaltplan: Wiring diagram:

Verwendung:
Application:

Stck. Qty.	Gegenstand/Kurzbuchst. Description/Designation	Stückliste der elektrischen Teile List of electrical components	Bestellangaben Ordering data
3C26 -27	Kf-Kondensator Plastic-foil capacitor		20pF ±1pF 125V DN 20/1/125 D 3101
28	Kf-Kondensator Plastic-foil capacitor		25pF±2,5% 125V DN 25/2,5/125 B 3101
29	Kf-Kondensator Plastic-foil capacitor		25pF±2,5% 125V DN 25/2,5/125 B 3101
30	Sikatrop-MP Sikatrop metallized-paper capacitor		0,1µF 250V 0,1/250V B 2530
31	Scheibenkondensator Disk-type capacitor		Sad 160pF 500V Sibatit Sad Sad 160/500 B 3121
32	Sikatrop-MP Sikatrop metallized-paper capacitor		0,1µF/250V 0,1/250V B 2530
33	Scheibenkondensator Disk-type capacitor		8000pF±20% 250V SKR 16/8000pF/ D 3000
34 -42	LÖt-Duko Soldering-type lead-through capacitor		2500pF/350V B 3705
43	Scheibenkondensator Disk-type capacitor		8000pF -20% 250V SKR 16/8000 D 3000
44 45	MP-Kondensator Metallized-paper capacitor		0,1µF/200 V 6 Ko mpd 843 aa B 2611
46	Kf-Kondensator Plastic-foil capacitor		250pF/2,5%/125V DN 250/2,5/125 B 3101
47	Kf-Kondensator Plastic-foil capacitor		40pF 2,5% 125V DN 40/2,5/125 B 3101
48	3fach Drehko 3-section variable capacitor		2 Paket in Pos 1C40 enthalten
49	Kf-Kondensator Plastic-foil capacitor		140pF±2,5% 500V DN 140/2,5/500 B 3101
50	LÖt-Duko Soldering-type lead-through capacitor		2500/350V B 3705
51	Keramik-Kondensator Ceramic capacitor		5pF B 3811-5 N 750 A 5 D
52	MP-Kondensator Metallized-paper capacitor		0,1µF/200V 6 Ko mpd 843aa B2611
3W1	Schichtwiderstand Layer-type resistor		2,2kΩ 10% 0,5 W SBT Vitrohm
2	Schichtwiderstand Layer-type resistor		150 Ω 10% 0,5W SBT Vitrohm
3	Schichtwiderstand Layer-type resistor		24 kΩ 10% 1W ABT Vitrohm
4	Schichtwiderstand Layer-type resistor		1 kΩ 10% 0,5W SBT Vitrohm
5	Schichtwiderstand Layer-type resistor		560kΩ 10% 0,5W SBT Vitrohm
6	Schichtwiderstand Layer-type resistor		220 Ω 10% 0,5W SBT Vitrohm
7	Schichtwiderstand Layer-type resistor		24 kΩ 10% 1 W ABT Vitrohm

Siemens & Halske Aktiengesellschaft
Wernerwerk für Weitverkehrs- und Kabeltechnik

	Vorlage			Freigabe	Änderungen						
Ausgabe	A	B		I	II	III	IV	V	VI	VII	VIII
Datum		12.12.54									
Name		Rumpelt									
Änd.-Mitteilg.											
Vorleger:				Freigabe:				Erstellt durch:			

W 2884

Fa 20.11.59 Rumpelt

SIEMENS

Eingangsteil Input section	Funk kk empf 115 U Dt,En	Bl. 6 Sheet 10 Bl.) Sheets)

Bestellangabe: Ordering data:	Ausg. Issue.	B			

Stromlaufplan: Circuit diagram:
Bauschaltplan: Wiring diagram:

Verwendung:
Application:

Stck. Qty.	Gegenstand / Kurzbuchst. Description / Designation	Stückliste der elektrischen Teile List of electrical components	Bestellangaben Ordering data
3W8	Schichtwiderstand Layer-type resistor		560 Ω 20% 0,5 W SBT Vitrohm
9	Schichtwiderstand Layer-type resistor		100 Ω 10% 0,5W SBT Vitrohm
10	Schichtwiderstand Layer-type resistor		100kΩ 10% 0,5W SBT Vitrohm
12	Schichtwiderstand Layer-type resistor		22 kΩ 10% 0,5 W SBT Vitrohm
13	Schichtwiderstand Layer-type resistor		12 kΩ 10% 0,5 W SBT Vitrohm
14 15	Schichtwiderstand Layer-type resistor		24 kΩ 10% 1 W ABT Vitrohm
16	Schichtwiderstand Layer-type resistor		12 kΩ 10% 0,5 W SBT Vitrohm
17	Schichtwiderstand Layer-type resistor		1 kΩ 10% 0,5W SBT Vitrohm
18	Schichtwiderstand Layer-type resistor		100kΩ 10% 0,5 W SBT Vitrohm
3Sp 1	Anodensp. Anode voltage	Zwischenkreis I	Funk bv empf 115 U 15
2	Gittersp. Grid voltage	Intermediate circuitI	
3	Anodensp. Anode voltage	Zwischenkreis II	Funk bv empf 115 U 16
4	Gittersp. Grid voltage	Intermediate circuit II	
5	Anodensp. Anode voltage	Zwischenkreis III	Funk bv empf 115 U 17
6	Gittersp. Grid voltage	Intermediate circuit III	
7	Anodensp. Anode voltage	Zwischenkreis IV	Funk bv empf 115 U 18
8	Gittersp. Grid voltage	Intermediate circuit IV	
9	Anodensp. Anode voltage	Zwischenkreis V	Funk bv empf 115 U 19
10	Gittersp. Grid voltage	Intermediate circuit V	
11	Anodensp. Anode voltage	Zwischenkreis VI	Funk bv empf 115 U 20
12	Gittersp. Grid voltage	Intermediate circuit VI	
13	Anodensp. Anode voltage	Zwischenkreis VII	Funk bv empf 115 U 21
14	Gittersp. Grid voltage	Intermediate circuit VII	

