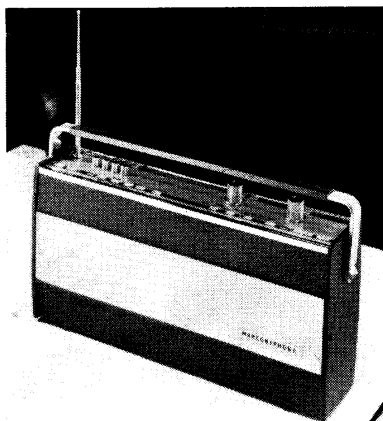


ERT SERVICE CHART 1609 New Series



MARCONIPHONE 4138 ULTRA 6142

Additional copies of this chart price 1s. 6d. post free. Payment with order please to ERT, 40 Bowling Green Lane, London EC1

NINE-TRANSISTOR portable covering VHF, LW, MW and Luxembourg bandspread. Leathergrain finish case is in high-impact moulded plastic with silver anodised speaker grille. Tuning scale incorporates two pointers and is calibrated in metres and station names.

Batteries. Two Ever Ready PP7, Vidor VT7, Drydex DT7 or equivalent.

Consumption. Quiescent 15mA (AM),

18mA (FM); 50mW output 38mA; 500mW output 100mA.

Wavebands. LW 1120-2050m (268-148kc/s), MW 190-566m (1580-530kc/s), Bandsread 188-216m (1640-1390kc/s), VHF 87.7-101mc/s.

Transistors. TR1 AF114 (AF124) RF amplifier; TR2 AF115 (AF125) FM osc-mixer; TR3 AF116 (AF126) FM IF amplifier, AM osc-mixer; TR4 AF116 (AF126) IF amplifier; TR5 AF116

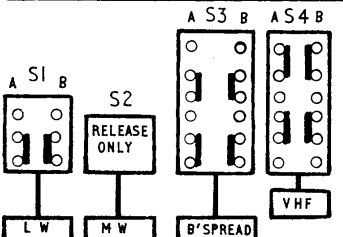
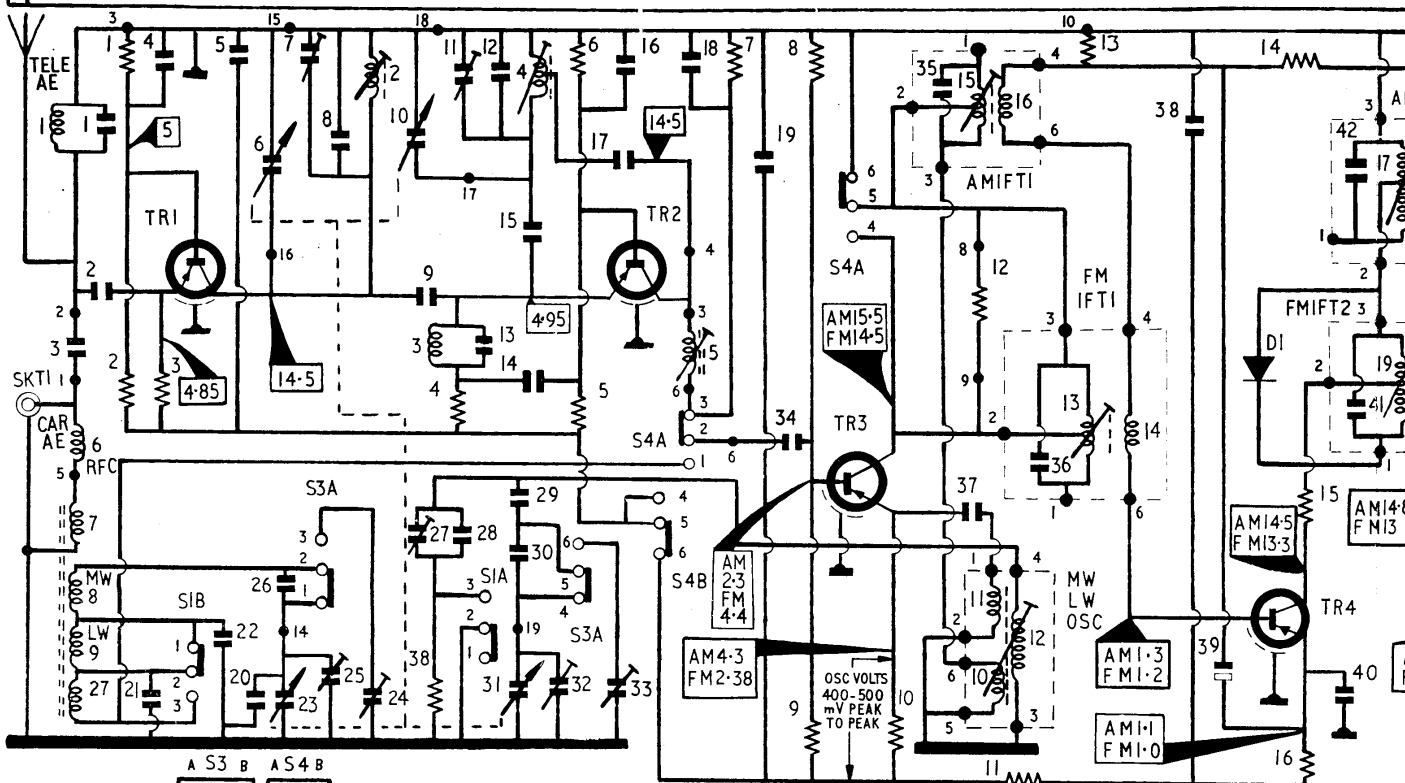
(AF126) IF amplifier, TR6 AC156 (OC75) audio amplifier, TR7 AC113 (OC81D) audio driver, TR8 AC154 (OC81) pushpull output, TR9 AC157 (AC127) pushpull output.

