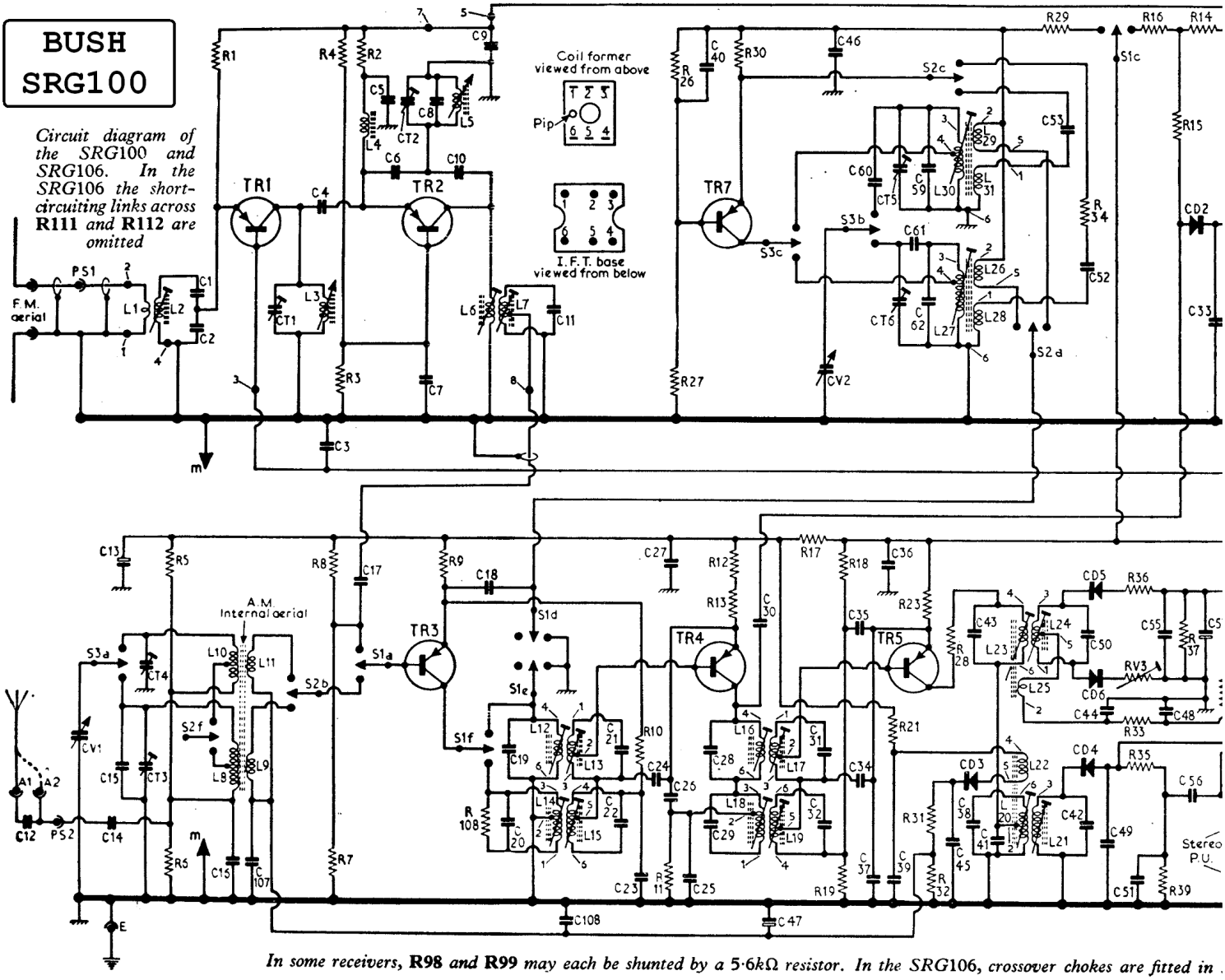
BUSH SRG100

Circuit diagram of the SRG100 and SRG106. In the SRG106 the short-circuiting links across **R111** *and* **R112** *are omitted*



