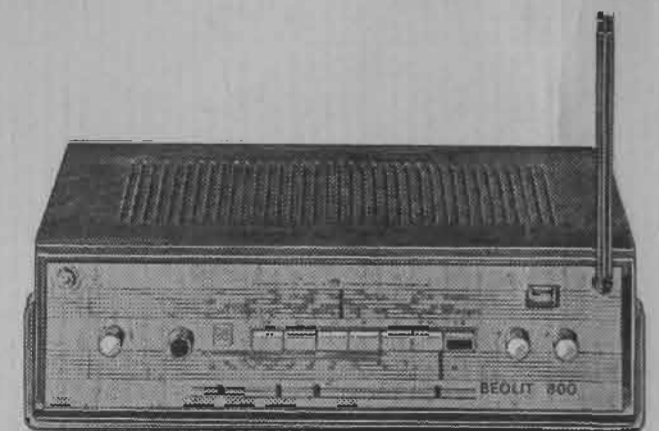
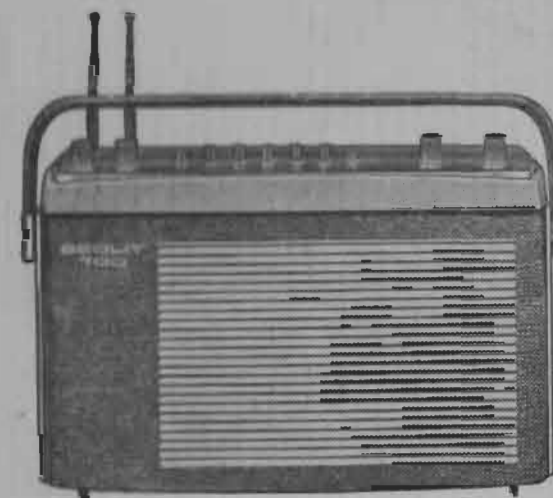


RYLAND HUNTLEY  
*Radioteknik*  
11, OLD BOND STREET,  
BATH. — Telephone 4322

# beolit 700 - 800 types 1301 - 1302

## SERVICE MANUAL



A/S BANG & OLUFSEN PRODUKTIONSSKAB

STRUER-DENMARK Telephone (078) 5 11 22 • Telex 4289 • Cable Address Bangoluf



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## TECHNICAL DATA

Aerial, AM: Ferrite aerial for LW and MW. Telescopic whip for 49 m.  
Provision for connection of auto aerial; ferrite aerial may be cut out on LW and MW by means of pushbutton.

Aerial, FM: One telescopic whip; provision for connection of auto aerial.

Automatic frequency control on FM.

Auto mounting bracket: Type 920 H 5 - for Type 1301 only.

Battery drain: AM, approx. 21 mA at low volume; approx. 60 mA at 50 mW output.

Compensation for decreasing battery voltage: Voltage-stabilized output stage.

Dimensions, Type 1301: 328 mm wide, 233 mm high, 94 mm deep  
(12 <sup>7</sup>/<sub>8</sub> × 9 <sup>3</sup>/<sub>16</sub> × 3 <sup>3</sup>/<sub>4</sub> in.).

Dimensions, Type 1302: 334 mm wide, 238 mm high, 98 mm deep  
(13 <sup>3</sup>/<sub>16</sub> × 9 <sup>3</sup>/<sub>8</sub> × 3 <sup>7</sup>/<sub>8</sub> in.).

Dry cells: Six 1.5-volt standard dry cells (American standard: Type D).

Extension speaker: 3.5 Ω, DIN plug cuts out built-in speaker when inserted in jack.

FM radiation: Suppressed in accordance with FTZ standards.

Gramophone: 5-contact DIN jack, 20 KΩ; also used as tape recorder connection.

Power output: 1.8 watts max.

Radiator: AM and FM tuning, battery checking.

Tape recorder connection: 5-contact DIN socket, 20 KΩ; also used as gramophone connection.

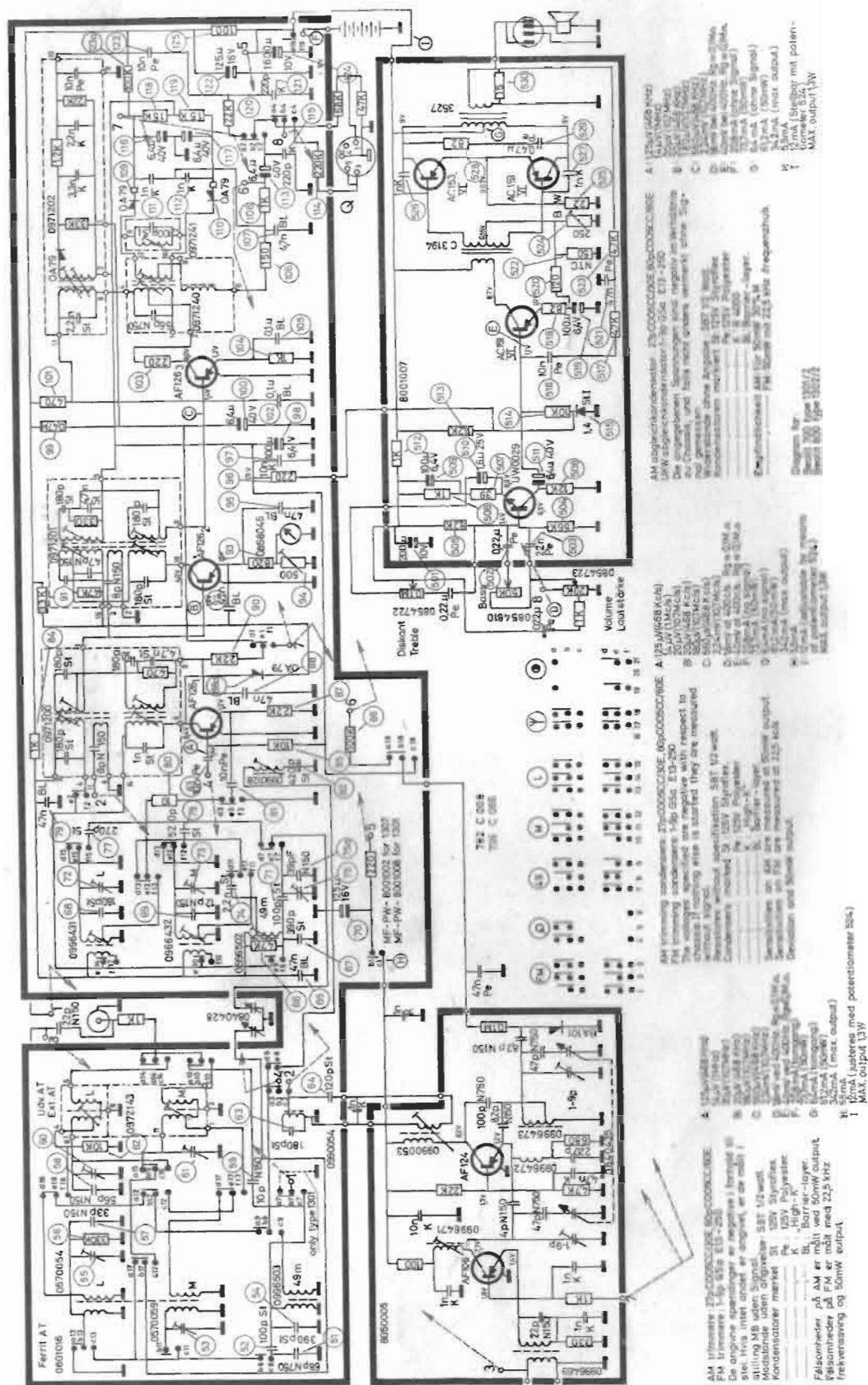
Wave bands:

