

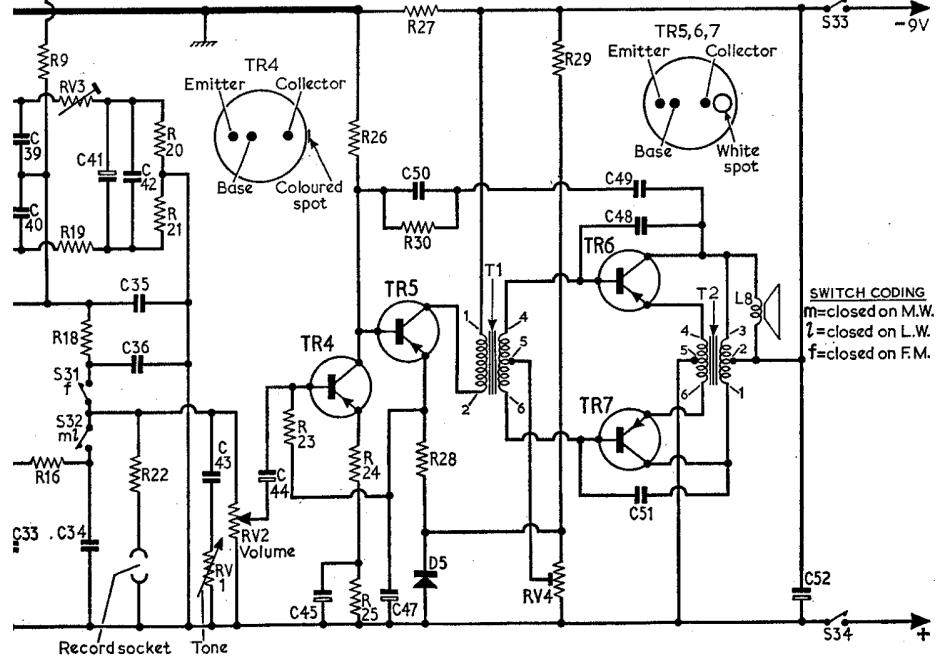
Transistor Table

Transistor	Emitter (V)	Base (V)	Collector (V)
TR1 AF116	1.0	1.2	7.0
TR2 AF116	0.68	0.84	7.0
TR3 AF116	1.1	1.4	6.5
TR4 OC71	0.73	0.8	1.1
TR5 OC81D	0.95	1.1	8.4
TR6 OC81	—	0.13	9.0
TR7 OC81	—	0.13	9.0
TR101 AF102	1.0	1.32	6.75*
TR102 AF115	1.75†	2.0	6.75‡

* Measured at the junction L102, R103, C104.

[†] Measured at the junction L103, R104, C108.
[‡] Measured at the junction R109 EM/ETI

Measured at the junction R109, FM/IFTI



CIRCUIT ALIGNMENT

Equipment Required.—A signal generator covering the ranges 150kc/s-1,620kc/s, 10Mc/s-11Mc/s, and 87Mc/s-110Mc/s capable of being modulated with a.m. and f.m.; a wobbulator, if the signal generator is not provided with "sweeping" circuits; an oscilloscope; an audio output meter with an impedance to match 15Ω ; a dummy car aerial made up as shown in the diagram in col. 3 and an r.f. coupling coil.

During alignment the volume control should be set at maximum and the tone control for minimum treble cut. The input level from the signal generator should be regulated so that the receiver output is approximately 50mW, to prevent a.g.c. action.

