# BUSH RADIO

## Supplementary Service Instructions

# MODEL VHF.55

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## AC/DC 220-250 Volts

**The VHF.55 is an A.C./D.C. version of the VHF.54 and this supplement, which should be read in conjunction with the latter's Service Instructions, contains all relevant information on the differences between the two receivers.**

### INDEX



### SPECIFICATION

**BASIC DESIGN**

In the " L " or " M " position of the Waveband switch, the circuit is a conventional 6-valve (including rectifier and tuning indicator) superhet employing Mullard valves in the following sequence :—

Mixer UCH.81 (V3) : IF. Amplifier UF.85 (V4) : Signal/AGC Diode and Audio Amplifier UABC.80 (V5) : Output UL.84 (V6) : Tuning Indicator UM.4 (V8) : Half-wave Rectifier UY.85 (V7).

In the V.H.F. position of the Waveband switch, the circuit is re-arranged and two additional stages are brought into operation. The valve sequence becomes :—

Wide-band V.H.F. Amplifier UF.80 (V1) : V.H.F. Oscillator/Mixer UF.80 (V2) : 1st I.F. Amplifier—Heptode of UCH.81 (V3) : 2nd I.F. Amplifier UF.85 (V4) : Ratio detector—two diodes from UABC.80 (V5) : 1st Audio Amplifier—triode of UCH.81 (V3) : 2nd Audio Amplifier—triode of UABC.80 (V5) : Output UL.84 (V6) : Tuning Indicator UM.4 (V8) : Half-wave Rectifier UY.85 (V7).

**VALVES**

| *Mullard Type* | *Heater* | |
|---|---|---|
| UF.80 (V1, V2) .. .. | 19 V. | 0.1A |
| UCH.81 (V3) .. .. .. | 19 V. | 0.1A |
| UF.85 (V4) .. .. .. | 19 V. | 0.1A |
| UABC.80 (V5) .. .. | 28 V. | 0.1A |
| UL.84 (V6) .. .. .. | 45 V. | 0.1A |
| UM.4 (V8) .. .. .. | 12.6 V. | 0.1A |
| UY.85 (V7) .. .. .. | 38 V. | 0.1A |

V8 is octal based, all others B9A.

**VOLTAGE RANGE**
220 V.- 250 V. A.C. or D.C.

**MAINS CONSUMPTION**
55 watts approx.

**SCALE LAMPS**
3 at 3.5 V. 0.15 A.

**Remainder of Specification as VHF.54.**

### VALVE VOLTAGES AND CATHODE CURRENTS

(*See Fig. 1*)

| Valve | Anode Volts | Screen Volts | Cathode Current (mA) | Cathode Volts |
|---|---|---|---|---|
| V1 (UF.80) | 155 (F.M.) | 150 (F.M.) | 1 (M.W.), 8 (F.M.) | 1·5 (F.M.) |
| V2 (UF.80) | 155 (F.M.) | 155 (F.M.) | 1 (M.W.), 7 (F.M.) | — |
| V3 (UCH.81) | Heptode—200 (M.W.) | 95 (M.W.) | 14 (M.W.) | 2·2 (M.W.) |
| | Triode—155 (M.W.) | — | | |
| V4 (UF.85) | 195 (M.W.) | 90 (M.W.) | 5 (M.W.) | 2·9 (M.W.), 1·2 (F.M.) |
| V5 (UABC.80) | 70 (M.W.) | — | 1 (M.W.) | — |
| V6 (UL.84) | 190 (M.W.) | 165 (M.W.) | 36 (M.W.) | 11 (M.W.) |
| V7 (UY.85) | — | — | — | 210 (M.W.) |

M.W.—Medium-wave position of Waveband switch.
F.M.—V.H.F. position of Waveband switch.

*Note.*—The above-mentioned circuit diagram quotes the conditions under which these figures were taken. Variations may occur without impairing the performance.