Diodes. D1 OA90 overload limiter, D2 OA90 AM detector, D3/D4 OA90 FM discriminator, D5 AA120 bias stabiliser.

IFs. 475kc/s and 10.7mc/s.

Aerials. 7 x 3/8in. ferrite rod for LW,

R	1	2	3	38	4	5	6	7	8	9	10	12	11	13	14	15	16										
C	1	2	3	4	5	6	7	8	10	9	11	12	13	14	15	17	16	18	19	34	35	37	36	38	39	40	41
L	1	6	7	8	9	27	2	3	4	5	11	12	15	16	13	14	17										



SW & CIRCUIT SHOWN WITH VHF BUTTON DEPRESSED

- AF114, AF115, AF116
- OC75, OC81, OC81D
- AC113, AC154, AC156
- AF124, AF125, AF126
- L5, L10-12
- AMIFT1-3, FMIFT1-2

MW and Bandsread; eight-section telescopic aerial for VHF.

Speaker, 5in., 35ohm.

Output, 600mW.

Sockets. Provision for earpiece and car aerial.

Dimensions, 12½in. wide, 6½in. high (7¼in. with handle), 3in. deep.

Price, 18gns. (5s. 3d. surcharge).

Manufacturer, British Radio Corporation Ltd.

Service departments, PO Box 121, Kynoch Road, Eley's Estate, Edmonton, London N18. Tel.: 01-807 3060. Midland depot: 24 Sheepcote Street, Birmingham 15. Tel.: Midland 5291. Scottish depot: 160-162 Battlefield Road, Glasgow S2. Tel.: Langside 9251/4.

DISMANTLING

Access for service. Open battery compartment and remove batteries. Remove back cover by taking out three countersunk screws in cabinet base. For access to drive cord and print side of panel, pull off control knobs and unsolder lead to telescopic aerial. Remove five screws and washers securing printed panel. Unsolder speaker leads. Printed board can be lifted out.

SERVICE NOTES

Oscillator check. Measure voltage across R10 (400-500V): if oscillator is functioning correctly voltage should

RESISTORS

R1	33K	A1
R2	6K8	A1
R3	820	A1
R4	1K	A1
R5	6K8	B1
R6	33K	B1
R7	68	B1
R8	47K	B1
R9	5K6	B2
R10	1K5	B2
R11	680	B2
R12	10K	B1
R13	100K	A2
R14	82K	A2
R15	1K	A1
R16	820	B2
R17	22K	A2
R18	1K	A2
R19	3K3	A2
R20	1K2	A2
R21	1K	A2
R22	100	A2
R23	5K6	A2
R24	22K	A2
R25	6K8	A2
R26	12K	C3
R27	12K	C2
R28	20K	C2
R29	500	B2
R30	120	B2
R31	56K	C3
R32	1K5	B2
R33	5.6	B2
R34	390	B2
R35	4.7	B2
R36	4.7	B2
R37	390	B2
R38	100K	C1
R39	1K	C2

