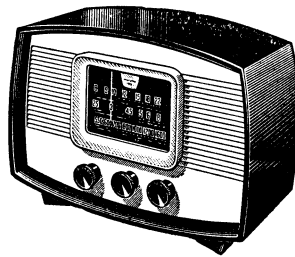


# MURPHY SERVICE INSTRUCTIONS



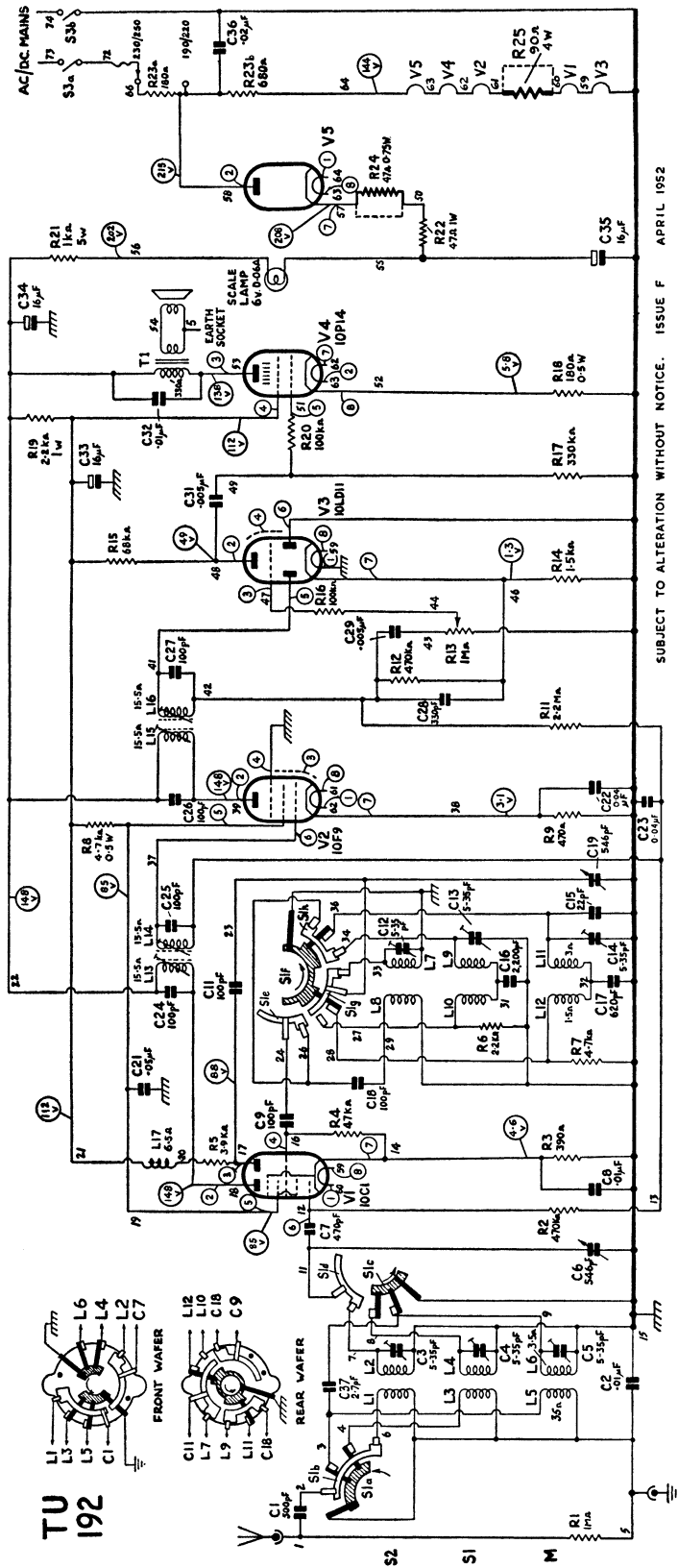
## SPECIFICATION

|                         |  |                                   |                                |                                |     |                                |     |                                   |
|-------------------------|--|-----------------------------------|--------------------------------|--------------------------------|-----|--------------------------------|-----|-----------------------------------|
| MAINS SUPPLY:           | 190-250 volts d.c. or 190-250 volts a.c., 25-100 c/s   |                                   |                                |                                |     |                                |     |                                   |
| CONSUMPTION:            | 38 watts (approx.)   |                                   |                                |                                |     |                                |     |                                   |
| WAVE BANDS:             | <table> <tr> <td rowspan="3" style="font-size: 3em; vertical-align: middle;">{</td> <td>Medium:</td> <td>535-1630 Kc/s (560-185 metres)</td> </tr> <tr> <td>S1:</td> <td>2.5-8.2 Mc/s (120-36.6 metres)</td> </tr> <tr> <td>S2:</td> <td>8.0-22.5 Mc/s (37.5-13.33 metres)</td> </tr> </table> | {                                 | Medium:                        | 535-1630 Kc/s (560-185 metres) | S1: | 2.5-8.2 Mc/s (120-36.6 metres) | S2: | 8.0-22.5 Mc/s (37.5-13.33 metres) |
| {                       | Medium:  |                                   | 535-1630 Kc/s (560-185 metres) |                                |     |                                |     |                                   |
|                         | S1:  |                                   | 2.5-8.2 Mc/s (120-36.6 metres) |                                |     |                                |     |                                   |
|                         | S2:  | 8.0-22.5 Mc/s (37.5-13.33 metres) |                                |                                |     |                                |     |                                   |
| INTERMEDIATE FREQUENCY: | 470 Kc/s   |                                   |                                |                                |     |                                |     |                                   |
| VALVES:                 | Ediswan-Mazda 10C1, 10F9, 10LD11, 10P14, U404 or Mullard UY41  |                                   |                                |                                |     |                                |     |                                   |
| SCALE LAMP:             | 6.0 volts, 0.06 amp. (M.E.S.)  |                                   |                                |                                |     |                                |     |                                   |
| SPEECH COIL IMPEDANCE:  | 3 ohms   |                                   |                                |                                |     |                                |     |                                   |
| CABINET DIMENSIONS:     | 14½ in. (37 cms.) wide, 10¼ in. (26 cms.) high, 7¼ in. (18.5 cms.) deep  |                                   |                                |                                |     |                                |     |                                   |
| WEIGHT:                 | 9½ lb. (4.5 kg.)   |                                   |                                |                                |     |                                |     |                                   |

*Issued by*

**MURPHY RADIO LTD · WELWYN GARDEN CITY  
HERTS · ENGLAND PHONE: WELWYN GARDEN 800**

**FOREIGN TELEGRAMS AND CABLES: RADMURPHY, LONDON**



SUBJECT TO ALTERATION WITHOUT NOTICE. ISSUE F APRIL 1952

V5 { U404 (EDISWAN-MAZDA) -----  
UY41 (MULLARD) ~~~~~

The switch wafers are drawn as seen from the rear of the receiver, and the lugs marked with a cross are the nearer to the chassis. The blank contacts and inner rotors are on the hidden sides of the wafers. Blank positions and anchoring tags are shown by a spot. The Waveband Switch is shown in the S2 position; rotate anti-clockwise for S1 and M.

