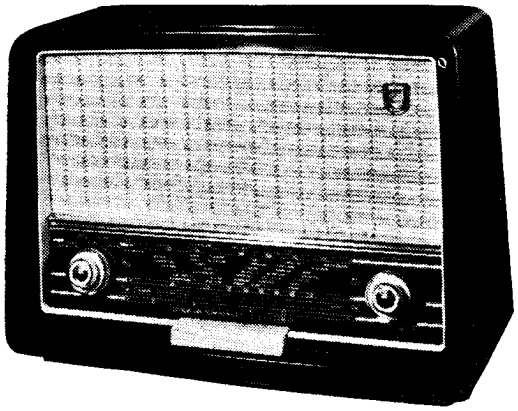
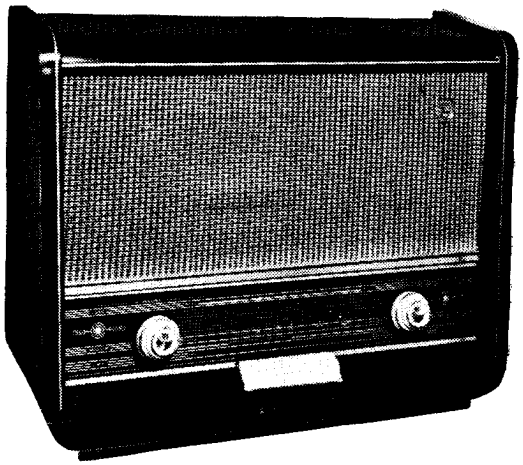
PHILIPS RECEIVERS

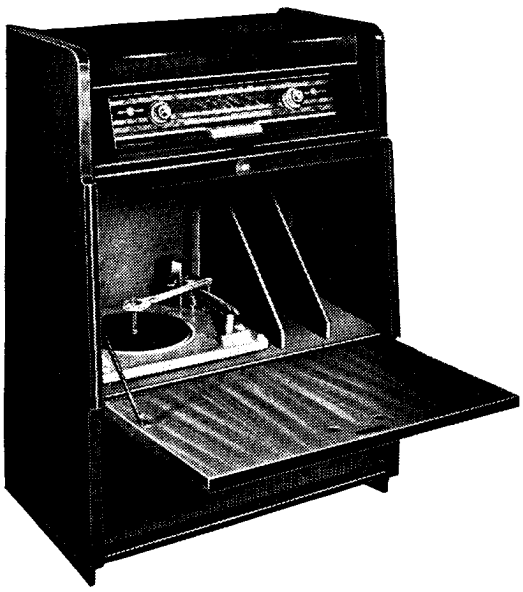
Types B3G63A, F5G62A and B5G64A



B3G63A



B5G64A



F5G62A

SERVICE MANUAL FOR

PHILIPS RECEIVERS

Types B3G63A, F5G62A and B5G64A

GENERAL DESCRIPTION

The receivers use the same A.M./F.M. chassis.
The B3G63A has a moulded cabinet, whilst that for the B5G64A is of wood. The F5G62A is the radiogram version, which is fitted with the Philips Record Changer type AG1003, for which a Service Manual has been issued.

VALVE COMBINATION

V1	EF80	R.F. amplifier F/M.
V2	EF80	Frequency changer F/M.
V3	ECH81	Frequency changer A/M. ; I.F. amplifier F/M.
V4	EF85	I.F. Amplifier A/M. and F/M.
V5	EABC80	Detector A/M. ; Ratio detector F/M.
V6	EL84	Power output.
V7	EZ80	Mains rectifier.

PILOT LAMP

Type 8028D—00.

WAVEBAND RANGES

A/M.	M.W.	527 Kc/s.—1604 Kc/s.
	L.W.	150 Kc/s.—255 Kc/s.
F/M.	—	87.5 Mc/s.—100 Mc/s.

