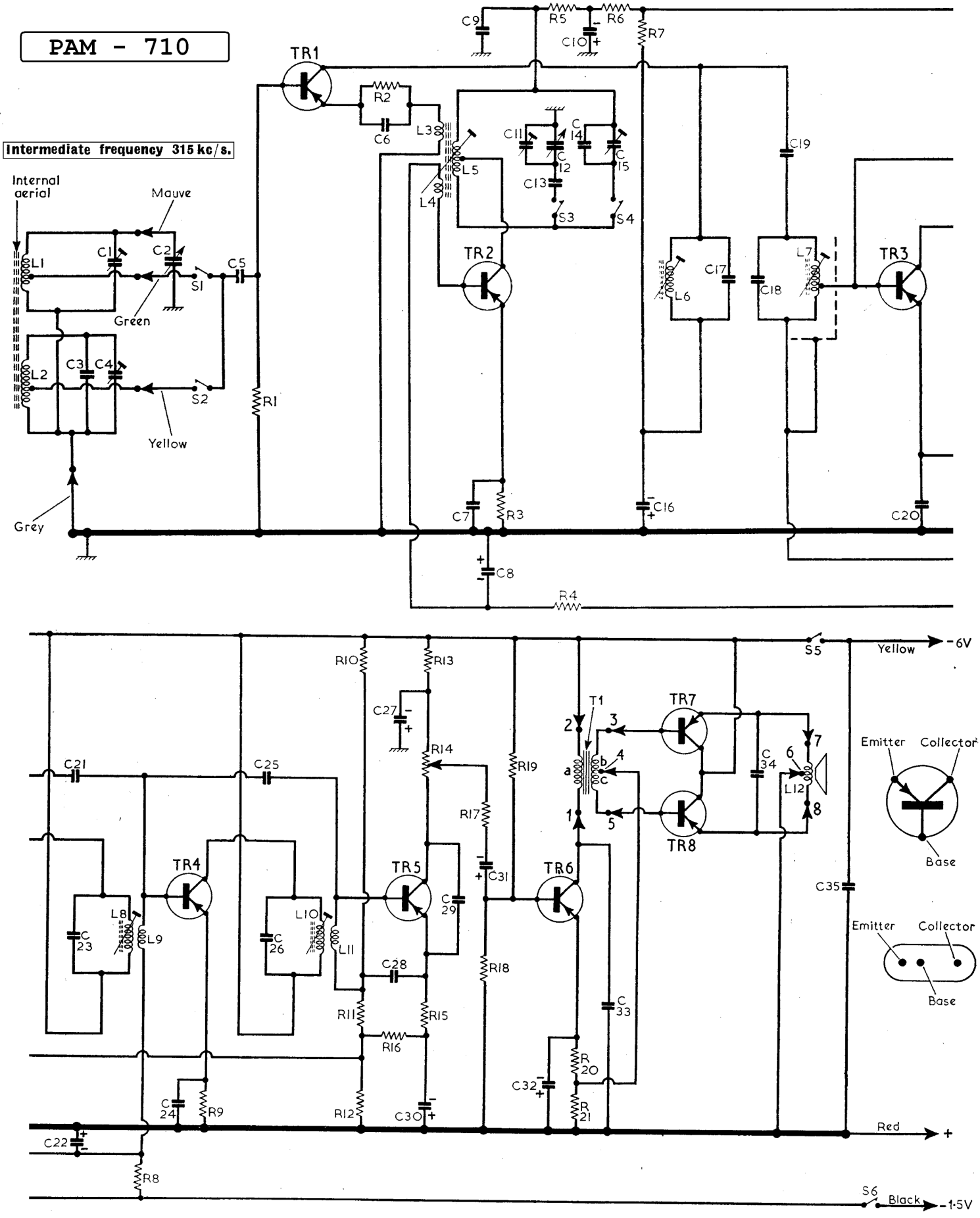
PAM - 710

Intermediate frequency 315 kc/s.