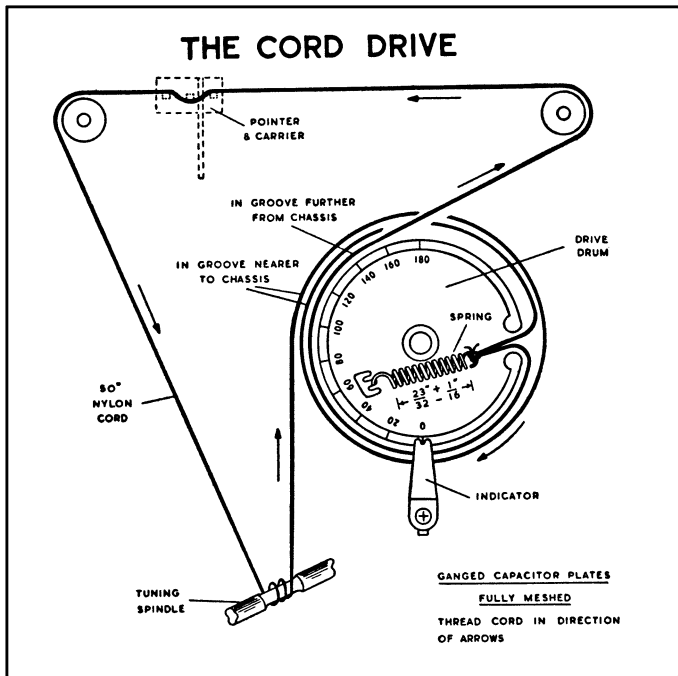
When measuring the voltages, the receiver was switched to the M band, with no signal input. A 20,000 Ω/V meter was used and the readings are given in the large circles on the diagram.

The valve pin numbers are shown in the small circles. Component terminals and connecting leads are identified by test point numbers which correspond with those appearing on the chassis drawings.

Coil resistances are omitted where the values are less than one ohm.

NOTE: L5 may be a low inductance winding in which case C37 (2.7 pF) is not fitted between points 3 and 9 on the wave-band switch.

### THE CORD DRIVE

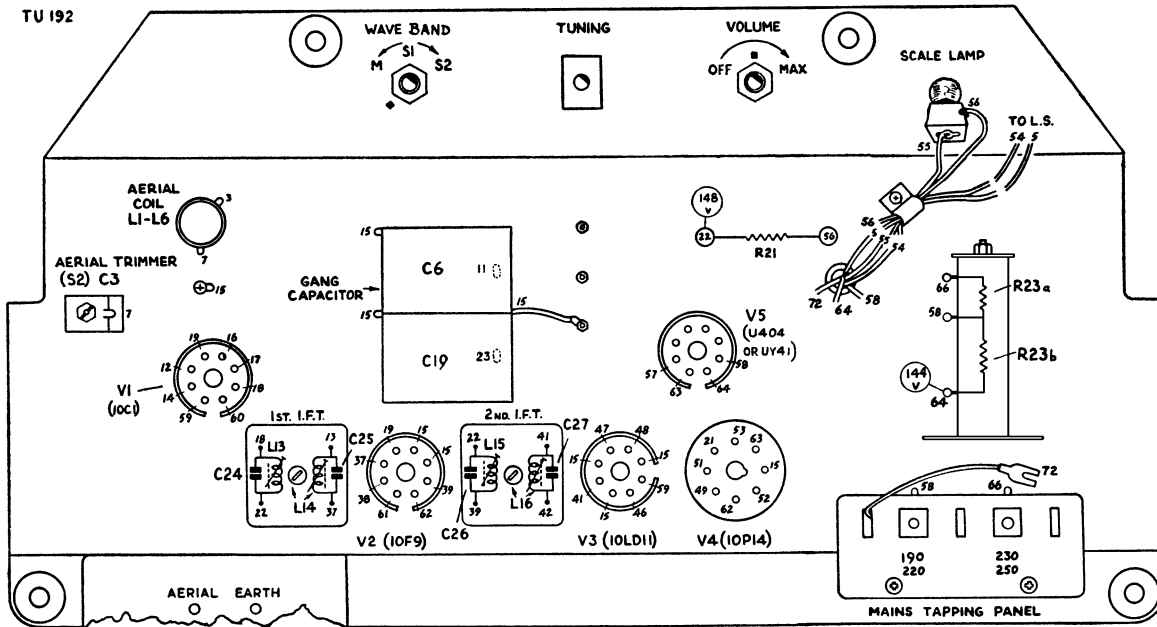


### PARTS LIST ABBREVIATIONS

- cer. — ceramic
- elec. — electrolytic
- i.s.tub. — insulated sealed tubular (metal cased)
- m.tub. — metallized paper tubular
- p.s.m. — protected silvered mica
- tub. — paper tubular
- v.w. — voltage working
- w.w. — wire wound

