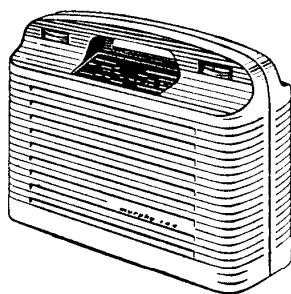


# MURPHY SERVICE INSTRUCTIONS



## SPECIFICATION

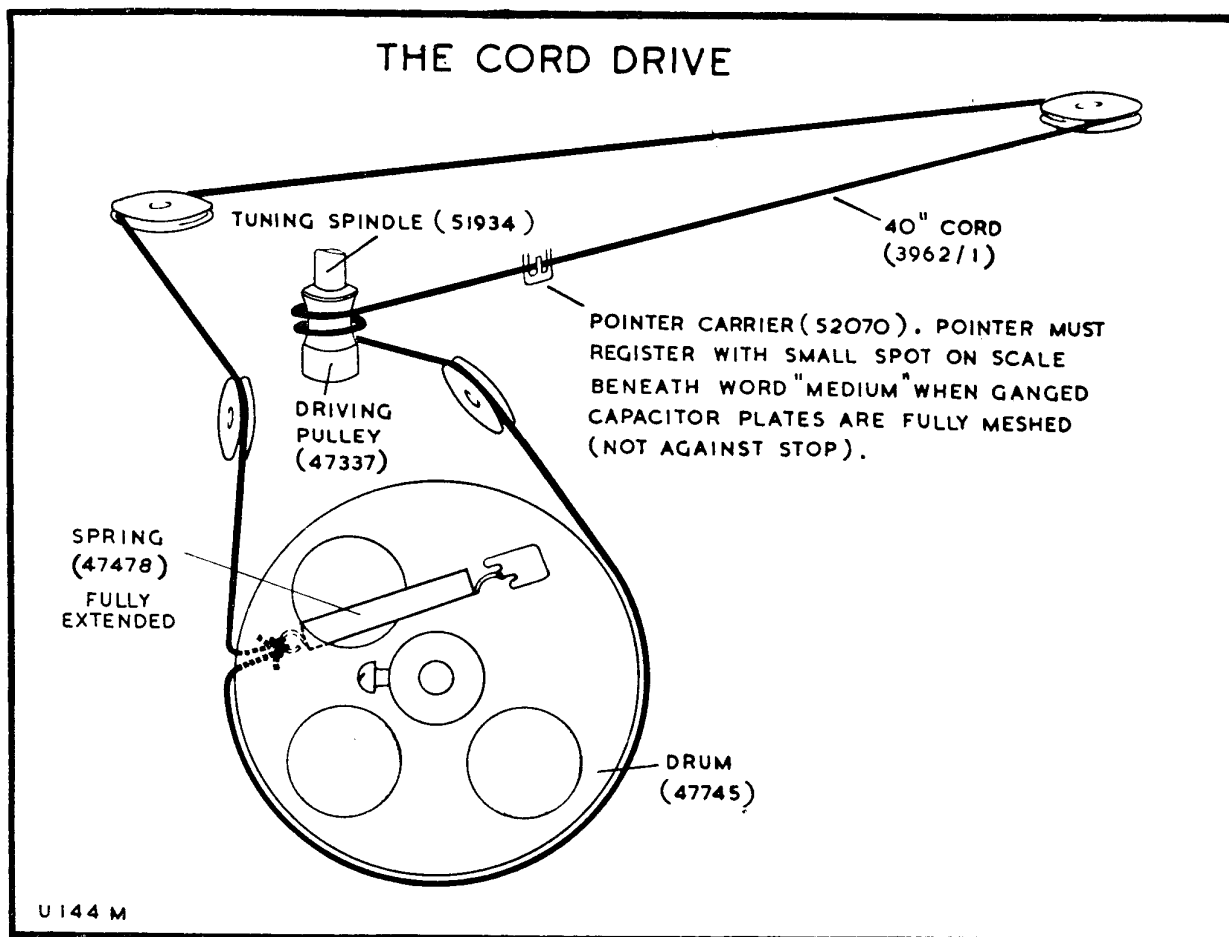
|                         |  |
|-------------------------|--|
| MAINS SUPPLIES:         | 200-250 volts d.c., or 200-250 volts a.c.,<br>25-100 c/s   |
| CONSUMPTION:            | 40 watts   |
| WAVE BANDS:             | Medium: 187-560 metres<br>Long: 1000-2050 metres   |
| INTERMEDIATE FREQUENCY: | 470 Kc/s   |
| VALVES:                 | Mazda: 10C1, 10F9, 10LD11 (or Mullard UBC41),<br>10P13, U404 (or Mullard UY41; not inter-<br>changeable) |
| LOUDSPEAKER:            | Type: 6½ in. dia., permanent magnet<br>Impedance: 3 ohms   |
| CABINET DIMENSIONS:     | 10½ in. wide, 9 in. high, 4¾ in. deep  |
| WEIGHT:                 | 8 lb.  |
| RELEASED:               | January 1953   |