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# VHF.55 CIRCUIT DIAGRAM

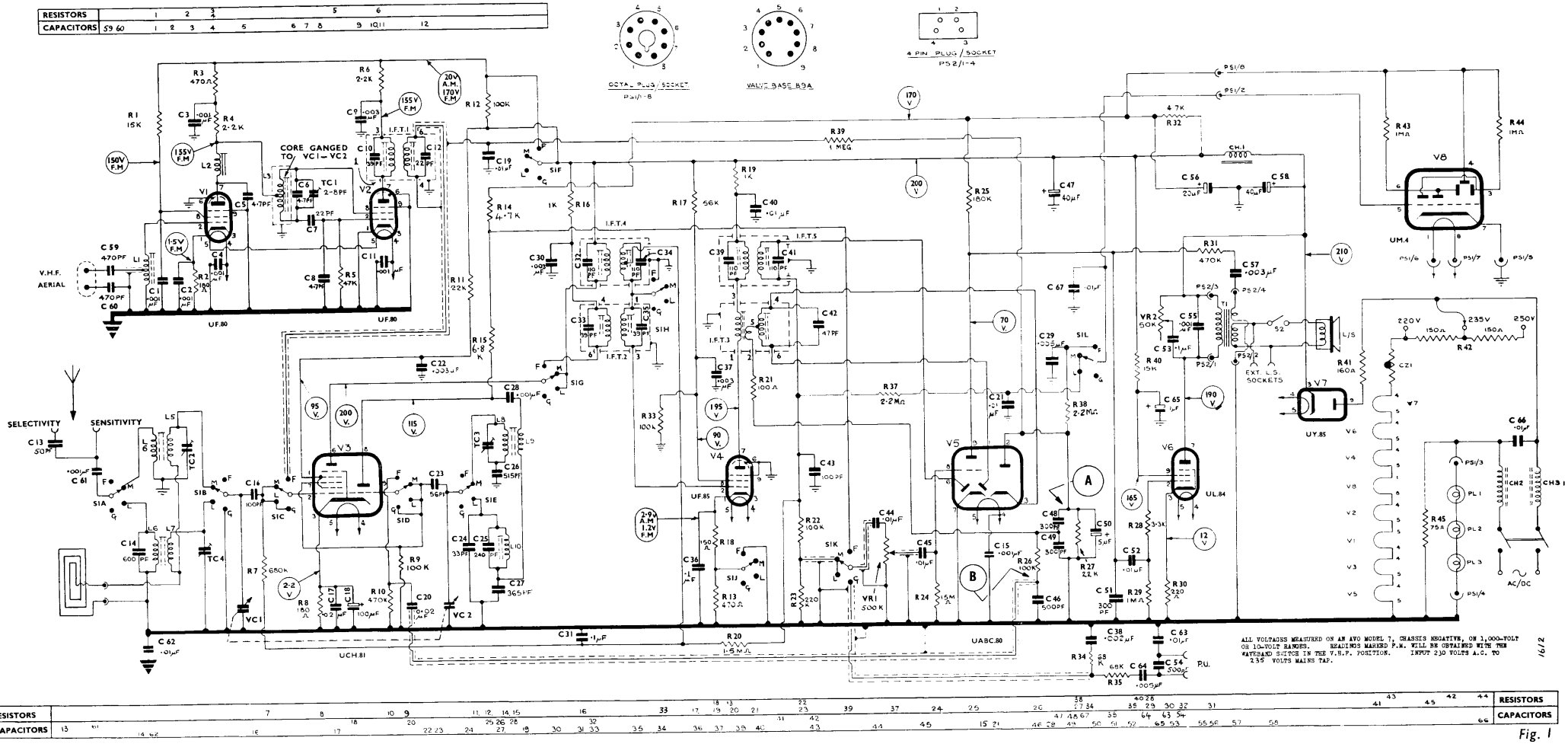


