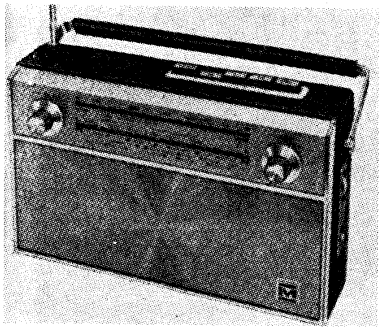
E R T SERVICE CHART 1736



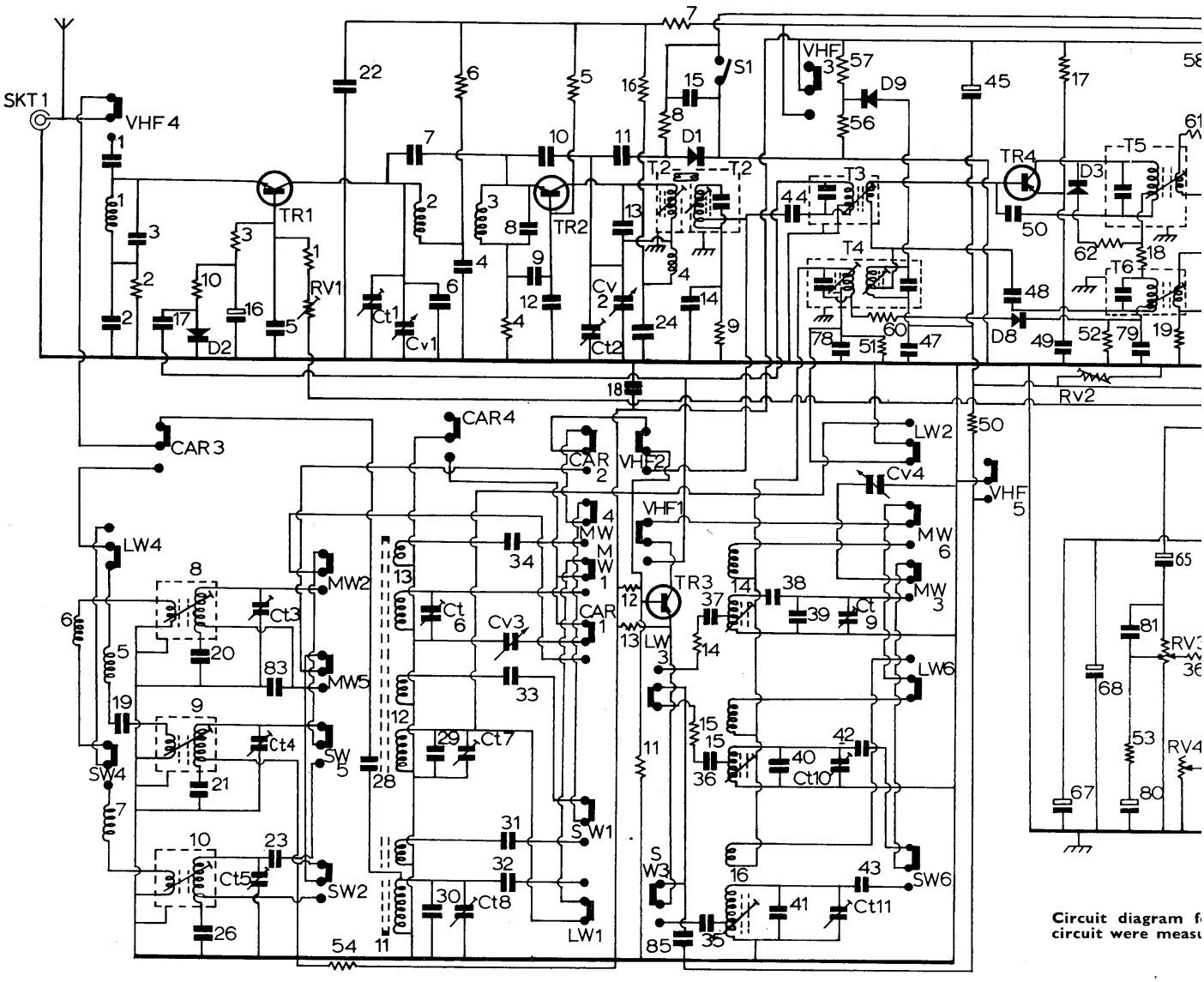
MURPHY B842

PORTABLE RADIO

Push-button operated four waveband AM/FM portable radio. Has switched AFC on VHF and car aerial matching

Additional copies of this chart 1s. 6d. including postage. Payment with order please to ERT, Dorset House, Stamford Street, London, SE1.

