

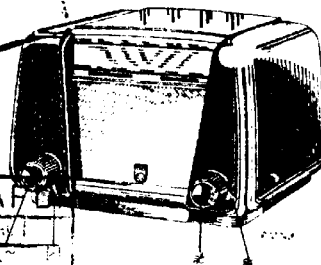
PHILIPS

SERVICE NOTES

for the receiver

BX307U

| | | | |
|------------------|-------|-----|------|
| SERVICE APPROVED | | | |
| Hou | de V. | Hou | Exp. |
| 28 AUG 1950 | | | |
| v.L. | Sch. | Com | For |



1950

For A.C. and D.C. mains supplies

WAVEBANDS

S.W.2: 13.5 - 28 m (22.2 - 10.7 Mc/s)
 S.W.3: 30 - 90 m (10 - 3.34 Mc/s)
 M.W.: 187 - 565 m (1604 - 531 kc/s)

VALVE COMBINATION

B1 : UCH42
 B2 : UAF42
 B3 : UBC41
 B4 : UL41
 B5 : UY41

PILOT LAMP

L1 : 8097D-00

BANDWIDTH

The I.F. bandwidth (1:10) measured from the control grid g1 of B1 is about 14 kc/s. The "overall" bandwidth measured from the aerial socket is both at 1000 kc/s and 250 kc/s, 13 kc/s.

CONSUMPTION

45 W (220 V \approx)
 35 W (117 V \approx)

WEIGHT

Approx.: 3,2 kg (valves included).

TRIMMING FREQUENCIES

21.6 Mc/s
 9.6 Mc/s
 1630, 550 kc/s

INTERMEDIATE FREQUENCY

452 kc/s

LOUDSPEAKER

Type 9742X Z =
 5 ohm (1000 c/s)

KNOBS

Frontside right:
 Tuning and waverange-
 switch

left:
 mainswitch, volume
 control and tone
 switch

MAINS TENSIONS

Adaptable for 117
 and 220 V \approx
 By short-circuiting
 R4 suited for 200V \approx
 (position 220V \approx).

DIMENSIONS

Height: 20cm)knobs
 Width : 27cm)incl.
 Depth : 19cm)

IMPORTANT

When repairing or trimming a set while it is connected to A.C. mains, a transformer has to be used with separate windings. The secondary winding must not be earthed, and only one set may be connected to the transformer at a time. The chassis can then be earthed. The codenumber of a suitable type of transformer is given in the "List of Parts and Tools". When connecting the set to D.C. mains the connection must be made with the right polarity.

SOME PARTICULARS ABOUT THE PRINCIPLE DIAGRAM

This set has been provided with a frame-aerial, which is very effective on S.W.3 and M.W., while there is a capacitive aerial for the S.W.2 band. When an outdoor-aerial is used, both antennas remain connected to their circuits.

TRIMMING

For trimming the I.F. part the set need not be uncased but the screening plate, which covers the R.F. part, has to be removed. The oscillator frequency is higher than the signal frequency.

A. I.F. BANDFILTERS

1. Volume control to maximum.
2. Variable condenser to minimum capacity.
3. Earth chassis, taking into account the remarks above under Important.
4. Connect outputmeter via trimming transformer to loudspeaker connections.
5. Apply I.F. signal of 452 kc/s via a 33000 pF condenser to g1 of B1.
6. Loosen the screws on the I.F. transformers.
7. Trim successively to maximum output the 4th, 3rd, 1st and 2nd I.F. circuit (see fig.7).
8. Seal the screws with sealing compound.