*Issued by*

**MURPHY RADIO LTD  
WELWYN GARDEN CITY · HERTS**

**PHONE: WELWYN GARDEN 800**

*January 1953*



## NOTES

**The cabinet.** The two halves are not supplied separately. The back is identifiable by the screw holes in the base of the handle.

**The tuning scales.** These can be identified as follows:

*Front scale.* 200 m. calibration mark at the left-hand end.

*Back scale.* 200 m. calibration mark at the right-hand end.

**Replacement volume controls.** It is essential that the metal case of the control is not allowed to short-circuit the insulators at the end of the control mounting bar; use spacing washers if necessary.

## PARTS LIST (Electrical Components)

### ABBREVIATIONS

cer. — ceramic  
 p.s.m. — protected silvered mica  
 m.m. — moulded mica  
 tub. — paper tubular  
 s.tub. — sealed paper tubular  
           (metal case)

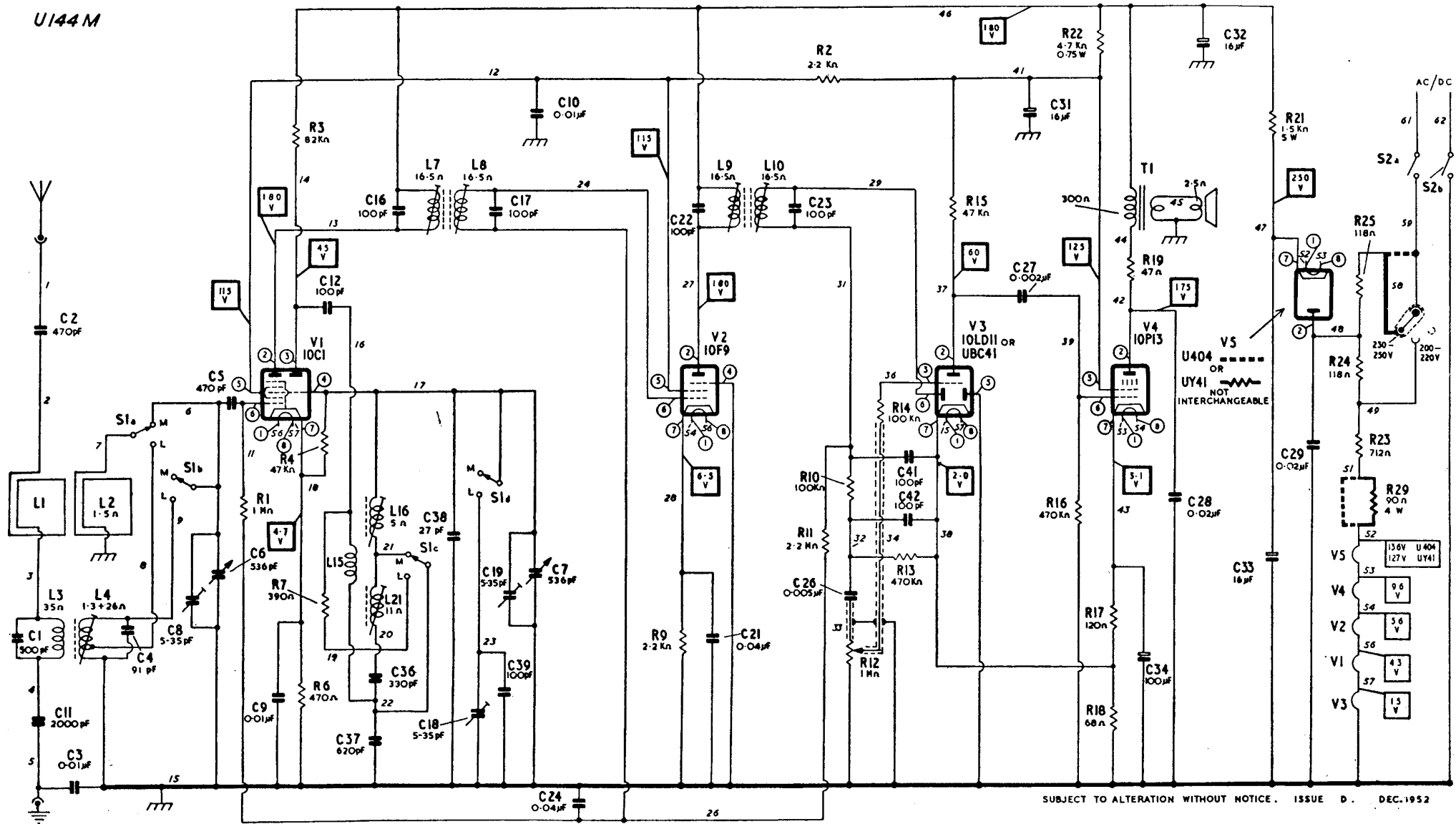
m.tub. — metallized paper tubular  
 elec. — electrolytic  
 V a.c. — a.c. voltage working  
 V d.c. — d.c. voltage working  
 W — wattage rating  
 w.w. — wire wound