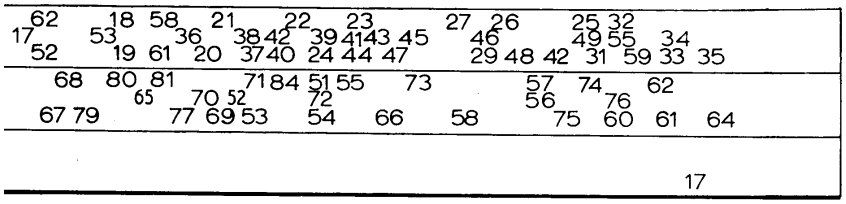
R	16 12 7 15 57 50 62 18 5 2 10 3 1 54 6 4 5 13 11 8 14 9 56 51 60 17 53 52 19 6
C	2 26 83 28 6 4 31 29 13 85 15 35 41 78 43 49 68 80 8 19 20 5 30 29 32 33 18 36 37 44 42 48 1 3 17 21 16 23 22 7 22 8 34 10 11 24 14 39 38 40 47 45 50 67 79 65
L	5 9 13 16 14 6 7 1 10 8 12 11 2 3 4 15

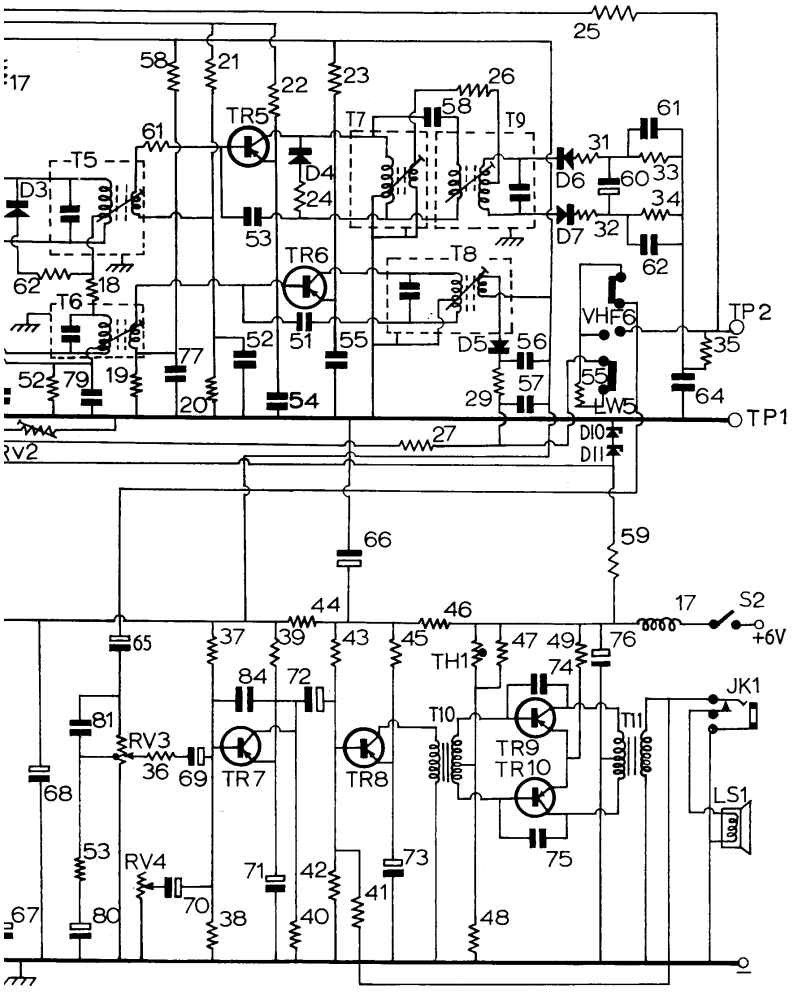


Circuit diagram f
circuit were measu

TRANSISTOR VOLTAGES

No.	Type		E	B	C
TR1	2SC668D	AM	0	0	0
		FM	0·75	4·8	0
TR2	2SC668D	AM	0	0	0
		FM	1·6	4·8	0
TR3	2SA222	AM	4·8	4·5	0·3
		FM	3·4	3·1	0
TR4	2SA321	AM	5·0	4·7	0·6
		FM	4·2	3·9	1·0
TR5	2SA440A	AM	0	0	0
		FM	3·8	3·3	0
TR6	2SA321	AM	5·0	4·7	0
		FM	4·8	4·2	0
TR7	2SB185	AM	5·1	4·6	0·9
		FM	5·1	4·6	0·9
TR8	2SB186	AM	3·7	3·4	0·2
		FM	3·7	3·4	0·2
TR9,TR10	2SB405	AM	6·0	5·9	0
		FM	6·0	5·9	0





ircuit diagram for model B842. Transistor voltages in the table above the rcuit were measured under quiescent conditions with a model 8 Avometer and are all positive with respect to chassis

CAPACITORS

C1	30pF	B1
C2	10KpF	B1
C3	25pF	—
