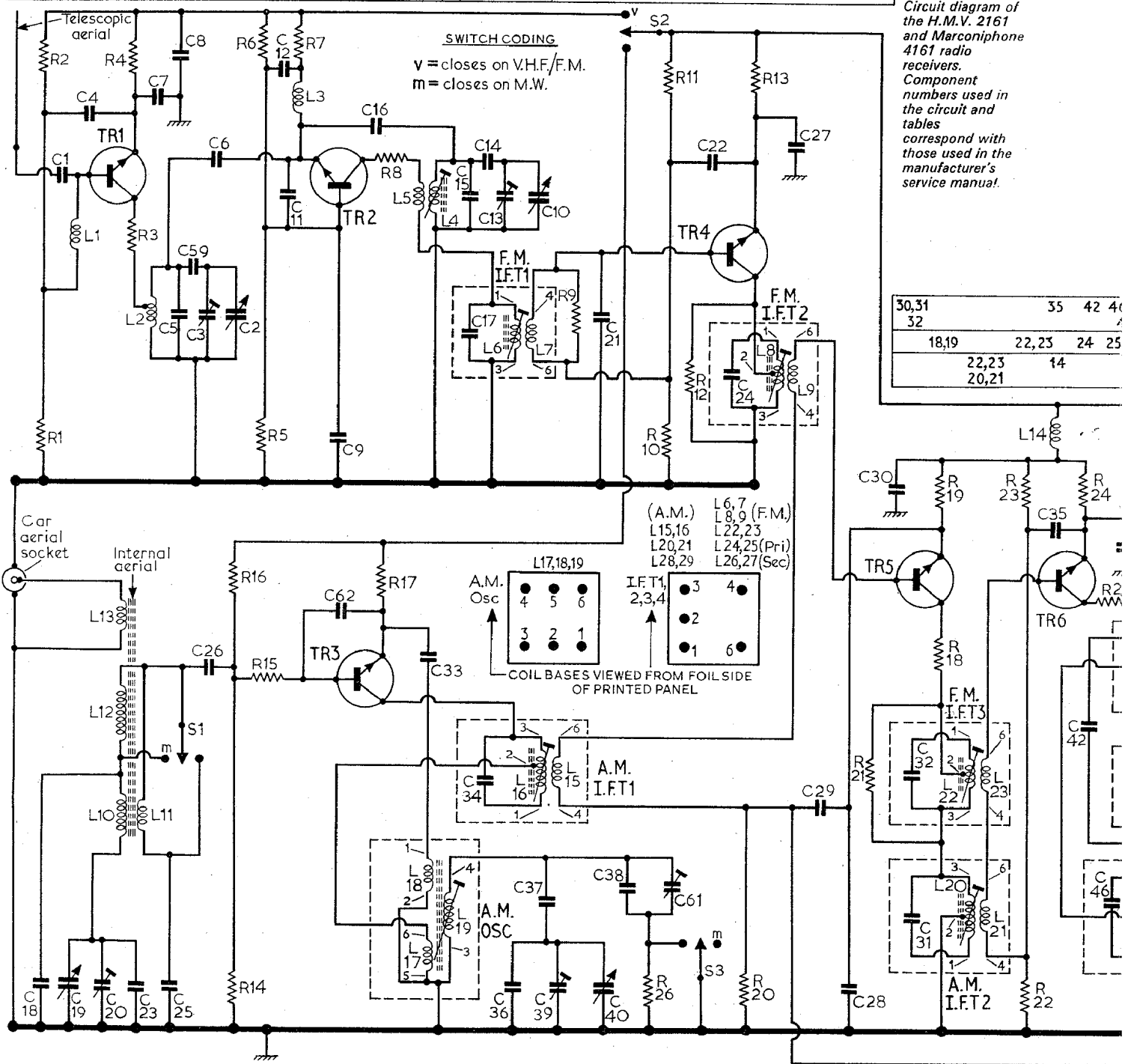


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C	1	4	7	8,5	3,6,2	12	9	16	15,14,13	10	21	22,24	27
R	1,2	3,4	16,14,5,6,15,7	17,8	5,4	6,7	26,10,11,12	20,13	29	28			
L	1	10,11,2	12,13	3	17,18,19	15,16	8,9						



Circuit diagram of the H.M.V. 2161 and Marconiphone 4161 radio receivers. Component numbers used in the circuit and tables correspond with those used in the manufacturer's service manual.