log

C3	15pF	A1
C4	1KpF	A1
C5	20KpF	A1
C6	20pF	A1
C7	5pF	A1
C8	36pF	A1
C9	5pF	A1
C10	20pF	B1
C11	5pF	B1
C12	27pF	B1
C13	15pF	A1
C14	510pF	A1
C15	3.3pF	B1
C16	1KpF	B1
C17	60pF	B1
C18	510pF	B1
C19	50KpF	B2
C20	4.7pF	A1
C21	2KpF	C1
C22	60pF	C1
C23	266pF	A1
C24	2-25pF	A1
C25	5pF	B1
C26	25pF	B1
C27	2-25pF	B1
C28	210pF	B1
C29	210pF	B1
C30	18pF	B1
C31	266pF	B1
C32	5pF	B1

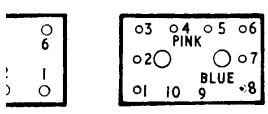
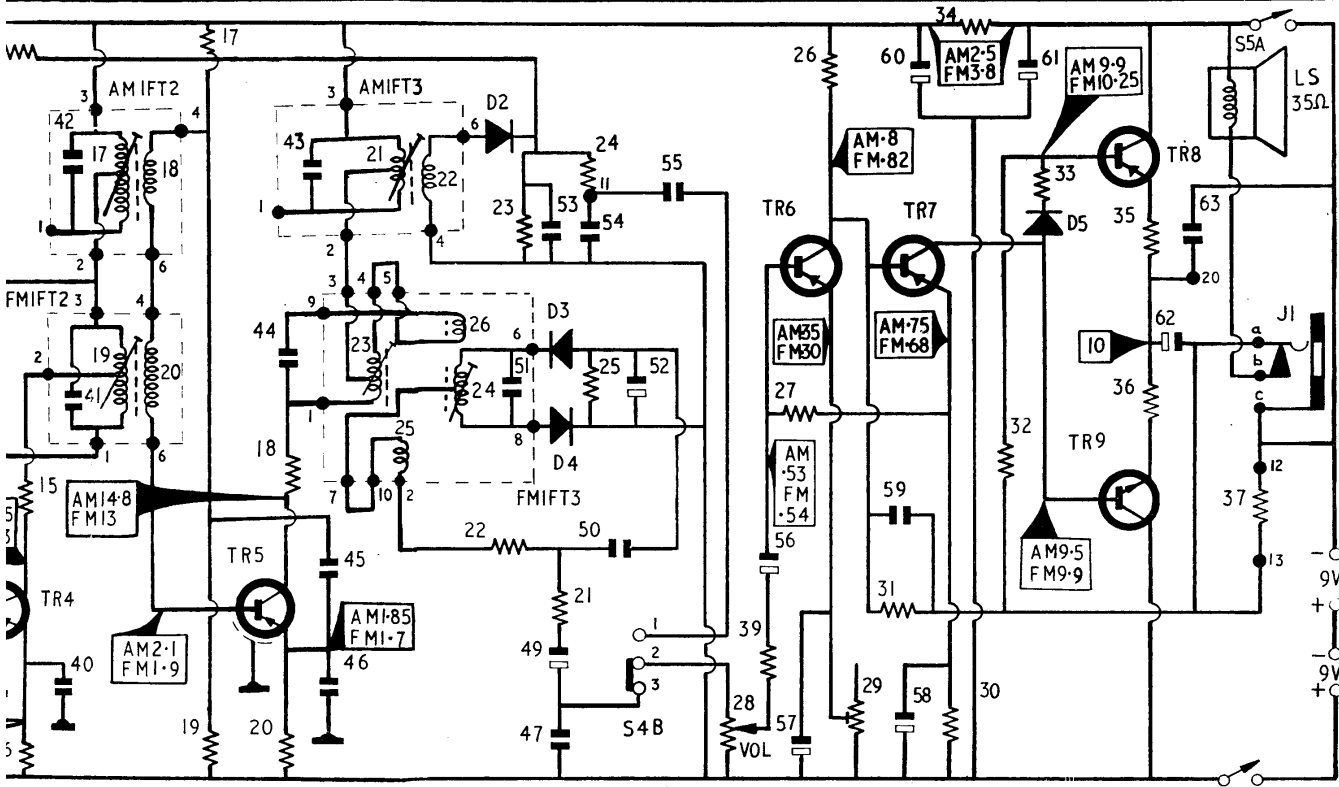
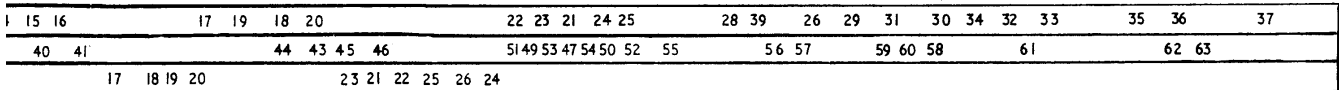
C33	1.5-8pF	B1
C34	5KpF	B1
C35	175pF	B2
C36	50pF	B1
C37	10KpF	B2
C38	50KpF	A2
C39	75mF	A2
C40	20KpF	A1
C41	50pF	A1
C42	175pF	A1
C43	175pF	A2
C44	30pF	A2
C45	20KpF	A2
C46	20KpF	A2
C47	20KpF	A2
C49	25mF	B2
C50	1KpF	A2
C51	510pF	A2
C52	8mF	A2
C53	10KpF	A2
C54	5KpF	A2
C55	40KpF	B1
C56	2mF	C2
C57	75mF	B2
C58	75mF	B2
C59	1KpF	C3
C60	100mF	A2
C61	100mF	B1
C62	150mF	B3
C63	330pF	B2