B. H.F. AND OSCILLATOR CIRCUITS

1. Volume control to maximum. Earth the chassis taking into account the remarks under "Important".
2. Connect outputmeter via trimming transformer to loudspeaker connections.
3. Turn the variable condenser on minimum, adjust the pointer to the zeropoint on the dial. If necessary unscrew the fixing screw on the pointer and readjust the position of the pointer.
4. Wave range switch on M.W. and apply now a signal of 1630 kc/s.
5. Trim at maximum output C21 and C11.
6. Pointer on trimming point at 550 kc/s, apply a modulated signal of 550 kc/s to the aerial socket via the dummy aerial.
7. Trim at maximum output C18.
8. Waverangeswitch at S.W.3.
Apply modulated signal of 9.6 Mc/s to the aerial socket via the dummy aerial. Tune the set on this frequency.

9. Trim C12 at maximum output.
10. Waverange switch at S.W.2. Apply a modulated signal of 21.6 Mc/s and tune the set on this frequency.
11. Trim C10 at maximum output.

REPAIRS AND REPLACEMENTS OF PARTS

DECASING THE CHASSIS

1. Remove the back panel.
2. Remove control knobs - tuning and volume control.
3. Unscrew pointer from driving cable.
4. Unsolder the loudspeaker connections & the connection to the capacitive aerial (above the loudspeaker).
5. Remove 2 screws at the bottom side and two at top side of the cabinet.
6. Draw the chassis out of the cabinet.

N.B.

After having uncase the chassis, the lever knob of the waverangeswitch and toneswitch can be taken out of the cabinet carefully.

DRIVING CABLE

The path of the driving cable is shown in fig.8. The variable condenser here stands in its minimum position, the length of the driving cords are 675 mm and 705 mm.

LOUDSPEAKER

The loudspeaker cannot be repaired and has to be replaced, when defective.

WAVE RANGE SWITCH

The complete segments of the wave range switch are not mentioned in the "List of Spare parts". These segments have to be assembled in the service workshop. All components for them, can be found in the "General Spare parts List" on sheets D1 up to D4.

A special pair of pliers (code number C9 994 14.0, see sheet G2 of the General List) has been made for putting the switch segments together. With the aid of these pliers and the parts mentioned in the above sheets, any desired switch segment can be assembled. As a model one can take an old segment, but after studying the applied method of drawing, one can easily make a segment from the schematic diagram.

To facilitate the making of new segments a brief description is given of drawing to be followed. In the drawing a switch is showed as viewed from the operating side, the apparatus standing upright.

The numbers of the contact lugs in the circuit diagram correspond with those of the wiring diagram. The rotor is shown in the extreme anti-clockwise position. The contact springs of the stator are represented by small circles; the places on the stator where there are no contact springs are indicated by dots (see fig. 9a).

The outermost ring of circles are the stator contacts on the front of the segment (even numbers) while the innermost ring of circles are the contact springs at the back. (odd numbers). When looking through the cylindrical hole one sees the largest diameter at the front and the smallest at the back. These circles indicate the points of contact. The soldering lugs are displaced 22.5° to the right for the even numbers and 22.5° to the left for the odd numbers (see fig. 9b). The rotor contacts are represented by arcs and radial lines. Rotor contacts at the front are fully drawn while those at the back are drawn in dotted lines. Interconnections from front to back are indicated by fully-drawn radial lines. To assemble a segment, proceed as follows:

1. First fix the required number of contact lugs (A9 863 17.0) to the top of the stator, making sure that the actual point of contact lies over a hole in the rotor.
2. Push the rotor out of the stator, remove any hard paper burrs and fix the contacts on the rotor with the aid of the special pliers. Take care that the rotor contacts are not deformed by the pressure of the pliers. In fig. 10a, b and c the faulty and the right contacts are shown.
3. Put the rotor back in the stator and affix the required number of contact lugs on the back of the stator.
4. See that the rotor can turn easily and makes good contact with the stator plugs.
5. Slightly grease the contacts with castor oil or a special switch lubricant.