30,31	35	42	43
32			
18,19	22,23	24	25
22,23	14		
20,21			

Transistor table

Transistor	A.M. Emitter (V)	Base (V)	Collector (V)	F.M. Emitter (V)	Base (V)	Collector (V)
TR1 BF195	—	—	—	1.7	2.3	6.6
TR2 BF195	—	—	—	1.1	1.6	6.7
TR3 BF195	0.9	—	7.2	—	—	—
TR4 BF194	0.93	1.5	6.8	0.93	1.5	6.8
TR5 BF194	0.7	0.9	6.4	0.65	1.0	6.5
TR6 BF194	1.25	1.6	5.7	0.98	1.55	5.5
TR7 BC148	5.3	6.2	8.3	5.3	6.2	8.3
TR8 2N3702	9.0	8.3	4.8	9.0	8.3	4.8
TR9 AC186	4.7*	4.8	9.0	4.7*	4.8	9.0
TR10 AC131	4.7*	4.7	0	4.7*	4.7	0

* Measured at the junction R43/R44.

Potential difference across R38: A.m. 1.95V; F.m. 2.25V.

A.m. oscillator volts (r.m.s.), measured at the emitter of TR3 with an electronic voltmeter:

M.w. 105-110mV; I.w. 205-268mV.

Quiescent current approximately 13mA.

Resistors

R1	12kΩ	C1
R2	6.8kΩ	C1
R3	68Ω	C1
R4	1.5kΩ	C2
R5	18kΩ	C2
R6	6.8kΩ	C2
R7	1kΩ	C2
R8	68Ω	C2
R9	100Ω	C2
R10	22kΩ	C2
R11	6.8kΩ	C2
R12	6.8kΩ	B2
R13	1kΩ	C2
R14	5.6kΩ	B2
R15	100Ω	B2
R16	1.5kΩ	B2
R17	1kΩ	B2
R18	470Ω	B2
R19	1kΩ	B2

R20	100kΩ	B2
R21	6.8kΩ	B2
R22	18kΩ	B2
R23	6.8kΩ	B2
R24	1kΩ	B2
R25	1kΩ	B2
R26	68kΩ	B2
R27	330Ω	A2
R28	12kΩ	B2
R29	5.6kΩ	A2
R30	5.6kΩ	A2
R31	5.6kΩ	B2
R32	100Ω	A2
R33	12kΩ	B2
R34	18kΩ	B2
R35	20kΩ	B1
R36	8.2kΩ	B1
R37	68kΩ	B1
R38	330Ω	B1
R39	1.5kΩ	B2
R40	4.7Ω	A1