TRIMMING FREQUENCIES

A/M.	I.F.	470 Kc/s.
	M.W.	525 Kc/s., 1610 Kc/s., 640 Kc/s.
	L.W.	172 Kc/s.
F/M.	I.F.	10.7 Mc/s (Deviation 200 Kc/s. at 50 c/s.).
	R.F.	87 Mc/s., 100 Mc/s., 94 Mc/s. (Deviation 200 Kc/s. at 50 c/s.).

MAINS CONSUMPTION

With 245 V. applied to the 245 V. tapping :
B3G63A and B5G64A, approximately 240 mA. (58 W.) on A/M. ; 260 mA. (63 W.) on F/M.
F5G62A, 240 mA. (58 W.) on A/M. ; 260 mA. (63 W.) on F/M. ; 264 mA. (65 W.) on gram.

VOLTAGE RANGES

200 to 250 V. 50 c/s. a.c.

DIMENSIONS OF CABINETS

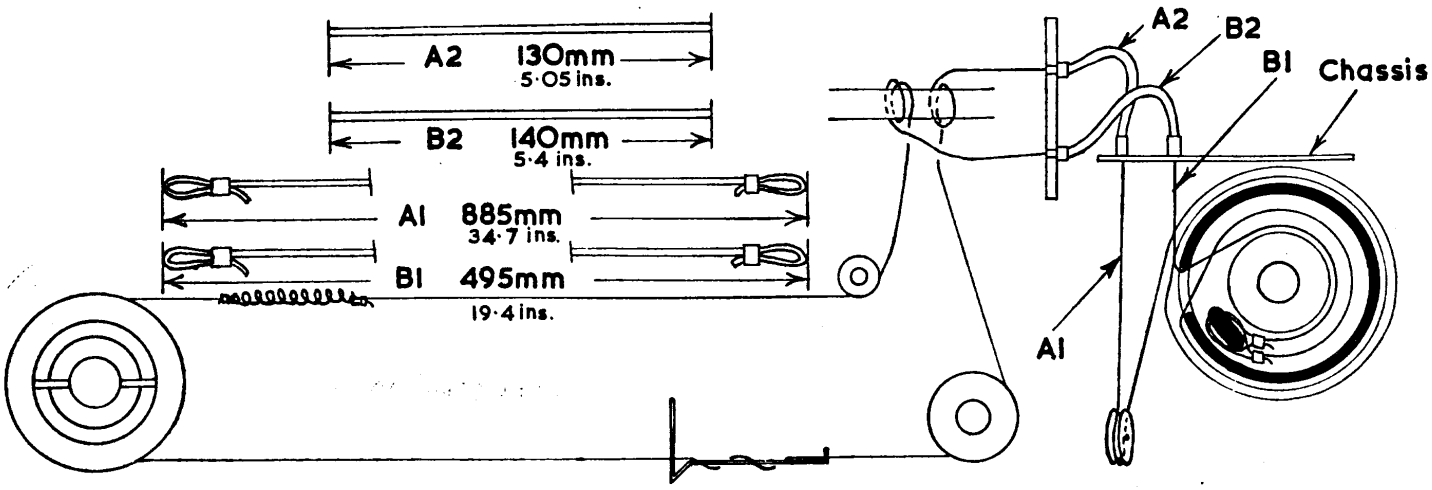
	Height	*Width*	*Depth*
B3G63A	12″	16½″	8¼″
B5G64A	15½″	21″	8½″
F5G62A	35″	24½″	15½″

SWITCHES

The functions of the receiver are controlled by five push buttons. Each of the five switches operated by the buttons therefore have two positions. The contacts in the " off " position are shown on the push button diagram on the circuit. The circuit itself is drawn in the M.W. position.
Switch contacts " M " **rise** one position when any but the "Off " button is depressed (thus joining contacts M16/M18 ; M2/M4 ; M6/M7). Depressing the " off " button releases this switch, and these contacts are opened.
On depressing the " Gram " button, the two contacts **drop** one position, thus opening contacts P6/P7 and P18/P10, and closing contacts P17/P18.
The " L.W." and " F/M." buttons operate in a similar manner, but it should be noted that the " F/M." button operates both switch banks " F." The M.W. button operates the " M " contacts only, i.e., it switches the receiver " on."