C4	5KpF	B1
C5	5KpF	B1
C6	10pF	B1
C7	3pF	B1
C8	35pF	B1
C9	500pF	B1
C10	4pF	B1
C11	6pF	B1
C12	1KpF	B1
C13	20pF	B1
C14	10KpF	A1
C15	100KpF	B1
C16	5μF	A2
C17	10pF	A2
C18	20KpF	B2
C19	50pF	B2
C20	5KpF	B2
C21	5KpF	B2
C22	10KpF	B1
C23	60pF	B2
C24	5KpF	B1
C26	2KpF	B2
C28	5pF	A2
C29	15pF	A2
C30	8pF	A2
C31	5KpF	A2
C32	60pF	A2
C33	5KpF	A2
C34	4KpF	A1
C35	5KpF	B2
C36	7K5pF	B2
C37	4KpF	B1
C38	310pF	B1
C39	13pF	B1
C40	90pF	B2
C41	25pF	B2
C42	180pF	B2
C43	65pF	B2
C44	10pF	—
C45	10μF	B3
C47	40KpF	B3
C48	3pF	B3
C49	40KpF	B3
C50	10pF	B2
C51	1pF	B2
C52	10KpF	B2
C53	7pF	B2
C54	10KpF	B2
C55	40KpF	B2
C56	10KpF	B2
C57	10KpF	B2
C58	30pF	B2
C60	5μF	B2
C61	1KpF	B2
C62	1KpF	B2
C64	1KpF	B2
C65	5μF	A3
C66	200μF	B3
C67	200μF	B3
C68	200μF	B3
C69	1μF	A3
C70	300KpF	A3
C71	30μF	B3
C72	5μF	A3
C73	100μF	B3
C74	5KpF	B3
C75	5KpF	B3
C76	200μF	B3
C77	40KpF	B2
C78	40KpF	A2
C79	40KpF	B3
C80	1μF	B3
C81	20KpF	—
C83	100pF	—
C84	4KpF	—
C85	10KpF	—
Ct1	—	B1
Ct2	—	B1
Ct3	—	B2
Ct4	—	B2
Ct5	—	B2
Ct6	—	B1
Ct7	—	A2
Ct8	—	A2
Ct9	—	B1
Ct10	—	B2
Ct11	—	B2
CV1	—	B1
CV2	—	B1
CV3	—	B1
CV4	—	B1