R41	2.2kΩ	B1
R42	1kΩ	B2
R43	2.2Ω	B1
R44	2.2Ω	B1
R45	100Ω	B2

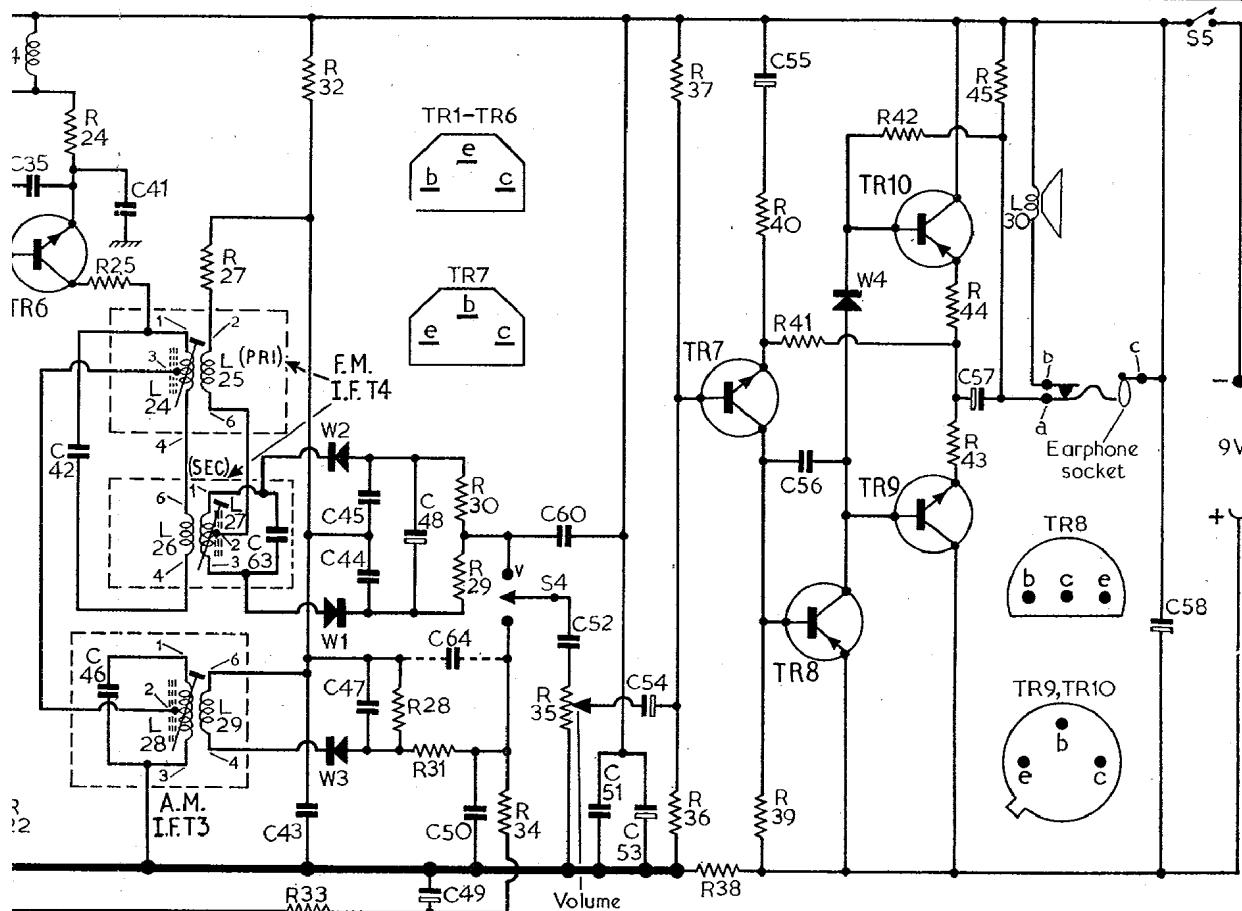
Capacitors

C1	30pF	C1
C2	20pF	C2
C3	5pF	C2
C4	510pF	C1
C5	9pF	C1
C6	3.3pF	C1
C7	1,000pF	C1
C8	0.02μF	C2
C9	1,000pF	C2
C10	20pF	C2
C11	20pF	C2
C12	510pF	C2
C13	5pF	C2

C14	47pF	C2
C15	9pF	C2
C16	3.3pF	C2
C17	50pF	C2
C18	60pF	C1
C19	266pF	C2
C20	5pF	C2
C21	510pF	C2
C22	0.02μF	C2
C23	9pF	C2
C24	50pF	C2
C25	2,000pF	C1
C26	0.02μF	B2
C27	0.02μF	B2
C28	0.02μF	B2
C29	0.02μF	B2
C30	510pF	B2
C31	180pF	B2
C32	50pF	B2
C33	0.01μF	B2
C34	180pF	B2

C35	0.02μF	B2
C36	7pF	C2
C37	230pF	C2
C38	210pF	C2
C39	5pF	C2
C40	266pF	C2
C41	0.02μF	B2
C42	30pF	B2
C43	0.02μF	B2
C44	510pF	A2
C45	510pF	A2
C46	180pF	B2
C47	0.02μF	B2
C48	8μF	A2
C49	2μF	B2
C50	0.02μF	B2
C51	1,000pF	B1
C52	0.1μF	B1
C53	75μF	A1
C54	2μF	B1
C55	150μF	A1

42	46	63	44,45	64	60	54	55	56	57	58	C
24	25	27	52,53	28	31,29,30,34	35	36,37,38	39,40,41	42	43,44,45	R
		24,26,28								30	L
		25,27,29									



