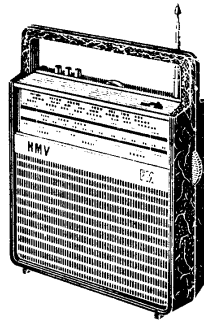


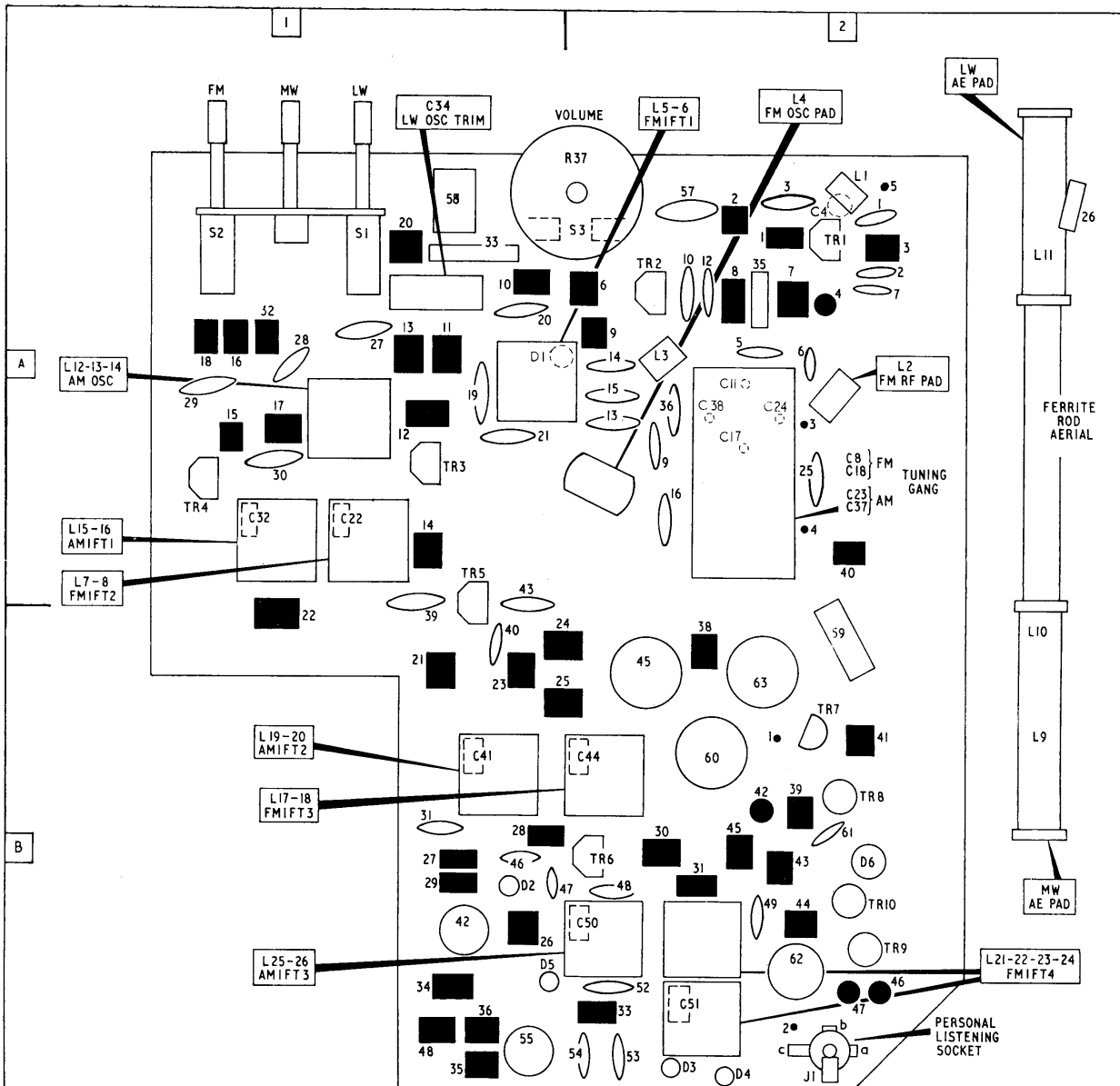
**E  
R  
T** SERVICE CHART 1722



**MARCONIPHONE 4166  
HMV 2166  
PORTABLE  
RADIO**

HMV version of portable 3-waveband AM/FM radio with ten-transistor chassis

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



Component side of printed board showing alignment adjustments. C4 is omitted from Schedule A sets and D1 is fitted across L17 in Schedule C sets

**THREE WAVEBAND** battery portable radio tuning long, medium and VHF/FM wavebands. Chassis uses ten transistors and four diodes.