RESISTORS

R1	2K2	B1
R2	33	B1
R3	5K6	B1
R4	3K3	B1
R5	220K	—
R6	100	B1
R7	56	B1
R8	56K	B1
R9	15K	A1
R10	5K6	A2
R11	33K	A2
R12	5K6	A2
R13	1K5	A2
R14	15	B2
R15	33	B2
R16	100	—
R17	1K	B2
R18	100	B2
R19	22K	B3
R20	22K	B2
R21	10K	B2
R22	1K	B2
R23	680	B2
R24	3K	B2
R25	100K	B2
R26	270	B2
R27	5K6	—
R29	1K	B2
R31	1K	B2
R32	1K	B2
R33	5K6	B2
R34	5K6	B2
R35	1K	B2
R36	1K5	A3
R37	12K	A3
R38	100K	A3
R39	820	A3
R40	2K	B3
R41	68K	B3
R42	10K	B3
R43	5K6	B3
R44	68	B3
R45	560	B3
R46	56	B3
R47	68	B3
R48	1K5	B3
R49	2.2	B3
R50	68	—
R51	1K	A2
R52	1K5	—
R53	330	B3
R54	22K	B2
R55	3K3	A2
R56	15K	B2
R57	1K	B2
R58	3K3	—
R59	1K8	B2
R60	3K9	A3
R61	270	—
R62	3K9	B2
RV1	10K	B1
RV2	100K	B3
RV3	10K	A3
RV4	5K	B1

TRANSPORTABLE battery-operated AM/FM radio receiver, Murphy model B842, has four wavebands and incorporates ten transistors and eleven semiconductor diodes. Principal circuit features are: switchable AFC on VHF/FM, tuned aerial matching transformers when switched for AM reception via car aerial, and stabilised base bias to the VHF RF amplifier.

Supply. 6V DC. Four type U2 cells or equivalent.

Consumption. Quiescent current 15mA on AM; 19mA on FM.

Transistors. TR1 FM RF 2SC668D; TR2 FM mixer 2SC668C; TR3 AM mixer 2SA222; TR4 IF amplifier 2SA321; TR5 FM IF amplifier 2SA440A; TR6 AM IF amplifier 2SA321; TR7 AF amplifier 2SB185; TR8 driver 2SB186; TR9, TR10 power output 2SB405.

Diodes. D1 AFC 1S553; D2 VHF AGC 1S188; D3 FM IF damping 1S188; D4 FM IF limiter 1S188; D5 AM detector 1S188; D6, D7 FM discriminator 1S188; D8 AM IF control diode 1S188; D9 AM IF damping 1S188; D10, D11 MA26.

Thermistor. TH1 stabilisation SDT-06.

Wavebands. VHF/FM 87.5—103MHz; SW 41 –49m (7.7—5.8MHz); MW 183—587m (1640—510kHz); LW 857—2000m (350—150kHz).

IF's. AM 470kHz; FM 10.7MHz.

Aerials. Internal ferrite rod for LW and MW, telescopic rod for SW and VHF/FM.

Sockets. Car aerial for all bands, miniature jack for earphone.

Speaker. 6×4in elliptical, 8ohms impedance.

Dimensions. $7\times10\frac{3}{4}\times3\frac{3}{8}$in.

Manufacturer. Rank Bush Murphy.

Service Department. Drayton Road, Boreham Wood, Hertfordshire. Tel: 01-953 6151. Telex: 262741. Cables. Rankboom Boreham Wood.

DISMANTLING

Slide out the plastics bottom panel of the cabinet then remove the batteries. Unscrew the four screws securing back cover and remove cover. Unsolder telescopic aerial lead. Remove volume and tuning control knobs, unsolder leads to battery, earphone socket and car aerial socket. Unscrew and remove five chassis retaining screws and withdraw chassis.

To reassemble, the procedure outlined above should be reversed.

SERVICE NOTES

Adjustment of RV1 and RV2. Replacement of components in the RF or output stages may necessitate the resetting of RV1 and RV2. Adjust these controls for optimum signal-to-noise performance.

ALIGNMENT

Equipment required. AM/FM signal generator; an RF coupling loop; 8ohm impedance AF output meter or model 8 Avometer; centre zero DC voltmeter ±1.5V.