| PART NO. | CIRCUIT NO. | VALUE   | TOLERANCE AND REMARKS                                       | PART NO. | CIRCUIT NO. | VALUE   | TOLERANCE AND REMARKS  |
|----------|-------------|---------|---|----------|-------------|---------|------------------------|
| 27985    | C1          | 500 pF  | 10%, m.m., 350V d.c.  | 47365    | C8          | 5-35 pF | Trimmer, M ae.         |
| 54078    | C2          | 470 pF  | 20%, cer., 500V d.c.  | 49447    | C9          | 0.01 μF | 25%, m.tub., 150V d.c. |
| 51766    | C3          | 0.01 μF | 20%, tub., 275V a.c.  | 49453    | C10         | 0.01 μF | 25%, m.tub., 350V d.c. |
| 28222    | C4          | 91 pF   | 2%, p.s.m., 350V d.c.                                       | 57774    | C11         | 2000 pF | 25%, m.tub., 300V a.c. |
| 54083    | C5          | 470 pF  | 20%, cer., 500V d.c.  | 54070    | C12         | 100 pF  | 20%, cer., 500V d.c.   |
| 52071    | C6          | 536 pF  | Ae. section } ganged capacitor<br>Osc. section } (with C19) | 52630    | C16         | 100 pF  | 5%, p.s.m., 350V d.c.  |
|          | C7          | 536 pF  |   | 52630    | C17         | 100 pF  | 5%, p.s.m., 350 V d.c. |