Fig. 1

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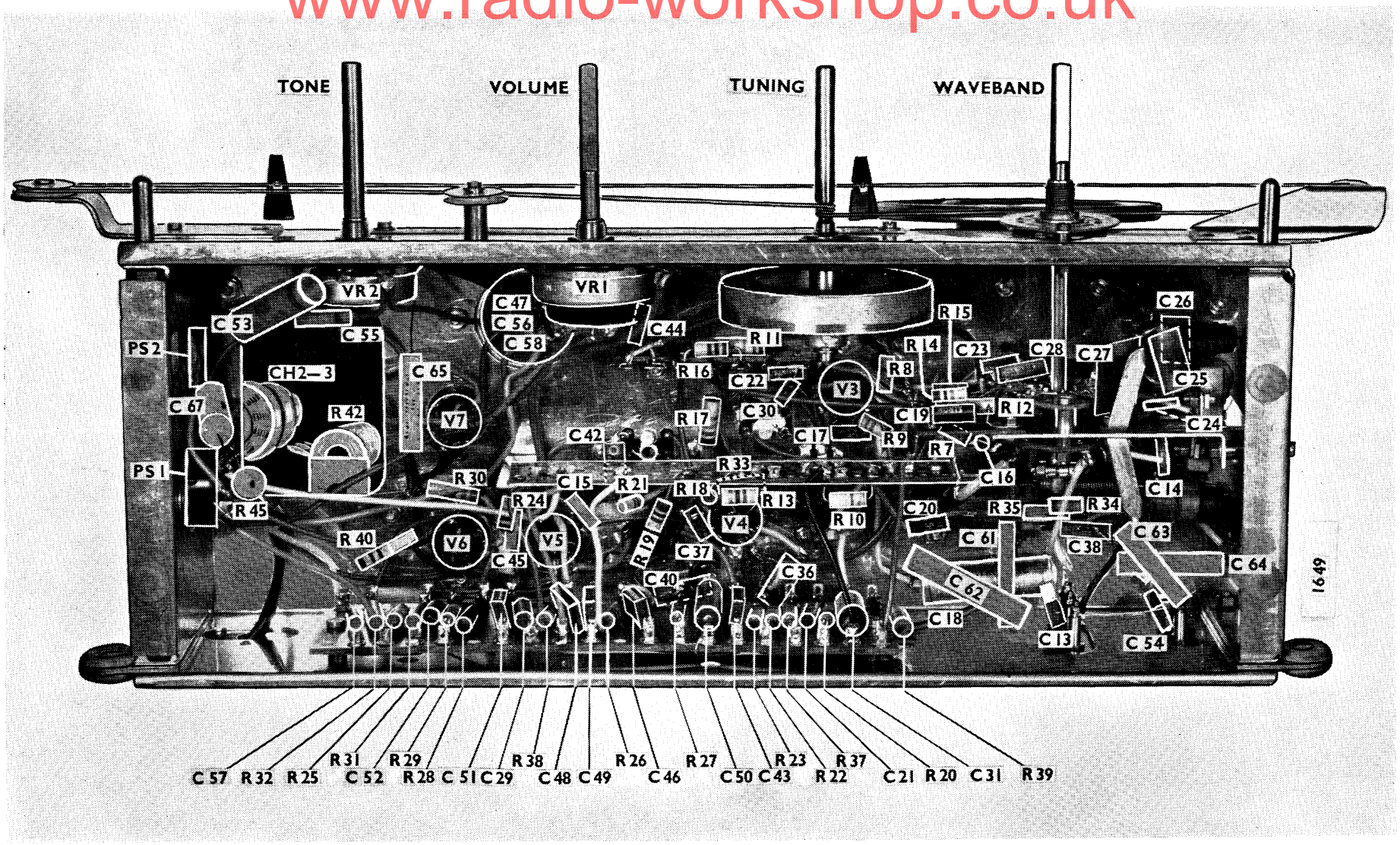