Siemens & Halske Aktiengesellschaft Wernerwerk für Weitverkehrs- und Kabeltechnik		Vorläufig		Freigabe	Änderungen						
	Ausgabe	A	B	I	II	III	IV	V	VI	VII	VIII
	Datum		12.12.57								
	Name		Dunkelt								
	Änd.-Mitg.										
	Vorlage:			Nr:				Gezeichnet durch:			

W 2881

Fa. 20.11.58 Dunkelt

SIEMENS

Eingangsteil Input section	Funk kk empf 115 U Dt, En	Bl. 7 Sheet 10 Bl. (Sheets)

Bestellangabe: Ordering data:	Ausg. Issue.	B			

Stromlaufplan: Circuit diagram:
Bauschaltplan: Wiring diagram:

Verwendung:
Application:

Stck. Qty.	Gegenstand/Kurzbuchst. Description/Designation — Stückliste der elektrischen Teile / List of electrical components	Bestellangaben Ordering data
3W15	Anodensp.) Anode voltage)Zwischenkreis VIII	Funk bv empf 115 U 22
16	Gittersp.) Grid voltage)Intermediate circuit VIII	
17	Anodensp. Anode voltage)Zwischenkreis IX	Funk bv empf 115 U 23
18	Gittersp.) Grid voltage)Intermediate circuit IX	
19	Anodensp. Anode voltage)Zwischenkreis X	Funk bv empf 115 U 24
20	Gittersp.) Grid voltage)Intermediate circuit X	
21	Anodensp. Anode voltage)Zwischenkreis XI	Funk bv empf 115 U 25
22	Gittersp.) Grid voltage)Intermediate circuit XI	
23	Anodensp. Anode voltage)Zwischenkreis XII	Funk bv empf 115 U 26
24	Gittersp.) Grid voltage)Intermediate circuit XII	
25	Saugkreisspule 50 kHz Wave trap coil 50 kc/s	Funk bv empf 115 U 14
26	Heizdrossel Heating choke	Funk bv empf 115 U 39
RS1	1 Mischröhre 1 Mixer tube	EK 90/6BE6 Siemens
4C1-4	Lufttrimmer Air-dielectric trimmer	25pF 82753/25E Valvo
5	Lufttrimmer Air-dielectric trimmer	16pF 82753/16E Valvo
6-11	Lufttrimmer Air-dielectric trimmer	15pF 82753/25E Valvo
12	Lufttrimmer Air-dielectric trimmer	16pF 82753/16E Valvo
13	Kf-Kondensator Plastic-foil capacitor	440pF±2.5% 125V DN 440/2,5/125 B 3101
14	Kf-Kondensator Plastic-foil capacitor	637pF±2,5% 125V DN 637/2,5/125 B 3101
15	Kf-Kondensator Plastic-foil capacitor	603pF±2,5% 125V DN 603/2,5/125 B 3101
16	Kf-Kondensator Plastic-foil capacitor	170pF±2,5% 125V DN 170/2,5/125 B 3101
17	Kf-Kondensator Plastic-foil capacitor	2645pF±2,5% 125V DN2645/2,5/125 B 3101
18	Kf-Kondensator Plastic-foil capacitor	490pF±2,5% 125V DN 490/2,5/125 B 3101
19	Kf-Kondensator Plastic-foil capacitor	986pF±2,5% 125V DN 986/2,5/125 B 3101

Siemens & Halske Aktiengesellschaft Wernerwerk für Weltverkehrs- und Kabeltechnik		Vorläufig		Freigabe	Änderungen						
	Ausgabe	A	B	I	II	III	IV	V	VI	VI	VII
	Datum		12.12.54								
	Name		Rennwelt Fa								
	Änd.-Mittlg.										
	Verteiler:			Ersatz für:				Ersetzt durch:			

W 2881

SIEMENS

Eingangsteil Input section	Funk kk empf 115 U Dt,En	Bl. 8 Sheet (10 Bl.) (Sheets)

Bestellangabe: Ordering data:	Ausg. Issue.	B			

Stromlaufplan: Circuit diagram:
Bauschaltplan: Wiring diagram:

Verwendung:
Application:

Stückliste der elektrischen Teile
List of electrical components

Stck. Qty.	Gegenstand/Kurzbuchst. Description/Designation	Bestellangaben Ordering data
1C20	Kf-Kondensator Plastic-foil capacitor	615pF±2,5% 125V DN 615/2,5/125 B 3101
21	Kf-Kondensator Plastic-foil capacitor	570pF±2,5% 125V DN 570/2,5/125 B 3101
22	Kf-Kondensator Plastic-foil capacitor	184pF±2,5% 125V DN 184/2,5/125 B 3101
23	Kf-Kondensator Plastic-foil capacitor	125,0pF±2,5% 125V DN 125/2,5/125 B 3101
24	Kf-Kondensator Plastic-foil capacitor	70,0pF±2,5% 125V DN70,0/2,5/125 B 3101
25	Kf-Kondensator Plastic-foil capacitor	
26	Kf-Kondensator Plastic-foil capacitor	10pF±1pF 125V DN 10/1/125 B 3101
27	Kf-Kondensator Plastic-foil capacitor	15pF±1pF 125V DN 15/1/125 B 3101
28	Keramik-Kondensator Ceramic capacitor	25pF±0,4pF B 3811-8 N 750 A 25 K
29	Keramik-Kondensator Ceramic capacitor	15pF±0,5pF B 3811-8 N 750 A 15 K
30	Keramik-Kondensator Ceramic capacitor	25pF±0,5pF B 3812-3 N 150 C 25 J
31	Keramik-Kondensator Ceramic capacitor	65pF±2% B 3812-3 N 150 E 65 F
32	Keramik-Kondensator Ceramic capacitor	50pF±2% Rd/D 20 250V Stettner
33	Keramik-Kondensator Ceramic capacitor	60pF±2% 250V Stettner
34	Keramik-Kondensator Ceramic capacitor	20pF±2% N 075 B 3812-3 C 20 G
35	Kf-Kondensator Plastic-foil capacitor	1000pF±2,5% 125V DN 1000/2,5/125 B 3101
36	Kf-Kondensator Plastic-foil capacitor	500pF±2,5% 125V DN 500/2,5 /125 B 3101
37	Kf-Kondensator Plastic-foil capacitor	360pF±2,5% 125V DN 360/2,5/125 B 3101
38	Kf-Kondensator Plastic-foil capacitor	140pF±2,5% 125V DN 140/2,5/125 B 3101
39	Kf-Kondensator Plastic-foil capacitor	120pF±2,5% 125V DN 120/2,5/125 B 3101
40	Kf-Kondensator Plastic-foil capacitor	100pF±2,5% 125V DN 100/2,5/125 B 3101
41	Kf-Kondensator Plastic-foil capacitor	80pF±2,5% 125V DN 80/2,5/125 B 3101
42	Kf-Kondensator Plastic-foil capacitor	50pF±2,5% 125V DN 50/2,5/125 B 3101
43	Kf-Kondensator Plastic-foil capacitor	40pF±2,5% 125V DN 40/2,5/125 B 3101

Siemens & Halske Aktiengesellschaft Wernerwerk für Weltverkehrs- und Kabeltechnik		Vorläufig		Freigabe	Änderungen						
	Ausgabe	A	B	I	II	III	IV	V	VI	VII	VIII
	Datum		12.12.54								
	Name		Rumrecht / Fa								
	Änd.-Mitlg.										
	Verteiler:			Ersatz für:			Ersetzt durch:				

W 2881

F. 21.11.59 Rumrecht

SIEMENS

Eingangsteil Input section	Funk kk empf 115 U Dt,En	Bl. 9 Sheet 10 Bl. Sheets

Bestellangabe:
Ordering data:

Ausg. Issue.	B			

Stromlaufplan: Circuit diagram:
Bauschaltplan: Wiring diagram:

Verwendung:
Application:

Stck. Qty.	Gegenstand / Kurzbuchst. Description / Designation Stückliste der elektrischen Teile List of electrical components	Bestellangaben Ordering data
4C44	Kf-Kondensator Plastic-foil capacitor	30pF±2,5% 125V DN 30/2,5/125 B 3101
45	Kf-Kondensator Plastic-foil capacitor	25pF±2,5% 125V DN 25/2,5/125 B 3101
46	Kf-Kondensator Plastic-foil capacitor	20pF±1pF 125V DN 20/1/125 B 3101
47	Kf-Kondensator Plastic-foil capacitor	16pF±1pF 125V DN 16/1/125 B 3101
48	Kf-Kondensator Plastic-foil capacitor	10pF±1pF 125V DN 10/1/125 B 3101
49 -51	Kf-Kondensator Plastic-foil capacitor	25pF±2,5% 125V DN 25/2,5/125 B 3101
52 53	Kf-Kondensator Plastic-foil capacitor	25pF±2,5% 125V DN 25/2,5/125 B 3101
54	Keramik-Kondensator Ceramic capacitor	15pF±0,4 B 3811-8 N 750 A 15 K
56	Kf-Kondensator Plastic-foil capacitor	12pF±1pF 125V DN 12/1/125 B 3101
57	Kf-Kondensator Plastic-foil capacitor	10pF±1pF 125V DN 10/1/125 B 3101
58	Keramik-Kondensator Ceramic capacitor	15pF±0,4pF 15/0,4/700 B 3717
59	3fach **Drehko** Three-section variable capacitor	3 Paket in 1 C 40 enthalten
60 -65	Löt-Duko Soldering-type lead-through capacitor	2500pF/350 V B 3705
66	MP-Kondensator Metallized-paper capacitor	0,01µF/200V 6 Ko mpd 834 aa B 2611
67	MP-Kondensator Metallized-paper capacitor	0.1µF/200V 6 Ko mpd 843 aa B 2611
4W 1	Schichtwiderstand Layer-type resistor	22 kΩ 10% 0,5 W SBT Vitrohm
2	Schichtwiderstand Layer-type resistor	470 Ω 10% 0,5 W SBT Vitrohm
3	Schichtwiderstand Layer-type resistor	20 kΩ 10% 0,5 W SBT Vitrohm
4	Schichtwiderstand Layer-type resistor	100 kΩ 01% 0,5 W SBT Vitrohm
5	Schichtwiderstand Layer-type resistor	220 Ω 10% 0,5 W SBT Vitrohm
6	Schichtwiderstand Layer-type resistor	2,2 kΩ 10% 0,5 W SBT Vitrohm
7	Schichtwiderstand Layer-type resistor	20 kΩ 10% 0,5 W SBT Vitrohm
4Sp 1	Oszi.-Spule I Osc .-coil I	Funk Bv empf 115 U 27
2	Oszi.-Spule II Osc .-coil II	Funk Bv empf 115 U 28