General. Terminate AF output meter in a miniature jack plug and connect via the earphone jack, or alternatively, connect an Avo model 8 switched to the 2.5V AC range in parallel with the speaker. Input signal must be attenuated so that the audio output does not exceed 50mW, thereby avoiding AGC action masking alignment peaks. Pre-set volume control to maximum and rotate tone control fully clockwise, and check that battery power supply is 6V on load. All adjustments are made for maximum output except when adjusting T9 when the output is for zero on the centre zero meter.

AM IF. Switch to MW and rotate tuning gang to maximum capacitance. Feed in a 470kHz AM signal to TR3 base and adjust T8, T6 and T4 (two cores) in that order.

AM RF. Transfer signal generator termination to RF coupling loop and loosely couple to ferrite rod aerial assembly. Switch to MW and rotate tuning gang to maximum capacitance. Feed in a 505kHz AM signal and adjust L14. Rotate tuning gang to minimum capacitance and feed in a 1660kHz AM signal. Adjust Ct9. Repeat adjustments at 505kHz and 1660kHz in turn for optimum results.

Tune receiver to centre of 500m on scale and feed in a 600kHz AM signal. Adjust position of L13 on ferrite rod. Tune to centre of 200m on scale, feed in a 1500kHz AM signal and adjust Ct6. Repeat adjustments at 600kHz and 1660kHz in turn for optimum results.

Switch receiver to LW, rotate tuning gang to maximum capacitance and feed in a 145kHz AM signal. Adjust L15. Rotate tuning gang to minimum capacitance, feed in a 365kHz AM signal and adjust Ct10. Repeat adjustments at 145kHz and 365kHz in turn for optimum results.

Tune receiver to centre of 1400m on scale and feed in a 214kHz AM signal. Adjust, position of L12 on ferrite rod, and Ct10.

Switch receiver to SW and rotate tuning gang to maximum capacitance. Feed in a 5.75MHz AM signal and adjust L16. Rotate tuning gang to minimum capacitance and feed in a 7.95MHz AM signal. Adjust Ct11. Repeat adjustments at 5.75MHz and 7.95MHz in turn for optimum results.

Tune receiver to centre of 5.8MHz on scale, feed in a 5.8MHz AM signal and adjust position of L11 on ferrite rod. Tune to centre of 7.7MHz on scale, feed in a 7.7MHz AM signal and adjust