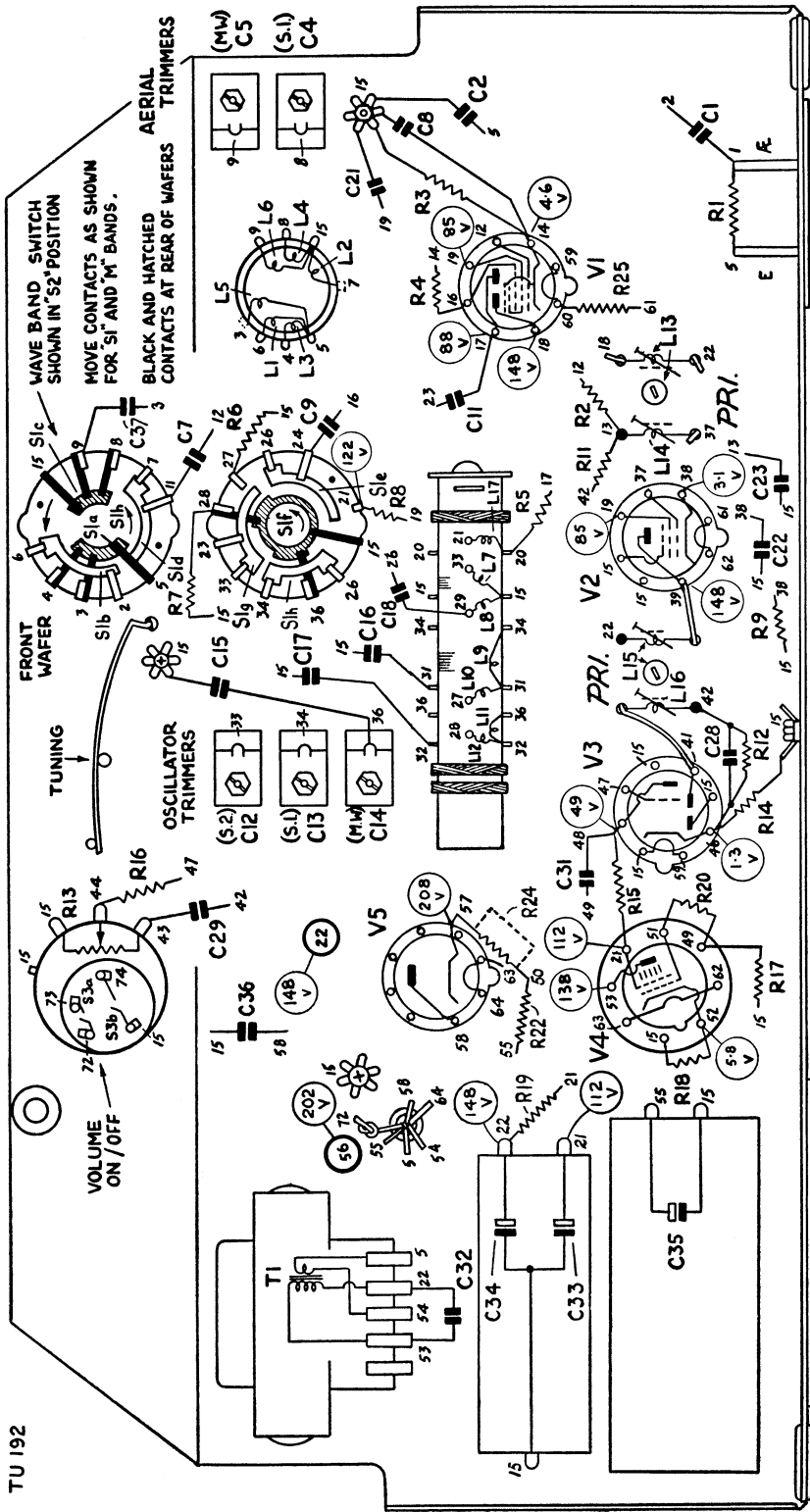
|            |   |     |    |    |    |    |    |  |    |  |  |  |  |  |     |     |   |
|------------|---|-----|----|----|----|----|----|--|----|--|--|--|--|--|-----|-----|---|
| CAPACITORS | 3 | 24  | 25 | 6  | 19 | 26 | 27 |  |    |  |  |  |  |  |     |     | C |
| INDUCTORS  |   | 1-6 | 13 | 14 |    | 15 | 16 |  |    |  |  |  |  |  |     |     | L |
| RESISTORS  |   |     |    |    |    |    |    |  | 21 |  |  |  |  |  | 23a | 23b | R |