TRANSISTOR VOLTAGES

No.	Type	Function	E	B	C
1	AF114	FM RF amp	4.85	5.0	14.5
2	AF115	FM osc-mix	4.95	4.9	14.5
3	AF116	AM FC; FM IF	4.3 (2.38)	2.3 (4.4)	15.5 (14.5)
4	AF116	IF amp	1.1 (1.0)	1.3 (1.2)	14.5 (13.3)
5	AF116	IF amp	1.85 (1.7)	2.1 (1.9)	14.8 (13.0)
6	AC156	Audio amp	0.35 (0.3)	0.53 (0.54)	0.8 (0.82)
7	AC113	Driver	0.75 (0.68)	0.8 (0.82)	9.5 (9.9)
8	AC154	Output	10	9.9 (10.25)	18
9	AC157	Output	10	9.5 (9.9)	0

CAPACITORS

C1	20pF	A1
C2	1KpF	A1



TI-3
TI-2

drop slightly when oscillator section of gang is shorted out.

Bias adjustment. Correct balance is obtained when junction R35/R36 is 10V with respect to positive line. Voltage is adjusted by preset R29.

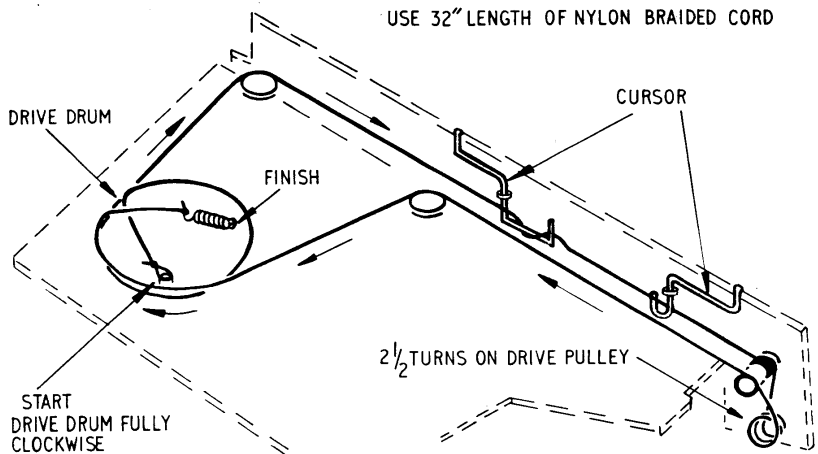
ALIGNMENT

Equipment required. AM/FM signal generator covering LW, MW and VHF, output meter 35ohms, 100KpF capacitor, coupling loop, trimming tools.

AM IF. Switch to MW. Inject modulated 475kc/s signal via 100KpF capacitor across aerial section of gang (C23). Adjust cores of AM IFT3, AM IFT2 and AM IFT1, in that order, for maximum output. Repeat for optimum results.