In some receivers, **R98** *and* **R99** *may each be shunted by a 5·6kΩ resistor. In the SRG106, crossover chokes are fitted in .*

CIRCUIT ALIGNMENT

Equipment Required.—An a.m. signal generator covering the appropriate i.f. and r.f. ranges, modulated 30 per cent at 400c/s and capable of being switched to c.w.; a 0-5W audio output meter to match either 3Ω or 15Ω impedance; a 0-2.5V d.c. voltmeter and a 0-5μA current meter. (A model 8 Avometer would be suitable for use as both); two matched 220kΩ resistors; a 0.1μF capacitor and a non-metallic trimming tool.

Remove the chassis from the cabinet (see "Dismantling") and switch on the signal generator for a fifteen-minute warm-up period.

Disconnect the internal loudspeakers, connect the audio output meter in place of one speaker and a resistive dummy load (3Ω or 15Ω) in place of the other. Set the volume and tone controls to maximum.

During alignment the input signal level should be adjusted to maintain a receiver output of 50mW.

A.M. Circuits

The tuning peak which occurs with the core nearest the outer of the former is the correct one for the i.f. coils with the exception of **L21** (upper core) which should be adjusted to the inner peak.

1.—Switch receiver to m.w. and tune to approximately 1,000kc/s. Connect the signal generator to **TR3** base via the 0.1μF capacitor. Feed in a 470kc/s signal modulated 30 per cent at 400c/s and align **L21** (location reference G2 upper), **L20** (G2 lower), **L19** (F3 upper), **L18** (F3 lower), **L15** (F3 upper) and **L14** (F3 lower) in that order once only, for maximum audio output.

2.—Check that with the tuning gang fully closed the cursor coincides with the datum dots on the scale diffusion window. (For earlier receivers refer to the drawing in col. 9 overleaf.) Connect the signal generator to the a.m. aerial socket (sensitive).

3.—Tune receiver to 500m, feed in a 600kc/s signal and adjust **L30** (J5) for maximum output.

4.—Tune receiver to 200m, feed in a 1,500kc/s signal and adjust **CT5** (J5) for maximum output.

5.—Repeat operations 3 and 4 and check calibration.

6.—Switch receiver to l.w. and tune to 1,800m. Feed in a 166.6kc/s signal and adjust **L27** (J5) for maximum output.

7.—Tune receiver to 1,200m, feed in a 250kc/s signal and adjust **CT6** (J5) for maximum output.

8.—Repeat operations 6 and 7 and check calibration.

9.—Switch receiver to m.w. and tune to 200m. Feed in a 1,500kc/s signal and adjust **CT4** (J5) for maximum output.

10.—Tune receiver to 500m, feed in a 600kc/s signal and adjust **L10** for maximum output ensuring that the ferrite rod is positioned parallel with the i.f. printed panel. Note: This adjustment is unlikely to become necessary unless it is known that the setting has been disturbed.

11.—Repeat operations 9 and 10 for optimum gain at both points.

