

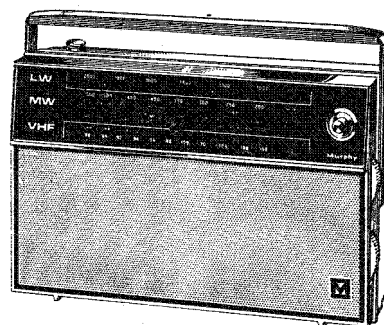
# SERVICE INSTRUCTIONS

# Murphy

## MODEL B865

## RADIO

## RECEIVER



### SPECIFICATION

#### GENERAL

The B865 is a battery operated AM/FM radio receiver designed to cover the L.W., M.W. and V.H.F. bands and incorporates 10 transistors and 6 crystal diodes. The receiver is provided with an internal ferrite rod aerial for the L.W. and M.W. bands and a telescopic rod aerial for the V.H.F. band.

#### WAVEBANDS

L.W. 1000 to 2000 metres (300 kHz to 150 kHz)  
 M.W. 185 to 583 metres (1620 kHz to 515 kHz)  
 V.H.F. 87.5 MHz to 108 MHz

#### OUTPUT

300 mW

#### PHONE SOCKET

Impedance 20-1000 ohms.

#### LOUDSPEAKER

2.875 in. by 4.75 in. Impedance 8 ohms.

#### WEIGHT

0.68 kg (1½ lbs).

### ALIGNMENT PROCEDURE

#### Note

Allow the test equipment to warm up for at least 15 minutes before commencing alignment.

#### I.F. ALIGNMENT - F.M.

- a. Connect FM Sweep generator (with Marker Generator) to TP3 via a suitable coupling capacitor.
- b. Connect oscilloscope to TP6.

| Step | Sig. gen. frequency | Tuning Setting | Adjust  |
|------|---------------------|----------------|---|
| 1    | 10.7 MHz            | H.F. end       | First, detune T5 then adjust T4, T3 T2, & T1 for waveform Fig. 1. |
| 2    | 10.7 MHz            | H.F. end       | Adjust T5 core for waveform Fig. 2.                               |

#### I.F. ALIGNMENT - A.M.

- a. Couple signal generator to the receiver by a loop of insulated wire placed about 2 feet from the cabinet and with its plane at right angles to the ferrite rod aerial.
- b. Connect the output meter across loudspeaker and set volume control to maximum.

| Step | Sig. gen. frequency | Tuning Setting | Adjust  |
|------|---------------------|----------------|---|
| 3    | 470 kHz             | H.F. end       | First, detune T9 then adjust T8, T7 & T6 for max. output. |
| 4    | 470 kHz             | H.F. end       | Adjust T9 for max. output.                                |

#### R.F. ALIGNMENT - M.W. Connect equipment as for steps 3 and 4 above.

| Operation.  | Sig. gen. frequency | Tuning Setting | Adjust for max. output. |
|---|---------------------|----------------|-------------------------|
| 1   | 520 kHz             | L.F. end       | L8                      |
| 2   | 1650 kHz            | H.F. end       | CT5                     |
| Repeat operations 1 and 2 until frequency is correct.   |                     |                |                         |
| 3   | 600 kHz             | 500m           | L7                      |
| 4   | 1400 kHz            | 215m           | CT3                     |
| Repeat operations 3 and 4 until calibration is correct. |                     |                |                         |

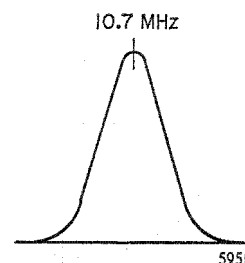


Fig. 1

**R.F. ALIGNMENT - L.W.**

| Operation.  | Sig. gen. frequency | Tuning Setting | Adjust for max. output. |
|---|---------------------|----------------|-------------------------|
| 5   | 145 KHz             | L.F. end       | L9                      |
| 6   | 310 KHz             | H.F. end       | CT6                     |
| Repeat operations 5 and 6 until frequency range is correct. |                     |                |                         |
| 7   | 160 KHz             | 187m           | L5                      |
| 8   | 280 KHz             | 1075m          | CT4                     |
| Repeat operations 7 and 8 until calibration is correct.     |                     |                |                         |