AM RF. Check that gang will fully close. Check that cursor travel is central, i.e. gap is equal at both ends of the scale. Switch to MW. Inject modulated signals via loop loosely coupled to ferrite rod. Tune set to 500m. Inject 600kc/s. Tune core of L12 and L8 (slide along rod) for maximum output.

Tune set to 200m. Inject 1500kc/s. Adjust trimmers C32 and C25 for maximum output. Repeat for optimum output and calibration accuracy. Switch to LW. Tune set to 1500m. Inject 200kc/s. Adjust C27 and L9 (slide along rod) for maximum output and calibration accuracy.



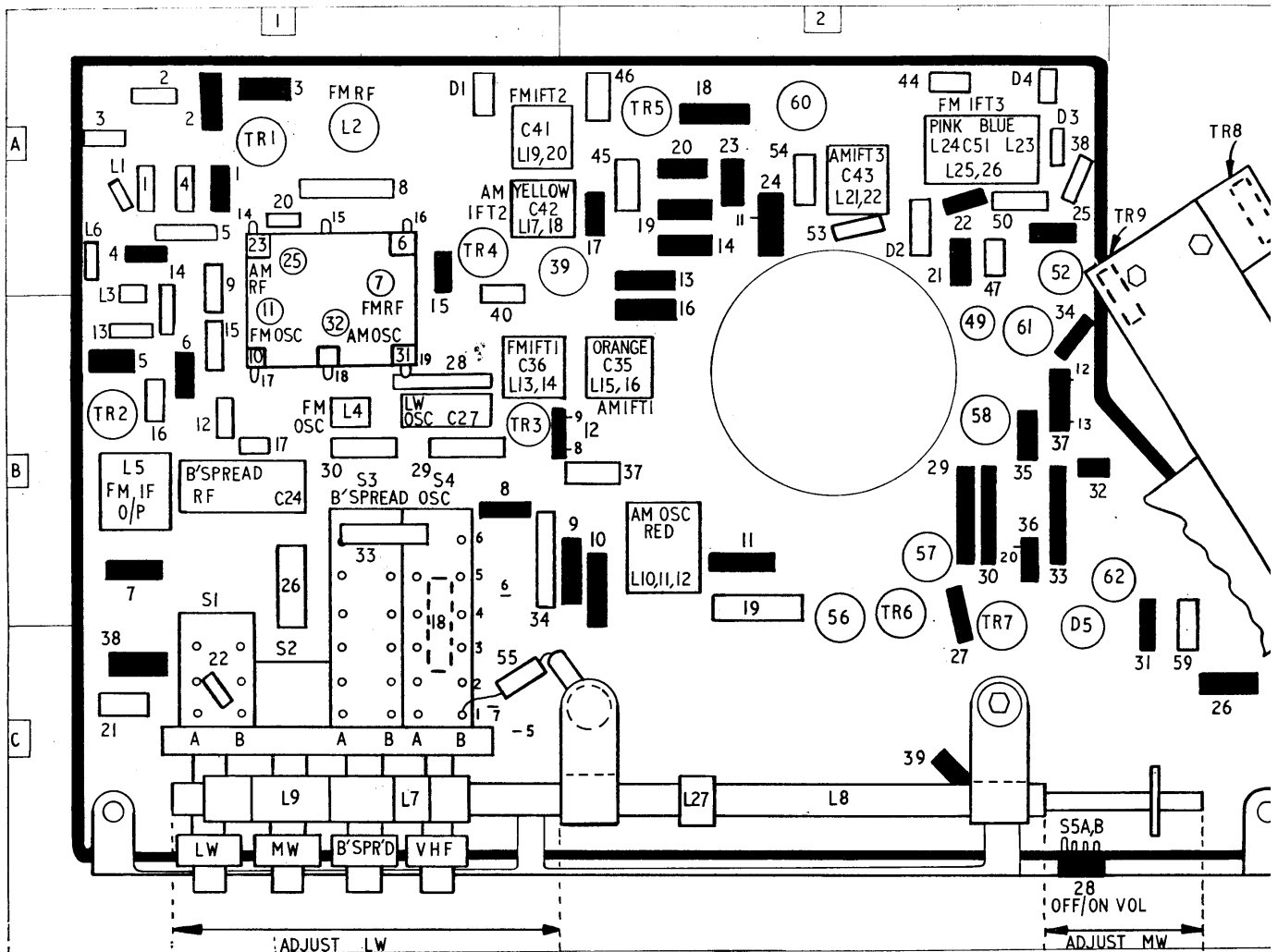
acy. Switch to bandsread. Tune set to 200m. Inject 1500kc/s. Adjust C33 and C24 for maximum output.