TU 192



*The layout of the top of the chassis*

|            |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |   |   |   |   |    |
|------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|----|----|---|---|---|---|----|
| CAPACITORS | 33 | 32 | 34 | 35 | 36 | 29 | 31 | 12 | 13 | 14 | 28 | 15 | 17 | 16 | 18 | 22 | 23 | 9 | 11 | 21 | 8 | 2 | 5 | 4 | C  |
| INDUCTORS  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |   |   |   |   | L  |
| RESISTORS  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |   |   |   |   | R  |
| MISC.      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |    |    |   |   |   |   | V  |
|            |    |    |    | T1 | V4 | V5 |    | V3 |    |    |    |    |    |    |    |    |    |   |    |    |   |   |   |   | V1 |



The layout of the underside of the chassis

# CIRCUIT ALIGNMENT

**Output reading.** Connect an output meter to the loudspeaker speech coil. Turn the volume control to maximum output. Make all adjustments for maximum output. Adjust the signal generator attenuator so that the output does not exceed 180mW (0.7V).

**Drive drum setting.** Check that the ganged capacitor plates are fully meshed (i.e. maximum capacitance) when 0° on the drive drum registers with the "V" on the indicator.

**Tuning pointer adjustment.** The pointer should register with the

spots at the left of the tuning scale when the ganged capacitor plates are fully meshed.

**Replacement s.w. coils.** The inductance of the tuned windings of replacement S band aerial and oscillator coils may be adjusted after fitting as follows. Refer to the alignment table and where it states "No Adjustment", adjust the spacing of the end turns of the S band aerial and oscillator coils. Readjust the trimmers at the h.f. end of the wave band. Make final adjustments to the coils and then seal the windings with wax.

## CIRCUIT ALIGNMENT TABLE

*Note: On all wave bands the local oscillator frequency is higher than the signal frequency*