|      |      |   |         |      |   |           |
|------|------|---|---------|------|---|-----------|
| LW   | 940  | - | 2040 m, | 320  | - | 147 kc/s  |
| MW   | 187  | - | 545 -   | 1603 | - | 520 -     |
| 49 m | 48.4 | - | 50.4 -  | 6.2  | - | 5.95 Mc/s |
| FM   |      |   |         | 87.5 | - | 108 -     |

Weight, Type 1301: 3.55 kg (7.8 lbs) inclusive of dry cells.

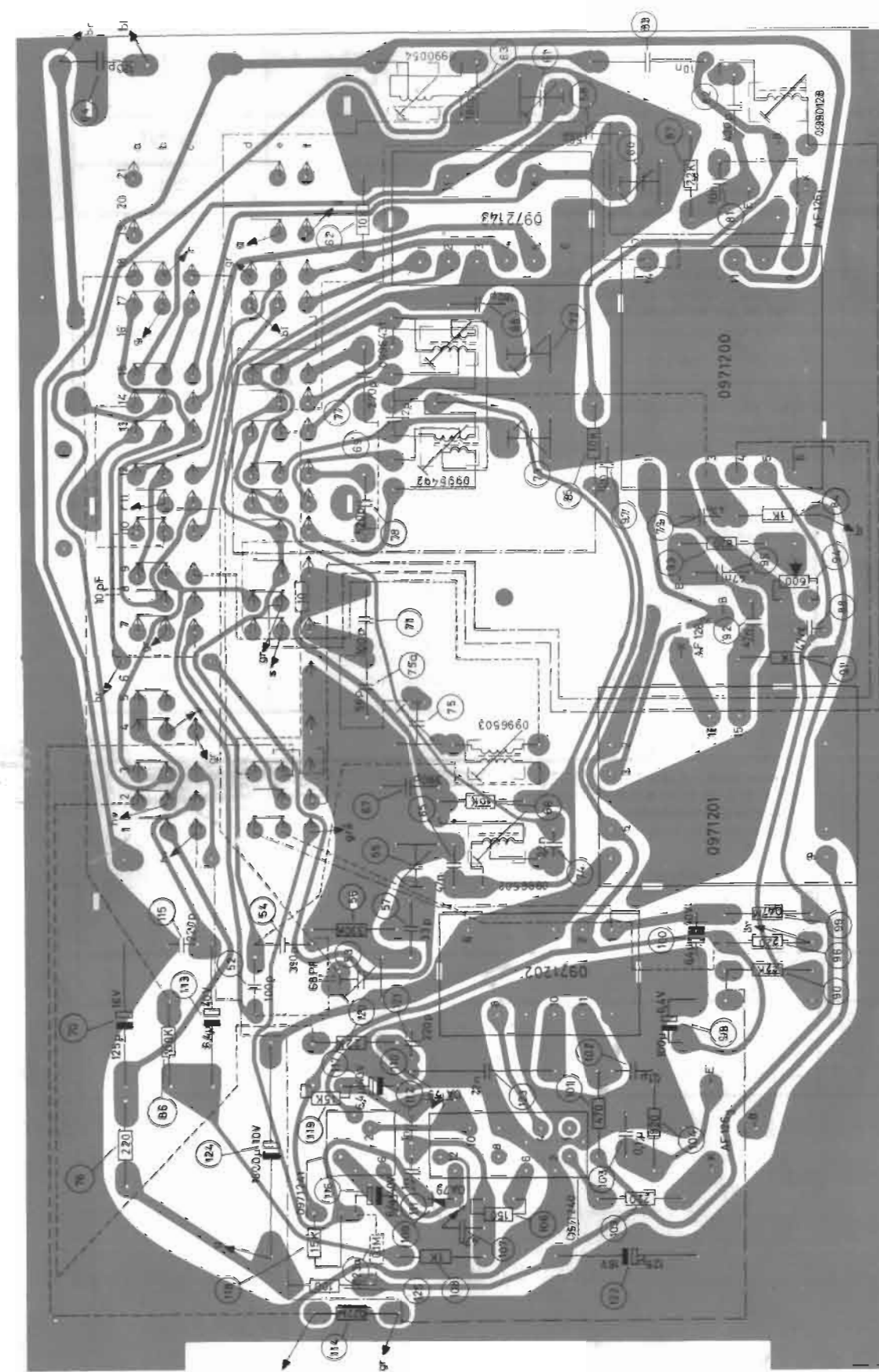
Weight, Type 1302: 4.3 kg (9.5 lbs) inclusive of dry cells.

## CIRCUIT DIAGRAM OF BEOLIT 700 AND BEOLIT 800

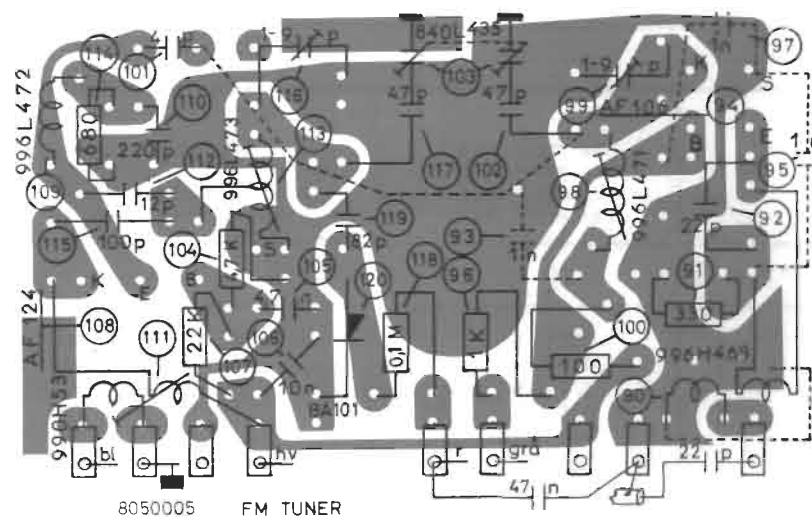


Addendum: Terminal numbers of speaker jack, in order from left to right, should be 1, 2, 3, 4.