| PART NO. | CIRCUIT NO. | VALUE    | TOLERANCE AND REMARKS       | CIRCUIT NO.                 | PART NO.    | VALUE             | TOLERANCE AND REMARKS         |
|----------|-------------|----------|-----------------------------|-----------------------------|-------------|-------------------|-------------------------------|
| 47365    | C18         | 5-35 pF  | Trimmer, L osc.             | 27397                       | R13         | 470 KΩ            | 20%, 0-6W                     |
| 52071    | C19         | 5-35 pF  | Trimmer, M osc. (with C7)   | 27269                       | R14         | 100 KΩ            | 20%, 0-6W                     |
| 49454    | C21         | 0-04 μF  | 25%, m.tub., 150V d.c.      | 25573                       | R15         | 47 KΩ             | 10%, 0-6W                     |
| 52630    | C22         | 100 pF   | 5%, p.s.m., 350V d.c.       | 27397                       | R16         | 470 KΩ            | 20%, 0-6W                     |
| 52630    | C23         | 100 pF   | 5%, p.s.m., 350V d.c.       | 24581                       | R17         | 120 Ω             | 10%, 0-6W                     |
| 49454    | C24         | 0-04 μF  | 25%, m.tub., 150V d.c.      | 24485                       | R18         | 68 Ω              | 10%, 0-6W                     |
| 49456*   | C26         | 0-005 μF | 25%, m.tub., 150V d.c.      | 26629                       | R19         | 47 Ω              | 20%, 0-6W                     |
| 50960    | C27         | 0-002 μF | 20%, s.tub., 500V d.c.      | 51049                       | R21         | 1-5 KΩ            | 5%, 5W, w.w.                  |
| 41423    | C28         | 0-02 μF  | 20%, tub., 750V d.c.        | 25197                       | R22         | 4-7 KΩ            | 10%, 0-75W                    |
| 41423    | C29         | 0-02 μF  | 20%, tub., 750V d.c.        | 51680                       | { R23       | 712 Ω             | w.w. mains resistor           |
| 46535    | { C31       | 16 μF    | +50% -20%, elec., 250V d.c. |                             | { R24       | 118 Ω             |                               |
|          | { C32       | 16 μF    |                             |                             | { R25       | 118 Ω             |                               |
| 46534    | C33         | 16 μF    |                             |                             | { R29       | 90 Ω              |                               |
| 31375    | C34         | 100 μF   |                             | +50% -20%, elec., 500V d.c. | 51057       |                   |                               |
| 28165    | C36         | 330 pF   | 2%, p.s.m., 350V d.c.       |                             |             |                   |                               |
| 28241    | C37         | 620 pF   | 1%, p.s.m., 350V d.c.       |                             |             |                   |                               |
| 23659    | C38         | 27 pF    | 10%, p.s.m., 350V d.c.      |                             |             |                   |                               |
| 28156    | C39         | 100 pF   | 5%, p.s.m., 350V d.c.       |                             |             |                   |                               |
| 52952    | { C41       | 100 pF   | 20%, p.s.m., 350V d.c.      |                             |             |                   |                               |
|          | { C42       | 100 pF   |                             |                             |             |                   |                               |
| 27461    | R1          | 1 MΩ     | 20%, 0-6W                   |                             |             |                   |                               |
| 25061    | R2          | 2-2 KΩ   | 10%, 0-6W                   |                             |             |                   |                               |
| 25669    | R3          | 82 KΩ    | 10%, 0-6W                   |                             |             |                   |                               |
| 27205    | R4          | 47 KΩ    | 20%, 0-6W                   |                             |             |                   |                               |
| 24805    | R6          | 470 Ω    | 10%, 0-6W                   |                             |             |                   |                               |
| 24773    | R7          | 390 Ω    | 10%, 0-6W                   |                             |             |                   |                               |
| 25061    | R9          | 2-2 KΩ   | 10%, 0-6W                   |                             |             |                   |                               |
| 27269    | R10         | 100 KΩ   | 20%, 0-6W                   |                             |             |                   |                               |
| 27525    | R11         | 2-2 MΩ   | 20%, 0-6W                   |                             |             |                   |                               |
| 52763    | R12         | 1 MΩ     | Log. law, volume control    |                             |             |                   |                               |
|          |             |          |                             | PART NO.                    | CIRCUIT NO. | RESISTANCE (D.C.) | REMARKS                       |
|          |             |          |                             | 51684                       | { L1        | —                 | Coupling Tuned } frame aerial |
|          |             |          |                             |                             | { L2        | 1-5 Ω             |                               |
|          |             |          |                             | 51683                       | { L3        | 35 Ω              | Coupling Tuned } L ae.        |
|          |             |          |                             |                             | { L4        | 1-3+26 Ω          |                               |
|          |             |          |                             | 52219                       | { L7        | 16-5 Ω            | Pri. } 1st i.f.t.             |
|          |             |          |                             |                             | { L8        | 16-5 Ω            |                               |
|          |             |          |                             | 52219                       | { L9        | 16-5 Ω            | Pri. } 2nd i.f.t.             |
|          |             |          |                             |                             | { L10       | 16-5 Ω            |                               |
|          |             |          |                             | 54894                       | { L15       | —                 | Coupling } osc.               |
|          |             |          |                             |                             | { L16       | 5 Ω               |                               |
|          |             |          |                             |                             | { L21       | 11 Ω              |                               |
|          |             |          |                             | 51681                       | T1          | { 300 Ω           | Pri. } o.t.                   |
|          |             |          |                             |                             |             | { —               |                               |