Siemens & Halske Aktiengesellschaft Wernerwerk für Weitverkehrs- und Kabeltechnik		Vorlage		Freigabe	Änderungen						
	Ausgabe	A	B	I	II	III	IV	V	VI	VII	VIII
	Datum		12.12.57								
	Name		Rumpelt								
	Ind.-Kittg.		2a								
	Verteiler:										

W 2241

Fu 20.11.58 Rumpelt

SIEMENS

Eingangsteil
Input section

Funk kk empf 115 U Dt,En

Bl. 10 Sheet (10 Bl. / Sheets)

Bestellangabe: / **Ordering data:**

Ausg. issue.	B			

Stromlaufplan: Circuit diagram:
Bauschaltplan: Wiring diagram:

Verwendung: / **Application:**

Stck. Qty.	Gegenstand / Kurzbuchst. Description / Designation	Stückliste der elektrischen Teile List of electrical components	Bestellangaben Ordering data
4Sp 3	Oszi.-Spule III Osc.-coil III		Funk Bv empf 115 U 29
4	Oszi.-Spule IV Osc.-coil IV		Funk Bv empf 115 U 30
5	Oszi.-Spule V Osc.-coil V		Funk Bv empf 115 U 31
6	Oszi.-Spule VI Osc.-coil VI		Funk Bv empf 115 U 32
7	Oszi.-Spule VII Osc.-coil VII		Funk Bv empf 115 U 33
8	Oszi.-Spule VIII Osc.-coil VIII		Funk Bv empf 115 U 34
9	Oszi.-Spule IX Osc.-coil IX		Funk Bv empf 115 U 35
10	Oszi.-Spule X Osc.-coil X		Funk Bv empf 115 U 36
11	Oszi.-Spule XI Osc.-coil XI		Funk Bv empf 115 U 37
12	Oszi.-Spule XII Osc.-coil XII		Funk Bv empf 115 U 38
13	Heizdrossel Heating choke		Funk Bv empf 115 U 39
4Rö 1,2	Oszillator-Röhre Oscillator tube		ECC82/12 AU7 Siemens

Siemens & Halske Aktiengesellschaft Wernerwerk für Weitverkehrs- und Kabeltechnik		Vorläufig		Freigabe	Änderungen						
	Ausgabe	A	B	I	II	III	IV	V	VI	VII	VIII
	Datum		29.12.58								
	Name		Rumpelt								
	Änd.-Mitteilg.		Fa								
	Vorleiter:				Name				Gezeichnet durch:		

W 2001

Fa 24. 11.59 Rumpelt

SIEMENS

Umsetzerteil Converter section	Funk kk empf 115 M Dt, En	Bl. 1 Sheet (3 Bl.) (3 Sheets)

Bestellangabe: Ordering data:	Funk empf 115 M	Ausg. Issue.	B			

Stromlaufplan: Circuit diagram:
Bauschaltplan: Wiring diagram:

Verwendung: Seefunk-Hauptempfänger Funk 745 E 310 (DEBEG E566)
Application: Marine main receiver Funk 745 E 310 (DEBEG E566)