## PW UNITS 8001002 AND 8001008, LOCATION OF COMPONENTS



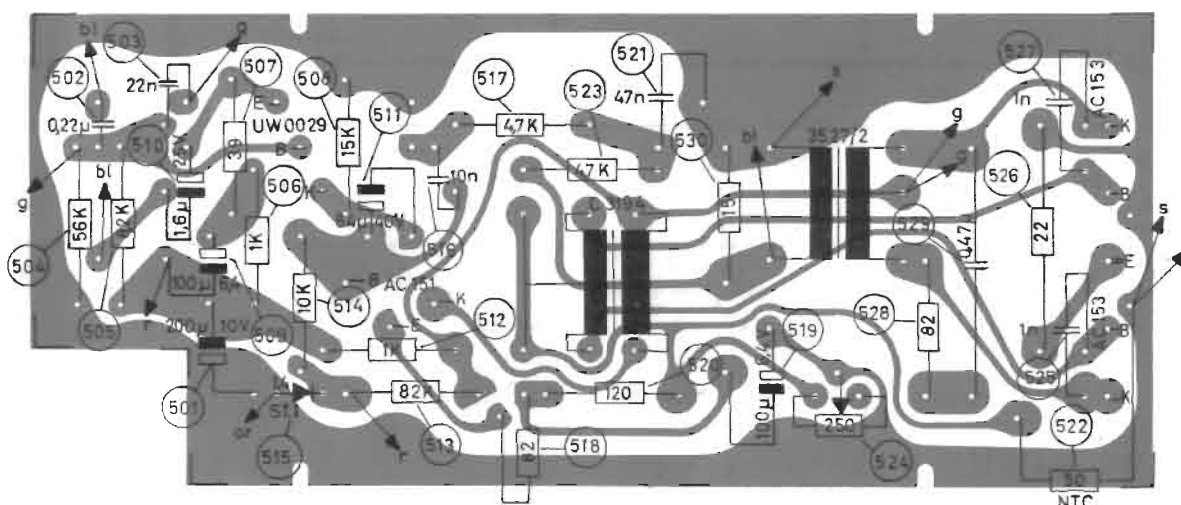
## PW UNITS 8050005 AND 8001007



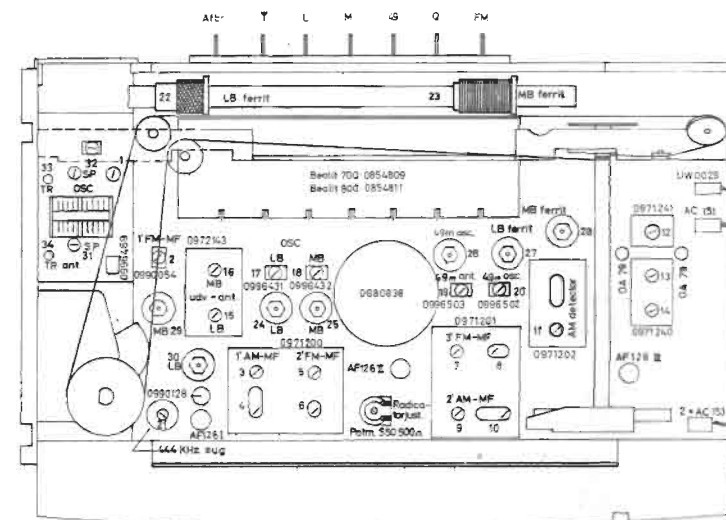
8050005 FM TUNER

## Ledningsfarver — Colour of wires — Kabelfarben

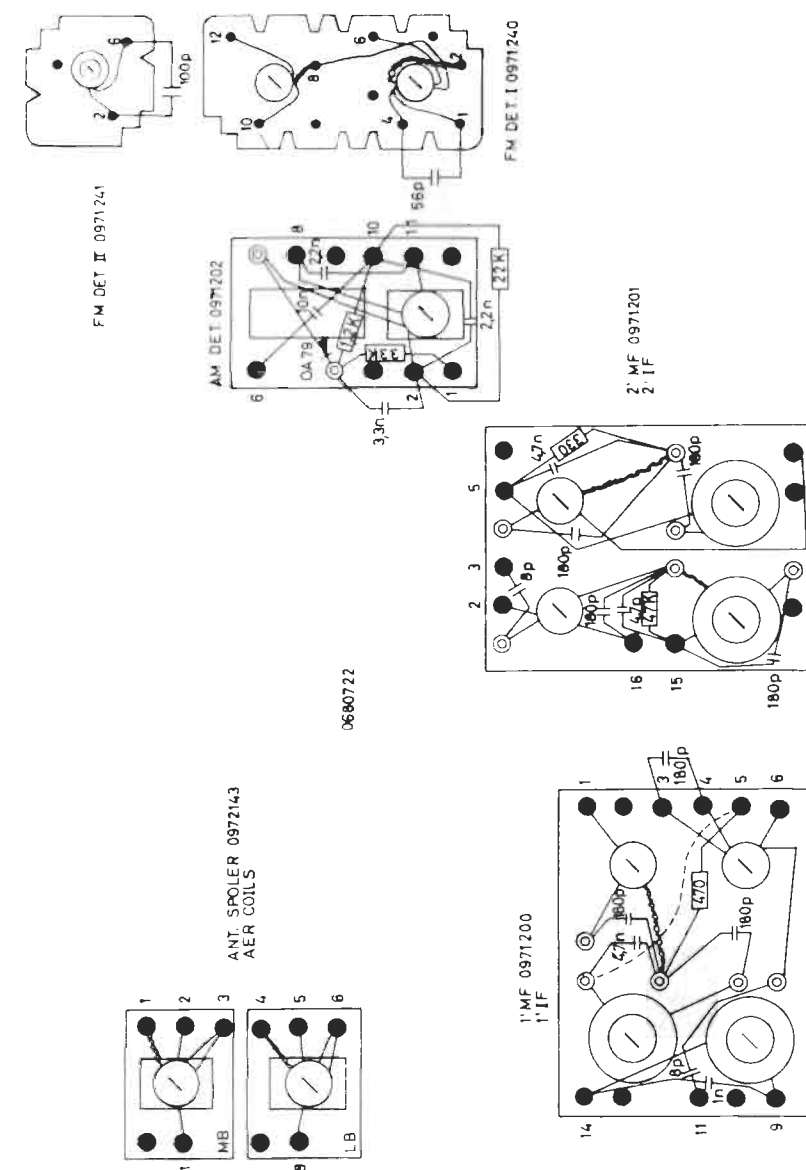
|            |          |           |
|------------|----------|-----------|
| bl: blå    | — blue   | — blau    |
| br: brun   | — brown  | — braun   |
| g: gul     | — yellow | — gelb    |
| gr: grøn   | — green  | — grün    |
| grå: grå   | — grey   | — grau    |
| hv: hvid   | — white  | — weiss   |
| or: orange | — orange | — orange  |
| r: rød     | — red    | — rot     |
| s: sort    | — black  | — schwarz |
| v: violet  | — violet | — violett |