**Battery.** 9V, PP9 or equivalent.

**Consumption.** Quiescent current 12.5mA on AM, 13.0mA on FM.

**Transistors.** TR1 FM RF amplifier BF195; TR2 FM oscillator/mixer BF195; TR3 FM IF amplifier BF194; TR4 AM oscillator/mixer BF194; TR5 IF amplifier BF194; TR6 IF amplifier BF194; TR7 AF amplifier BC214L; TR8 driver U3832; TR9 output AC131; TR10 output AC186.

**Diodes.** D1 damping OA90; D2 AGC diode OA90; D3, D4 ratio detector OA90; D5 AM detector OA90; D6 stabilising ANK.

**Wavebands.** LW, MW, VHF/FM.

**IFs.** AM 475kc/s, FM 10.7mc/s.

**Aerials.** AM internal ferrite rod, FM telescopic.

**Outlet.** Private listening socket 30-100ohm impedance.

**Output.** 300mW.

**Speaker.** PM moving coil 15ohm impedance.

**Manufacturer.** British Radio Corporation Ltd.

**Service departments.** PO Box No. 121, Lea Valley Trading Estate, Angel Road, Edmonton, London N18. Tel: service enquiries 01-807 3060, spares orders 01-807 0791, Ansafone spares service 01-807 6332. Glasgow: 155 Shieldhall Road, SW1. Tel: 041-882 4512. Manchester: Thorn House, Derby Street, Cheetham, Manchester 8. Tel: 061-832 2499.

#### DISMANTLING

Remove and disconnect battery. Two countersunk screws in handle hold together cabinet halves. Remove these and hinge cabinet open. When reassembling cabinet make sure that lugs on lower edge of cabinet back engage in slots at bottom of cabinet front.

To remove printed board, take out screw securing telescopic aerial rod and connecting lead to bottom of cabinet, unsolder lead to screen on inside of cabinet back from top of AM IFT2 coil can (yellow core) and remove three screws and fibre insulating washers securing printed board to cabinet.

To replace speaker, lever up one claw of each fixing clip to loosen, and use new clips to fit replacement.

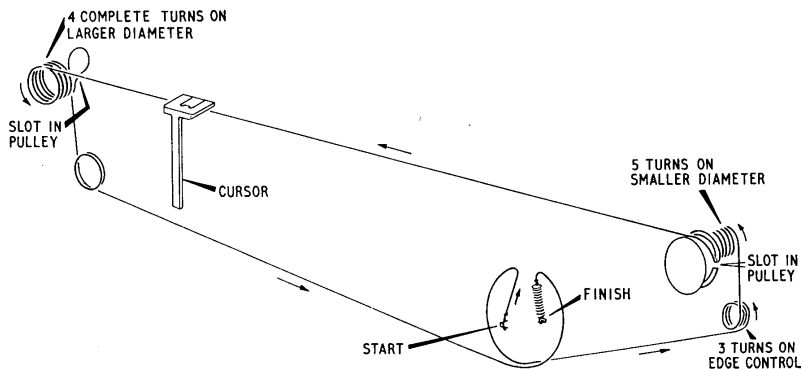
#### ALIGNMENT

**Equipment required.** AM/FM signal generator; 15ohm impedance AF output meter or Avo model 8; aerial loop; 100KpF capacitor; polystyrene cement; trimming tools.

**General.** Connect audio output meter in place of speaker, or an Avo 8 on 10V AC range across speaker. Adjust signal input level throughout alignment to maintain about 50mW output with volume control set to maximum, to prevent AGC action masking alignment peaks.

Apart from in some early production models, alignment markers are provided on scale backing plate.

**AM IF.** Select MW and turn gang condenser to maximum capacitance. Apply 475kc/s signal 30 per cent modulated at 400c/s through 100KpF capacitor between tag 4 and frame of tuning gang. Adjust in turn L25/26, L19/20 and L15/16 to get maximum output. Repeat in same order until no further improvement is obtainable.