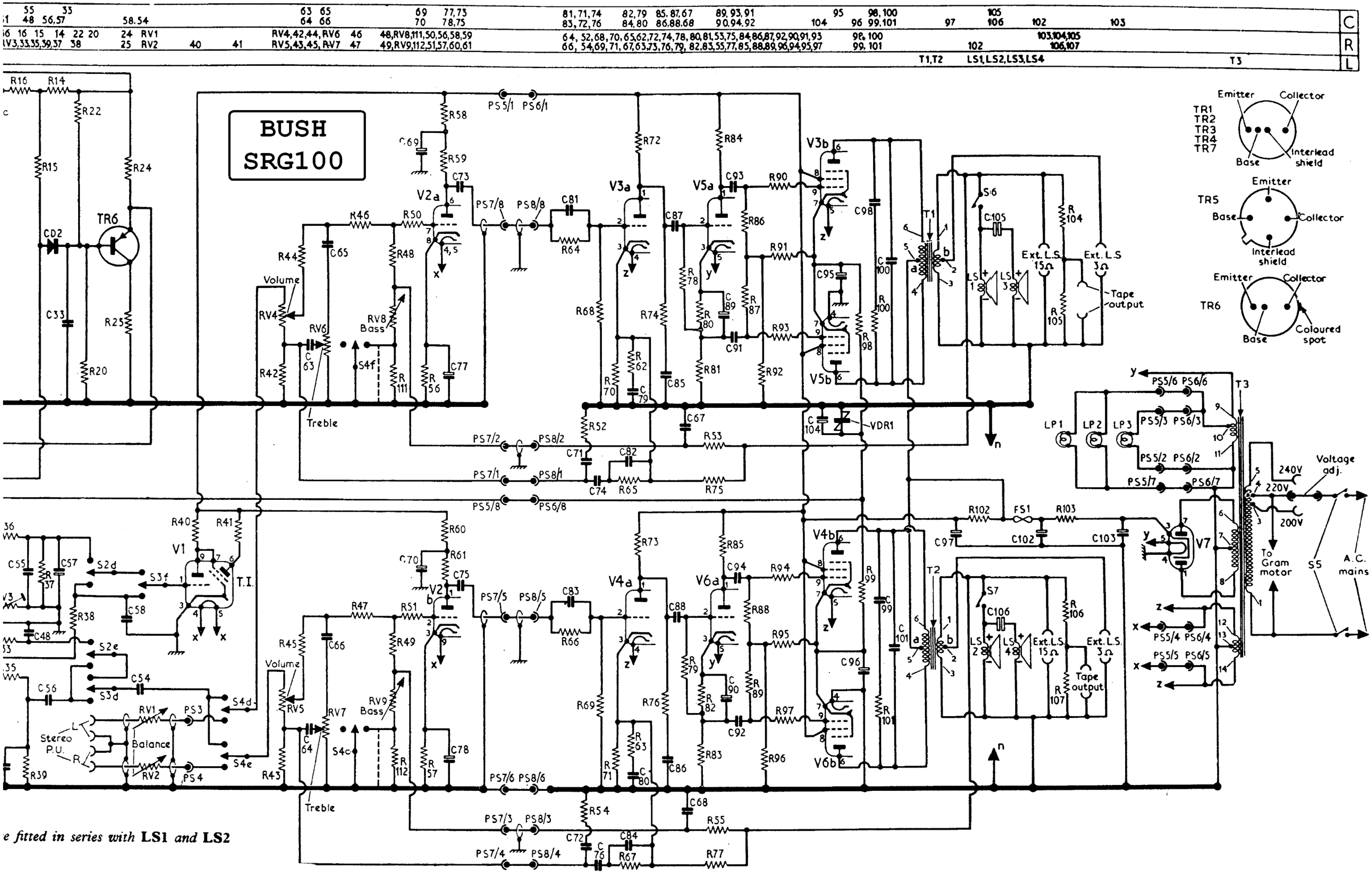
12.—Switch receiver to l.w. and tune to 1,400m. Feed in a 214kc/s signal and adjust **CT3** (J5) for maximum output. Note: The l.w. ferrite rod aerial coil **L8** is correctly positioned in production and should not be disturbed.

Final calibration is effected by moving the glass tuning scale in the appropriate direction after the receiver has been reassembled in the cabinet.