A.M. POINTER AND GANG DRIVE

The cord lengths over-all are given in the diagrams, but initially the cords should be made up with one loop only Make up cord A1 (537 mm.), and with the gang closed, fit the loop in the cord to the hook in the drive drum. Pass the cord through the opening in the drum, and slide the ferrule and outer case A2 (120 mm.) on to the cord. Engage the ferrule in the lower bracket, and the other end of the cable sheath in the upper bracket situated to the left of the tuning spindles. Pass the cord round the front groove in the die cast spindle, winding on two turns clockwise, winding from back to front on the spindle. Pass the cord over the smaller pulley, and make the second loop in the cord. Attach this loop to the spring, and attach the other end to a convenient temporary anchor point (e.g., the bracket in front of the volume control).



F.M. POINTER & GANG DRIVE

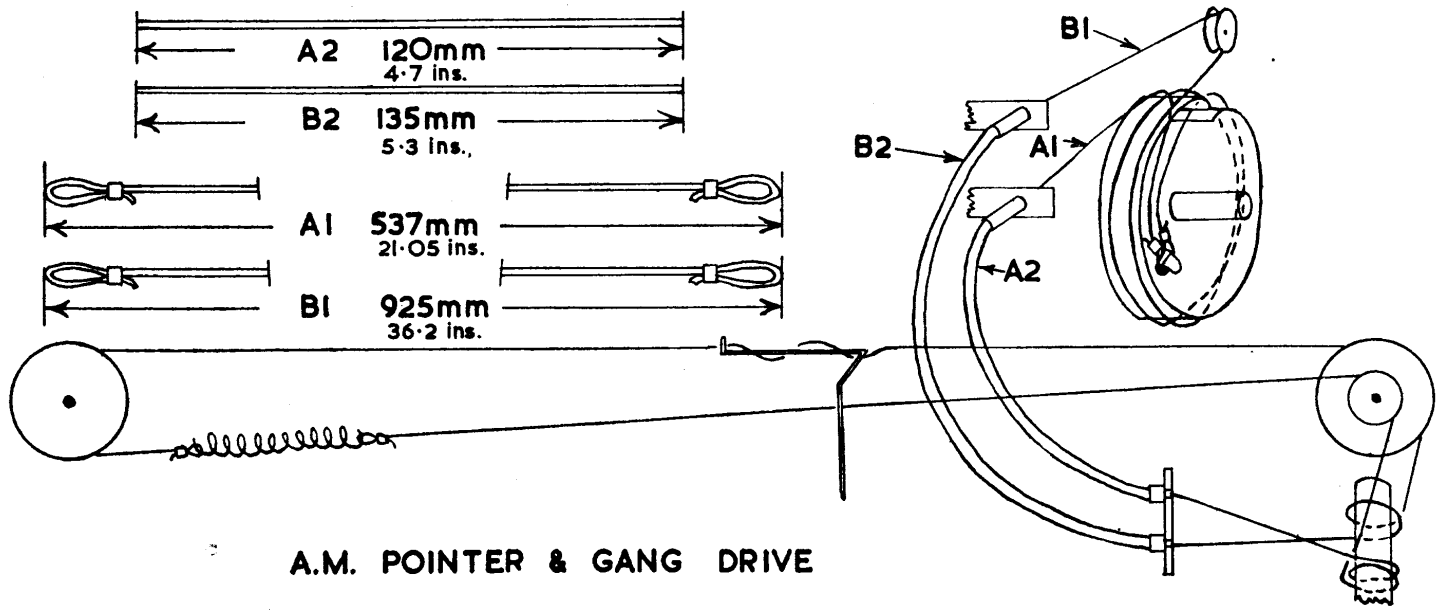
Make up cord B1 (925 mm.) and fit the loop to the hook in the drive drum. Pass the end through the opening in the drum, and wind on approximately $1\frac{3}{4}$ turns clockwise round the drum, and the $\frac{1}{2}$-turn anti-clockwise round the pulley. Slide on the ferrule and the outer case B2 (135 mm.) and fit the ferrule to the upper bracket. The other end of the outer sheath fits to the lower bracket to the left of the spindles. Pass the cord round the rear groove in the die cast spindle, winding on $1\frac{1}{4}$ turns anti-clockwise, winding from front to back on the spindle. Pass the cord up and over the larger pulley, across the $\frac{1}{2}$-turn anti-clockwise round the pulley (above the V/C. spindle). Make the second loop in the cord, and attach it to the spring.