**Drive cord lacing.** Use 36in. of braided nylon cord and loop ends to give 31in. between loops. Turn drum fully anti-clockwise and lace as shown

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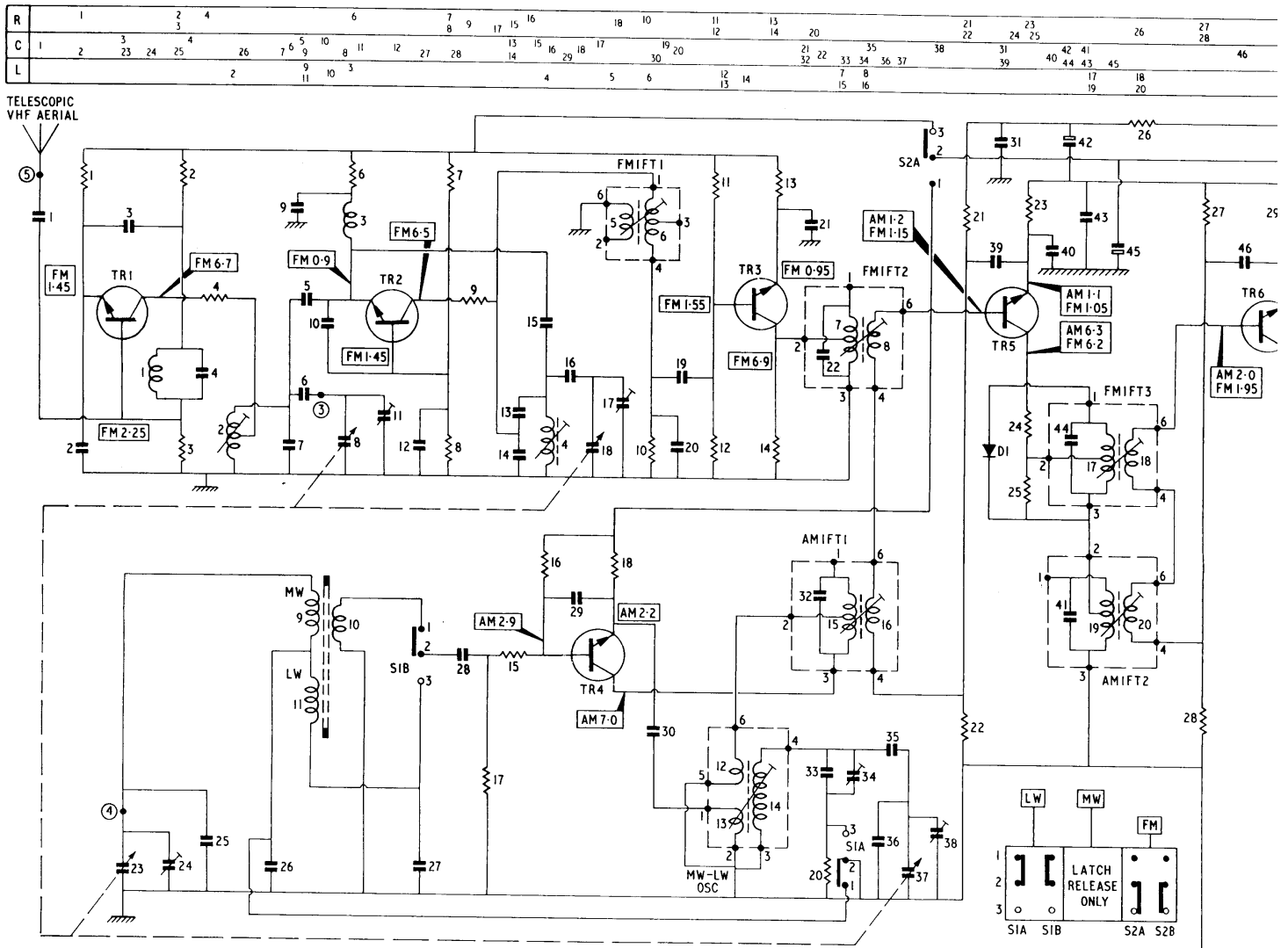
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SERVICE CHART

1722

MARGONIPHONE 4166, HMV 2166



Circuit diagram of Schedule C models; in Schedule A models C4 is omitted and in Schedule A and B mc 20,000ohm/voltmeter with respect to negative supply line of each tra

**AM RF.** Fully close tuning gang. Check and if necessary adjust cursor to coincide with zero marker pips on left hand end of scale. Select MW and apply 600kc/s signal through aerial loop loosely coupled to ferrite rod aerial.