Resistors	Capacitors	C44	2μF	E3	L3	—	B1
R3 8.2kΩ A1	C1 3,300pF A1	C45 12.5μF	E3	L4 1-6	27.0	C1	
R4 6.8kΩ E2	C2 0.1μF B1	C46 320μF	F2	L5 1-6	4.2	C1	
R5 1kΩ E2	C6 0.1μF A1	C47 125μF	F3	L6 1-6	8.0	B1	
R6 33kΩ E2	C7 0.1μF A1	C48 4,700pF	F2	L7 1-6	3.3	B1	
R7 56kΩ E2	C8 0.1μF A1	C49 0.047μF	F2	L8	15.0	—	
R8 1kΩ D2	C9 0.22μF B1	C50 56pF	F3	L101	—	G4	
R9 220kΩ D2	C10 30pF B1	C51 4,700pF	F3	L102	—	G4	
R10 18kΩ D2	C11 145pF B1	C52 320μF	F2	L103	—	G4	
R11 680Ω E2	C12 330pF B1	C53 2.2pF	D3	L104	—	G4	
R12 47kΩ E2	C13 0.1μF E2	C101 25pF	G4	AM/IFT1	—	—	
R13 220Ω E3	C14 0.01μF F2	C102 1,200pF	G4	pri.	6.7	E2	
R14 470Ω E3	C15 165pF E2	C103 1,200pF	G4	sec.	—	—	
R15 8.2kΩ E3	C16 165pF E2	C104 1,200pF	G4	AM/IFT2	—	—	
R16 330Ω E3	C17 2,200pF E2	C105 5.6pF	G4	pri.	6.7	E3	
R17 47Ω D3	C18 250pF E2	C106 6.8pF	G4	sec.	—	—	
R18 2.2kΩ D2	C19 2,200pF E2	C107 4.7pF	G4	AM/IFT3	—	—	
R19 1kΩ D2	C20 0.1μF F2	C108 280pF	G4	pri.	5.5	E3	
R20 6.8kΩ D2	C21 12.5μF E2	C109 10pF	G4	sec.	—	—	
R21 6.8kΩ D2	C22 1,200pF D2	C110 1,200pF	G4	FM/IFT1	—	G4	
R22 47kΩ D3	C23 165pF D2	C111 18pF	G4	FM/IFT2	—	E2	
R23 39kΩ E3	C24 165pF D2	C112 10pF	G4	FM/IFT3	—	D3	
R24 68Ω E3	C25 250pF E3	C113 68pF	G4	FM/IFT4	—	D3	
R25 2.7kΩ E3	C26 2,200pF E3	C114 1,200pF	G4	T1 pri. 204.0	—	—	
R26 22kΩ E3	C27 0.1μF E2	C115 0.1μF	G4	sec. 190.0	—	F3	
R27 180Ω F3	C28 0.047μF E2	C116 220pF	G4	T2 pri. 3.2	—	—	
R28 270Ω F3	C29 0.022μF E3	C117 1,200pF	G4	sec. 2.2	—	F3	
R29 2.7kΩ F3	C30 0.1μF D3	CT1 40pF	C1	—	—	—	
R30 120kΩ F3	C31 12.5μF D2	CT2 40pF	C1	—	—	—	
R101 680Ω G4	C32 250pF E3	CT3 40pF	C1	D1 OA79	D2		
R102 33kΩ G4	C33 0.03μF E3	CT4 40pF	C1	D2 OA91	E3		
R103 180Ω G4	C34 0.02μF E3	CT5 40pF	B1	D3 OA70	D2		
R104 1kΩ G4	C35 330pF D3	CT6 40pF	B1	D4 OA70	D2		
R105 8.2kΩ G4	C36 4,700pF D2	CT101 6pF	A1	D5 AA129	F3		
R106 3.3kΩ G4	C37 165pF D3	CT102 6pF	B1	D101 OA91	G4		
R107 390kΩ G4	C38 56pF D3	CV1 326pF	A1	D102 BA110	G4		
R109 150Ω G4	C39 330pF D3	CV2 326pF	A1	D103 OA91	G4		
RV1 20kΩ D2	C40 330pF D2	—	—	—	—	—	
RV2 10kΩ D3	C41 12.5μF D2	—	—	—	—	—	
KV3 1.5kΩ D2	C42 1,200pF D2	—	—	—	—	—	
KV4 200Ω F3	C43 0.15μF E3	—	—	—	—	—	

level from the signal generator should be regulated so that the receiver output is approximately 50mW, to prevent a.g.c. action.