The pointer fits to the upper cord. (See **Trimming Instructions.**)

F/M. POINTER AND GANG DRIVE

Stand the chassis on the mains transformer end.

Make up cord B1 (495 mm.) complete with ferrule and outer sheath B2 (140 mm.). Pass the cord through the rear hole in the chassis (above the F/M. gang). With the gang at minimum attach the loop in the cord to the stud in the drum. Pass the cord anti-clockwise round the centre of the drum and out through the slot at 6 o'clock. Pull the cord through the chassis and fit ferrule and outer sheath between the smaller hole in the chassis and the right-hand slot in the bracket above the tuning spindle. Pass the cord round the front groove of the brass pulley, winding on two turns clockwise from front to back on the pulley. Attach the tension spring to the cord, and fit the free end to a convenient temporary anchorage.



A.M. POINTER & GANG DRIVE

Make up the cord A1 (885 mm.) complete with ferrules and outer sheath A2 (130 mm.). Attach the loop to the stud in the drum, and wind the cord anti-clockwise round the centre of the drum. Lead the cord through the slot in the drum, and wind on two turns anti-clockwise round the drum. Pass the cord round the pulley (clockwise) and up through the hole in the chassis. Engage the ferrule and outer sheath. Wind on $1\frac{1}{4}$ turns anti-clockwise round the rear groove of the brass spindle, winding from front to back, and then $\frac{3}{4}$-turn round the plastic pulley. Lead the cord round the pulley (at the volume control end) and hook the end to the spring. The pointer is fixed to the lower cord. (See **Trimming Instructions.**)

CIRCUIT DESCRIPTION

(i) Operation on A/M.

The circuit follows conventional practice. The M.W. aerial inductance is composed of S4 and S5 connected in parallel by switch L. For L.W., S4 only is in circuit. The signal is applied *via* the I.F. filter and switch F, to the grid of the frequency changer V3 (ECH81), S22 and S23 being the oscillator coils. The output from V3 is applied *via* the 1st I.F. transformer S26/S27 to the grid of the I.F. amplifier V4 (EF85). The amplified I.F. is applied *via* the 2nd I.F. transformer S32/S33 to the detector diode in V5A (EABC80). The A.F. developed across the volume control R7 is amplified by the triode section of V5A and applied to the grid of the output valve V6 (EL84).

(ii) Operation on F/M.