C56	1,000pF	B2
C57	150μF	B1
C58	150μF	B1
C59	47pF	C1
C60	0.02μF	A1
C61	25pF	B2
C62	60pF	B2
C63	90pF	A2
C64†	0.02μF	A2

Coils and transformers*

L1	—	C1
L2	—	C1
L3	—	C2
L4	—	C2
L5	—	C2
L6	—	C2
L7	—	C2
L8	—	B2
L9	—	B2
L10	3.5Ω	B1
L11	—	B1
L12	10Ω	C1
L13	2Ω	C1
L14	—	B2
L15	—	B2
L16	7Ω	B2
L17	—	B2
L18	—	B2
L19	3Ω	B2

Miscellaneous

W1†	OA90	A2
W2†	OA90	A2
W3†	OA90	B2
W4**	ANK	B1
S1-S4	—	B1
S5	—	B1

* Approximate d.c. resistance in ohms.
† May be fitted in some receivers.
‡ These diodes may be type AA112.
†† Loudspeaker.
** See under "General notes".

Circuit alignment

Equipment required. — An r.f. signal generator covering the range 100kc/s-150Mc/s capable of being amplitude modulated 30 per cent and frequency modulated 25kc/s deviation; an audio output meter of 15Ω impedance, to be used in place of loudspeaker, or a model 8 Avometer set to the 10V a.c. range, connected in parallel with the loudspeaker; one 0.1μF capacitor and an r.f. coupling coil.

In order to avoid alignment error due to a.g.c. action, the input signal level to the receiver should be attenuated to maintain an audio output power of approximately 50mW with the volume control set at maximum.

1. — Switch on signal generator and allow 15 minutes to warm up. Connect, in the appropriate manner, the output meter to be used, rotate tuning gang to maximum capacitance and connect signal generator output via a 0.1μF capacitor to the junction **L10/C19**.
2. — Switch receiver to m.w., feed in a 475kc/s a.m. signal and adjust **L28/29**, **L20/21** and **L15/16** in that order for maximum output. Repeat in same order until no further improvement is obtainable.

Note: M.w. must be aligned first.

3. — Transfer signal generator output to r.f. coupling coil and loosely couple coil to receiver ferrite rod aerial assembly. Tune receiver to centre of 500m scale calibration and feed in a 600kc/s a.m. signal. Adjust **L17** and the position of **L10** on ferrite rod for maximum output.

4. — Tune receiver to centre of 200m scale calibration and feed in a 1,500kc/s a.m. signal. Adjust **C39** and **C20** for maximum output.

5. — Switch receiver to l.w., tune to centre of 1,500m scale calibration and feed in a 200kc/s a.m. signal. Adjust **C61** and the position of **L12** on the ferrite rod.

6. — Repeat operations 3-5 as necessary for maximum output and accurate calibration.

7. — Switch receiver to v.h.f./f.m., and feed in a 10.7Mc/s f.m. signal (25kc/s deviation) via a 0.1μF capacitor to junction of **R8/L5**. Adjust **L24/25**, **L22/23** and **L8/9** for maximum output.

8. — Switch signal generator to a.m. (30 per cent modulation) and adjust **L26/27** for minimum output (a.m. rejection).

9. — Repeat operations 7 and 8 for maximum f.m. output and minimum a.m. output until no further improvement is obtainable.

10. — Switch signal generator to f.m., transfer signal input to junction of **R7/C12** and adjust **L6/7** for maximum output.

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11. – Disconnect lead to telescopic aerial and feed in f.m. signals via this lead. Tune receiver to 'A' in 'Athlone' as marked on tuning scale. Feed in an 88Mc/s f.m. signal and adjust **L4** and the spacing between turns of coil **L2**.

12. – Tune receiver to 96Mc/s scale calibration and feed in a 96Mc/s f.m. signal. Adjust **C13** and **C3** for maximum output.

13.—Repeat operations 11 and 12 in same order until no further improvement is obtainable.

Transistor analysis

Transistor voltages quoted in the table were obtained from information supplied by the manufacturers. They were measured under quiescent conditions on a 20,000 Ω /V meter and are all positive with respect to the negative supply line of each transistor except where otherwise shown.