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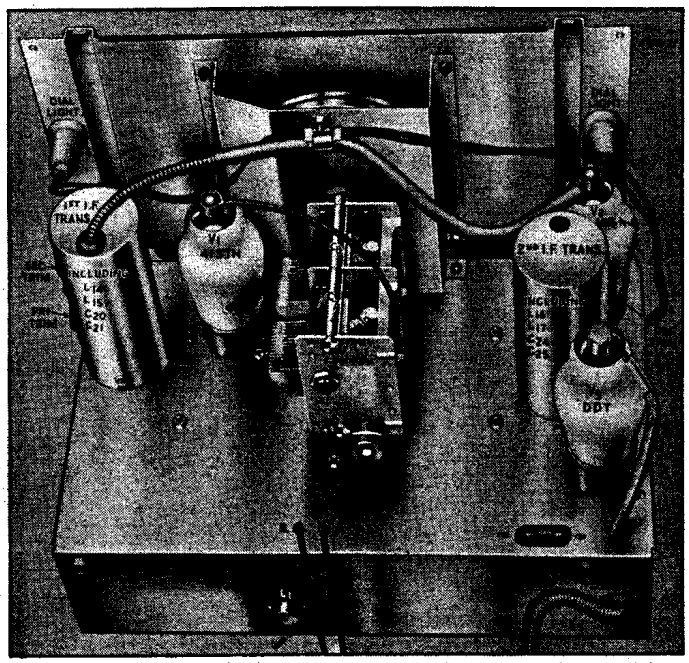
# COSSOR

## Service Sheet
## Models 62B, 63, 64B, 66, 66A, 71B and 77.



### VALVES

V1—41S.T.H. Triode Hexode (Frequency Changer).
V2—M.V.S./Pen.B. Var.-mu H.F. Pentode (I.F. Amplifier).
V3—D.D.T. Double Diode Triode (2nd Detector, L.F. Amplifier and A.V.C.).
V4—2P. Power Triode (Output).
V5—43 I.U. Rectifier.

### WAVEBANDS

S.W. ... ... 16—52 m. (18.75—5.76 mcs.)
M.W. ... ... 190—580 m. (1,578—517 kcs.)
L.W. ... ... 840—2150 m. (357—139 kcs.)

### DIAL LAMPS

6.5v. .3 amp. M.E.S. type.

### EXTENSION L.S.

Impedance of output transformer should be 3,000 ohms approx. A number of these receivers have provision for muting the internal speaker when the two-pin plug is fully inserted in the Ex.L.S. sockets.

### INTERMEDIATE FREQUENCY

465 kcs.

### CURRENT CONSUMPTION

70 watts approx.

### VALVE ANALYSIS

The readings given were taken from a popular test set with the receiver connected to a 200-volt mains supply. The resistance of the meter, mains voltage and nature of the supply will of course affect voltage readings, and those shown below are therefore approximate.

### DIVERGENCIES (Models 64b, 66 and 66a)

TheseRadiograms employ a rotary switch assembly S3 (A and B) which provides for the switching into circuit of the pick-up (S3B). The oscillator anode feed is simultaneously disconnected (S3A), thereby preventing the break-through of radio signals.

Sockets 7 and 8 on the Power chassis provide the mains supply connections to the on-off switch (S4).

### VALVE ANALYSIS

The readings given were taken from a popular test set with the receiver connected to a 200-volt mains supply. The resistance of the meter, mains voltage and nature of the supply will of course affect voltage readings, and those shown below are therefore approximate.

| VALVE | Anode Voltage | Anode Current (mA.) | Screen Voltage | Screen Current (mA.) | Cathode Voltage |
|---|---|---|---|---|---|
| *V1 41 S.T.H. | 252 | 1.3 | 88 | 4.4 | 1.5 |
| V2 M.V.S./Pen.B | 215 | 4.6 | 100 | 1.6 | — |
| V3 D.D.T. | 108 | 2.2 | — | — | 2.7 |
| V4 2P. | 250 | 45 | — | — | — |
| V5 43 I.U. | 300 A.C. | 70 D.C. | Unsmoothed H.T. 335 Smoothed H.T. 260 | | |

*Oscillator anode voltage 107 : current 5.6 ma.