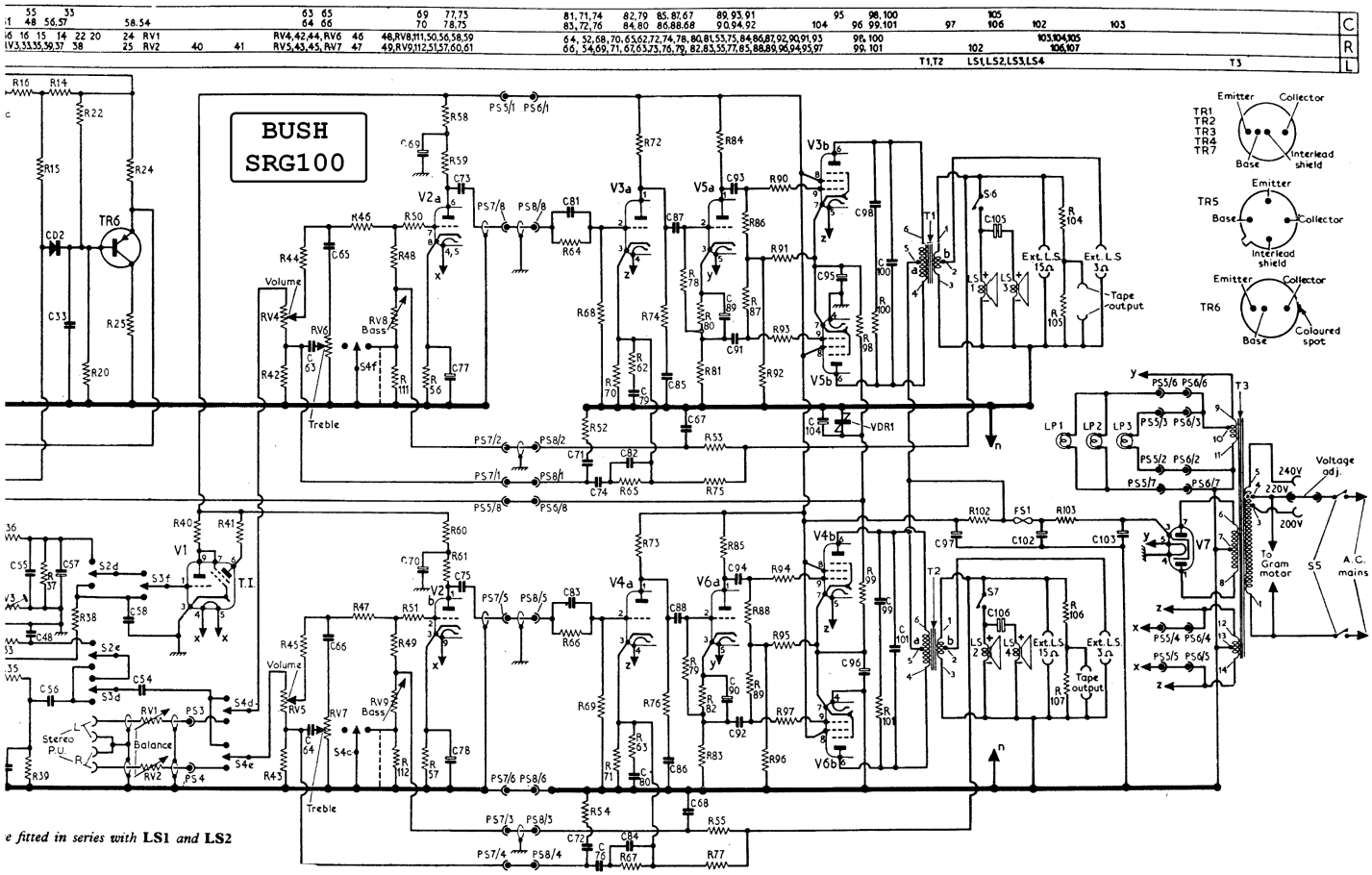
F.M. Circuits

The tuning peak which occurs with the core nearest the outer of the former is the correct one for the i.f. coils.

1.—Connect the Avometer, switched to its 2.5V d.c. range across **C57** (H3) observing polarity. During alignment the input signal level should be adjusted to maintain an output of 0.5-1V d.c. on the meter. Set **RV3** (H3) to its mid-position.



e fitted in series with **LS1** *and* **LS2**



e fitted in series with **LS1** *and* **LS2**

2.—Switch receiver to f.m. and tune to approximately 94Mc/s. Connect the signal generator via the 0.1μF capacitor to **TR3** base. Feed in a 10.7Mc/s signal 30 per cent modulated at 400c/s, and adjust **L23** (G3 lower) for maximum reading on the meter.