## PARTS LIST (Mechanical Components)

| PART NO. | DESCRIPTION              | REMARKS  | PART NO.     | DESCRIPTION                   | REMARKS   |
|----------|--------------------------|--|--------------|-------------------------------|---|
| 52051    | Arm, driven              | on wave band switch spindle                        | 53613        | Label "Murphy 144"            | on cabinet face                                 |
| 52747    | Arm, driving             | with pin, for wave band switch                     | 60110        | Label "Murphy Radio Ltd"      | on cabinet underside                            |
| 52069    | Bar, mounting            | for controls                                       | 60119        | Label "Warning"               | on cabinet underside                            |
| 51916    | Bracket, mounting (2)    | for frame aerial                                   | 52305        | Loudspeaker                   | 6½ in. dia.                                     |
| 51927    | Bracket, mounting (2)    | for ae. and osc. coils                             | 260958       | Nut, 2BA full (2)             | for fastening cabinet bottom                    |
| 52628    | Bracket with two pulleys | for cord drive                                     | 51919        | Nut, special (2)              | for fastening cabinet top                       |
| 38576    | Buffer, rubber (4)       | between chassis and cabinet                        | 15264        | Nut, speed (2)                | for fastening ae. and osc. coils                |
| 53826    | Cabinet back             | } NOT SUPPLIED SEPARATELY                          | 52072        | Panel and sockets             | mains voltage adjustment                        |
| 53825    | Cabinet front            |  | 53115        | Panel, sockets, and tag       | for aerial and earth                            |
| 52070    | Carrier                  |  | 51313        | Plug, aerial                  |   |
| 51932    | Clamp                    |  | 51314        | Plug, earth                   |   |
| 768      | Clamp                    |  | 47351        | Plug, two pin                 | mains voltage adjustment                        |
| 51995    | Clamp, scale (2)         |  | 51928        | Pointer (2)                   |   |
| 51996    | Clamp, scale (2)         |  | 49593        | Pulley (4)                    |   |
| 43047    | Clip, spring             |  | 47337        | Pulley, driving               | on tuning spindle                               |
| 51924    | Collar                   |  | 51938        | Reflector (2)                 | for scales                                      |
| 3962/1   | Cord                     |  | 59506        | Rivet (4)                     | pin for pulleys                                 |
| 2645/1   | Cord, ⅜ in. dia. P.V.C.  | 60112  | Scale, back  |                               |   |
| 46910    | Core, iron dust          | 60111  | Scale, front |                               |   |
| 46913    | Core, iron dust (2)      | 52218  | Screen       | for osc. coils                |   |
| 51937    | Deflector, heat          | above V4 and V5                                    | 384982       | Screw, 2BA 1 in. (2)          | for fastening cabinet bottom                    |
| 53122    | Dowel and plate (4)      | for locating chassis in cabinet                    | 10413        | Screw, grub (3)               | 2BA ¼ in. for knobs                             |
| 47745    | Drum                     | for ganged capacitor                               | 10422        | Screw, grub (2)               | 4BA ⅝ in. for pulley (47337) and collar (51924) |
| 15633    | Eyelet (4)               | inside V1 and V3 mounting grommets                 | 51934        | Spindle, tuning               |   |
| 3681/6   | Felt, adhesive           | 2 in. wide   | 47478        | Spring                        | for cord drive                                  |
| 52065    | Grille (2)               | for base of cabinet, less grommet                  | 52057        | Spring, anti-backlash         | on wave band switch arm                         |
| 42844    | Grommet, ¼ in. (6)       | for metal strip (53645) and for V1 and V3 mounting | 51923        | Strip, insulating (4)         | for fastening frame aerial                      |
| 42857    | Grommet (2)              | for grille (52065)                                 | 53645        | Strip, metal                  | between scales                                  |
| 48278    | Grommet, ⅜ in. (4)       | for chassis mounting                               | 51685        | Switch                        | wave band                                       |
| 51914    | Insulator                | for C34  | 51451        | Valve holder (5)              | B8A   |
| 53753    | Knob (3)                 | for tuning and volume controls                     | 34606        | Washer, insulating (4)        | for V1 and V3 mounting                          |
| 51912    | Knob                     | for wave band switch                               | 52050        | Washer, insulating (4)        | for insulating end of control mounting bar      |
|          |                          |  | 47940        | Washer, spacing (3)           | for ganged capacitor mounting                   |
|          |                          |  | 16649        | Washer, shakeproof, ⅜ in. (3) | for volume control and wave band switch         |



Circuit voltages are shown within squares and were measured with a 20,000  $\Omega/V$  meter while the receiver was switched to the M band under no-signal conditions.

Where the resistance of a coil is less than one ohm the value is omitted.