Stck. Qty.	Gegenstand / Kurzbuchst. Description / Designation Stückliste der elektrischen Teile List of electrical components	Bestellangaben Ordering data
5C1 -2	Keramik-(Löt)-Duko Ceramic(soldering-type)lead-through capacitor	2500pF/350V Duko 2500/350 B 3705
3	Papier-Kondensator Paper capacitor	0,01µF/250V Kf 310/2 Roederstein
4	Kf-Kondensator Plastic-foil capacitor	1000pF±2,5% 125V DN 1000/2,5/125 B 3101
5	Kf-Kondensator Plastic-foil capacitor	10000pF±2,5% 125V DN10000/2,5/12 B 3101
6	Kf-Kondensator Plastic-foil capacitor	1000pF±2,5% 125V DN 1000/2,5/125 B 3101
9	Papier-Kondensator Paper capacitor	0,1µF/250V Kf 410/2 Roederstein
1, 1 12, 3	Keramik-(Löt)-Duko Ceramic(soldering-type)lead-through capacitor	2500pF/350V Duko 2500/350 B 3705
5W 1,2	Schichtwiderstand Layer-type resistor	1MΩ 10% 0,5W SBT Vitrohm
3	Schichtwiderstand Layer-type resistor	820 Ω 10% 0,5 W SBT Vitrohm
4	Schichtwiderstand Layer-type resistor	68kΩ 10% 0,5 W SBT Vitrohm
5Sp 1	1.Kreis 1st circuit } 50-kc/s filter	Funk bv empf 115 M1
2	Koppelspule Coupling coil }	
3	100KHz Saugkreis 100-kc/s wave trap	Funk bv empf 115 M2
4	2.Kreis 50KHz Filter 2nd circuit 50-kc/s filter	Funk bv empf 115 M3
5RE 10	ZF-Relais IF relay	T rls 151y T Bv 65018/74d
8	ZF-Relais IF relay	T rls 151y T Bv 65018/74d
5Rö 1	50 kHz-ZF-Rohr 50-kc/s IF tube	EK 90/6BE6 Siemens
6C1	Kf-Kondensator Plastic-foil capacitor	20pF/±1pF/125V DN 20/1/125 B 3101
2	Papier-Kondensator Paper capacitor	0,01µF/250V Kf 310/2 Roederstein
3	3fach Drehkondensator Three-section variable capacitor	1,Paket C001AA/3x16E Valvo
4,5	Lufttrimmer Air-dielectric trimmer	25pF 82753/25E Valvo
6	3fach Drheko Three-section variable capacitor	2,Paket in 603 enthalten
7,8	Lufttrimmer Air-dielectric trimmer	25pF 82753/25E Valvo
9	Kf-Kondensator Plastic-foil capacitor	20pF±1 pF125V DN 20/1/125 B 3101

Siemens & Halske Aktiengesellschaft Wernerwerk für Weitverkehrs- und Kabeltechnik	Vorläufig		Freigabe	Änderungen						
Ausgabe	A	B	I	II	III	IV	V	VI	VI	VIII
Datum		4.7.58								
Name		Ruprecht Fa								
Änd.-Mitteig.										
Verteiler:			Normgenehmigung Ersatz für:				Ersetzt durch:			

W 2881

Ea 20.11.59 Ruprecht

SIEMENS

Umsetzerteil Converter section	Funk kk empf 115 M Dt, En	Bl. 2 Sheet (3 Bl.) (3 Sheets)

Bestellangabe: Ordering data:	Ausg. Issue.	B			

Stromlaufplan: Circuit diagram:
Bauschaltplan: Wiring diagram:

Verwendung:
Application:

Stck. Qty.	Gegenstand/Kurzbuchst. Description/Designation Stückliste der elektrischen Teile List of electrical components	Bestellangaben Ordering data
6C10	Papier-Kondensator Paper capacitor	0,01µF/250V Kf 310/2 Roederstein
11	Kf-Kondensator Plastic-foil capacitor	50pF±1pF 125V DN 50/1/125 B 3705
12	Papier-Kondensator Paper capacitor	0,01µF/250V Kf 310/2 Roederstein
13, 14, 15	Keramik-(Löt)-Duko Ceramic(soldering-type)lead-through capacitor	2500pF/350V Duko 2500/350 B 3705
16	Kf-Kondensator Plastic-foil capacitor	50pF/2,5%/125V DN 50/2,5/125V B 3101
17, 18, 19	Keramik-(Löt)-Duko Ceramic(soldering-type)lead-through capacitor	2500pF/350V Duko 2500/350 B 3705
6W1	Schichtwiderstand Layer-type resistor	1 MΩ±10% 0,5 W SBT Vitrohm
2	Schichtwiderstand Layer-type resistor	150 Ω±10% 0,5 W SBT Vitrohm
3	Schichtwiderstand Layer-type resistor	27 kΩ±10% 0,5W SBT Vitrohm
4	Schichtwiderstand Layer-type resistor	6,8kΩ±10% 0,5 W SBT Vitrohm
5	Schichtwiderstand Layer-type resistor	1 kΩ±10% 0,5 W SBT Vitrohm
6Sp 1	Anodenspule) Variables ZF-Filter Anode coil)	Funk bv empf 115 M5
2	Gitterspule) Variable IF filter Grid coil)	Funk bv empf 115 M4
3	Koppelspule Coupling coil	Funk bv empf 115 M8
Rel E,D	Relais Relay	T rls 151y T Bv 65018/74d
6Rö 1	2.Mischröhre 2nd mixer tube	EK 90/6BE6 Siemens
7C1	3fach Drehkp Three-section variable capacitor	3 Paket in 6C3 enthalten
2-3	Lufttrimmer Air-dielectric trimmer	25pF 82753/25E Valvo
4	Keramik-Kondensator Ceramic capacitor	50pF 2% 250V Rd D 20/Stettner
5, 6	Kf-Kondensator Plastic-foil capacitor	500pF±2,5% 125V DN 500/2,5/125 B 3101
7	Kf-Kondensator Plastic-foil capacitor	100pF±2,5% 125V DN 100/2,5/125 B 3101
8,9	Keramik-(Löt)-Duko Ceramic(soldering-type)lead-through capacitor	2500pF/350V Duko 2500/350 B 3705
10	Kf-Kondensator Plastic-foil capacitor	5pF/±1pF/500V EN 5/1/500 B 3101
11	Papier-Kondensator Paper capacitor	0,1µF/250V Kf 410/2 Roederstein