PW ENHED 8001007 PW UNIT 8001007



## WIRING DIAGRAM FOR IF TRANSFORMERS





## SENSITIVITY MEASUREMENTS AND ALIGNMENT PROCEDURE

| RANGE                                                                                                                                                                                                                      | DIAL SETTING                                                                                                                                                                              | RF CONNECTION                                                                                                                                                                                                                      | OSCILLOGRAPH CONNECTION                        | FREQUENCY                                    | ALIGNMENT                                                                                                                                                                                  | SENSITIVITY                                                                                                                                    | OUTPUT                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| AM-IF Circuits                                                                                                                                                                                                             |                                                                                                                                                                                           |                                                                                                                                                                                                                                    |                                                |                                              |                                                                                                                                                                                            |                                                                                                                                                |                                                                                       |
| MW<br>MW<br>MW<br>MW                                                                                                                                                                                                       | approx. 1 Mc/s<br>approx. 1 Mc/s<br>approx. 1 Mc/s<br>approx. 1 Mc/s                                                                                                                      | Point A through 0.1 $\mu$ F<br>Point B through 0.1 $\mu$ F<br>Point C through 0.1 $\mu$ F<br>Aerial socket                                                                                                                         | Point D                                        | 444 kc/s<br>444 kc/s<br>444 kc/s<br>444 kc/s | Turn core of coil 21 all the way out<br>Coils 11, 10, 9, 4, 3 for max.<br>response and symmetrical curve<br>Bandwidth 5 kc/s at 6 dB.<br>Coil 21 for minimum response                      | Point A: 125 $\mu$ V<br>Point B: 20 $\mu$ V<br>Point C: 560 $\mu$ V                                                                            | 50 mW                                                                                 |
| AM-RF-Circuits                                                                                                                                                                                                             |                                                                                                                                                                                           |                                                                                                                                                                                                                                    |                                                |                                              |                                                                                                                                                                                            |                                                                                                                                                |                                                                                       |
| LW osc.<br>LW osc.<br>MW osc.<br>MW osc.<br>49 m osc.<br>49 m osc.<br>LW ferrite<br>LW ferrite<br>MW ferrite<br>MW ferrite<br>LW ext. aerial<br><br>LW ext. aerial<br>MW ext. aerial<br>MW ext. aerial<br>49 m ext. aerial | 160 kc/s<br>272 kc/s<br>584 kc/s<br>1484 kc/s<br>5.95 Mc/s<br>6.2 Mc/s<br>160 kc/s<br>272 kc/s<br>584 kc/s<br>1484 kc/s<br>160 kc/s<br><br>272 kc/s<br>584 kc/s<br>1484 kc/s<br>5.95 Mc/s | Aerial socket<br>- - -<br>- - -<br>- - -<br>- - -<br>- - -<br>Measured in screened room<br>with frame aerial<br>- - -<br>- - -<br>Aerial socket through<br>dummy aerial<br>- - -<br>- - -<br>Aerial socket without<br>dummy aerial |                                                |                                              | Coil 17<br>Trimmer 24<br>Coil 18<br>Trimmer 25<br>Coil 20<br>Trimmer 26<br>Coil 22<br>Trimmer 27<br>Coil 23<br>Trimmer 28<br>Coil 15<br><br>Trimmer 30<br>Coil 16<br>Trimmer 29<br>Coil 19 | 450 $\mu$ V/m<br>275 $\mu$ V/m<br>175 $\mu$ V/m<br>130 $\mu$ V/m<br>85 $\mu$ V<br><br>140 $\mu$ V<br>76 $\mu$ V<br>140 $\mu$ V<br>21 $\mu$ V/m | 50 mW<br>100 mW<br>50 mW<br>100 mW<br>50 mW<br><br>500 mW<br>50 mW<br>500 mW<br>50 mW |
| FM-IF Circuits                                                                                                                                                                                                             |                                                                                                                                                                                           |                                                                                                                                                                                                                                    |                                                |                                              |                                                                                                                                                                                            |                                                                                                                                                |                                                                                       |
| FM                                                                                                                                                                                                                         | 97 Mc/s                                                                                                                                                                                   | Aerial socket                                                                                                                                                                                                                      | AF 126 <sub>3</sub> collector with diode probe | 10.7 Mc/s                                    | Detune coils 12, 13, 14.<br>Coils 1, 2, 5, 6, 7, 8 for max.<br>response and symmetrical curve.<br>Bandwidth 250 kc/s $\pm$ 30 kc/s<br>at 6 dB                                              | 2.4 $\mu$ V EMF                                                                                                                                | 200 mW                                                                                |
| FM                                                                                                                                                                                                                         | 97 Mc/s                                                                                                                                                                                   | Aerial socket                                                                                                                                                                                                                      | Across 220 pF (No. 115) without<br>diode probe | 10.7 Mc/s                                    | Coils 13, 14 and coil 12 for best<br>noise suppression. Repeat until<br>perfectly symmetrical S-curve<br>is obtained.                                                                      | Signal/noise ratio:<br>1.6 $\mu$ V                                                                                                             | 12 dB                                                                                 |
| FM-RF Circuits                                                                                                                                                                                                             |                                                                                                                                                                                           |                                                                                                                                                                                                                                    |                                                |                                              |                                                                                                                                                                                            |                                                                                                                                                |                                                                                       |
| FM osc.<br>FM osc.<br>FM RF<br>FM RF                                                                                                                                                                                       | 89 Mc/s<br>106 Mc/s<br>89 Mc/s<br>106 Mc/s                                                                                                                                                | Aerial socket<br>- - -<br>- - -<br>- - -                                                                                                                                                                                           |                                                |                                              | Coil 32<br>Trimmer 33<br>Coil 31<br>Trimmer 34                                                                                                                                             |                                                                                                                                                |                                                                                       |

AM-IF alignment: Sweepgenerator: Frequency swing approx. 20 kc/s.

AM sensitivity measurements: Signal generator: 400 c/s — 30 % modulated.

FM-IF alignment: Sweepgenerator: Frequency swing approx. 1 Mc/s.