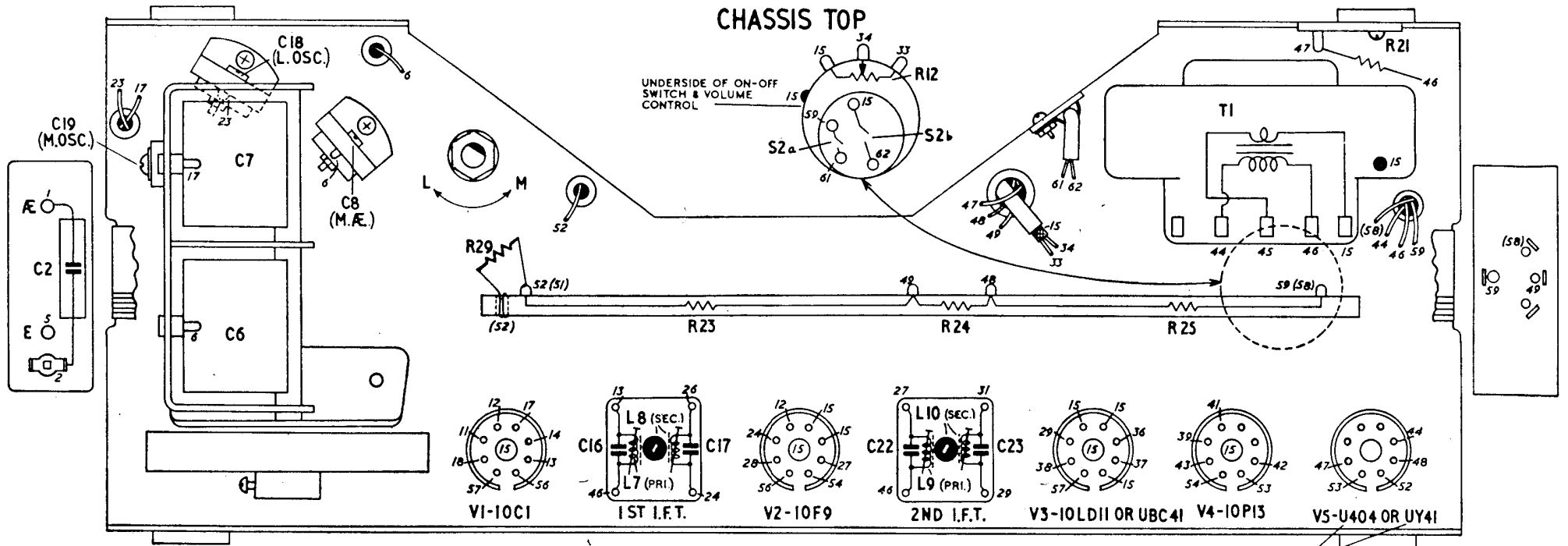
Component terminals and connecting leads are identified by test point (t.p.) numbers which correspond with those appearing on the chassis

drawings. The valve pin numbers are shown within small circles.

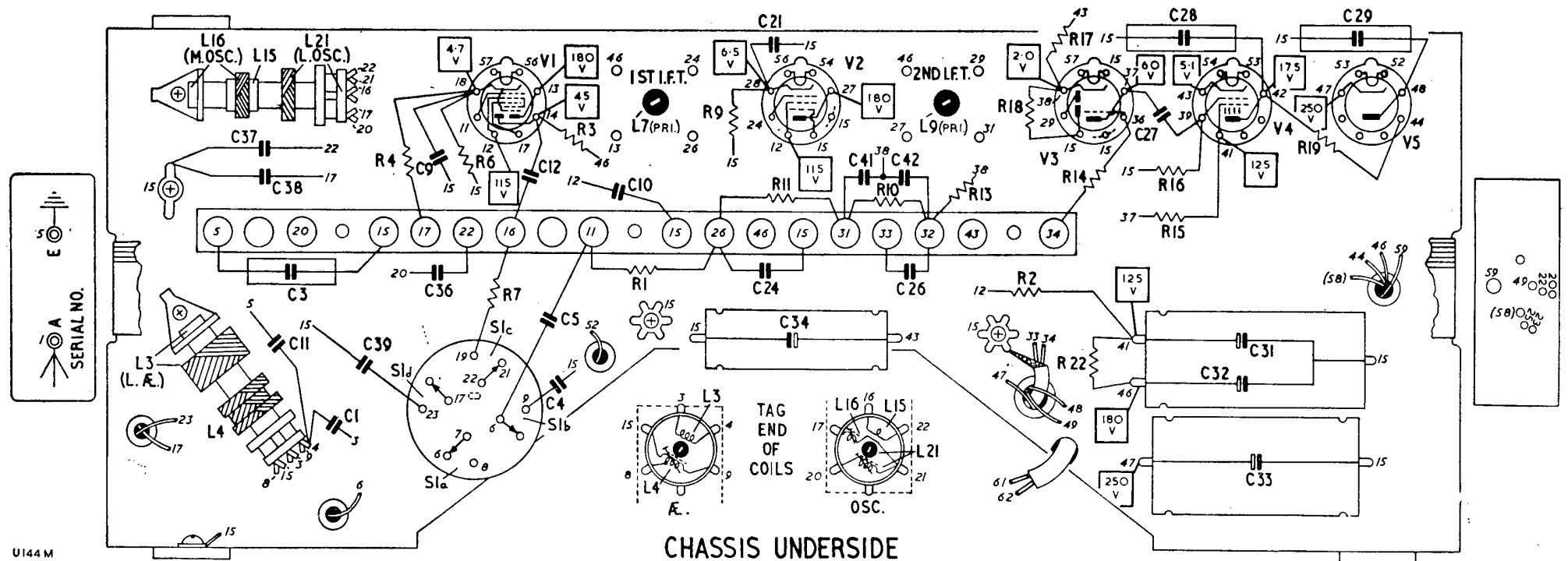
V3 may be a Mazda 10LD11 or a Mullard UBC41 without any circuit changes.