**R.F. ALIGNMENT - V.H.F.** Connect signal generator to TP1.

| Operation.   | Sig. gen. frequency | Tuning Setting | Adjust for max. output. |
|--|---------------------|----------------|-------------------------|
| 9  | 87 MHz              | L.F. end       | L4                      |
| 10   | 109 MHz             | H.F. end       | CT2                     |
| Repeat operations 9 and 10 until frequency range is correct. |                     |                |                         |
| 11   | 90 MHz              | 90 MHz         | L2                      |
| 12   | 105 MHz             | 105 MHz        | CT1                     |
| Repeat operations 11 and 12 until calibration is correct.    |                     |                |                         |

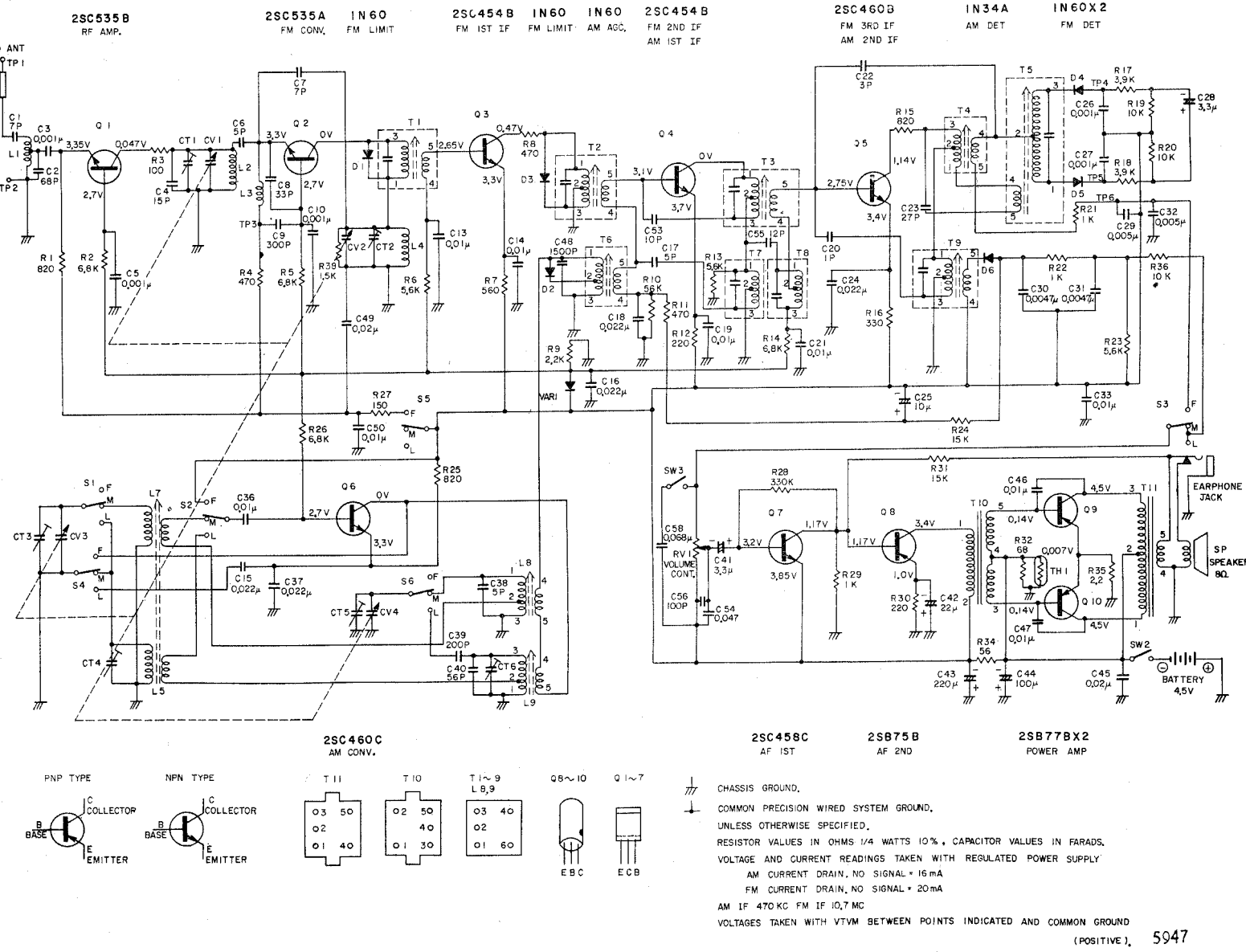
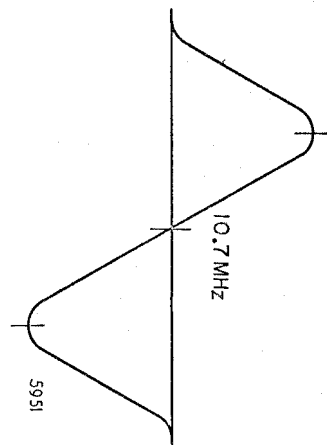
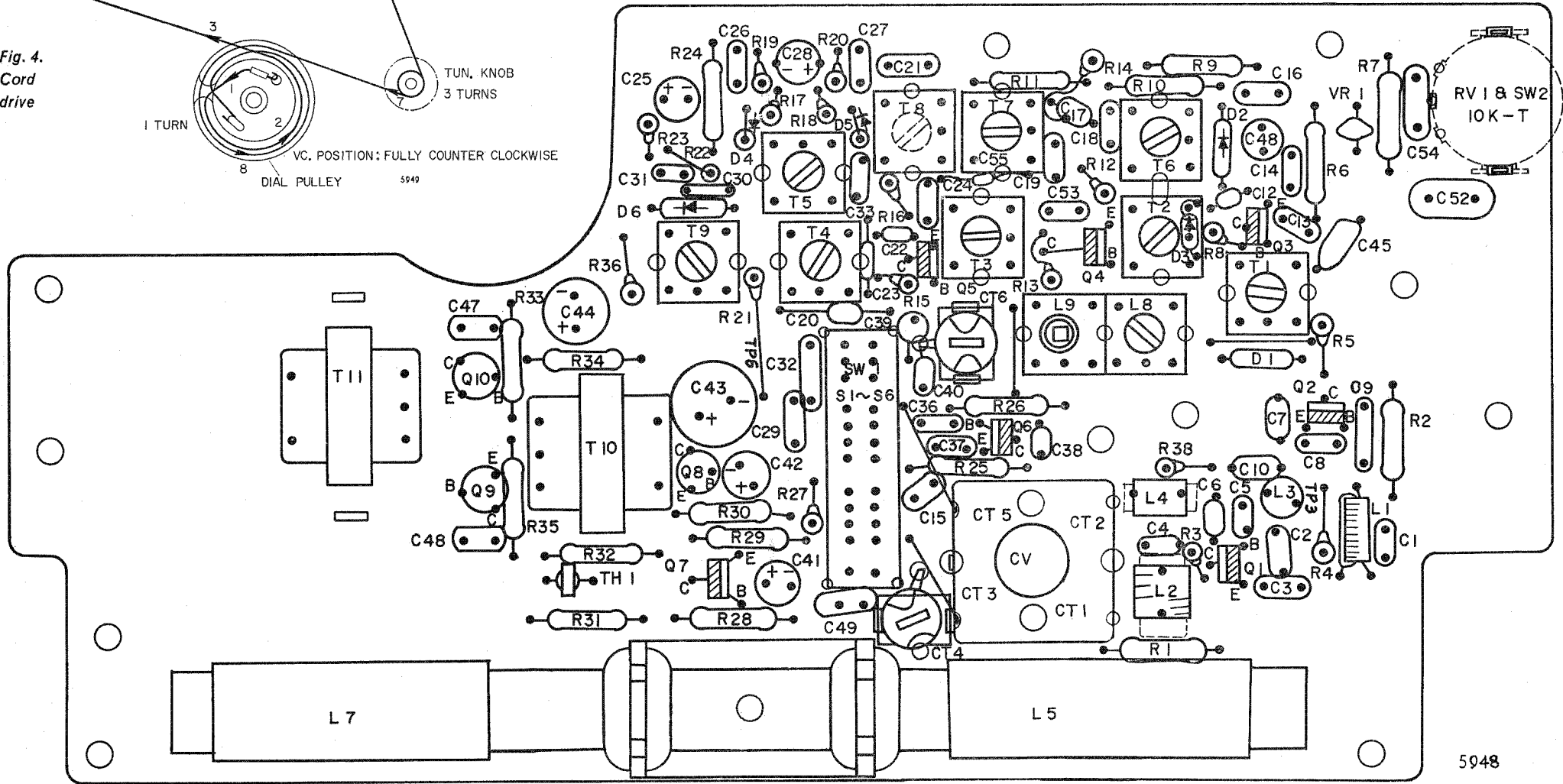
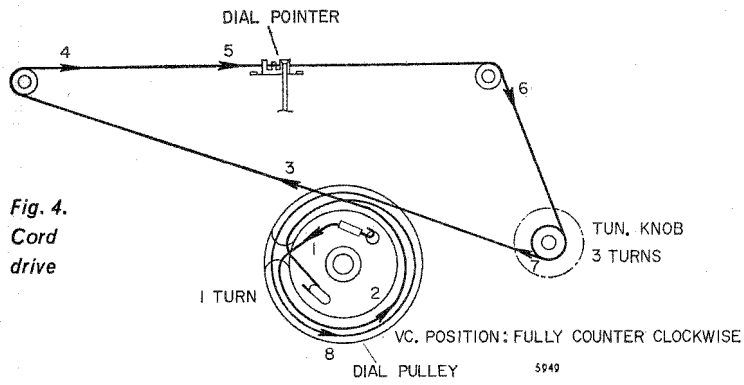