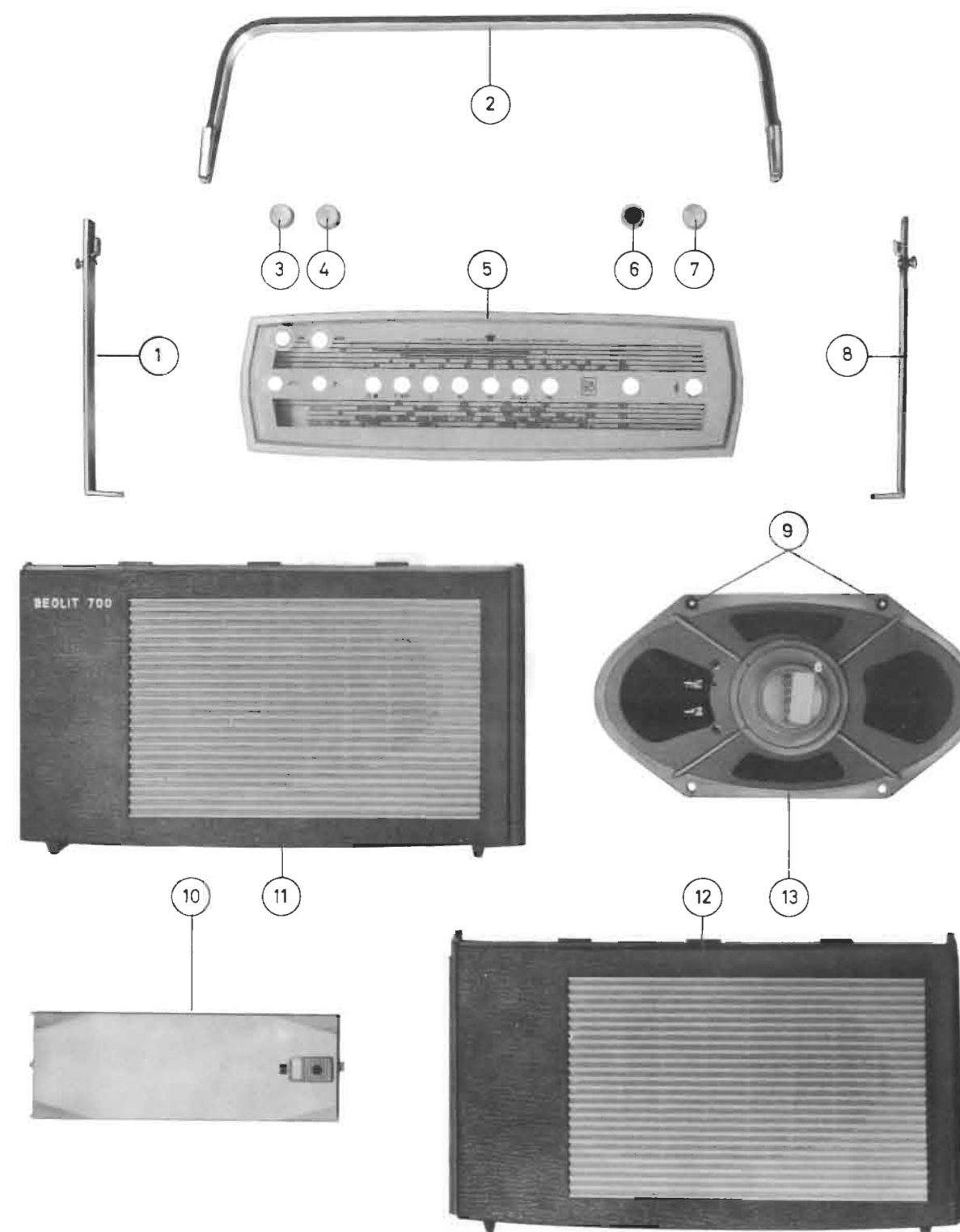
FM sensitivity measurements: Sweepgenerator: Frequency swing 22.5 kc/s — 400 c/s.