3.—Connect the two 220kΩ resistors in series across **C57** and connect the Avometer switched to its 5μA range between the junction of the resistors and the junction **R33**/**C48**. Adjust **L24** (G3 upper) for zero reading on the meter.

4.—Reconnect the Avometer across **C57** and adjust **L17** (G3), **L16** (G3), **L13** (F2) and **L12** (F2) for maximum meter reading.

5.—Set the volume control at maximum and adjust **RV3** for minimum audio output. Re-adjust **L23** for maximum output on the d.c. meter. Then connect the meter as in operation 3 and re-adjust **L24** for zero meter reading.

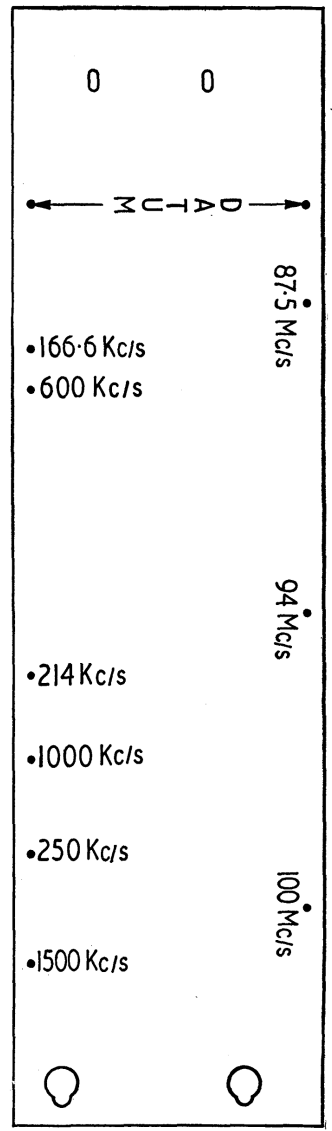
6.—Transfer the signal generator to the f.m. aerial sockets, and reconnect the Avometer across **C57**. Feed in a 10.7Mc/s unmodulated signal and adjust the cores of **L7** and **L6** (f.m. tuner unit) for maximum reading on the meter. Disconnect the 220kΩ resistors.

7.—Ensure that the screening cover of the f.m. tuner unit is securely in position. Check that the cursor coincides with the datum marks on the scale diffusion window as in A.M. Circuits operation 2.

8.—Calibration is achieved by means of a pivoted lever core adjuster (see f.m. tuner unit illustration in *Service Sheet* 1723). Set the cursor to 94Mc/s on the auxiliary tuning scale and feed in a 94Mc/s unmodulated signal at the aerial sockets. Slacken the pivoted lever locking screw and adjust the lever for maximum reading on the d.c. meter, then tighten the locking screw. This operation adjusts the cores of **L3** and **L5**.

9.—With the receiver and signal generator set as in operation 8, adjust **L2** for maximum reading on the d.c. meter. Check calibration at 87.5Mc/s and 100Mc/s. Note: R.f. trimming capacitor **CT1** and oscillator trimming capacitor **CT2** have been correctly set in production (at 94Mc/s) and it is unlikely that they will require subsequent adjustment. No procedure is given for their adjustment.

Final calibration is effected by moving the glass tuning scale in the appropriate direction after the receiver chassis has been reassembled in the cabinet.



A dummy alignment scale, reproduced full size for use when calibrating the r.f. circuits