Fig. 3. Circuit diagram B865.



## ELECTRICAL PARTS LIST

## CAPACITORS

| Ref. | Value |        | Type             | Part Number |
|------|-------|--------|------------------|-------------|
|      | pF    | µF     |                  |             |
| C1   | 7     |        | Cer. Disc.       | AP55762     |
| C2   | 68    |        | "                | AP55763     |
| C3   |       | 0-001  | "                | AP55764     |
| C4   | 15    |        | "                | AP55769     |
| C5   |       | 0-001  | "                | AP55764     |
| C6   | 5     |        | "                | AP55766     |
| C7   | 7     |        | "                | AP55762     |
| C8   | 33    |        | "                | AP55767     |
| C9   | 300   |        | "                | AP55768     |
| C10  |       | 0-001  | "                | AP55764     |
| C11  |       |        |                  |             |
| C12  |       |        |                  |             |
| C13  |       | 0-01   | "                | AP55775     |
| C14  |       | 0-01   | "                | AP55775     |
| C15  |       | 0-022  | Plastic Film     | AP55779     |
| C16  |       | 0-022  | "                | AP55779     |
| C17  | 5     |        | Cer. Disc.       | AP55766     |
| C18  |       | 0-022  | Plastic Film     | AP55779     |
| C19  |       | 0-01   | Cer. Disc.       | AP55775     |
| C20  | 1     |        | "                | AP55771     |
| C21  |       | 0-01   | "                | AP55775     |
| C22  | 3     |        | Plastic Film     | AP58340     |
| C23  | 27    |        | Cer. Disc.       | AP55773     |
| C24  |       | 0-022  | Plastic Film     | AP55779     |
| C25  |       | 10     | 63V Electrolytic | AP55784     |
| C26  |       | 0-001  | Cer. Disc.       | AP55764     |
| C27  |       | 0-001  | "                | AP55764     |
| C28  |       | 3-3    | 16V Electrolytic | AP55785     |
| C29  |       | 0-005  | Cer. Disc.       | AP55770     |
| C30  |       | 0-0047 | Plastic Film     | AP58339     |
| C31  |       | 0-0047 | "                | AP58339     |
| C32  |       | 0-005  | Cer. Disc.       | AP55770     |
| C33  |       | 0-01   | Plastic Film     | AP55778     |
| C34  |       |        |                  |             |
| C35  |       |        |                  |             |
| C36  |       | 0-01   | Cer. Disc.       | AP55775     |
| C37  |       | 0-022  | Plastic Film     | AP55779     |
| C38  | 5     |        | Cer. Disc.       | AP55766     |
| C39  | 200   |        | Styrol           | AP55781     |
| C40  | 56    |        | Cer. Disc.       | AP55774     |
| C41  |       | 3-3    | 16V Electrolytic | AP55785     |
| C42  |       | 22     | 10V Electrolytic | AP55786     |
| C43  |       | 220    | 63V Electrolytic | AP56455     |
| C44  |       | 100    | 63V Electrolytic | AP56456     |
| C45  |       | 0-02   | Cer. Disc.       | AP55772     |
| C46  |       | 0-01   | "                | AP55775     |
| C47  |       | 0-01   | "                | AP55775     |
| C48  | 1500  |        | Styrol           | AP55782     |
| C49  |       | 0-02   | Cer. Disc.       | AP55772     |
| C50  |       | 0-01   | "                | AP55775     |
| C51  |       |        |                  |             |
| C52  |       |        |                  |             |
| C53  | 10    |        | Cer. Disc.       | AP55776     |
| C54  |       | 0-047  | Plastic Film     | AP55783     |
| C55  | 12    |        | Cer. Disc.       | AP55777     |
| C56  | 100   |        | Plastic Film     | AP58341     |
| C57  |       |        |                  |             |
| C58  |       | 0-068  | Plastic Film     | AP55780     |