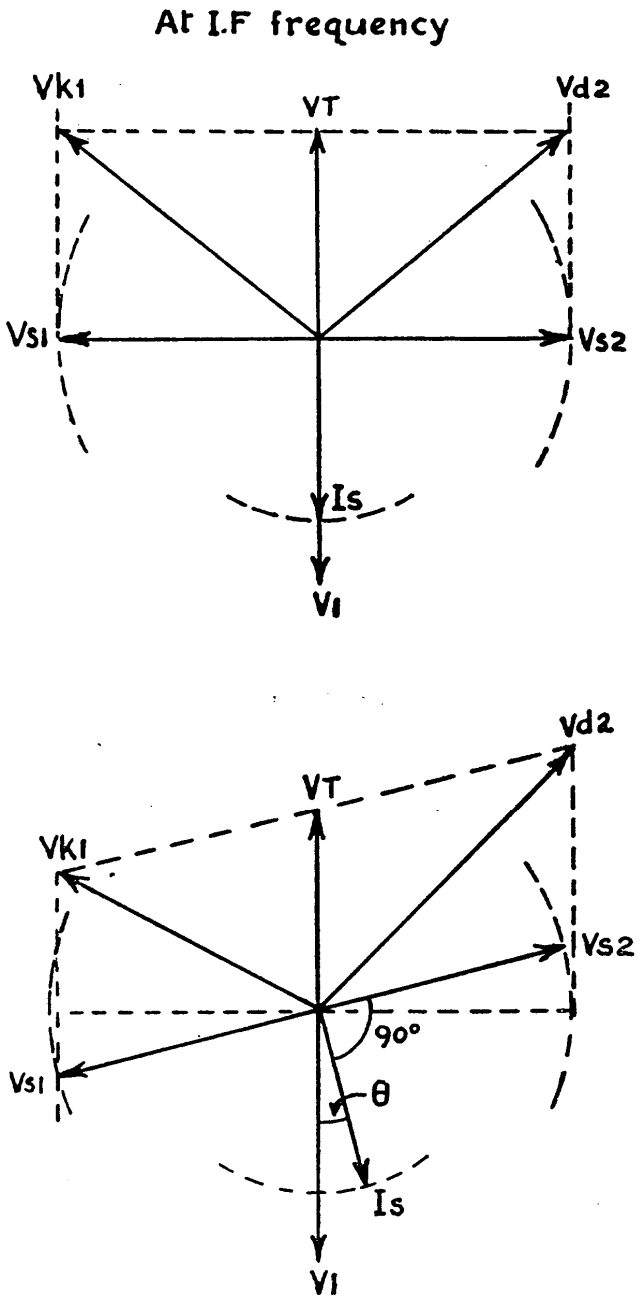
The input from the dipole (75 ohm balanced feeder) is connected across the primary of the aerial transformer S6/S7/S8. The secondary is connected to the grid of the R.F. amplifier V1 (EF80). The amplified output is applied *via* the coupling coil S12/S13, to the oscillator coil circuit S14/S15/S16, valve V2 (EF80) being the oscillator valve. The signal is applied to the 1st I.F. transformer S20/S37/S21, and thence *via* switch F (which earths the A/M. aerial circuit) to the grid of V3. This valve acts as an I.F. amplifier (the A/M. oscillator circuit being shorted by switch F), the output being applied *via* the 2nd I.F. transformer S24/S25 to the grid of V4. The amplified I.F. is passed to the ratio detector coils S28/S29/S30/S31.

The output from the ratio detector is passed *via* switch F to the top of the volume control R7. The remainder of the circuit is as for A/M.

VECTOR ANALYSIS OF THE RATIO DETECTOR

The diagrams above indicate the condition present at the I.F. frequency and at a deviation frequency.

The input voltage (across S28) is represented by V1 and is taken as the fixed vector. The secondary current (Is) is in phase with V1 at I.F., but lags it or leads it at frequencies above and below the I.F. respectively. The movement of this vector is indicated by the dotted line.



The voltages across each half of the secondary (Vs1 and Vs2) are always 180° out of phase with each other, and each are always 90° out of phase with Is. These two vectors therefore also move as indicated by the dotted lines. The voltage applied *via* the tertiary winding S31 is represented by VT. It is at 180° to VI and of fixed value. The voltages applied to the diodes (Vk1 and Vd2) are vector sums of Vs1 and VT, and Vs2 and VT respectively. It will be evident that these two voltages will vary in amplitude in accordance with the variation of phase between V1 and Is.

TRIMMING INSTURCTIONS—A/M.

(a) I.F. Circuit (A/M.)
Turn volume control to maximum, and set the gang to about mid-position.

Connect an output meter to the loudspeaker sockets.
Set the I.F. coil cores about $\frac{1}{8}$" in from the screwed out position.
Apply a signal of 470 Kc/s. to gl V3, and trim S33, S32, S27, S26 and S32 in that order for maximum output. After S32 has been finally trimmed, do not alter the position of the other cores.