| CIRCUIT    | NOTES  | SIG. GEN. FREQUENCY     | SIG. GEN. TERMINATION | CONNECT SIG. GEN. TO   | DRIVE DRUM SETTING | ADJUSTMENTS   |
|------------|--|-------------------------|-----------------------|------------------------|--------------------|---|
| 2nd i.f.t. | Unscrew sec. core (top of can) before starting adjustments | 470 Kc/s                | Via 0.01 µF capacitor | V2 signal grid (pin 6) | 0°<br>M Band       | L15 (pri.) under chassis<br>L16 (sec.) top of can<br>DO NOT RE-ADJUST PRI. CORE |
| 1st i.f.t. | As above   | As above                | As above              | V1 signal grid (pin 6) | As above           | L13 (pri.) under chassis<br>L14 (sec.) top of can<br>DO NOT RE-ADJUST PRI. CORE |
| M          |  | 1363.6 Kc/s<br>(220 m.) | Dummy aerial          | Aerial socket          | 154°               | M osc. trimmer (C14)<br>M ae. trimmer (C5)                                      |
|            |  | 600 Kc/s<br>(500 m.)    | As above              | As above               | 29°—34°            | No adjustment   |
| S1         | Set osc. trimmer to lower capacitance peak                 | 7.25 Mc/s<br>(41.4 m.)  | As above              | As above               | 162°               | S1 osc. trimmer (C13)<br>S1 ae. trimmer (C4)                                    |
|            |  | 3.0 Mc/s<br>(100 m.)    | As above              | As above               | 44°                | No adjustment   |
| S2         | As above   | 17.8 Mc/s<br>(16.85 m.) | As above              | As above               | 142°               | S2 osc. trimmer (C12)<br>S2 ae. trimmer (C3)                                    |
|            |  | 9.6 Mc/s<br>(31.25 m.)  | As above              | As above               | 43°                | No adjustment   |