Siemens & Halske Aktiengesellschaft Wernerwerk für Weitverkehr- und Kabeltechnik	Ausgabe	Veröffentlichung A	B		Freigabe I	Änderungen II	III	IV	V	VI	VII	VIII
	Datum		17.7.58									
	Name		Quirmbach									
	Änd.-Mitteilg.											
	Verteiler:					Ersetzt durch:						

W 2881

SIEMENS

Umsetzerteil
Converter section

Funk kk empf 115 M Dt,En

Bl. 3 Sheet (3 Bl.) (Sheets)

Bestellangabe: Ordering data:

Ausg. Issue.	B			

Stromlaufplan: Circuit diagram:
Bauschaltplan: Wiring diagram:

Verwendung: Application:

Stck. Qty.	Gegenstand/Kurzbuchst. Description/Designation	Stückliste der elektrischen Teile List of electrical components	Bestellangaben Ordering data
C14 -17	Keramik-(Löt)-Duko Ceramic-(soldering-type)lead-through		2500pF/350V Duko 2500/350 capacitor B 3705
18	Keramik-(Löt)-Bypass F Ceramic-(soldering-type)-bypass F		1600pF/250V Bypass/1600/250 B 3706F
19	Papier-Kondensator Paper capacitor		0,05µF/125V Kf 350/1 Roederstein
20	Keramik-Kondensator Ceramic capacitor		10pF 2% 250V B 3812-3 P 120 E 10 D
7W 1	Schichtwiderstand Layer-type resistor		100kΩ±10% 0,5W SBT Vitrohm
2	Schichtwiderstand Layer-type resistor		220kΩ±10% 0,5W SBT Vitrohm
3	Schichtwiderstand Layer-type resistor		1 kΩ±10% 0,5W SBT Vitrohm
4	Schichtwiderstand Layer-type resistor		10 kΩ±10% 0,5W SBT Vitrohm
7Sp 1	Kreisspule Oszi.II Tuning coil Osc .II		Funk bv empf 115 M6
2	Anodendrossel Anode choke		Funk bv empf 115 M7
3	Kathodendrossel Cathode choke		Funk bv empf 115 M7
7Rö 1	II Oszi.-Röhre II osc.-tube		ECC82/12AU7 Siemens
2	Kathodenverst.-Röhre Cathode follower tube		
7La 1	Signal-Lampe f.Frequenz-Lupe Indicating lamp for frequency interpolator		7 V/0,3 A Osram L.N.3341

Siemens & Halske Aktiengesellschaft Wernerwerk für Weitverkehrs- und Kabeltechnik		Vorläufig		Freigabe	Änderungen						
	Ausgabe	A	B	I	II	III	IV	V	VI	VI	VIII
	Datum		17.7.58								
	Name		Quarcelt								
	Änd.-Mitteg.										
	Vorsteller:			Normen-Stelle Nr.:				Ersetzt durch:			

W 2881

Ein 31.11.59 Quarcelt

SIEMENS

Verstärkerteil
Amplifier section

Funk kk empf 115 V Dt,En

Bl. 1 Sheet (6 Bl.) (Sheets)

Bestellangabe: Ordering data: Funk empf 115 V

Ausg. Issue: A

Stromlaufplan: Circuit diagram:
Bauschaltplan: Wiring diagram:

Verwendung: Seefunk-Hauptempfänger Funk 745 E 310 (DEBEG 3566)
Application: Marine main receiver Funk 745 E 310 (DEBEG 3566)

Stck. Qty.	Gegenstand / Kurzbuchst. Description / Designation — Stückliste der elektrischen Teile List of electrical components	Bestellangaben Ordering data
8C1	Papier-Kondensator Paper capacitor	0,025/250V Minityp 85 Kf 325/2 Roederstein
2	Papier-Kondensator Paper capacitor	0,1/125 V Minityp 85 Kf 410/1 Roederstein
8W 1	Schichtwiderstand Layer-type resistor	1kΩ ±10% 0,5W SBT Vitrohm
2	Schichtwiderstand Layer-type resistor	68kΩ±10% 0,5W SBT Vitrohm
3	Schichtwiderstand Layer-type resistor	150Ω±10% 0,5W SBT Vitrohm
8S 1b	Bandbreitenschalter 1.Ebene Bandwidth selector 1st deck	Wellenschalter A9/ Fa.Mayr Bandswitch Uttenreuth
8RÖ 1	ZF-Verstärker Röhre für A1 IF amplifier tube for A1	EF 93/6BA6 Siemens
9C1	Kf-Kondensator Plastic-foil capacitor	100pF/2,5%/125V DN 100/2,5/125 B 3101
2	Kf-Kondensator Plastic-foil capacitor	500pF/2,5%/125V DN 500/2,5/125 B 3101
3	Kf-Kondensator Plastic-foil capacitor	500pF/2,5%/500V DN 500/2,5/500 B 3101
5	Kf-Kondensator Plastic-foil capacitor	500pF/2,5%/500V DN 500/2,5/500 B 3101
6	Kf-Kondensator Plastic-foil capacitor	0,03 µF/2,5%/125V HN 0,03/2,5/125 B 3107 125
7	Kf-Kondensator Plastic-foil capacitor	0,016 µF/25%/125V IN 0,016/2,5/ B 3101 125
8	Kf-Kondensator Plastic-foil capacitor	500pF±2,5% 125V DN 500/2,5/125 B 3101
9	Papier-Kondensator Paper capacitor	0,025µF/125V Minityp 85 Kf 325/1 Roederstein
10	Papier-Kondensator Paper capacitor	0,1µF/125V Minityp 85 Kf 410/1 Roederstein
11	Papier-Kondensator Paper capacitor	0,05µF/250V Minityp 85 Kf 350/2 Roederstein
12	Kf-Kondensator Plastic-foil capacitor	100pF/2,5%/125V DN 100/2,5/125 B 3101
9W 1	Schichtwiderstand Layer-type resistor	22 kΩ±10% SBT Vitrohm 0,5W
2	Schichtwiderstand Layer-type resistor	150 Ω±10% 0,5W SBT Vitrohm
3	Schichtwiderstand Layer-type resistor	1 kΩ ±5% 0,5 W SBT Vitrohm
4	Schichtwiderstand Layer-type resistor	1 MΩ ± 5% 0,5W SBT Vitrohm
5,6	Schichtwiderstand Layer-type resistor	22 Ω ± 10% 0,5W SBT Vitrohm