CURRENT AND TENSIONS

| | | Vf | Va | Vg2(4) | Vk | Ia | Ig2(4) |
|----------|---------|------|-----|--------|----|-----|--------|
| UCH42 B1 | Triode | 14 | 90 | | - | 4.9 | |
| | Heptode | | 170 | 80 | - | 2.4 | 3 |
| UAF42 B2 | | 12.6 | 170 | 80 | - | 6.2 | 0.9 |
| UBC41 B3 | | 12.6 | 55 | - | - | 0.3 | |
| UL41 B4 | | 45 | 177 | 170 | 9 | 45 | 8.4 |
| UY41 B5 | | 31 | - | - | - | - | - |
| | | V | V | V | V | mA | mA |

VC1 : 195 V VC2 : 170 V

The above mentioned values were measured with the GM 4257, the set to M.W. no signal applied to the aerial, mains tension 220 V~. In the principle diagram the waverange switch is drawn in the S.W. position. The sequence of switching is : SW2, SW3, MW.

LIST OF SPARE PARTS AND TOOLS

When ordering always state:

1. Code number and colour
2. Description
3. Type number of the set

| Fig. | Pos. | Description | Code number |
|------|------|---|-------------------------------------|
| 6 | 1 | Cabinet (044) | 23 642 73.0 |
| | | Rear panel | A3 691 23.0 |
| | | Bracket for fixing rear panel | A3 467 62.1 |
| 6 | 2 | Knob - tuning, volume control | A3 365 67.0 |
| | | Lever knob - waverangeswitch (044) <i>ix</i> | 23 648 61.0 |
| | | Lever knob - tone switch (044) <i>ix</i> | 23 952 12.0 |
| 6 | 3 | Bracket for fixing I.F. transformer | A3 652 42.0 |
| | | Pilot lampholder | A3 359 07.0 |
| | | Plug socket plate - aerial - earth | A3 382 32.0 |
| | | Voltage adaptor plate | A3 227 91.0 |
| | | Knob for voltage adaptor plate (110/127 - 220V \approx) (111) | A3 364 73.1 |
| | | Gang condenser with drum | 49 001 38.0 |
| | | Rubber grommet under gang condenser | 49 922 26.2 |
| | | Grommet on pointer driving rod | 23 687 77.0 |
| | | Station dial (Oversea) | A3 221 84.0 |
| | | Pointer | A3 691 12.0 |
| | | Tension spring in drum | A3 646 26.0 |
| | | Tension spring for driving cable | A3 646 35.0 |
| | | Spindle of the volume control | A3 426 80.2 |
| | | Grubscrew for the same | A3 578 86.0 |
| | | Tuning spindle | A3 333 01.3 |
| | | Holdspring for stopplate (wave- range switch) | A3 648 79.0 |
| | | <u>MODEL -04</u> | |
| | | Cabinet (509) | 23 643 25.0 |
| | | Rear panel | A3 691 93.0 |
| | | Pointer | A3 691 92.0 |
| | | Lever knob - waverange switch (509) | 23 608 90.0 |
| | | Lever knob - tone switch (509) | 23 952 19.0 |
| | | Station dial (Oversea) | A3 221 84.0 |
| | | <u>TOOLS</u> | |
| | | Service oscillator | GM 2882 or GM 2883 or GM 2884 |
| | | Universal measure apparatus | GM 4256 or GM 4257 |
| | | Separating transformer | E4 848 03.0 |
| | | Vaseline compound | X 009 47.0 |

WEERSTANDEN-RESISTANCES-RESISTANCES-WIDERSTAENDE

| | | | | | |
|-----|-----------|---------------|-----------|----------------|----------------|
| R1 | 1000 ohm | 48 553 10/1K | R13 | 47000 ohm | 48 550 10/47K |
| R2 | 220 ohm | 49 379 62.0 | R14 | 0,45 Mohm | 49 501 14.0 |
| R3 | 430 ohm | 49 364 63.0 | R14a | 0,05 Mohm | |
| R4 | 200 ohm | | R15 | 6,8 Mohm | 48 550 10/6M8 |
| R5 | 180 ohm | R16 | 0,47 Mohm | 48 551 10/470K | |
| R6 | 10000 ohm | 48 425 10/10K | R17 | 0,82 Mohm | 48 550 10/820K |
| R7 | 47000 ohm | 48 550 10/47K | R18 | 150 ohm | 48 553 10/150E |
| R9 | 22000 ohm | 48 552 10/22K | R19 | 1000 ohm | 48 550 10/1K |
| R11 | 22000 ohm | 48 552 10/22K | R20 | | 49 379 67.3 |
| R12 | 2,7 Mohm | 48 550 10/2M7 | R21 | 82 ohm | 48 550 10/82E |