A.M. Circuits

- Switch receiver to m.w. and turn the tuning gang to the fully meshed position. Check that the cursor coincides with the zero mark on the logging scale. Connect the signal generator between chassis and the i.f. input tag on the i.f. panel after removing the input lead from the r.f. panel i.e. between chassis and the switch side of C14. Connect the audio output meter across the loud-speaker tags.
- Feed in a 468kc/s 30 per cent modulated a.m. signal and adjust the cores of AM/IFT1, 2 and 3 for maximum output.
- Connect the signal generator to the r.f. coupling coil and loosely couple the coil to the receiver by placing it adjacent to, and coaxial with, the ferrite rod aerial. Switch receiver to l.w. and the aerial switch to "Int." Tune receiver to 165kc/s.
- Feed in a 165kc/s 30 per cent modulated signal and adjust L6 and L2 for maximum output.
- Connect the signal generator to the external aerial socket via the dummy car aerial and set the aerial switch to "Ext". Adjust the core of L4 for maximum output.
- Re-connect the signal generator to the r.f. coupling coil and set the aerial switch to "Int". Tune receiver to 370kc/s and feed in a 370kc/s signal. Adjust CT5 and CT1 for maximum output.
- Switch to "Ext" and transfer the signal generator via the dummy aerial to the external aerial socket. Adjust CT3 for maximum output.
- Repeat operations 3-7 until there is no further improvement, always finishing with the adjustment at 370kc/s.
- Switch receiver to m.w. and the aerial switch to "Int". Couple the signal generator via the r.f. coupling coil. Tune receiver to 600kc/s and feed in a 600kc/s signal. Adjust L7 and L3 for maximum output.
- Switch to "Ext" and transfer the signal generator via the dummy aerial to the external aerial socket. Adjust L5 for maximum output.

- Switch to "Int" and re-connect the signal generator to the r.f. coupling coil. Tune

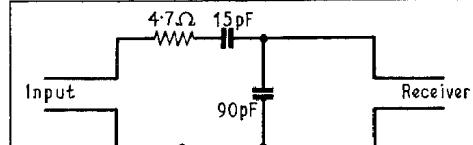


Diagram of the aerial matching pad. If the car aerial lead capacitance varies considerably from a nominal value of 90pF, the 90pF capacitor in the pad should be replaced accordingly.

receiver to 1,300kc/s and feed in a 1,300kc/s signal. Adjust CT6 and CT2 for maximum output.

- Connect the signal generator as in operation 10 and adjust CT4 for maximum output.

- Repeat operations 9-12 until there is no further improvement, always finishing with the adjustment at 1,300kc/s.

F.M. Circuits

- Switch receiver to f.m. and connect the sweep generator between chassis and the i.f. input tag on the i.f. panel after removing the input lead from the r.f. panel. Connect the oscilloscope between chassis and the junction R18, C36.
- Feed in a sweep signal centred on 10.7 Mc/s and adjust the cores of FM/IFT2, 3 and 4 for maximum output and response which conforms in shape to the curve shown in fig. 1.
- Increase the input signal level by approximately 20dB, reducing the oscilloscope sensitivity accordingly. Switch a 30 per cent modulated a.m. signal on to the swept signal and adjust RV3 for minimum a.m. output at the centre point of the response.
- With the tuning gang fully open, adjust the pulley assembly on the side of the f.m. tuner until the return spring just starts to move back i.e. until there is no slack in the f.m. drive cord. Switch the a.f.c. to "Out". Connect the f.m. signal generator to the external aerial socket.

- Tune receiver to 88Mc/s and feed in an 88Mc/s f.m. signal. Adjust CT102 for maximum output.

- Tune receiver to 95Mc/s and feed in a 95Mc/s signal. Adjust CT101 and both cores of FM/IFT1 for maximum output.

- Repeat operations 5 and 6 until there is no further improvement.

- Feed in a sweep frequency signal at the aerial socket and readjust both cores of AM/IFT1 for a response which conforms to the curve given in fig. 2.

I.F. Response Curves