Siemens & Halske Aktiengesellschaft
Wernerwerk für Weitverkehrs- und Kabeltechnik

	Vorläufig			Freigabe	Änderungen						
Ausgabe	A			I	II	III	IV	V	VI	VI	VIII
Datum	26.6.56										
Name	Ruprecht Fa										
Änd.-Mitteilg.											

Verteiler: Norm-Satz: Ersatz für: Ersetzt durch:

W 2681

Em 20.11.59 Ruprecht

SIEMENS

Verstärkerteil
Amplifier seotion

Funk kk empf 115 V Dt,En

Bl. 2 Sheet (6 Bl.) (Sheets)

Bestellangabe: Ordering data:

Ausg. Issue: A

Stromlaufplan: Circuit diagram:
Bauschaltplan: Wiring diagram:

Verwendung: Application:

Stückliste der elektrischen Teile
List of electrical components

Stck. Qty.	Gegenstand / Kurzbuchst. Description / Designation	Bestellangaben Ordering data	
9Sp 1	Anodenspule Anode coil		
2	Kreisspule II Tuning coil II	Funk bv empf 115V1	
3	**Koppelspule I/II** Coupling coil I/II		4 Kreis-filter
4	Kreisspule III Tuning coil III	4 Tuning filter	4 Tuning filter
5	Gitterspule Grid coil	Funk bv empf 115V2	
6	Koppelspule III/IV Coupling coil III/IV		
9S 1a	Bandbreitenschalter 1. Ebene **Bandwidth selector 1st deck**	Wellenschalter A9/ Bandswitch	Fa.Mayr Uttenreuth
2a	Bandbreitenschalter **Bandwidth selector**	Wellenschalter A9/ Bandswitch	Fa.Mayr Uttenreuth
2b	Bandbreitenschalter 2.Ebene **Bandwidth selector 2nd deck**	Wellenschalter A9/ Bandswitch	Fa.Mayr Uttenreuth
4a	Bandbreitenschalter 4.Ebene **Bandwidth selector 4th deck**	Wellenschalter A9/ Bandswitch	Fa.Mayr Uttenreuth
9Rö 1	ZF-Verstärker für A2/A3 IF amplifier for A2/A3	EF93/6BA6 Siemens	
10 C1	Papier-Kondensator Paper capacitor	5000pF/250V Minityp 85 Kf 250/2 Roederstein	
2	Papier-Kondensator Paper capacitor	0,025/250V Minityp 85 Kf 525/2 Roederstein	
3	Kf-Kondensator Plastic-foil capacitor	600/2,5% 125V DN 600/2,5/125 B 3101	
4	Papier-Kondensator Paper capacitor	0,025µF/125V Minityp 85 Kf 525/1 Roederstein	
6	Kf-Kondensator Plastic-foil capacitor	600pF/2,5%/125V DN 600/2,5%/125 B 3101	
7	Kf-Kondensator Plastic-foil capacitor	100pF/2,5%/125V DN 100/2,5%/125 B 3101.	
8,9	Kf-Kondensator Plastic-foil capacitor	300pF/2,5%/125V DN 300/2,5%/125 B 3101	
10	Papier-Kondensator Paper capacitor	0,01µF/125V Kf 310/1 Roederstein	
11	Kf-Kondensator Plastic-foil capacitor	300pF/2,5%/125V DN 300/2,5/125 B 3101	
12	Papier-Kondensator Paper capacitor	0,05/125V Minityp 85 Kf 350/1 Roederstein	
13	Papier-Kondensator Paper capacitor	0,5/125V Minityp 85 Kf 450/1 Roederstein	
14	Papier-Kondensator Paper capacitor	0,01/125V Minityp Kf 310/1 Roederstein	
15	Elektrolyt-Kondensator Electrolytic capacitor	25µF/35V Elko 25µF/35V B 4177-1	

Siemens & Halske Aktiengesellschaft Wernerwerk für Weitverkehrs- und Kabeltechnik	Ausgabe	Vorläufig A			Freigabe I	Änderungen II	III	IV	V	VI	VII	VIII
	Datum	26.6.56										
	Name	Ruprecht Fa										
	Änd.-Mitteilg.											
	Verteiler:				Ersetzt Nr.:	Ersetzt durch:						

W 2881

Fm 20.11.59 Ruprecht

Drw. 4.9.4.