## PARTS LIST (Electrical Components)

| PART NO. | CIRCUIT NO. | VALUE          | TOLERANCE AND REMARKS          | PART NO. | CIRCUIT NO. | VALUE            | TOLERANCE AND REMARKS        |
|----------|-------------|----------------|--------------------------------|----------|-------------|------------------|------------------------------|
| 57773    | C1          | 500 pF         | 25%, m.tub., 300 v.w.a.c.      | 25197    | R8          | 4.7 K $\Omega$   | 10%, 0.5W                    |
| 51766    | C2          | 0.01 $\mu$ F   | 20%, i.s.tub., 275 v.w.a.c.    | 26821    | R9          | 470 $\Omega$     | 20%, 0.4W                    |
| 37480    | C3          | 5-35 pF        | trimmer, S2 ae.                | 27525    | R11         | 2.2 M $\Omega$   | 20%, 0.4W                    |
| 37480    | C4          | 5-35 pF        | trimmer, S1 ae.                | 27397    | R12         | 470 K $\Omega$   | 20%, 0.4W                    |
| 37480    | C5          | 5-35 pF        | trimmer, M ae.                 | 52776    | R13         | 1 M $\Omega$     | volume control with switch   |
| 48504    | C6          | 546 pF         | ganged capacitor, ae. section  | 26917    | R14         | 1.5 M $\Omega$   | 20%, 0.4W                    |
| 54083    | C7          | 470 pF         | 20% cer., 500 v.w.d.c.         | 27237    | R15         | 68 K $\Omega$    | 20%, 0.4W                    |
| 49447    | C8          | 0.01 $\mu$ F   | 25%, m.tub., 150 v.w.d.c.      | 27269    | R16         | 100 K $\Omega$   | 20%, 0.4W                    |
| 54070    | C9          | 100 pF         | 20% cer., 500 v.w.d.c.         | 27365    | R17         | 330 K $\Omega$   | 20%, 0.4W                    |
| 54070    | C11         | 100 pF         | 20% cer., 500 v.w.d.c.         | 24653    | R18         | 180 $\Omega$     | 10%, 0.5W                    |
| 37480    | C12         | 5-35 pF        | trimmer, S2 osc.               | 26972    | R19         | 2.2 K $\Omega$   | 20%, 1W                      |
| 37480    | C13         | 5-35 pF        | trimmer, S1 osc.               | 27269    | R20         | 100 K $\Omega$   | 20%, 0.4W                    |
| 37480    | C14         | 5-35 pF        | trimmer, M osc.                | 51051    | R21         | 1 K $\Omega$     | 5%, 5W, w.w.                 |
| 23603    | C15         | 22 pF          | 10%, p.s.m., 350 v.w.d.c.      | 40460    | R22         | 47 $\Omega$      | 20%, 1W, w.w.                |
| 23656    | C16         | 2200 pF        | 10%, p.s.m., 350 v.w.d.c.      | 48699    | R23         | 180+680 $\Omega$ | 5%, w.w.                     |
| 28241    | C17         | 620 pF         | 1%, p.s.m., 350 v.w.d.c.       | 26653    | R24         | 47 $\Omega$      | 20%, 0.75W                   |
| 54070    | C18         | 100 pF         | 20% cer., 500 v.w.d.c.         | 51057    | R25         | 90 $\Omega$      | 5%, 4W, w.w.                 |
| 48504    | C19         | 546 pF         | ganged capacitor, osc. section |          |             |                  |                              |
| 41403    | C21         | 0.05 $\mu$ F   | 20% tub., 350 v.w.d.c.         |          |             |                  |                              |
| 49454    | C22         | 0.04 $\mu$ F   | 25%, m.tub., 150 v.w.d.c.      |          |             |                  |                              |
| 49454    | C23         | 0.04 $\mu$ F   | 25%, m.tub., 150 v.w.d.c.      |          |             |                  |                              |
| 52630    | C24         | 100 pF         | 5%, p.s.m., 350 v.w.d.c.       |          |             |                  |                              |
| 52630    | C25         | 100 pF         | 5%, p.s.m., 350 v.w.d.c.       |          |             |                  |                              |
| 52630    | C26         | 100 pF         | 5%, p.s.m., 350 v.w.d.c.       |          |             |                  |                              |
| 52630    | C27         | 100 pF         | 5%, p.s.m., 350 v.w.d.c.       |          |             |                  |                              |
| 49460    | C28         | 330 pF         | 10%, m.tub., 600 v.w.d.c.      |          |             |                  |                              |
| 49456    | C29         | 0.005 $\mu$ F  | 25%, m.tub., 150 v.w.d.c.      |          |             |                  |                              |
| 50962    | C31         | 0.005 $\mu$ F  | 20%, i.s.tub., 500 v.w.d.c.    |          |             |                  |                              |
| 41419    | C32         | 0.01 $\mu$ F   | 20% tub., 1000 v.w.d.c.        |          |             |                  |                              |