### ALIGNMENT PROCEDURE

#### I.F. Stages

Connect output lead of signal generator to the modulator grid (top cap) connection of V1 and short-circuit the oscillator section of the tuning condenser (C8). Set the signal generator to 465 kcs. and adjust the iron cores in the following sequence for maximum output :—

Secondary of 2nd I.F. transformer
Primary of 2nd I.F. transformer
Secondary of 1st I.F. transformer
Primary of 1st I.F. transformer

Reduce the input signal to the receiver as the circuits are brought into alignment in order to prevent the A.V.C. system from operating. Finally, check the settings for maximum response (in the given sequence) and if an oscilloscope is employed, adjust cores so that the correct shape of response curve with symmetrical steep sides and perceptible flat top is obtained.

#### *Aerial, Oscillator and Filter Circuits

L.W. Set the signal generator to 250 kcs. and tune the receiver to 1,200 metres (250 kcs.). Adjust C16 and C5 for maximum gain. Then set the signal generator to 160 kcs. and tune the receiver to the corresponding wavelength (1,875 metres), finally padding C18 for maximum response while rocking the gang condenser.

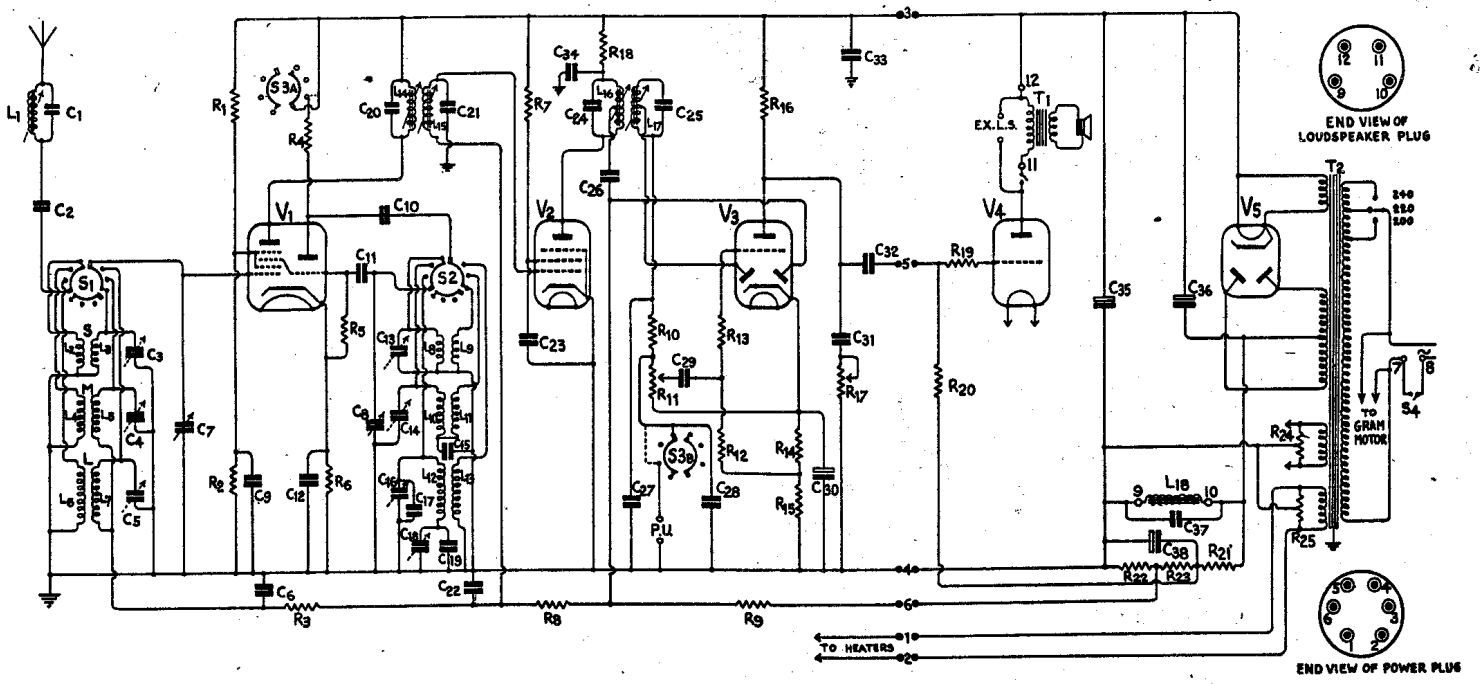
M.W. Set the signal generator to 1,400 kcs. and tune the receiver to 214 metres. Adjust C14 and C4 for maximum output. Padding is fixed (C15) and tracking should be correct if the trimmers are accurately adjusted.