(b) I.F. Filter Circuit (A/M.)
Apply the resonant frequency of the I.F. circuit to the aerial socket *via* a dummy aerial and trim S11 and S10 for minimum output.

(c) Pointer Setting (A/M.)
With the gang at minimum, the pointer should line up with the end stroke line on the scale.

(d) Aerial and Oscillator Circuits (A/M.)
The oscillator frequency is higher than the signal frequency.
Turn volume control to maximum, and tone control to " brilliant."
Connect an output meter to the loudspeaker sockets.
Apply the input to the aerial socket *via* a dummy aerial.
Short circuit S4.

(i) M.W. Oscillator Circuit
Switch to M.W.
Trim gang to maximum, and with an input of 525 Kc/s, trim S23 for maximum output.
Turn gang to minimum, and with an input of 1610 Kc/s, trim C23 for maximum output.
Repeat as necessary.

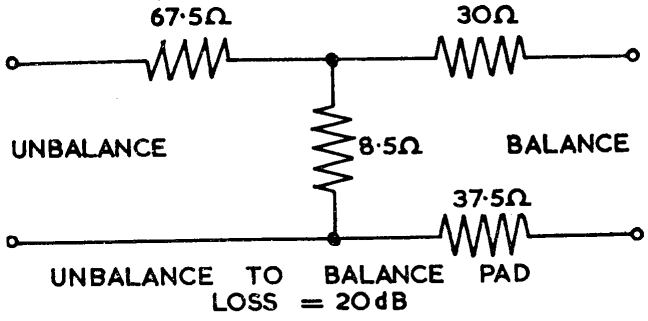
(ii) L.W. Aerial and Oscillator Circuits
Switch to L.W.
With an input of 172 Kc/s, trim C38 for correct calibration.
Remove the short circuit from S4, and trim S4 for maximum output.

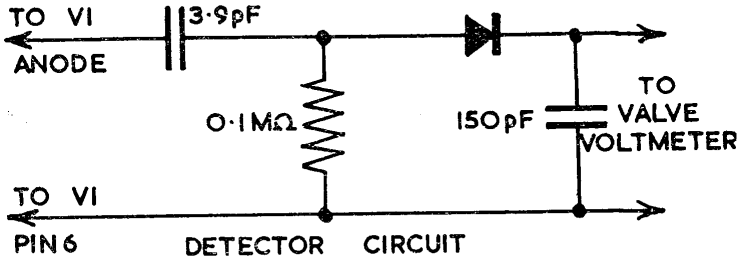
(iii) M.W. Aerial Circuit
Switch to M.W.
Tune the receiver to a signal of 640 Kc/s, and trim S5 for maximum output.
Turn gang to minimum and with an input of 1610 Kc/s, trim C22 for maximum output.
Repeat as necessary.

TRIMMING INSTRUCTIONS—F/M.

FIG. SD1054
Switch to F/M.
Turn volume control to maximum, and tone control to " brilliant."
Turn gang to maximum.
Connect a valve voltmeter (*via* 0.1M Ω) across R.25.
Connect an output meter to the loudspeaker sockets.
Unscrew the cores of S29/S30, S25 and S21. (Cores to be flush with tops of bobbins.)
In all I.F. trimming, the valve voltmeter should read about 2.5 V. (The input must be adjusted accordingly.)

(a) Ratio Detector
(i) Disconnect C4, and connect a cathode ray oscilloscope *via* 0.1 M Ω across R.25.





Apply a wobbulator input at 10.7 Mc/s. (deviation 200 Kc/s. at 50 c/s.) to gl V4. Trim S28 so that the 10.7 Mc/s. marker is at the top of the response curve.
Trim S29/S30 to give maximum curve width and symmetry.