Set tuning cursor to PAD marker or centre of 500m and in turn adjust core of L14 and position of L9 on ferrite rod to get maximum output. Position tuning cursor on TRIM marker or centre of 200m and inject 1500kc/s signal. Adjust in turn C38 and C24 for maximum output.

Select LW. Position tuning cursor on LW marker and inject 220kc/s signal or on centre of BBC2 and inject 200kc/s signal. Adjust in turn C34 and position of L11 on ferrite rod to get maximum output.

Repeat in order adjustments at 600kc/s, 1500kc/s and 220kc/s (or 200kc/s) until no further improvement is obtained. Use polystyrene cement to seal L9 and L11 to ferrite rod.

**FM IF.** Select FM. Inject 10.7mc/s signal with 25kc/s deviation through 100KpF blocking capacitor between tag 3 and frame of tuning gang. Peak L23/24, L21/22, L17/18 and L7/8 in turn for maximum output.

Switch signal generator to AM with 30 per cent modulation and adjust L23/24 for minimum output. Switch signal generator to FM and transfer input to junction of R6/C9. Peak L5/6 for maximum output.

**FM RF.** Apply 88mc/s signals into telescopic aerial lead with aerial dis-

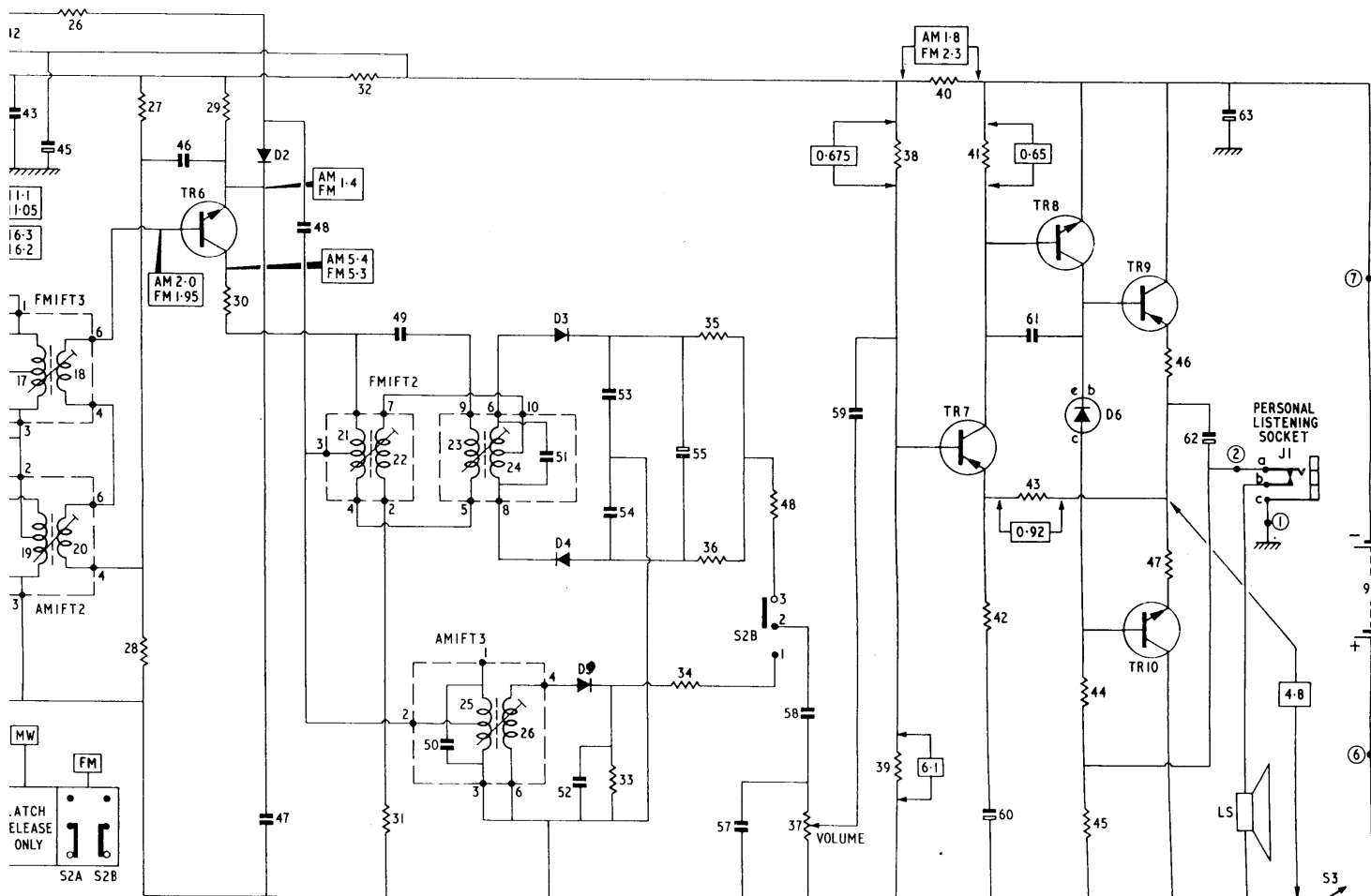
connected. Tune cursor to centre of 88mc/s calibration mark and adjust core of L4 and adjust L2 by slightly opening or closing coil turns to get maximum output.