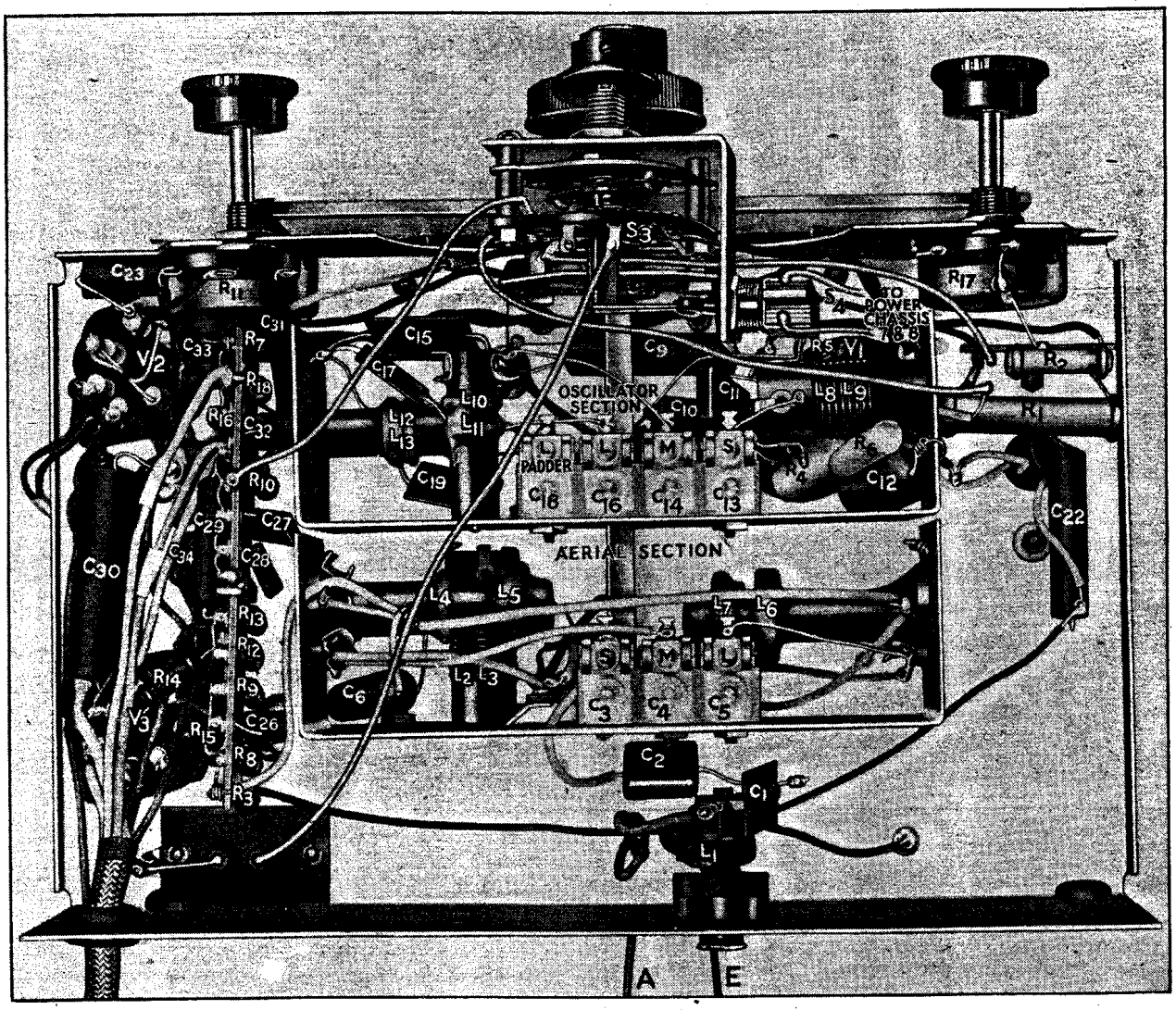
S.W. Inject signal of 18 mcs. to receiver which should be tuned to the corresponding setting on tuning scale. Trim C13 and C3 for maximum gain while rocking the gang condenser. No padding is required as tracking is obtained by shaped vanes on the gang condenser.