## CAPACITORS VARIABLE

| Ref.    | Description        | Part Number |
|---------|--------------------|-------------|
| CV1-CV4 | Variable Capacitor | AP55759     |
| CT1-CT6 | Variable trimmer   | AP55750     |

## RESISTORS

| Ref. | Value | Tol % | Part Number |
|------|-------|-------|-------------|
| R1   | 820   | 10    | AP57284     |
| R2   | 6-8k  | 10    | AP57285     |
| R3   | 100   | 10    | AP57286     |
| R4   | 470   | 10    | AP57287     |
| R5   | 6-8k  | 10    | AP57288     |
| R6   | 5-6k  | 10    | AP57289     |
| R7   | 560   | 10    | AP57290     |
| R8   | 470   | 10    | AP57291     |
| R9   | 2-2k  | 10    | AP57292     |
| R10  | 56k   | 10    | AP57293     |
| R11  | 470   | 10    | AP57294     |
| R12  | 220   | 10    | AP57295     |
| R13  | 5-6k  | 10    | AP57318     |
| R14  | 6-8k  | 10    | AP57288     |
| R15  | 820   | 10    | AP57319     |
| R16  | 330   | 10    | AP57320     |
| R17  | 3-9k  | 10    | AP57321     |
| R18  | 3-9k  | 10    | AP57321     |
| R19  | 10k   | 10    | AP57322     |
| R20  | 10k   | 10    | AP57323     |
| R21  | 1k    | 10    | AP57324     |
| R22  | 1k    | 10    | AP57325     |
| R23  | 5-6k  | 10    | AP57326     |
| R24  | 15k   | 10    | AP57327     |
| R25  | 820   | 10    | AP57284     |
| R26  | 6-8k  | 10    | AP57288     |
| R27  | 150   | 10    | AP57328     |
| R28  | 330k  | 10    | AP57329     |
| R29  | 1k    | 10    | AP57330     |
| R30  | 220   | 10    | AP57331     |
| R31  | 15k   | 10    | AP57327     |
| R32  | 68    | 10    | AP57332     |
| R33  | 1-2k  | 10    | AP57333     |
| R34  | 56    | 10    | AP57334     |
| R35  | 2-2   | 10    | AP57335     |
| R36  | 10k   | 10    | AP57323     |
| R38  | 1-5k  | 10    | AP57336     |

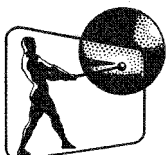
## RESISTORS VARIABLE

| Ref. | Description       | Part Number |
|------|-------------------|-------------|
| RV1  | Resistor variable | AP55730     |

## MISCELLANEOUS

| Ref.  | Description                    | Part Number |
|-------|--------------------------------|-------------|
| L1    | F.M. Aerial coil               | AP55735     |
| L2    | F.M. R.F. Coil                 | AP55736     |
| L3    | Trap coil                      | AP55732     |
| L4    | F.M. Osc. coil                 | AP55737     |
| L5/L7 | L.W./M.W. Ferrite aerial assy. | AP55731     |
| L8    | M.W. Osc. coil                 | AP55760     |
| L9    | L.W. Osc. coil                 | AP55761     |
| T1    | F.M. I.F.T.                    | AP55733     |
| T2    | F.M. I.F.T.                    | AP55754     |
| T3    | F.M. I.F.T.                    | AP55751     |
| T4    | Disc transformer               | AP55752     |
| T5    | "                              | AP55753     |
| T6    | A.M. I.F.T.                    | AP55755     |
| T7    | A.M. I.F.T.                    | AP55756     |
| T8    | A.M. I.F.T.                    | AP55757     |
| T9    | A.M. I.F.T.                    | AP55758     |
| T10   | Driver transformer             | AP58688     |
| T11   | Output transformer             | AP55734     |

## THE SERVICE DEPARTMENT



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