CONDENSATOREN-CONDENSERS-CONDENSATEURS-KONDENSATOREN

| | | | | | |
|-----|-----------|-----------------|---------|---------------|----------------|
| C1 | 50 uF) | 48 317 58/50+50 | C19 | 15 pF | 48 601 10/15E |
| C2 | 50 uF) | 49 001 38.0 | C20 | 6.8 pF | 48 601 20/6E8 |
| C3 | 12-492pF) | | C21 | 30 pF | 28 212 36.4 |
| C4 | 12-492pF) | C22 | 2400 pF | 48 429 02/2K4 | |
| C5 | 1000 pF | 48 757 20/1K | C23 | 390 pF | 48 601 02/390E |
| C6 | 100 pF | 48 601 10/100E | C24 | 115 pF) | 48 751 20/47K |
| C7 | 4700 pF | 48 757 20/4K7 | C25 | 115 pF) | |
| C9 | 47000 pF | 48 750 20/47K | C26 | 47000 pF | |
| C10 | 25 pF | 49 005 49.2 | C27 | 102 pF | 48 751 20/6K8 |
| C11 | 25 pF | 49 005 49.2 | C28 | 102 pF | |
| C12 | 25 pF | 49 005 49.2 | C29 | 6800 pF | 48 601 10/82E |
| C13 | 330 pF | 48 601 05/330E | C30 | 82 pF | 48 601 10/390E |
| C14 | 47000 pF | 48 752 20/47K | C31 | 390 pF | 48 751 20/6K8 |
| C15 | 82 pF | 48 601 10/82E | C32 | 6800 pF | 48 758 20/22K |
| C16 | 15000 pF | 48 750 20/15K | C34 | 22000 pF | 48 605 10/47E |
| C17 | 220 pF | 48 601 10/220E | C36 | 47 pF | 48 601 10/220E |
| C18 | 400-575* | 49 005 55.2 | C38 | 220 pF | |

SPOELEN-COILS-BOBINES-SPULE

| | | | | | |
|------|---------|-------------|---------|-------------|-------------|
| S1) | 1.1 ohm | A3 123 50.0 | S15) | 1,5 ohm | A3 122 84.0 |
| S2) | 1 ohm | | S16) | 1,5 ohm | |
| S3) | 3.8 ohm | | C24) | | |
| S4) | 1 ohm | | C25) | | |
| S5) | 48 ohm | | S19) | 1,5 ohm | |
| S6) | 4.2 ohm | | S20) | 1,5 ohm | |
| S7) | 1 ohm | | C27) | | |
| S8) | 1 ohm | C28) | | | |
| S9) | 1 ohm | S23) | 350 ohm | A3 168 88.1 | |
| S10) | 1 ohm | S24) | 1 ohm | | |
| S11) | 1 ohm | S26) | 19 ohm | | |
| S12) | 2.6 ohm | | | | |
| S13) | 6.8 ohm | | | | |

| | | | |
|----------|---------------------------|--|------------------------|
| 5. | 13, 52, 6, 7 | 8, 10, 12, 9, 11, 13 | 15, 20 |
| C. 5. 20 | 7, 6, 9, 10, 11, 2, 3, 14 | 1, 4, 5, 17, 2, 16, 19, 20, 21, 22, 23, 24, 25 | 26, 27, 28, 29, 30, 31 |
| R. | 20, 2, 3, 4, 5 | 7, 19, 21 | 10, 17, 18, 19, 20 |