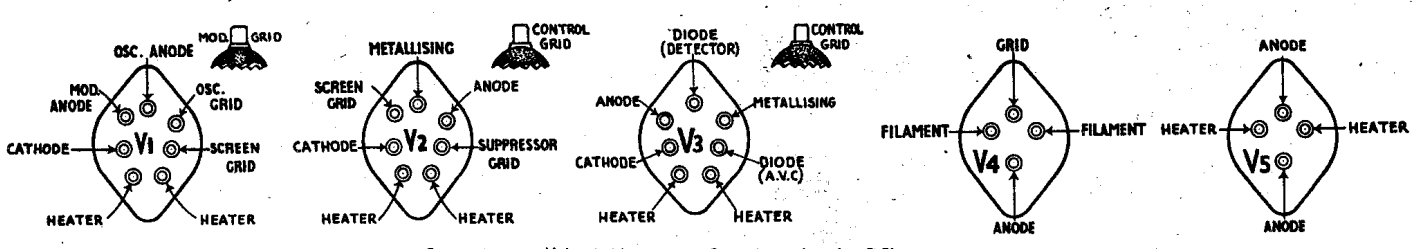
*For alignment of these circuits connect output leads of signal generator to aerial socket/lead.

### FILTER CIRCUIT

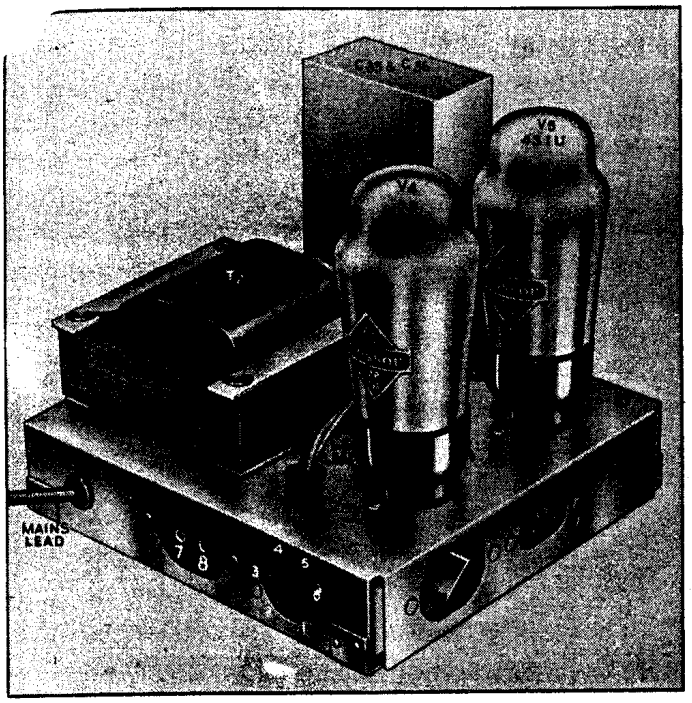
The aerial I.F. filter unit is provided for the rejection of signals approximating to that of the Intermediate Frequency which might cause interference. To adjust, set signal generator to 465 kcs., tune receiver to top of M.W. band and adjust core (L1) for minimum output.