| 46535    | C33         | 16 $\mu$ F     | +50% —20%, elec, 350 v.w.d.c.  |          |             |                  |                              |
|          | C34         | 16 $\mu$ F     |                                |          |             |                  |                              |
| 46510    | C35         | 16 $\mu$ F     | +50% —20%, elec, 350 v.w.d.c.  |          |             |                  |                              |
| 41423    | C36         | 0.02 $\mu$ F   | 20% tub., 750 v.w.d.c.         |          |             |                  |                              |
| 52143    | C37         | 2.7 pF         | 20%, cer., 500 v.w.d.c.        |          |             |                  |                              |
| 27461    | R1          | 1 M $\Omega$   | 20%, 0.4W                      |          |             |                  |                              |
| 27397    | R2          | 470 K $\Omega$ | 20%, 0.4W                      |          |             |                  |                              |
| 24773    | R3          | 390 $\Omega$   | 10%, 0.4W                      |          |             |                  |                              |
| 27205    | R4          | 47 K $\Omega$  | 20%, 0.4W                      |          |             |                  |                              |
| 25157    | R5          | 3.9 K $\Omega$ | 10%, 0.4W                      |          |             |                  |                              |
| 26949    | R6          | 2.2 K $\Omega$ | 20%, 0.4W                      |          |             |                  |                              |
| 27013    | R7          | 4.7 K $\Omega$ | 20%, 0.4W                      |          |             |                  |                              |
|          |             |                |                                | 59491    | L1          | —                | S2 ae. coil                  |
|          |             |                |                                |          | L2          | —                |                              |
|          |             |                |                                |          | L3          | —                | S1 ae. coil                  |
|          |             |                |                                |          | L4          | —                |                              |
|          |             |                |                                |          | L5          | 35 $\Omega$      | M ae. coil                   |
|          |             |                |                                |          | L6          | 3.5 $\Omega$     |                              |
|          |             |                |                                |          | L7          | —                | S2 osc. coil                 |
|          |             |                |                                |          | L8          | —                |                              |
|          |             |                |                                | 53430    | L9          | —                | S1 osc. coil                 |
|          |             |                |                                |          | L10         | —                |                              |
|          |             |                |                                |          | L11         | 3 $\Omega$       | M osc. coil                  |
|          |             |                |                                |          | L12         | 1.5 $\Omega$     |                              |
|          |             |                |                                | 52219    | L13         | 15.5 $\Omega$    | pri. sec. 1st i.f.t.         |
|          |             |                |                                |          | L14         | 15.5 $\Omega$    |                              |
|          |             |                |                                | 52219    | L15         | 15.5 $\Omega$    | pri. sec. 2nd i.f.t.         |
|          |             |                |                                |          | L16         | 15.5 $\Omega$    |                              |
|          |             |                |                                |          | L17         | 6.5 $\Omega$     | choke with osc. coil (53430) |
|          |             |                |                                | 52478    | T1          | 330 $\Omega$     |                              |
|          |             |                |                                |          |             |                  | sec. output transformer      |