Tune signal generator to 96mc/s. Position tuning cursor to 96mc/s calibration mark and adjust in turn C17 and C11 for maximum output. Repeat adjustments at 88mc/s and 96mc/s until no further improvement is obtained.

**SERVICE NOTES**

Circuit diagram and component layout relate to Schedule C models. In Schedule A models C4 is not fitted, C1 is 510pF and D1 is connected across pins 1 and 6 of FM IFT1. In Schedule B models C20 is 510pF and D1 is connected as in Schedule A models.

26	27	29	32	33	34	35	48	37	38	40	41	43	44	46	63			
43	45	46	47	48	49	50	51	52	53	54	55	57	58	59	60	61	62	63
17	18		21	22	23	24												
19	20				25	26												



in Schedule A and B models D1 appears across pins 1 and 6 of FM IFT1. Voltages were measured with live supply line of each transistor except where otherwise indicated

RESISTORS				CAPACITORS										
R1	1K5	A2	R25	5K6	B1/2	R48	1K	B1	C21	20KpF	A1	C44	50pF	A2
R2	5K6	A2	R26	12K	B1			B1	C22	50pF	A1	C45	150mF	B2
R3	12K	A2	R27	5K6	B1			B1	C23	266pF	A2	C46	20KpF	B1
R4	68	A2	R28	12K	B1	C1	9pF	A2	C24	5pF	A2	C47	20KpF	B1
R6	1K	A2	R29	1K	B2	C2	1KpF	A2	C25	15pF	A2	C48	100pF	A2
R7	5K6	A2	R30	1K	B2	C3	3.3pF	A2	C26	60pF	A2	C49	30pF	B2
R8	18K	A2	R31	330	B1	C4	47pF	A2	C27	2KpF	A1	C50	180pF	B2
R9	68	A2	R32	68	A1	C5	3.3pF	A2	C28	5KpF	A1	C51	90pF	B2
R10	470	A1	R33	5K6	B2	C6	47pF	A2	C29	100pF	A1	C52	20KpF	B2
R11	5K6	A1	R34	1K	B1	C7	3.3pF	A2	C30	200KpF	A1	C53	510pF	B2
R12	18K	A1	R35	5K6	B1	C8	20pF	A2	C31	20KpF	B1	C54	510pF	B2
R13	1K	A1	R36	5K6	B1	C9	510pF	A2	C32	180pF	A1	C55	8mF	B1
R14	5K6	A1	R37	20K	A1/2	C10	20pF	A2	C33	240pF	A1	C56	100KpF	A1
R15	100	A1	R38	8K2	B2	C11	5pF	A2	C34	2-25pF	A1	C57	220KpF	B2
R16	1K5	A1	R39	68K	B2	C12	1KpF	A2	C35	290pF	A2	C58	100KpF	A1
R17	2K2	A1	R40	330	B2	C13	15pF	A2	C36	15pF	A2	C59	220KpF	B2
R18	2K2	A1	R41	1K5	B2	C14	20pF	A2	C37	266pF	A2	C60	150mF	B2
R20	68K	A1	R42	47	B2	C15	47pF	A2	C38	5pF	A2	C61	1KpF	B2
R21	5K6	B1	R43	2K2	B2	C16	3.3pF	A2	C39	20KpF	A1	C62	150mF	B2
R22	220K	A/B1	R44	1K	B2	C17	47pF	A2	C40	20KpF	B1	C63	150mF	B2
R23	1K	B1	R45	68	B2	C18	20pF	A2	C41	180pF	B1			
R24	470	B1/2	R46	2.2	B2	C19	2KpF	A1	C42	8mF	B1			
			R47	2.2	B2	C20	1KpF	A1	C43	20KpF	A1			