BUSH
SRG100

COMPONENT VALUES AND LOCATIONS

Resistors

R1	560Ω	S12
R2	560Ω	S12
R3	6·8kΩ	S12
R4	1·5kΩ	S12
R5	150Ω	E3
R6	8·2kΩ	E3
R7	27kΩ	E2
R8	6·8kΩ	E2
R9	1kΩ	E3
R10	680Ω	F3
R11	2·2kΩ	G2
R12	330Ω	F3
R13	330Ω	F3
R14	220Ω	J5
R15	10kΩ	J5
R16	680Ω	J5
R17	1·2kΩ	G3
R18	3·9kΩ	G3
R19	27kΩ	G2
R20	39kΩ	J5
R21	3·9kΩ	K6
R22	12kΩ	J5
R23	330Ω	G3
R24	1·8kΩ	K6
R25	3·9kΩ	J5
R26	1·2kΩ	J5
R27	6·8kΩ	J5
R28	220Ω	G3
R29	2·2kΩ	J5
R30	1·2kΩ	J5
R31	3·3kΩ	G2
R32	47kΩ	G2
R33	15kΩ	H3
R34	27Ω	J5
R35	47kΩ	H3
R36	330Ω	H3
R37	39kΩ	H3
R38	2·2MΩ	H3
R39	100kΩ	H2
R40	100kΩ	K7
R41	33kΩ	K7
R42	1·2kΩ	J4
R43	1·2kΩ	J4
R44	120kΩ	J4
R45	120kΩ	J4
R46	120kΩ	J4
R47	120kΩ	J4
R48	1MΩ	J4
R49	1MΩ	J4
R50	1kΩ	J4
R51	1kΩ	J4
R52	2·2kΩ	P10
R53	390kΩ	P11
R54	2·2kΩ	Q10
R55	390kΩ	Q11
R56	3·9kΩ	J4
R57	3·9kΩ	J4
R58	47kΩ	J4
R59	220kΩ	J4
R60	47kΩ	J4
R61	220kΩ	J4
R62	2·2kΩ	P10
R63	2·2kΩ	Q10
R64	3·3MΩ	P10
R65	1·5kΩ	P10
R66	3·3MΩ	Q10
R67	1·5kΩ	Q10
R68	1MΩ	P10
R69	1MΩ	Q10
R70	1·5kΩ	P10
R71	1·5kΩ	Q10
R72	47kΩ	P10
R73	47kΩ	P11
R74	1·5kΩ	P10
R75	4·7kΩ	P10
R76	1·5kΩ	P11
R77	4·7kΩ	Q10
R78	470kΩ	P10
R79	470kΩ	Q10
R80	1·5kΩ	P10
R81	47kΩ	P10
R82	1·5kΩ	Q10
R83	47kΩ	Q10
R84	47kΩ	P10
R85	47kΩ	Q10
R86	470kΩ	P10
R87	470kΩ	P11
R88	470kΩ	Q11
R89	470kΩ	Q11
R90	5·6kΩ	P10
R91	330Ω	P11
R92	150Ω	P11
R93	5·6kΩ	P11
R94	5·6kΩ	Q11
R95	330Ω	Q11
R96	150Ω	Q11
R97	5·6kΩ	Q10
R98	820Ω	P11
R99	820Ω	Q11
R100	15kΩ	L8
R101	15kΩ	M8
R102	2·2kΩ	Q10
R103	550Ω	M9
R104	150Ω	L9
R105	15Ω	L9
R106	150Ω	L9
R107	15Ω	L9
R108	68kΩ	K6
R109†	5·6kΩ	P11
R110†	5·6kΩ	Q11
R111	6·8kΩ	K6
R112	6·8kΩ	K6
RV1	1MΩ	K7
RV2	1MΩ	K7
RV3	1kΩ	H3
RV4	1MΩ	K6
RV5	1MΩ	K6
RV6	1MΩ	K6
RV7	1MΩ	K6
RV8	250kΩ	K6
RV9	250kΩ	K6