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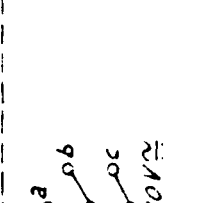
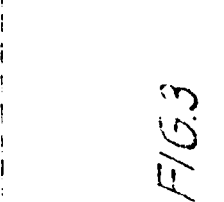
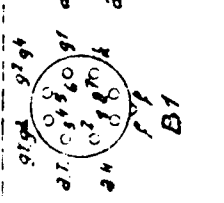
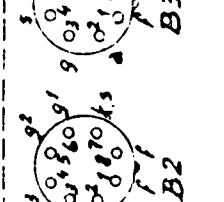
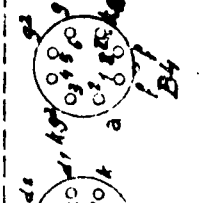
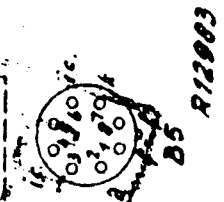
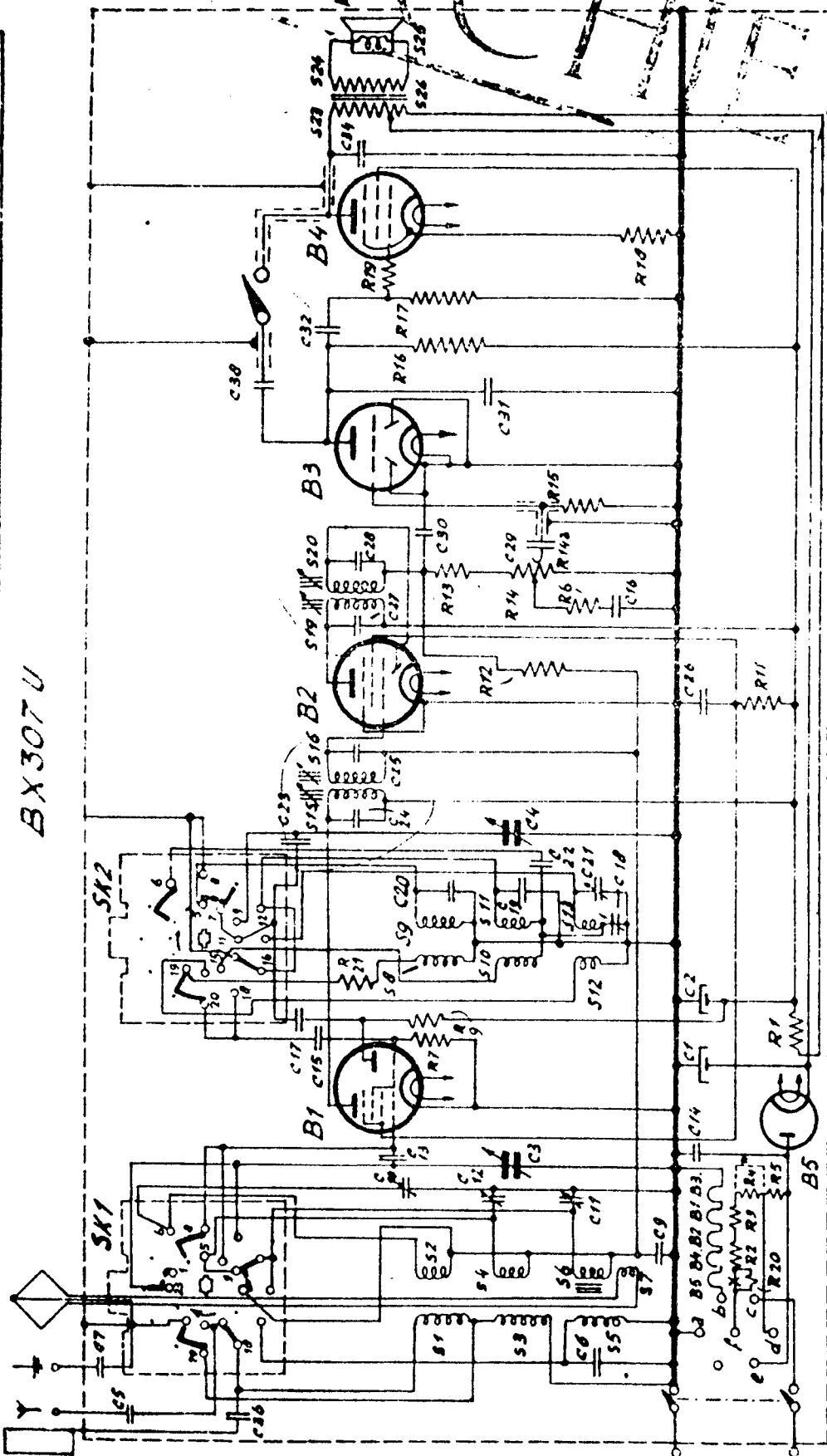
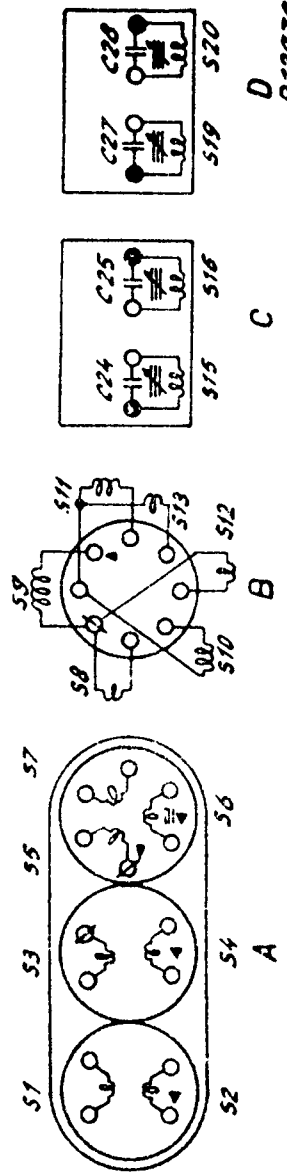
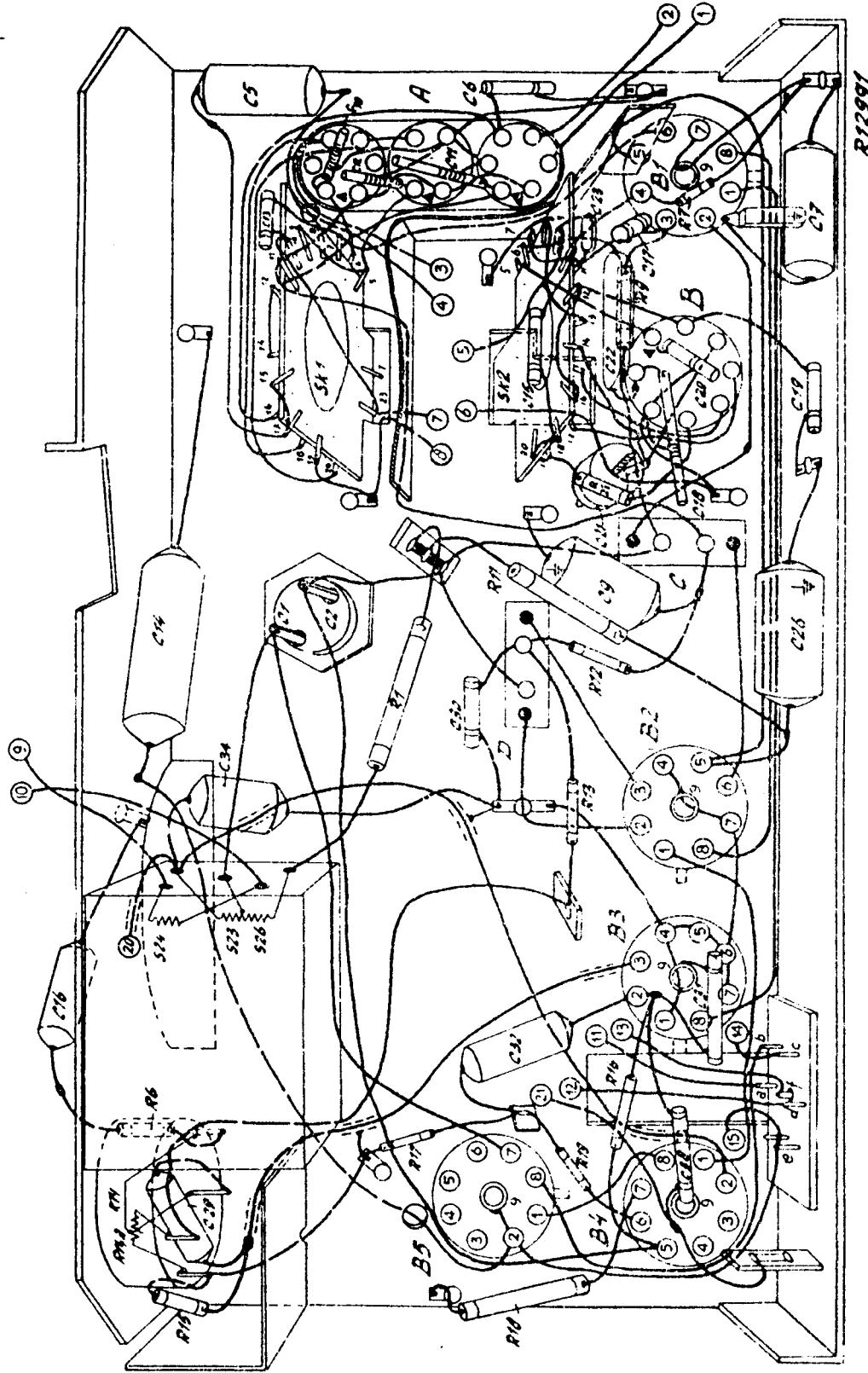