## PARTS LIST (Mechanical Components)

| PART NO. | DESCRIPTION         | REMARKS                  | PART NO. | DESCRIPTION           | REMARKS                 |
|----------|---------------------|--------------------------|----------|-----------------------|-------------------------|
| 57432    | Back                | for cabinet              | 10554    | Lamp                  | 6V, 0.06A               |
| 57424    | Bracket             | for lampholder           | 56453    | Lampholder            |                         |
|          |                     |                          | 51813    | Loudspeaker           |                         |
| 57483    | Cabinet             | not for Portugal         | 53819    | Panel, mains tapping  |                         |
| 59813    | Cabinet             | Portugal only            | 37974    | Plug                  | for aerial              |
| 48506    | Channel, rubber (4) | for scale fixing         | 37975    | Plug                  | for earth               |
| 53019    | Clamp               | for C33, C34, C35        | 57932    | Pointer and carrier   |                         |
| 50062    | Clamp               | for aerial coil          |          |                       |                         |
| 53453    | Clamp               | for C1                   |          |                       |                         |
| 2033/5   | Cord, for drive     | 50 in. length (127 cms.) | 57487    | Scale, tuning         | general                 |
|          |                     |                          | 59814    | Scale, tuning         | Portugal only           |
| 53774    | Drive drum          | for cord drive           | 10413    | Screw, grub (3)       | for control knobs       |
|          |                     |                          | 103267   | Screw (2)             | for chassis fixing      |
| 57484    | Escutcheon          | not for Portugal         | 19842    | Screw, grub           | for drive drum          |
| 59574    | Escutcheon          | Portugal only            | 57419    | Spindle, tuning       |                         |
|          |                     |                          | 19460    | Spring                | for cord drive          |
| 57422    | Guide rail          | for pointer              | 51171    | Spring                | for tuning spindle      |
|          |                     |                          | 57699    | Switch                | wave band               |
| 57418    | Indicator           | for cord drive           |          |                       |                         |
|          |                     |                          | 40134    | Tag (2)               | for mains tapping panel |
| 58715    | Knob                | for On/Off volume        | 40135    | Terminal, spade       | for mains adjustment    |
| 53035    | Knob                | for tuning control       |          |                       |                         |
| 57485    | Knob                | for wave band switch     | 51451    | Valve holder, BSA (4) |                         |
|          |                     |                          | 5687     | Valve holder, I.O.    |                         |
| 57490    | Label, for back     | general                  |          |                       |                         |
| 57492    | Label, for back     | India                    | 34588    | Washer, felt (3)      | for control knobs       |