CAPACITORS		Values	Locations
C1	M.W. aerial trim	50pF	A2
C2	M.W. aerial tuning	523pF	A1
C3	L.W. tuning ...	270pF	A2
C4		50pF	A2
C5	TR1 base coupling	0·01μF	B2
C6	TR1 bias decoup.	0·01μF	B2
C7	TR2 bias decoup-	0·005μF	A2
C8	lings	50μF	A2
C9	H.T. decoupling ...	0·04μF	A1
C10		50μF	A1
C11	M.W. osc. trim. ...	35pF	A1
C12	M.W. osc. tuning...	523pF	A1
C13	M.W. osc. tracker	790pF	A2
C14	L.W. osc. tuning	895pF	B2
C15		50pF	C2
C16	H.T. decoupling ...	25μF	B1
C17	I.F. tuning ...	1,200pF	A2
C18		1,200pF	B2
C19	I.F. coupling ...	33pF	B2
C20	TR3 emitter decoup.	1·0μF	B2
C21[1]	TR3 neutralizing...	180pF	B2
C22	Bias decoupling ...	50μF	A2
C23	I.F.T. tuning ...	0·002μF	B2
C24	TR4 emitter decoup.	0·1μF	C2
C25[1]	TR4 neutralizing	47pF	C2
C26	I.F.T. tuning ...	0·002μF	C2
C27	H.T. decoupling ..	50μF	D1
C28	I.F. by-passes ...	0·01μF	C2
C29		0·01μF	D1
C30	TR5 emitter decoup.	25μF	D1
C31	A.F. coupling ...	5μF	D1

[1]See "Neutralizing Procedure"

CAPACITORS (*Contd.*)		Values	Locations
C32	TR6 emitter decoup.	50μF	D2
C33	Tone correctors ...	0·002μF	D2
C34		0·5μF	C2
C35	Battery by-pass ...	1·0μF	C1

RESISTORS		Values	Locations
R1	TR1 base return ...	22kΩ	B2
R2	TR1 bias	27Ω	B2
R3	TR2 bias	2·2kΩ	A2
R4	Bias decoupling ...	2·7kΩ	A2
R5	H.T. feeds... ...	100Ω	A2
R6		2·7kΩ	A2
R7		1kΩ	A1
R8	Bias decoupling ...	1kΩ	A2
R9	TR4 bias	2·7kΩ	C2
R10	Bias potential divider	33kΩ	D2
R11		2·2kΩ	D2
R12		2·7kΩ	B1
R13	H.T. feed	1kΩ	D2
R14	TR5 load V.C. ...	3kΩ	D1
R15	TR5 bias	390Ω	D2
R16		330Ω	D2
R17	Tone corrector ...	470Ω	D1
R18	TR6 bias potential divider	10kΩ	D2
R19		33kΩ	D2
R20	TR6, TR7, TR8 bias resistors	33Ω	D2
R21		33Ω	C2

OTHER COMPONENTS			Approx. Values (ohms)	Locations
L1	M.W. aerial coil ...		0·5	A2
L2	L.W. aerial coil ...		3·0	A2
L3	Osc. coupling coil		—	A2
L4	Osc. reaction coil...		—	A2
L5	Osc. tuning coil ...		3·0[1]	A2
L6	1st I.F.T. ...	Pri.	3·0	B2
L7		Sec.	1·4[2]	B1
L8	2nd I.F.T....	Pri.	1·2	C1
L9		Sec.	0·2	C1
L10	3rd I.F.T. ...	Pri.	1·2	C2
L11		Sec.	0·5	C2
L12	Speech coil ...		110·0[3]	C2
T1	Driver trans.	a	80·0	C1
		b	180·0	
		c	180·0	
S1-S4	Band switches ...		—	B1
S5, S6	Batt. sw., g'd R14		—	D2

[1]*Tapped at* 1·5Ω.
[2]*Tapped at* 0·2Ω *from* C22.
[3]*Tapped at* 55Ω.