*F.g, 2—Under View of Chassis*

## CAPACITORS

*(Additional or changed)*

| Ref. | Value Mfd. | Value Pfd. | Type | D.C. Working Voltage | Tolerance ± % | Part No. | Description |
|---|---|---|---|---|---|---|---|
| C15 | — | 1,000 | S.C. | 350 | + 75 − 0 | AP22746 | V5 heater by-pass. |
| C59 | — | 470 | S.C. | 1,750 | — | AP21458 | V.H.F. Aerial isolating. |
| C60 | — | 470 | S.C. | 1,750 | — | AP21458 | V.H.F. Aerial isolating. |
| C61 | ·001 | — | P.T. | 1,000 | 25 | AP18629 | M.W./L.W. Aerial isolating. |
| C62 | ·01 | — | P.T. | 1,000 | 25 | AP17939 | Chassis earthing. |
| C63 | ·01 | — | P.T. | 750 | 25 | AP19745 | P.U. isolating. |
| C64 | ·005 | — | P.T. | 750 | 25 | AP19727 | P.U. isolating. |
| C65 | 1 | — | Elec. | 350 | 25 | AP22254 | V6 Screen decoupling. |
| C66 | ·01 | — | P.T. | 500 | 25 | P3769 | Mains filter. |
| C67 | ·01 | — | P.T. | 500 | 25 | P3769 | Additional filter to V8 input. |

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## RESISTORS

*(Additional or changed)*

| Reference | Value (Ohms) | Rating (Watts) | Tolerance ± % | Part No. | Description |
|---|---|---|---|---|---|
| R9 | 100K | ¼ | 10 | P6869 | V3 Osc. grid. |
| R14 | 4·7K | ¼ | 10 | P6533 | V3 Triode anode load (V.H.F. only). |
| R15 | 6·8K | ¼ | 10 | P6575 | V3 Osc. anode lead. |
| R36 | Not included. | | | | |
| R40 | 15K | ½ | 10 | AP16658 | V6 Screen decoupling. |
| R41 | 160 | 4 | 10 | AP18169 | H.T. Limiter. |
| R42 | 150 + 150 | 9 | 5 | AP24135 | Mains dropper. |
| R43 | 1M | ¼ | 20 | P7115 | V8 Target anode limiter. |
| R44 | 1M | ¼ | 20 | P7115 | V8 Target anode limiter. |
| R45 | 75 | 4 | 10 | AP18192 | Dial lamp by-pass. |
| VR1 | 500K | — | — | BP21182 | Volume. |

## COILS, CHOKES AND TRANSFORMERS

*(Additional or changed)*

| Reference | Resistance (Ohms) | Part Number | Description |
|---|---|---|---|
| CH2/3 | 3 each | AS16196 | Mains Filters. |

Core for CH2/3—AP16191 Complete Coil Deck—ES.24526.

## MODIFICATIONS

R9 was 47K now 100K
R14 was 10K now 4.7K
R15 was 15K now 6.8K
Coil deck was Part No. ES.23919, now ES.24526 .. .. .. .. .. } CN.5753

C15 (1,000 pF.) added .. .. .. CN.5726

## PART NUMBERS

*(Additional)*

| Part Number | Description |
|---|---|
| DS24212 | Back, cabinet (V.H.F.55) |
| AP16631 | Pilot lamp, 3·5 V. 0·15A. |
| AP16338 | Plug, 4-pin. |
| AP16337 | Socket, 4-pin |
| AP16020 | Thermistor, type CZ1. |
| P3936 | Valveholder, octal |

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TP.1059 March, 1956

# BUSH RADIO LTD.

## Modifications to Bush Service Instructions

Date: June, 1956.

AMENDMENT TO SERVICE INSTRUCTIONS
for
MODELS VHF.41, RG.46, VHF.54 and VHF.55.

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### Alignment Procedure (FM)

Due to an oversight, no reference was made to the alignment of IFT.1 in the FM Sub-chassis.

The alignment procedure should be followed to the point at which the Signal input is transferred to the FM aerial sockets for 'RF Alignment'. With generator still set to 19.5 mc/s. adjust Pri. and Sec. of IFT. 1 for maximum voltage output. Then proceed with the RF and Oscillator alignment as printed.

TP.1066.

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