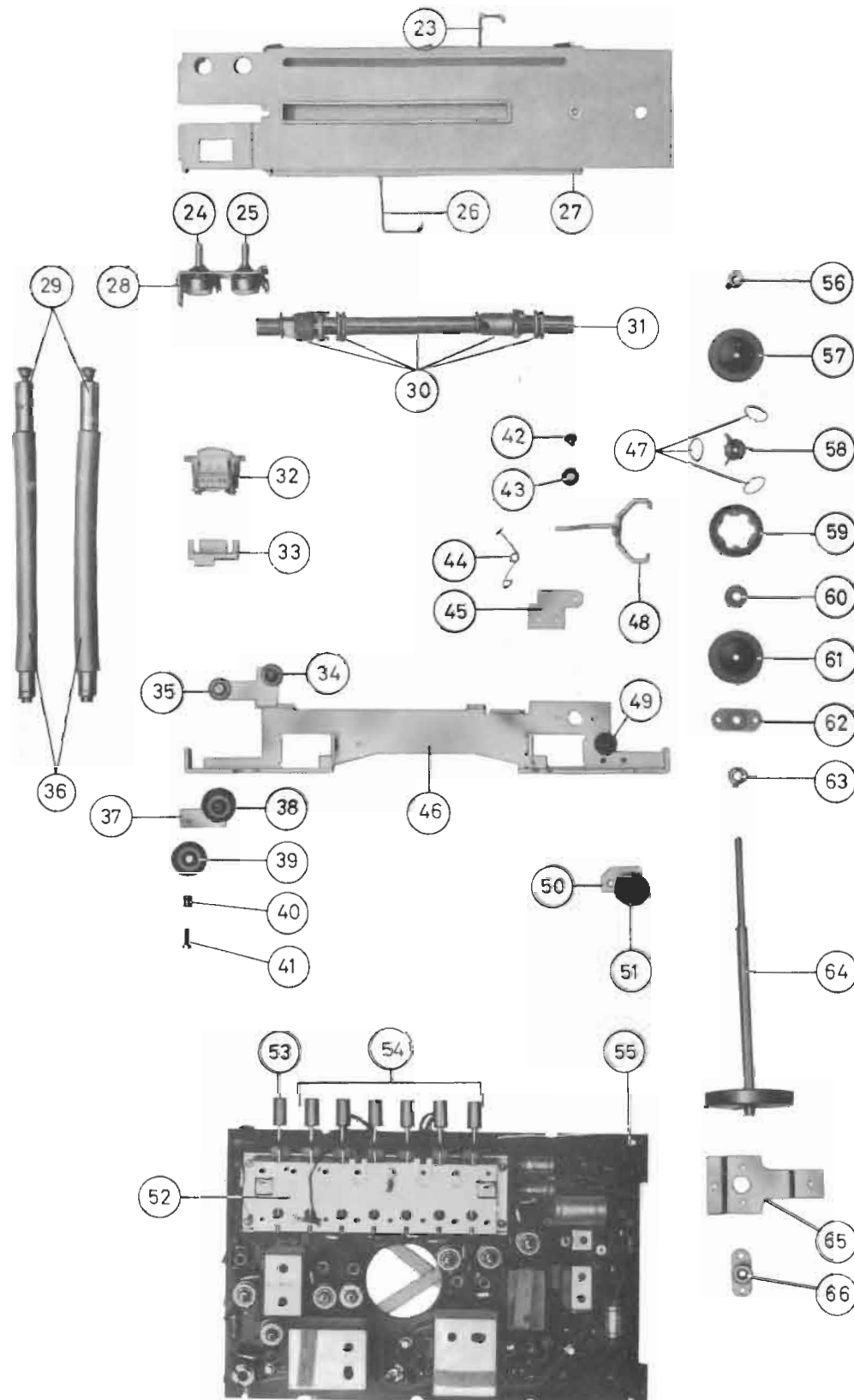


## PARTS LIST, BEOLIT 700, Type 1301

|                     |                                           |         |
|---------------------|-------------------------------------------|---------|
| * 1                 | Ornamental strip.....                     | 0690085 |
| * 2                 | Carrying handle.....                      | 0760426 |
| * 3                 | Knob, volume .....                        | 0322241 |
| 4                   | Knob, bass .....                          | 0322241 |
| * 5                 | Top, complete with dial etc. ....         | 0690108 |
| * 6                 | Knob, tuning.....                         | 0760492 |
| 7                   | Knob, treble.....                         | 0322241 |
| 8                   | Ornamental strip.....                     | 0690085 |
| 9                   | Bushings .....                            | 0412257 |
| *10                 | Battery cover, complete.....              | 0690083 |
| *11                 | Cabinet, front, red .....                 | 0690102 |
|                     | - - green .....                           | 0690103 |
|                     | - - black .....                           | 0690104 |
|                     | - - blue .....                            | 0690105 |
|                     | - - grey .....                            | 0690106 |
| *12                 | Cabinet, back, red .....                  | 0690089 |
|                     | - - green .....                           | 0690090 |
|                     | - - black .....                           | 0690091 |
|                     | - - blue .....                            | 0690092 |
|                     | - - grey .....                            | 0690093 |
| *13                 | Speaker .....                             | 0760493 |
| See photo on page 9 |                                           |         |
| *23                 | Dial pointer, FM .....                    | 0760504 |
| *24                 | Potentiometer, volume .....               | 0854723 |
| *25                 | Potentiometer, bass .....                 | 0854810 |
| *26                 | Dial pointer, AM .....                    | 0760503 |
| 27                  | Dial rear wall.....                       | 0534048 |
| 28                  | Bracket .....                             | 0248800 |
| *29                 | Telescopic whips.....                     | 8720001 |
| 30                  | Ferrite aerial, complete with coils ..... | 0601016 |
| *31                 | Ferrite rod, less coils.....              | 6700000 |
| *32                 | Radiator.....                             | 0858045 |
| 33                  | Radiator bracket.....                     | 0249228 |

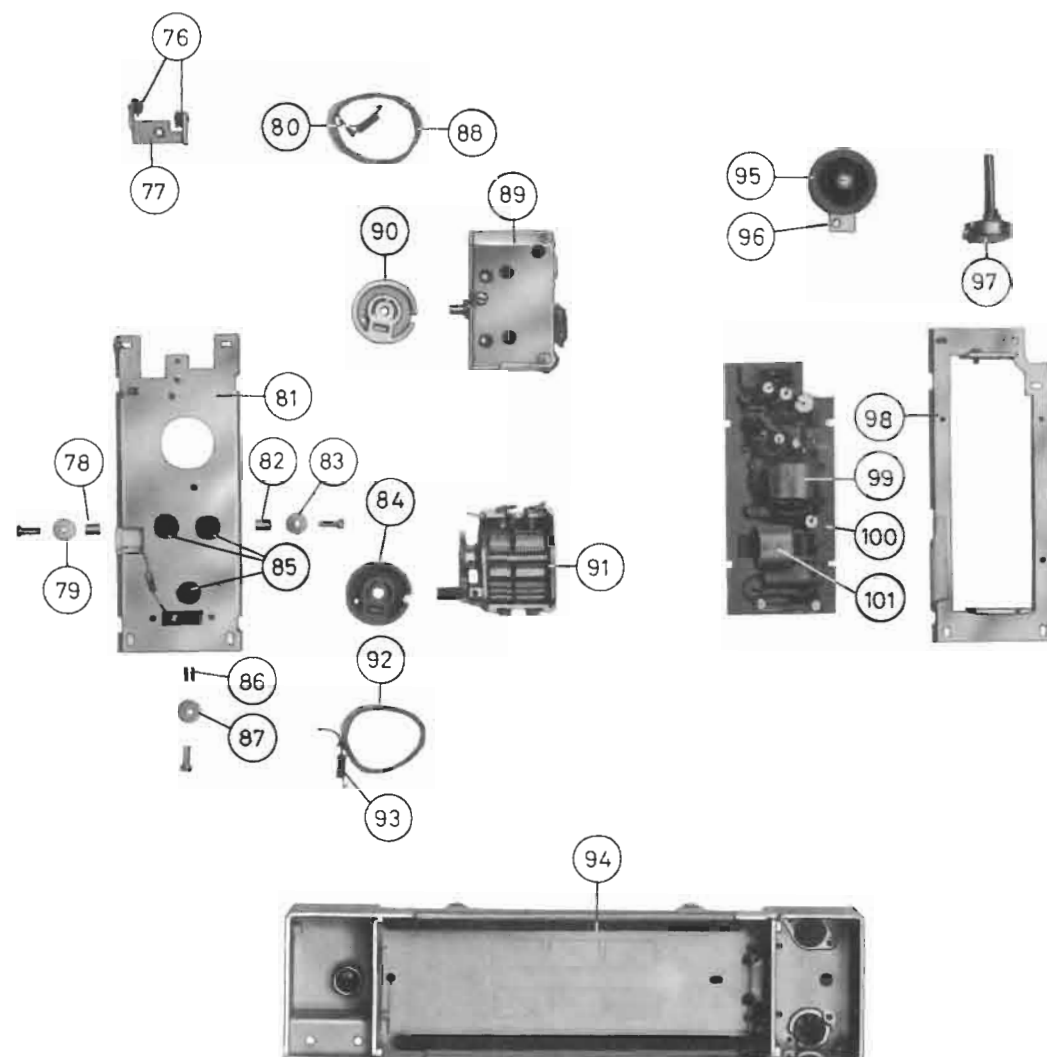
PARTS marked with an \* are preferred spare parts