Relays Contacts 1 (e.g. c 11) closed with energized relay
Contacts 2 (e.g. a 12) closed with not energized relay

Band	T1 2a	T1 2b	T1 5	T6..12	T4a	T4b
12				●		
11				●		
10				●		
9				●		
8				●		
7				●		
6				●		
5			●			
4			●		●	●
3			●			
2	●	●	●			
1	●	●	●			

● Contact closed

Momentary contact T1-T12 closes temporarily in changing between bands

Switch position shown Band 12 bandwidth selector SW 301 - SW 304 at A1
Noise limiter ON (SW 306 b)
RF Gain control ON (SW 305 b).
Frequency interpolator activated (by temporary opening of S12 the relays K 204, K 203 are restored)

Nr	MODIFICATIONS	Date	Nr	DESIGNATION	Stock Nr

USED FOR

All Wave Marine Receiver

Schematic Diagram

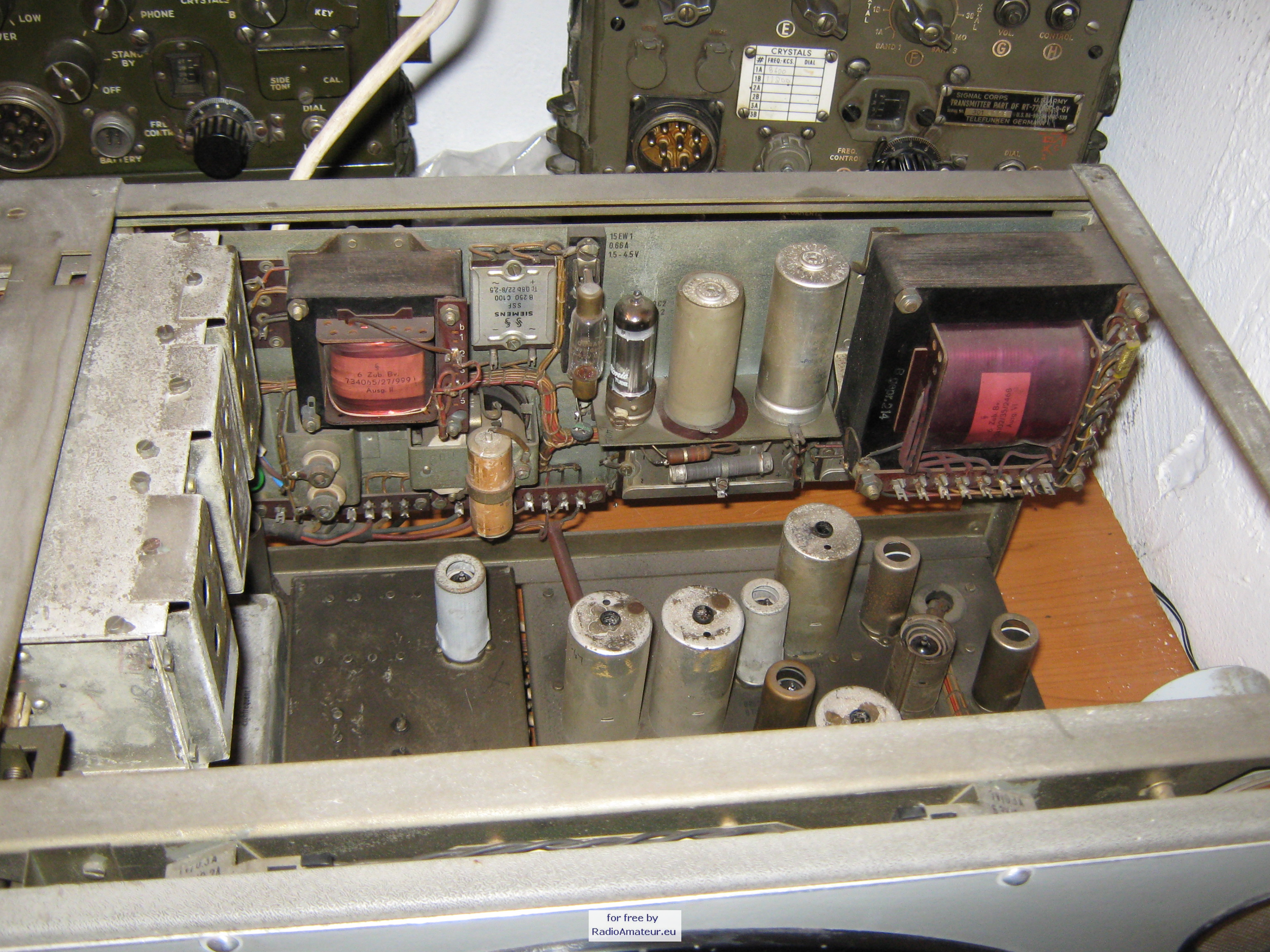
Material	Nr. of pieces	Replaces	Replaced by

Drawn	Checked
A Van Lierde 19 05 61	

SAIT ELECTRONICS

FILE N° 6-304

DWG N° 20.932




for free by
RadioAmateur.eu