Capacitors

C1	47pF	S12
C2	22pF	S12
C3	1,000pF	S12
C4	5·6pF	S12
C5	470pF	S12
C6	1pF	S12
C7	1,000pF	S12
C8	25pF	S12
C9	1,000pF	S12
C10	70pF	S12
C11	70pF	S12
C12	47pF	K7
C13	100μF	E3
C14	1,800pF	K7
C15	150pF	J5
C16	0·01μF	E3
C17	0·02μF	E2
C18	0·02μF	F2
C19	180pF	F2
C20	300pF	F3
C21	180pF	F2
C22	300pF	F3
C23	0·05μF	E3
C24	3,300pF	F3
C25	0·05μF	F2
C26	0·05μF	F3
C27	0·1μF	F3
C28	180pF	G3
C29	300pF	F2
C30	5·6pF	F3
C31	180pF	G3
C32	300pF	F3
C33	0·1μF	J5
C34	3,300pF	G2
C35	0·05μF	G3
C36	3,300pF	K6
C37	0·05μF	G2
C38	300pF	G2
C39	0·01μF	H4
C40	0·04μF	G2
C41	1,000pF	G3
C42	300pF	H2
C43	300pF	G3
C44	330pF	H3
C45	0·1μF	G2
C46	0·1μF	J5
C47	8μF	F2
C48	1,000pF	H2
C49	100pF	H3
C50	50pF	G3
C51	27pF	H3
C52	0·01μF	J5
C53	0·01μF	J5
C54	0·01μF	K6
C55	1,000pF	H2
C56	0·01μF	K6
C57	8μF	H3
C58	0·01μF	H2
C59	12pF	J5
C60	556pF	J5
C61	255pF	J5
C62	200pF	J5
C63	2,000pF	K6
C64	2,000pF	K6
C65	820pF	J4
C66	820pF	J4
C67	0·01μF	P11
C68	0·01μF	Q11
C69	4μF	J4
C70	4μF	J4
C71	0·1μF	P10
C72	0·1μF	Q10
C73	0·04μF	J4
C74	0·1μF	P10
C75	0·04μF	J4
C76	0·1μF	Q10
C77	2μF	J4
C78	2μF	J4
C79	0·02μF	P10
C80	0·02μF	Q10
C81	3,000pF	P10
C82	0·01μF	P10
C83	3,000pF	P10
C84	0·01μF	Q10
C85	2,200pF	P10
C86	2,200pF	P11
C87	0·04μF	P10
C88	0·04μF	Q11
C89	50μF	P10
C90	50μF	Q10
C91	0·04μF	P10
C92	0·04μF	Q10
C93	0·04μF	P11
C94	0·04μF	Q10
C95	50μF	P11
C96	50μF	Q11
C97	50μF	M8
C98	820pF	L8
C99	820pF	M8
C100	820pF	L8
C101	820pF	M8
C102	50μF	M8
C103	50μF	M8
C104	400μF	Q11
C105	5μF	‡
C106	5μF	‡
C107	0·1μF	—
C108	0·1μF	F2
CT1	25pF	S12
CT2	10pF	S12
CT3	30pF	J5
CT4	30pF	J5
CT5	30pF	J5
CT6	30pF	J5
CV1	528pF	D1
CV2	528pF	D1

Coils*

L1	—	S12
L2	—	S12
L3	—	S12
L4	—	S12
L5	—	S12
L6	—	S12
L7	—	S12
L8	10·5	C1
L9	1·6	C1
L10	—	B1
L11	—	B1
L12	—	F2
L13	—	F2
L14	6·5	F3
L15	6·5	F3
L16	—	G3
L17	—	G3
L18	6·5	F3
L19	6·5	F3
L20	6·5	G2
L21	6·5	G2
L22	1·0	G2
L23	—	G3
L24	—	G3
L25	—	G3
L26	—	J5
L27	6·0	J5
L28	—	J5
L29	—	J5
L30	4·5	J5
L31	—	J5

Transformers*

T1	a	238·0	L8
	b	1·25	
T2	a	238·0	M8
	b	1·25	
T3	1-5	10·0	N8
	6-8	194·0	
	9-11	0·11	
	12-14	0·11	

Miscellaneous

CD2	OA79	J5
CD3	OA70	G3
CD4	OA79	H3
CD5	OA79	H3
CD6	OA79	H3
FS1	—	M9
LP1	6.5V 0·3A M.E.S.	—
LP2		—
LP3		—
LS1	15Ω	—
LS2	15Ω	—
LS3	—	—
LS4	—	—
VDR1	E299DD/P220	P11

**Approximate d.c. resistance in ohms.*
†Omitted from some receivers.
‡Located in loudspeaker compartment.