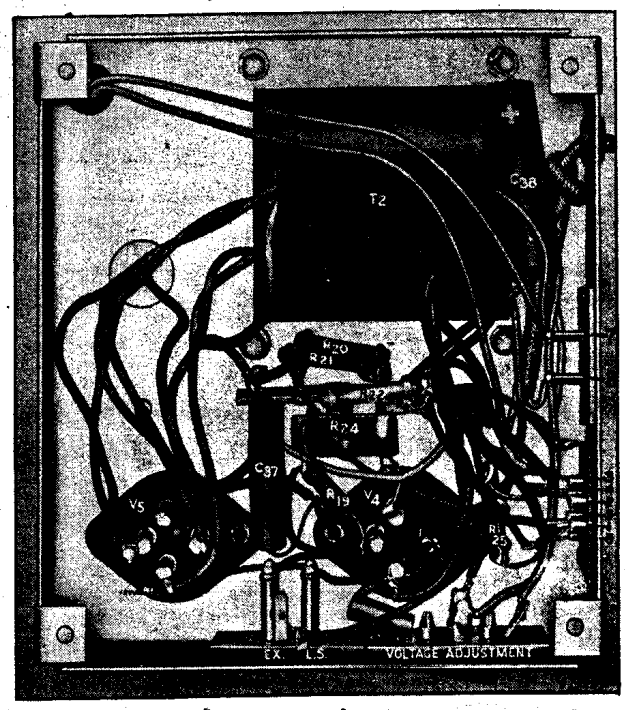



*Connections to Valve-holders as seen from the underside of Chassis.*




## CONDENSERS

| | | |
|---|---|---|
| C1 | Aerial I.F. filter ... ... ... | 225 mmfd. |
| C2 | Aerial Series condenser ... ... | .0005 mfd. |
| C3 | S.W. aerial trimmer ... ... | — |
| C4 | M.W. aerial trimmer ... ... | — |
| C5 | L.W. aerial trimmer ... ... | — |
| C6 | A.V.C. decoupling (V1) ... ... | .05 mfd. |
| C7 | Tuning condenser (aerial) ... ... | — |
| C8 | Tuning condenser (osc.) ... ... | — |
| C9 | Screen decoupling (V1) ... ... | .05 mfd. |
| C10 | Oscillator anode coupling ... ... | .0005 mfd. |
| C11 | Oscillator grid coupling ... ... | .0001 mfd. |
| C12 | Cathode decoupling (V1) ... ... | .1 mfd. |
| C13 | S.W. oscillator trimmer ... ... | — |
| C14 | M.W. oscillator trimmer ... ... | — |
| C15 | M.W. oscillator padder (fixed) ... | 638 mmfd. |
| C16 | L.W. oscillator trimmer ... ... | — |
| C17 | L.W. oscillator trimmer (fixed) ... | .00005 mfd. |
| C18 | L.W. oscillator padder ... ... | — |
| C19 | L.W. oscillator padder (fixed) ... | .00014 mfd. |
| C20 | 1st I.F. primary tuning (fixed) ... | 225 mmfd. |
| C21 | 1st I.F. secondary tuning (fixed) ... | 225 mmfd. |
| C22 | A.V.C. decoupling (V2) ... ... | .05 mfd. |
| C23 | Screen decoupling (V2) ... ... | .05 mfd. |
| C24 | 2nd I.F. primary tuning (fixed) ... | 60 mmfd. |
| C25 | 2nd I.F. secondary tuning (fixed) | 75 mmfd. |
| C26 | A.V.C. coupling ... ... ... | .00005 mfd. |
| C27 | I.F. by-pass ... ... ... ... | .00005 mfd. |
| C28 | I.F. by-pass ... ... ... ... | .00005 mfd. |
| C29 | Grid coupling (V3) ... ... ... | .005 mfd. |
| C30 | Cathode decoupling (V3) ... ... | 50 mfd. |
| C31 | Tone control, part of ... ... | .01 mfd. |
| C32 | L.F. coupling ... ... ... | .01 mfd. |
| C33 | H.T. R.F. by-pass ... ... ... | .1 mfd. |
| C34 | Anode decoupling (V2) ... ... | .1 mfd. |
| C35 | H.T. smoothing ... ... ... | *8 mfd. |
| C36 | H.T. reservoir ... ... ... | *8 mfd. |
| C37 | Field coil shunt ... ... ... | †.05 mfd. |
| C38 | Grid bias decoupling (V4) ... ... | 10 mfd. |

*16 mfd. in Models 63, 64B, 66 and 66A.
†Models 62B, 71 and 77 only.

## COMPONENTS

Ample supplies of most components for past and present Cossor radio receivers are available from the Service Depots of A. C. Cossor Ltd at the addresses given below.