FIG. 3

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FIG. 4

IV



D R12979

C

B

A

R. 12. 18. 14. 14. 19. 16. 17. 6

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V

R73012

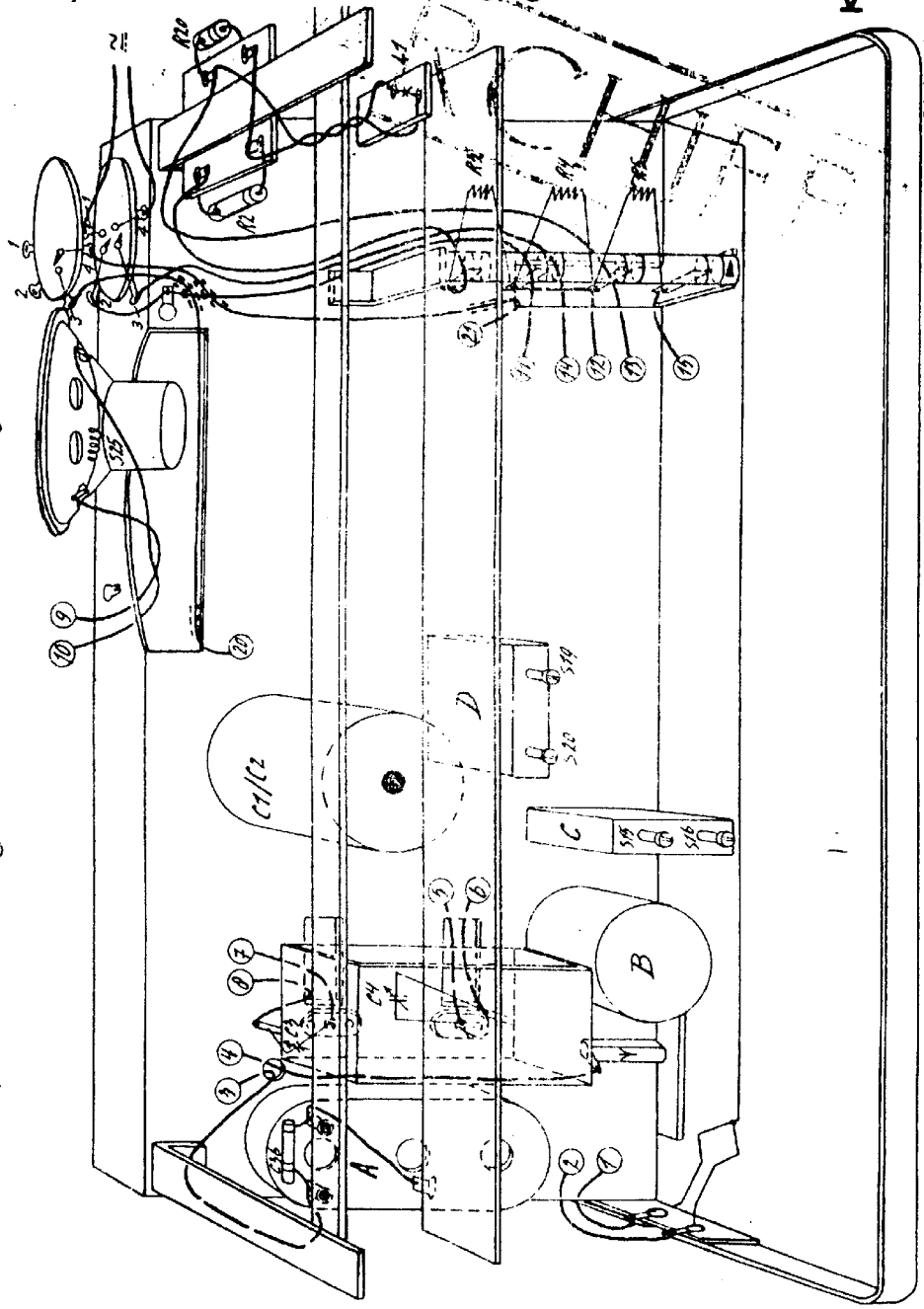
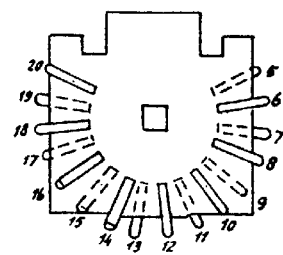
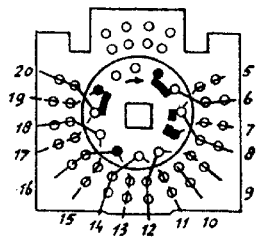
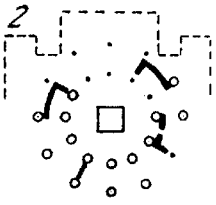
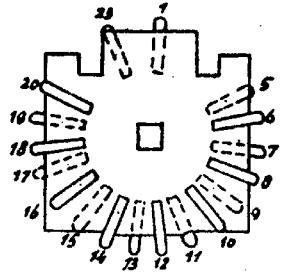
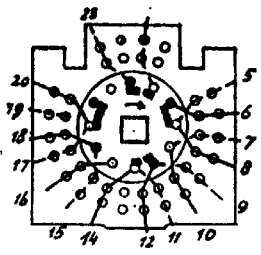
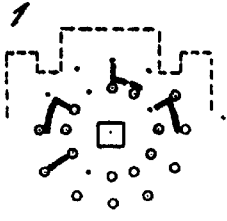


FIG. 5

VII

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a

b

c. R12729

FIG. 9.

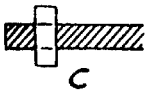
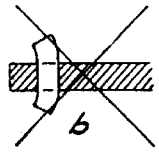
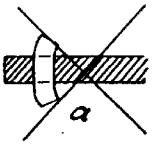


FIG. 10

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