



RGD - RR221

TRANSISTOR ANALYSIS

Transistor voltages given in the table Col. 1 were taken from information supplied by the manufacturers. They were measured on a 20,000Ω/V meter and are negative with respect to battery positive.

Transistor Table

Transistor	Emitter (V)	Base (V)	Collector (V)
TXm1	AF117	0.87	0.97
TXk1	AF117	1.58	1.66
TXk2	OC70	—	4.15
TXa1	AC127	4.15	0.6
TXa2	AC128	0.45	4.5
TXa3	AC128	4.7†	9.0
TXa4	AC127	4.7†	0

† Measured at the junction of Ra12 and Ra13.
Quiescent current 15mA.

CIRCUIT ALIGNMENT

Equipment Required.—An a.m. signal generator modulated 30 per cent at 1kc/s; an audio output meter with an impedance of 10Ω, or alternatively a model 8 Avometer set to its 10V a.c. range; a screened test coil (85 turns of enamel covered wire on a 2in diameter former); a 0.1μF capacitor; an oscilloscope; an a.f. signal generator and a 100kΩ resistor.

Before starting the alignment procedure it is advisable to check the output balance as described in the following paragraph.

Output Balance Adjustment.—Set the slider of Ra4 to the centre of its travel, connect the output meter and oscilloscope to the receiver output and disconnect loudspeaker (if using a model 8 Avometer, leave the loudspeaker in circuit).

With the volume control at maximum, feed in a 1kc/s sine wave from the a.f. signal generator via the 100kΩ resistor to the slider of the volume control R1.

Resistors			
R1	20kΩ	D4	
Rm1	1kΩ	C3	
Rm2	39kΩ	C3	
Rm3	6.8kΩ	C3	
Rm4	1kΩ	C3	
Rk1	680Ω	A1	
Rk2	12kΩ	A1	
Rk3	15kΩ	A1	
Rk4	15kΩ	A1	
Rk5	100Ω	B1	
Rk6	330Ω	B1	
Rk7	4.7kΩ	B1	
Rk8	820Ω	B1	
Rk9	47kΩ	B1	
Rk10	100Ω	B1	
Rk11	100Ω	B1	
Rk12	270Ω	B1	
Rk13	18kΩ	B1	
Ra1	10kΩ	A2	
Ra2	180Ω	A2	
Ra3	12kΩ	A2	
Ra4	10kΩ	A2	
Ra5	10kΩ	A2	
Ra6	10Ω	A2	
Ra7	1kΩ	A2	
Ra8	1kΩ	B2	
Ra9	68Ω	B2	
Ra10	47Ω	B2	
Ra11	620Ω	B2	
Ra12	2.2Ω	B2	
Ra13	2.2Ω	B2	
Ra14	390Ω	A2	
Capacitors			
C1	166pF	D4	
C2	166pF	D4	
Cm1	49pF	C3	
Cm2	35pF	C3	
Cm3	23pF	C3	
Cm4	175pF	C3	
Cm5	23pF	C3	
Cm6	190pF	C3	
Cm7	49pF	C3	
Cm8	0.047μF	C3	
Cm9	0.02μF	C3	
Tm1	30pF	C3	
Tm2	30pF	C3	
Ck1	0.047μF	A1	
Ck2	0.047μF	B1	
Ck3	250pF	A1	
Ck4	2.7pF	A1	
Ck5	250pF	A1	
Ck6	25μF	A1	
Ck7	0.47μF	A1	
Ck8	250pF	B1	
Ck9	2,200pF	B1	
Ck10	4,700pF	B1	
Ck11	0.22μF	B1	
Ca1	160μF	A2	
Ca2	0.22μF	A2	
Ca3	50μF	A2	
Ca4	320μF	A2	
Ca5	160μF	A2	
Ca6	1,800pF	B2	
Ca7	100μF	B2	
Ca8	320μF	B2	
Coils and Transformers*			
L1	2.8Ω	D4	
L2	11.2Ω	E4	
L3	10Ω	E4	
Lm1	—	C3	
Lm2	1.8Ω	C3	
Lk1	5.5Ω	A1	
Lk2	5.5Ω	A1	
Lk3	3.7Ω	B1	
Lk4	—	B1	
Miscellaneous			
S1-S10	—	C3	
S11	—	D4	
Dk1	CG64H	A1	

* Approximate d.c. resistance in ohms.

Lk3, Lk2 and Lk1 for maximum output. Readjust as necessary for optimum results.

- 3.—Connect the signal generator to the test coil and position the coil co-axially with the ferrite rod and 5in from the m.w. end (L1 end). Switch receiver to m.w.1. and tune to 500m. Feed in a 600kc/s signal and adjust Lm2 and L1 for maximum output.
- 4.—Switch receiver to m.w.2. and tune to 200m. Feed in a 1,500kc/s signal and adjust Tm2 and Tm1 for maximum output.
- 5.—Repeat operations 3 and 4 in the order given, for optimum results.
- 6.—Switch receiver to l.w. Feed in a 225kc/s signal and accurately tune receiver to this signal then adjust L2 for maximum output.