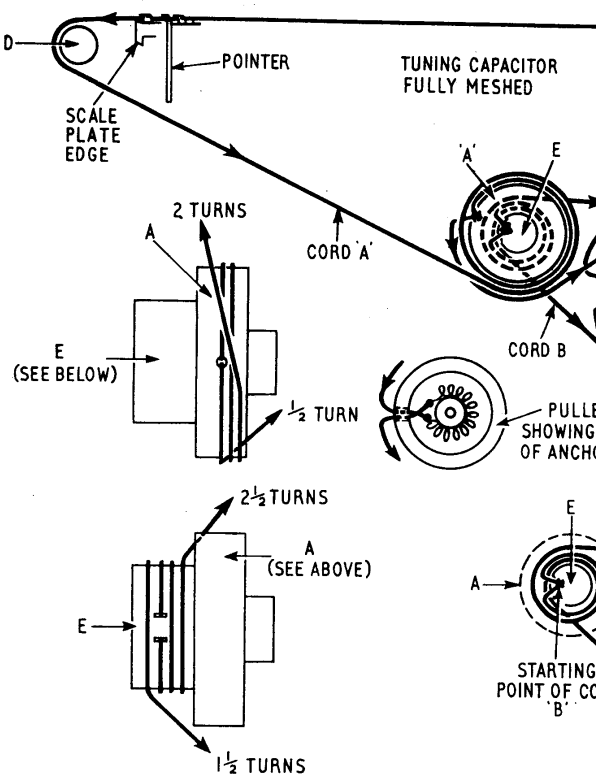
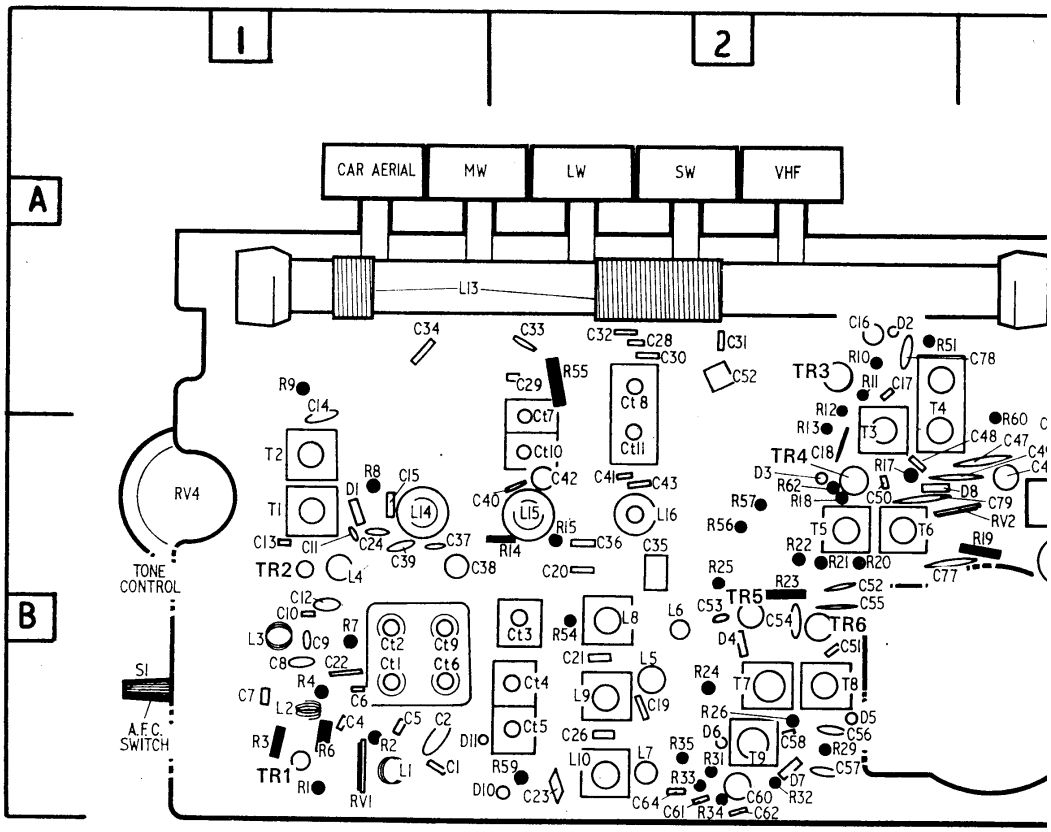
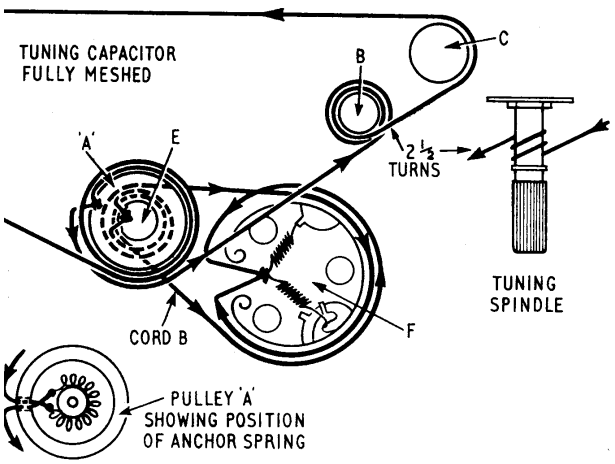


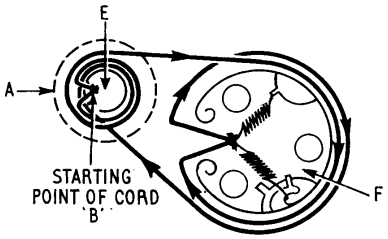
Illustration of cord drive assembly. Two separate 48in. will be required. The tuning capacitor should and cord B replaced firs