|     |                                             |                                            |
|-----|---------------------------------------------|--------------------------------------------|
| *34 | Cord pulley.....                            | 2724001                                    |
| 35  | Cord pulley.....                            | 2724001                                    |
| 36  | Plastic tubing.....                         | 15 $\phi$ $\times$ 15 cm PVC.              |
| 37  | Bracket .....                               | 0287196                                    |
| 38  | Cord pulley.....                            | 2724002                                    |
| 39  | Cord pulley.....                            | 2724002                                    |
| 40  | Bushing .....                               | 0410165                                    |
| 41  | Screw .....                                 | AM 3 $\times$ 10 DIN 84                    |
| 42  | Screw .....                                 | 0106091                                    |
| 43  | Spring washer .....                         | 0286200                                    |
| 44  | Spring.....                                 | 0335160                                    |
| 45  | Clamp.....                                  | 0288036                                    |
| 46  | Bracket .....                               | 0504265                                    |
| *47 | Springs .....                               | 0335156                                    |
| 48  | Arm .....                                   | 0387310                                    |
| 49  | Cord pulley.....                            | 2724001                                    |
| 50  | Bracket .....                               | 0248909                                    |
| 51  | Cord pulley.....                            | 2724002                                    |
| 52  | Pushbutton switch assembly, Type 1301 ..... | 0854809                                    |
|     | - - - - - 1302 .....                        | 0854811                                    |
| *53 | Button .....                                | 0760487                                    |
| *54 | Buttons .....                               | 0760488                                    |
| 55  | PW unit complete, IF, Type 1301 .....       | 8001008                                    |
|     | - - - - - 1302 .....                        | 8001002                                    |
|     | Diodes .....                                | Three OA79's                               |
|     | Socket for electrolytic capacitor .....     | 0506101                                    |
|     | Coil, coupling, 10.7 Mc/s.....              | 0990054                                    |
|     | - LW osc.....                               | 0996431                                    |
|     | - MW osc.....                               | 0996432                                    |
|     | - 49 m osc.....                             | 0996502                                    |
|     | - 49 m aer.....                             | 0996503                                    |
|     | - 444 kc/s, series trap .....               | 0990128                                    |
|     | Transformer for external-aerial coils ..... | 0972143                                    |
|     | Transformer, 1st IF .....                   | 0971200                                    |
|     | - 2nd IF .....                              | 0971201                                    |
|     | - AM detector .....                         | 0971202                                    |
|     | - FM detector I .....                       | 0971240                                    |
|     | - FM detector II .....                      | 0971241                                    |
|     | Transistor, AM mixer .....                  | AF 126                                     |
|     | - 1st IF .....                              | AF 126                                     |
|     | - 2nd IF .....                              | AF 126                                     |
|     | Trimmers, 30 pF .....                       | C 005 CC/30 E                              |
|     | - 60 pF .....                               | C 005 CC/60 E                              |
| 56  | Stop ring.....                              | 0376381                                    |
| 57  | Washer .....                                | 0377076                                    |
| *58 | Hub for coupling.....                       | 0760483                                    |
| *59 | Coupling.....                               | 0760491                                    |
| 60  | Washer .....                                | 13 $\phi$ $\times$ 5.1 $\phi$ $\times$ 0.5 |
| 61  | Washer .....                                | 0377076                                    |
| 62  | Bearing .....                               | 0400033                                    |
| 63  | Stop ring.....                              | 0376380                                    |
| 64  | Drive shaft with flywheel.....              | 0760418                                    |
| 65  | Bracket .....                               | 0248821                                    |
| 66  | Bearing .....                               | 0400029                                    |

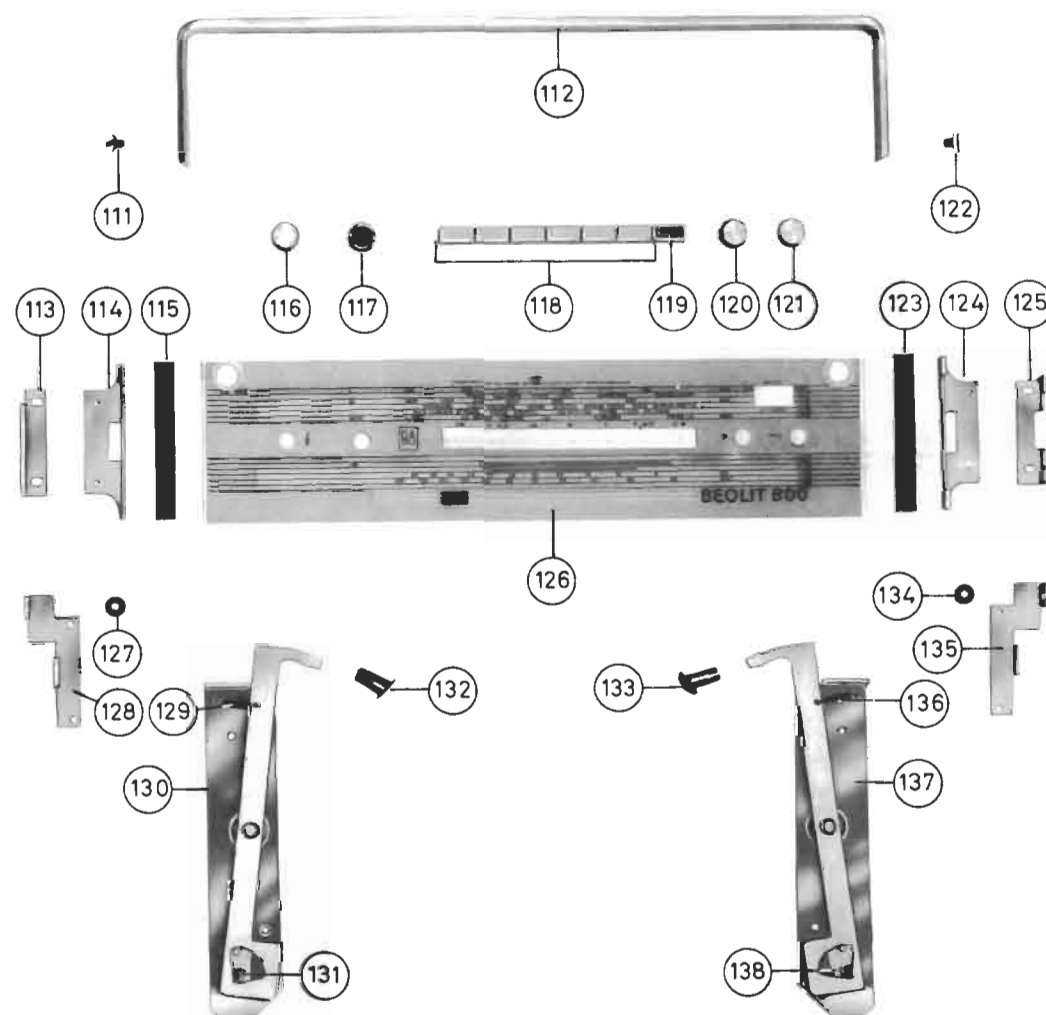
PARTS marked with an \* are preferred spare parts