(ii) Check Ratio Detector Curve.
Connect the oscilloscope across C47. Restore the connection to C4. The displayed curve should be straight over approx. 200 Kc/s. Apply an A/M. signal modulated to 30% at 500 c/s. The straight part of the curve should remain unchanged.

(b) I.F. Circuits (F/M.)

(i) Connect the oscilloscope across R25. Disconnect C4.
Apply a signal of 10.7 Mc/s. (Deviation 200 Kc/s. at 50 c/s.) to gl V3.
Trim S24 for maximum height with central trace.
Trim S25 for maximum curve height and symmetry, consistent with central trace.

(ii) Apply the signal to gl V2
Trim S20 for maximum height and central trace.
Trim S21 for maximum height and symmetry.

(iii) Check detector curve from gl V2 (as in paragraph (a) (ii)).
The potential across C4 should be 6 to 8 volts.

(c) I.F. Curve Check (F/M.)

Adjust the input (10.7 Mc/s. unmodulated) to give 8 volts across C4.
Swing the frequency on either side until the output drops to 5 volts. The bandwidth at this point should be greater than 250 Kc/s. The middle frequency should be between 10.67 and 10.73 Mc/s. The peak output should not be greater than 8.5 volts.
Swing the frequency on either side until the output drops to 0.8 volts. The bandwidth at this point should be greater than 450 Kc/s.

(d) Pointer Setting

With the gang at maximum, the pointer should line up with the 87 Mc/s. mark on the scale.

(e) R.F. Oscillator, Radiation Filter and Aerial Trimming

Disconnect C4, and connect a valve voltmeter (*via* 0.1M Ω) across R25. The output on this meter should be between 6 and 8 volts.
The oscillator coil core should be screwed in.
The deviation should be 200 Kc/s. to 50 c/s.
The input should be applied to the aerial sockets *via* a matching pad. (See suggested circuit.)
(i) With gang at maximum, and input of 87 Mc/s., trim S14 for maximum output on the valve voltmeter.
(ii) With gang at maximum, and input of 87 Mc/s., trim S12 for maximum output on the voltmeter.
(iii) With a detector (see suggested circuit) connected between the anode and spigot of V1, and with the gang in its mid-position, trim C16 for minimum output on the detector valve voltmeter. (Maximum detector voltage 50 mV.)
(iv) Repeat (i) and (iii) as necessary.
(v) With an input of 100 M/cs., tune receiver for maximum output, and trim C15 for maximum on the valve voltmeter.
(vi) Repeat (ii) and (v) as necessary.
(vii) With an input of 94 Mc/s, tune the receiver, and trim S8 for maximum indication on the valve voltmeter.

F/M TRIMMING USING A/M. INSTRUMENTS

For those who have no F/M. test gear, the following method may be used :