## RESISTORS

| | | |
|---|---|---|
| R1 | Screen potential divider (V1) ... | 20,000Ω |
| R2 | | 30,000Ω |
| R3 | A.V.C. decoupling (V1) ... ... | .5 MΩ |
| R4 | Oscillator anode load ... ... | 30,000Ω |
| R5 | Oscillator grid leak ... ... | 40,000Ω |
| R6 | Cathode bias (V1) ... ... ... | 130Ω |
| R7 | Screen feed (V2) ... ... ... | .1 MΩ |
| R8 | A.V.C. decoupling (V2) ... ... | 3mΩ |
| R9 | A.V.C. diode load ... ... ... | 1mΩ |
| R10 | I.F. filter ... ... ... ... | 50,000Ω |
| R11 | Volume control ... ... ... | .5mΩ |
| R12 | Grid leak (V3) ... ... ... | 2mΩ |
| R13 | Grid stopper (V3) ... ... ... | .1mΩ |
| R14 | Cathode bias and A.V.C. delay (V3) | 750Ω |
| R15 | | 1,000Ω |
| R16 | Anode load (V3) ... ... | 50,000Ω |
| R17 | Tone control... ... ... | .25mΩ |
| R18 | Anode decoupling (V2) ... ... | 5,000Ω |
| R19 | Grid stopper (V4) ... ... ... | .1mΩ |
| R20 | Grid leak (V4) ... ... ... | .5mΩ |
| R21 | Grid bias potential divider | .17mΩ |
| R22 | (V1, V2, V4) ... ... ... | 7,000Ω |
| R23 | | 75,000Ω |
| R24 | Heater centre-tap (V4) ... ... | 25Ω |
| R25 | Heater centre-tap (V1, V2, V3) ... | 25Ω |

N.B.—Due to the limitation of material supplies, deviations from the specified values shown above may be expected, but these however, should not exceed ± 15%. This affects Models 63, 66, 66A and 77 only.

## WINDINGS

| | | |
|---|---|---|
| L1 | Aerial I.F. filter ... ... ... | 4.5Ω |
| L2 | Aerial S.W. coupling ... ... | .5Ω |
| L3 | Aerial S.W. tuning ... ... ... | Very low |
| L4 | Aerial M.W. coupling ... ... | 25Ω |
| L5 | Aerial M.W. tuning... ... ... | 2Ω |
| L6 | Aerial L.W. coupling ... ... | 150Ω |
| L7 | Aerial L.W. tuning ... ... | 16.5Ω |
| L8 | Oscillator S.W. tuning ... ... | Very low |
| L9 | Oscillator S.W. reaction ... ... | Very low |
| L10 | Oscillator M.W. tuning ... ... | 5.5Ω |
| L11 | Oscillator M.W. reaction ... ... | 2.5Ω |
| L12 | Oscillator L.W. tuning ... ... | 13.5Ω |
| L13 | Oscillator L.W. reaction ... ... | 6.2Ω |
| L14 | 1st I.F. transformer primary ... | 3.7Ω |
| L15 | 1st I.F. transformer secondary | 3.7Ω |
| L16 | 2nd I.F. transformer primary ... | 18.5Ω |
| L17 | 2nd I.F. transformer secondary | 18.5Ω |
| L18 | Speaker field coil ... ... ... | 1,000Ω |
| T1 | Primary ... ... ... ... | 175Ω |
| | Secondary ... ... ... | .19Ω |
| | Speech coil ... ... ... | 2Ω |
| T2 | Primary (total) ... ... ... | 28Ω |
| | H.T. secondary (total) ... ... | 240Ω |
| | Heater (V5) ... ... | Very low |
| | Heater (V1, V2, V3) ... ... | Very low |
| | Heater (V4) ... ... ... | Very low |


# A. C. COSSOR, Ltd.

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*Service Depots at—*

LONDON: 59/65, Holloway Road, N.7. Phone North 2411
GLASGOW: 276, St. Vincent Street. C.2. Phone Central 4446
LEEDS: Murray's Bldgs., Neville St., 1. Phone Leeds 21581
BRISTOL: 108, Henleaze Rd., Westbury-on-Trym. Phone: Bristol 20271


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