NOTE: Always check adjustment of bandsread trimmer C24 after altering C25 or L8. After reboxing, check that Luxembourg comes in on bandsread range, if not, readjust MW oscillator trimmer C32.

FM IF. Switch to VHF. Inject 10.7mc/s signal (25kc/s deviation) via 100KpF capacitor to tag 6 on printed

board. Adjust cores of FM IFT3, FM IFT2, FM IFT1 and L5 for maximum output. Increase signal input by 6dB. Reduce set volume to maintain 50mW output. Switch generator to AM. Tune L24 for minimum output (AM rejection). Switch to FM and check output is not reduced. Repeat as necessary for maximum FM and minimum AM outputs.

NOTE: Tune L24 to the outer peak, i.e. with core protruding from top of can



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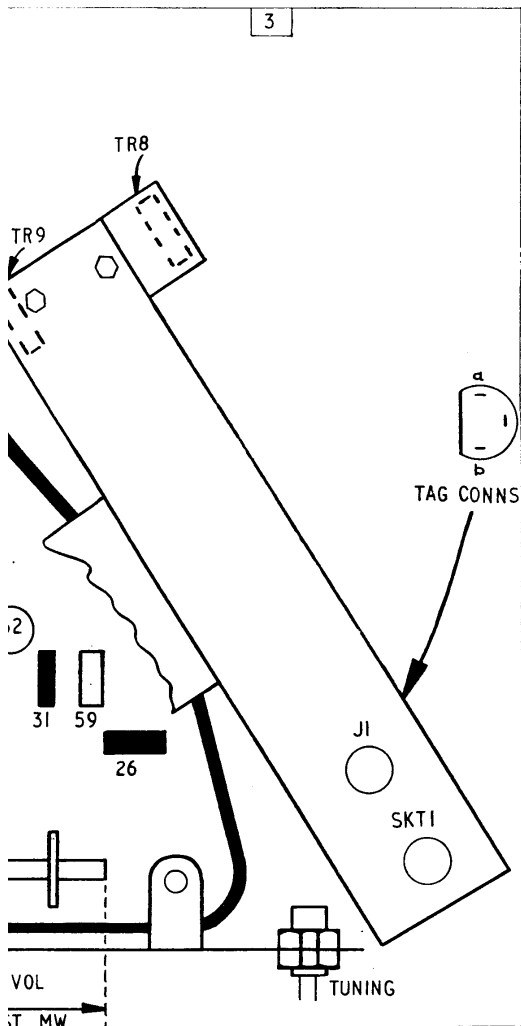
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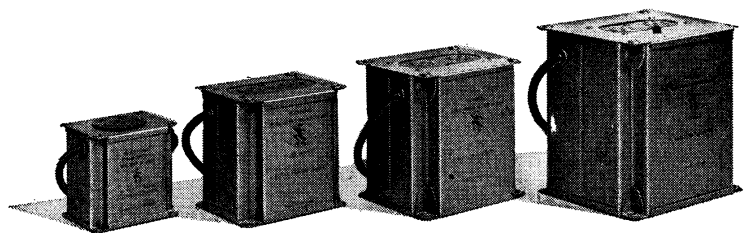
AP434

about 1/4 in. All other cores tune to inner position when more than one peak.

FM RF. Fully close gang. Unsolder lead from telescopic aerial and connect generator output between this lead and earth line. Tune receiver to 96mc/s. Inject 96mc/s. Adjust C11 and C7 for maximum output. Set cursor to 88mc/s. Inject 88mc/s. Adjust L4 and L2 for maximum output. Repeat for optimum results. While tuned to RF signal check L5 tuning for maximum output.



AUTO TRANSFORMERS



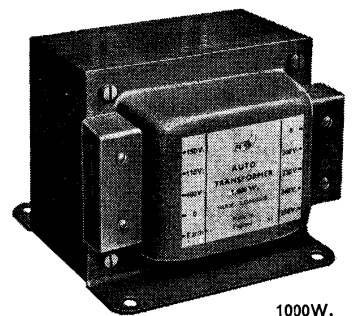
50W.

100W. & 150W.

250W.

500W.

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