V5 may be a Mazda U404 or Mullard UY41, but these valves are not interchangeable; changes are required in the mains voltage adjustment and heater circuits, as shown by the heavy lines.

# CHASSIS TOP



# CHASSIS UNDERSIDE



# CIRCUIT ALIGNMENT

**Receiver output.** Make all adjustments for maximum output with the volume control at maximum. Adjust the signal generator attenuator so that this output does not exceed 150 mW, or 0.7V across the loudspeaker speech coil.

**Trimming tool.** A non-metallic tool must be used for adjusting the iron dust cores.

**The r.f. coil cores.** In case of difficulty when adjusting any one of these cores, unscrew the core almost fully and then trim to the first major peak.

**Chassis position.** During r.f. alignment, the chassis should be laid in the front half of the cabinet so that account may be taken of the influence of the loudspeaker on the frame aerial and so that the position of the pointer relative to the scale may be observed.

**Pointer setting.** When the ganged capacitor plates are fully meshed—NOT AGAINST THE STOP—the pointer must register with the small spot on the scale below the word “Medium”.

## CIRCUIT ALIGNMENT TABLE

| CIRCUIT    | NOTES  | SIG. GEN. FREQUENCY | SIG. GEN. TERMINATION      | CONNECT SIG. GEN. TO            | RECEIVER SETTING  | ADJUSTMENTS   |
|------------|--|---------------------|----------------------------|---------------------------------|-------------------|---|
| 2nd i.f.t. | Unscrew sec. core (top of can) before starting adjustments   | 470 Kc/s            | Via 0.01 $\mu$ F capacitor | V2 grid 1 (pin 6, t.p.24)       | —                 | L9 (pri.) under chassis<br>L10 (sec.) top of can<br>DO NOT RE-ADJUST PRI. |
| 1st i.f.t. | As above   | 470 Kc/s            | As above                   | V1 grid 1 (t.p.11 on tag strip) | 560 m.<br>M Band  | L7 (pri.) under chassis<br>L8 (sec.) top of can<br>DO NOT RE-ADJUST PRI.  |
| M          | Repeat these adjustments until there is no further improvement   | 600 Kc/s (500 m.)   | Via 10 pF capacitor        | Aerial socket                   | 500 m.<br>M Band  | L16 (osc.) under chassis  |
|            |  | 1500 Kc/s (200 m.)  | As above                   | As above                        | 200 m.<br>M Band  | C19 (osc.) above chassis<br>C8 (ac.) above chassis                        |
| L          | Repeat these adjustments until there is no further improvement. Finally, re-check calibration at 500 m. and 1900 m. and re-adjust L16 and L21 if required. | 158 Kc/s (1900 m.)  | As above                   | As above                        | 1900 m.<br>L Band | L21 (osc.) under chassis<br>L4 (ae.) under chassis                        |
|            |  | 300 Kc/s (1000 m.)  | As above                   | As above                        | 1000 m.<br>L Band | C18 (osc.) above chassis  |