Below: Component locations viewed from cc



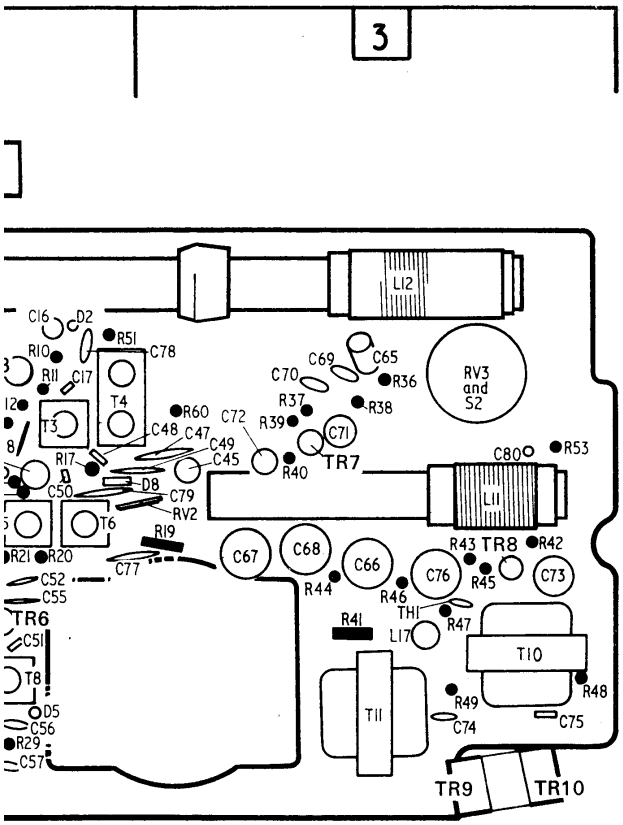
Printed in Great Britain at The Baynard Press, Northampton Road, London EC1, and published by IPC Electrica SE1, a member of the IPC Business Press Group and distributed by IPC Business Press (Sales & Distribution) Ltd 40





ssembly. Two separate Terylene cords of 36in. and :uning capacitor should be fully meshed in both cases and cord B replaced first

ocations viewed from component side of panel



l, and published by IPC Electrical-Electronic Press Ltd, Dorset House, Stamford Street, London
ress (Sales & Distribution) Ltd 40 Bowling Green Lane, London EC1 © 1970 IPC Business Press Ltd.

Ct8. Repeat adjustments at 5.8MHz and 7.7MHz in turn for optimum results.

Depress car aerial press-button and connect signal generator output to external car aerial lead. Switch receiver to MW and tune to centre of 500m on scale. Feed in a 600kHz AM signal and adjust L8. Tune receiver to centre of 200m on scale, feed in a 1500kHz AM signal and adjust Ct3.

Switch receiver to LW and tune to centre of 1400m on scale. Feed in a 214kHz AM signal and adjust L9 and Ct4.

Switch receiver to SW, tune to centre of 5.8MHz on scale and feed in a 5.8MHz AM signal. Adjust L10, tune to centre of 7.7MHz on scale and feed in a 7.7MH z AM signal. Adjust Ct5.

FM IF. Connect an Avometer model 8, switched to the 2.5V DC range, across C60. Input signal should be attenuated so that output voltage does not exceed 1V. Connect the centre zero voltmeter between TP1 and TP2.

Switch receiver to VHF and tune to centre of 94MHz on scale. Feed in a 10.7MHz FM signal to base of TR3 and adjust T7 for maximum output across C60. Adjust T9 for zero (null) on voltmeter. Adjust in turn T5, T3, T2 and T1 for maximum output across C60. Readjust T9 for null.

FM RF. Connect signal generator output to external aerial lead, rotate tuning gang to maximum capacitance and feed in an 87MHz FM signal. Adjust L4. Rotate tuning gang to minimum capacitance, feed in a 104.5MHz FM signal. Adjust Ct2. Repeat adjustments at 87MHz and 104.5 MHz in turn for optimum.

Tune receiver to centre of 88MHz on scale, feed in an 88MHz FM signal and adjust L2. Tune receiver to centre of 102MHz on scale, feed in a 102MHz FM signal and adjust Ct1.