CIRCUIT ALIGNMENT

1.—Remove chassis from carrying case (see instructions under "Dismantling") leaving the battery leads connected.
2.—Connect output of signal generator between chassis and junction of **S1, C5.**
3.—Switch receiver to M.W. and turn gang to maximum capacitance.
4.—Feed in a 315kc/s signal and adjust the cores of **L10** (C2), **L8** (C1), **L7** (B1) and **L6** (B1) for maximum output. Repeat these adjustments until no further improvement results.
5.—Tune receiver to 500m, feed in a 600 kc/s signal and adjust the core of **L5** (A2) for maximum output.
6.—Tune receiver to 200m, feed in a 1,500 kc/s signal and adjust **C11** (A1) for maximum output. Repeat this adjustment and operation 5 until calibration is correct.
7.—Connect 10,000 ohms-per-volt meter, switched to 10V range, between **TR5** collector and chassis. Switch receiver to L.W. and adjust **C15** (C2) on the L.W. Light programme for minimum reading on meter. Disconnect meter and signal generator, replace chassis in cabinet and place back cover in position.
8.—Lay the signal generator output leads close to the ferrite rod internal aerial, tune receiver to 200m, feed in a 1,500 kc/s signal and adjust **C1** for maximum output. This trimmer is accessible through right-hand side hole in base of carrying case, viewing case from rear.
9.—Connect 10,000 ohms-per-volt meter, switched to 10V range, between **TR5** collector and chassis. Switch receiver to L.W. and while receiving L.W. Light programme, adjust **C4** for minimum reading on meter. This trimmer is accessible through left-hand side hole in base of carrying case, viewing case from rear.
10.—If the internal aerial has been replaced, the inductance of **L1** should be adjusted as follows. Open back cover sufficiently to give access to **L1.** Lay signal generator leads near the ferrite rod internal aerial. Tune receiver to 500m, feed in a 600 kc/s signal and adjust the position of the turns of **L1** nearest the end of the rod for maximum output. Close back cover.
11.—Repeat operations 8 and 10 until calibration is correct. Seal the end turns of **L1** with polystyrene dope, and then adjust **C4** as explained in operation 9.

NEUTRALIZING PROCEDURE

If **TR4** is replaced, carry out neutralizing adjustments 1-5 below. If **TR3** is replaced, carry out adjustments 6-9 in the next column. Apparatus required for these adjustments comprises a 0-20mV valve voltmeter, a signal generator, and two 0.1μF capacitors.

2nd I.F. Amplifier

1.—Connect valve voltmeter between chassis and **TR4** base.
2.—Connect output of signal generator, via one 0.1μF capacitor in the live lead, between chassis and **TR4** collector, and connect the second 0.1μF capacitor between chassis and **TR1** emitter.
4.—Adjust the signal generator to give an output of approximately 400mV at 315 kc/s.
5.—Disconnect **C25** (location reference C2), and connect in its place, in turn, the following capacitors : 39pF, 47pF, 56pF and 68pF, noting the readings on the valve voltmeter. Select the capacitor which gives the lowest meter reading and connect it in circuit. If two capacitors are found to give similar meter readings, the one having the lower capacitance should be used. Disconnect valve voltmeter and signal generator.

1st I.F. Amplifier

6.—Connect valve voltmeter between chassis and **TR3** base.
7.—Connect signal generator, via the 0.1μF capacitor, between chassis and **TR3** collector.
8.—With the second 0.1μF capacitor connected between chassis and **TR1** emitter, feed in a 400 mV, 315 kc/s signal.
9.—Disconnect **C21** (B2), and connect in its place, in turn, the following capacitors : 120pF, 150pF, 180pF and 220pF, noting the readings on the valve voltmeter. Select the capacitor which gives the lowest meter reading and connect it in circuit. If two capacitors are found to give similar meter readings, the one having the lower capacitance should be used. Disconnect valve voltmeter, signal generator and 0.1μF capacitors.

Transistor	Emitter (V)	Base (V)	Collector V	Collector mA
TR1 V6/R3M ...	—	—	5.7	0·35
TR2 V6/R3 ...	1·6	1·35	4·1	0·7
TR3 V6/R3 ...	1·35	1·45	6·0	0·22
TR4 V6/R2 ...	1·3	1·45	6·0	0·5
TR5 V6/R2 ...	1·4	1·55	5·2	0·16
TR6 V10/30A ...	0·4	0·6	5·4	6·0
TR7 V10/30A ...	0·1	0·2	6·0	0·6
TR8 V10/30A ...	0·1	0·2	6·0	0·6

PAM - 710