|       |                                     |              |
|-------|-------------------------------------|--------------|
| 76    | Cord pulleys.....                   | 2724000      |
| 77    | Bracket .....                       | 0248802      |
| 78    | Bushing .....                       | 0410273      |
| 79    | Washer.....                         | 0286185      |
| 80    | Spring.....                         | 0330194      |
| 81    | Bracket .....                       | 0504267      |
| 82    | Bushing .....                       | 0410273      |
| 83    | Washer.....                         | 0286185      |
| * 84  | Dial drive wheel.....               | 0312039      |
| 85    | Rubber bushings .....               | 0411036      |
| 86    | Bushing .....                       | 0410273      |
| 87    | Washer.....                         | 0286185      |
| 88    | Dial cord .....                     | 3955001      |
| 89    | FM tuner .....                      | 8050005      |
| * 90  | Dial drive wheel.....               | 0312057      |
| * 91  | Tuning capacitor.....               | 0840428      |
| 92    | Dial cord.....                      | 3955001      |
| 93    | Spring.....                         | 0330194      |
| * 94  | Battery box, complete .....         | 0690084      |
| 95    | Cord pulley.....                    | 2724003      |
| 96    | Bracket .....                       | 0249266      |
| * 97  | Potentiometer, treble .....         | 0854722      |
| 98    | Bracket .....                       | 0504266      |
| 99    | Transformer, driver.....            | ST C 3194    |
| 100   | PW unit, AF and output.....         | 8001007      |
| * 101 | Diode .....                         | 1.4 St. 1    |
|       | Holder for output transistors ..... | 0240274      |
|       | Transistor, AF.....                 | UW 0029      |
|       | - AF driver .....                   | AC 151       |
|       | - Output .....                      | AC 153, pair |
| 101   | Transformer, output .....           | ST 3527      |

PARTS marked with an \* are preferred spare parts





## Parts for BEOLIT 800, Type 1302

|      |                                           |                       |
|------|-------------------------------------------|-----------------------|
| *111 | Screw.....                                | 0104085               |
| *112 | Carrying handle .....                     | 0326079               |
| 113  | Bracket.....                              | 0245555               |
| 114  | Bracket.....                              | 0245535               |
| 115  | Cover piece.....                          | 0280415               |
| *116 | Knob, treble .....                        | 0322241               |
| *117 | Knob, tuning .....                        | 0760492               |
| *118 | Buttons for pushbutton switch assembly... | 0690096               |
| *119 | Button for on/off switch.....             | 0322333               |
| 120  | Knob, bass.....                           | 0322241               |
| 121  | Knob, volume .....                        | 0322241               |
| 122  | Screw.....                                | 0104085               |
| 123  | Cover piece.....                          | 0280415               |
| 124  | Bracket.....                              | 0245535               |
| 125  | Bracket.....                              | 0245556               |
| *126 | Top, complete with dial etc. ....         | 0690109               |
| 127  | Bushing .....                             | 0412270               |
| 128  | Bracket.....                              | 0248913               |
| 129  | Spring .....                              | 0330194               |
| 130  | Bracket.....                              | 0760443               |
| 131  | Arm.....                                  | 0760442               |
| *132 | Slide shoe.....                           | 0585026               |
| 133  | Slide shoe.....                           | 0585026               |
| 134  | Bushing .....                             | 0412270               |
| 135  | Bracket.....                              | 0248912               |
| 136  | Spring .....                              | 0330194               |
| 137  | Bracket.....                              | 0760444               |
| 138  | Arm.....                                  | 0760442               |
|      | Cabinet .....                             | 0532616 teak/rosewood |
| *    | Slide shoe for bottom.....                | 0585018               |

## Other parts as for Type 1301

## Extra Accessories

|   |                       |        |
|---|-----------------------|--------|
| * | Plug, Aerial .....    | 10076  |
| * | - Gramophone.....     | 8-7506 |
| * | - Speaker.....        | S.34   |
|   | - Tape Recorder ..... | 8-7506 |

PARTS marked with an \* are preferred spare parts



## DESCRIPTION

The BEOLIT 700 (Type 1301) and the BEOLIT 800 (Type 1302) are all-transistor FM-AM receivers for battery operation only. They consist of the following units:

PW unit 8050005, screened FM tuner with AFC diode.  
 PW unit 8001008 (Type 1301), AM and FM-IF circuits.  
 PW unit 8001002 (Type 1302), AM and FM-IF circuits.  
 PW unit 8001007, AF and output circuits.

### FM

The FM tuner uses two transistors: one AF 106 and one AF 124. An AFC diode, BA 101, receives control voltage from the discriminator; the AFC is disabled by feeding a stabilized voltage to the diode instead.

### AM

AF 126<sub>1</sub> operates as a self-excited mixer and, with the aerial button released, receives signal voltage from the ferrite aerial. With the aerial button depressed, AF 126<sub>1</sub> connects to screened coils for LW and MW for auto aerial. AF 126<sub>2</sub> and AF 126<sub>3</sub> are IF amplifiers.

### AF

The UW 0029 is a conventional AF amplifier. The AC 151 driver receives stabilized base voltage across the 1.4 St. 1 diode. This stabilization is carried through the emitter circuit and on to the AC 153 output transistors, ensuring constant current drain at decreasing battery voltage and consequently minimizing distortion on loud passages.

### TAPE RECORDER AND GRAMOPHONE

plug into a common DIN jack. Pin 1 is used for recording and pin 3 for playback. A BEOGRAM 1000 VF (Type 5202) record player, or a record player using a crystal pickup, should be used.

### Radicator

The radicator should be aligned with new dry cells inserted and the MW and 49m buttons depressed. The shaft of the 500Ω potentiometer numbered 94 in the circuit diagram should be turned until the pointer hits the stop; then turn in opposite direction until the pointer only just clears the stop.

### AF

No-signal current, point I, should be adjusted for approx. 18 mA by means of the 250Ω potentiometer numbered 524 in the circuit diagram.



## MODIFICATIONS

In order to avoid instability in the AM bands, the detector can (0971202) is soldered all along its edge so that perfect screening is ensured.

Some modifications have been introduced in the last series in order to obtain better reproduction on AM, in particular on strong signals.

|       |         |                        |       |           |
|-------|---------|------------------------|-------|-----------|
| 22 nF | No. 123 | has been replaced with | 10 nF | Pe 125 V. |
| 820 Ω | No. 104 | - - - -                | 1 KΩ  | 1/2 W.    |
| 15 KΩ | No. 508 | - - - -                | 12 KΩ | 1/2 W.    |

A diode, OA 79, has been installed between pin 9 of IF transformer 0971200 and pin 15 of 0971201 (+ end of diode to pin 15).

|       |        |                        |        |        |
|-------|--------|------------------------|--------|--------|
| 1 KΩ  | No. 91 | has been replaced with | 3.3 KΩ | 1/2 W. |
| 10 KΩ | No. 66 | - - - -                | 4.7 KΩ | 1/2 W. |



## DIAL DRIVE