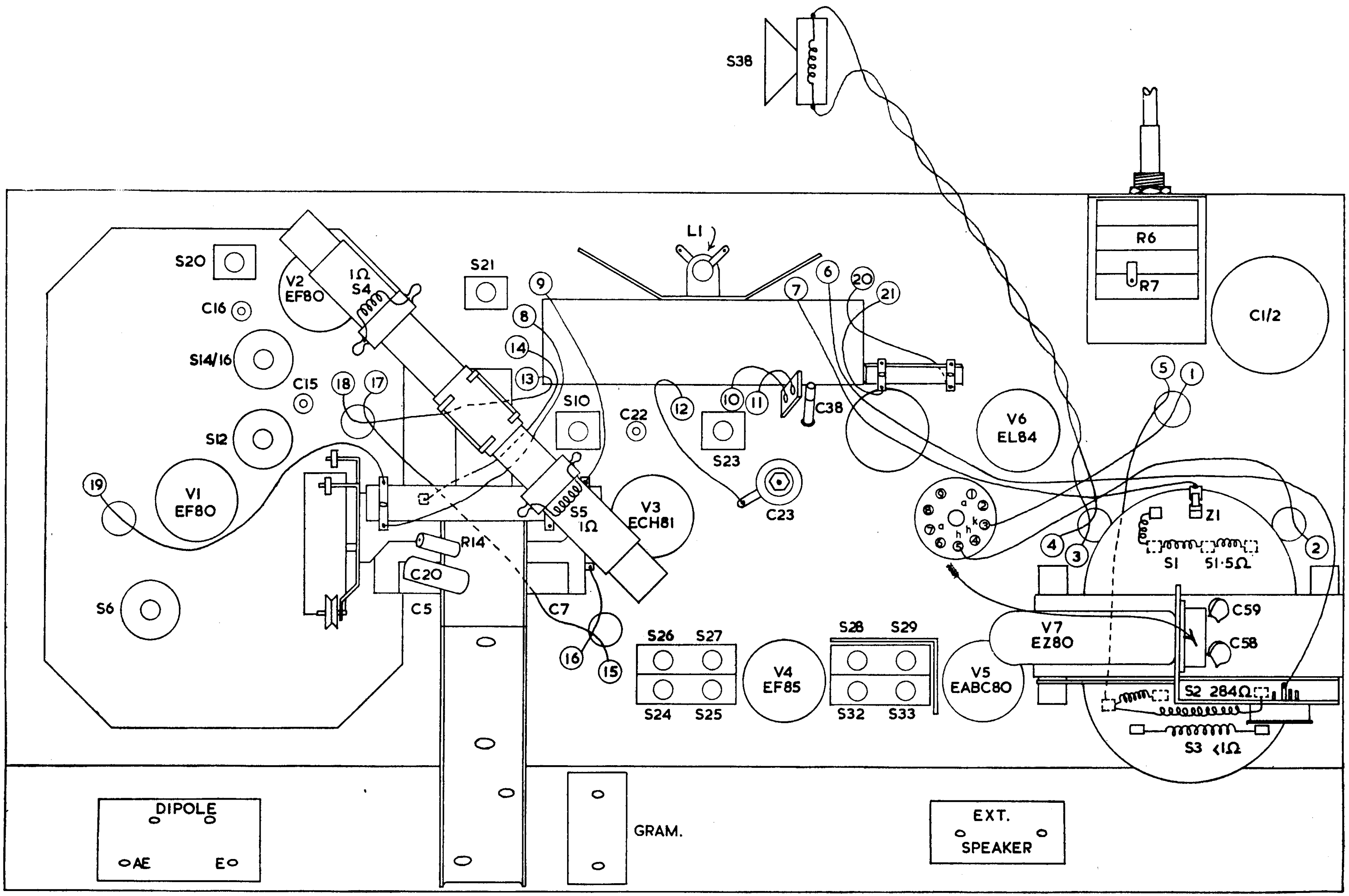
(a) I.F. Circuits

Switch to " F/M.", turn volume control to minimum, and gang to maximum. Connect a valve voltmeter *via* a 0.1 M ohm resistor across C4. Apply an unmodulated signal of 10.7 Mc/s to gl V3 *via* a ceramic capacitor of 1500 pF.
During trimming, the input should be such that the voltage across C4 does not exceed 8 volts.
Damp S24 with a 4K7 ohm resistor.
Trim S25 for maximum output on the voltmeter.
Remove damper from S24m and apply it to S25.
Trim S24 for maximum output on the voltmeter.
Remove damping from S25.
Trim S28 for maximum output on the voltmeter, and then adjust the input to give an output of 8 volts.
Transfer the voltmeter connection to the junction R23/C47.
Trim S30 to give 4 volts on the meter.
Restore the valve voltmeter connection to C4.
Change the input point to gl V2.
Damp S21 and trim S20 for maximum output on the meter.
Remove the damping, and trim S21 for maximum output.
Adjust the input to give 8 volts on the meter.
Tune the generator to find the maximum output on the meter : this should not be more than $8\frac{1}{2}$ volts and should occur at a frequency between 10.67 Mc/s and 10.73 Mc/s. If these conditions are not met, the I.F. circuits should be re-trimmed.

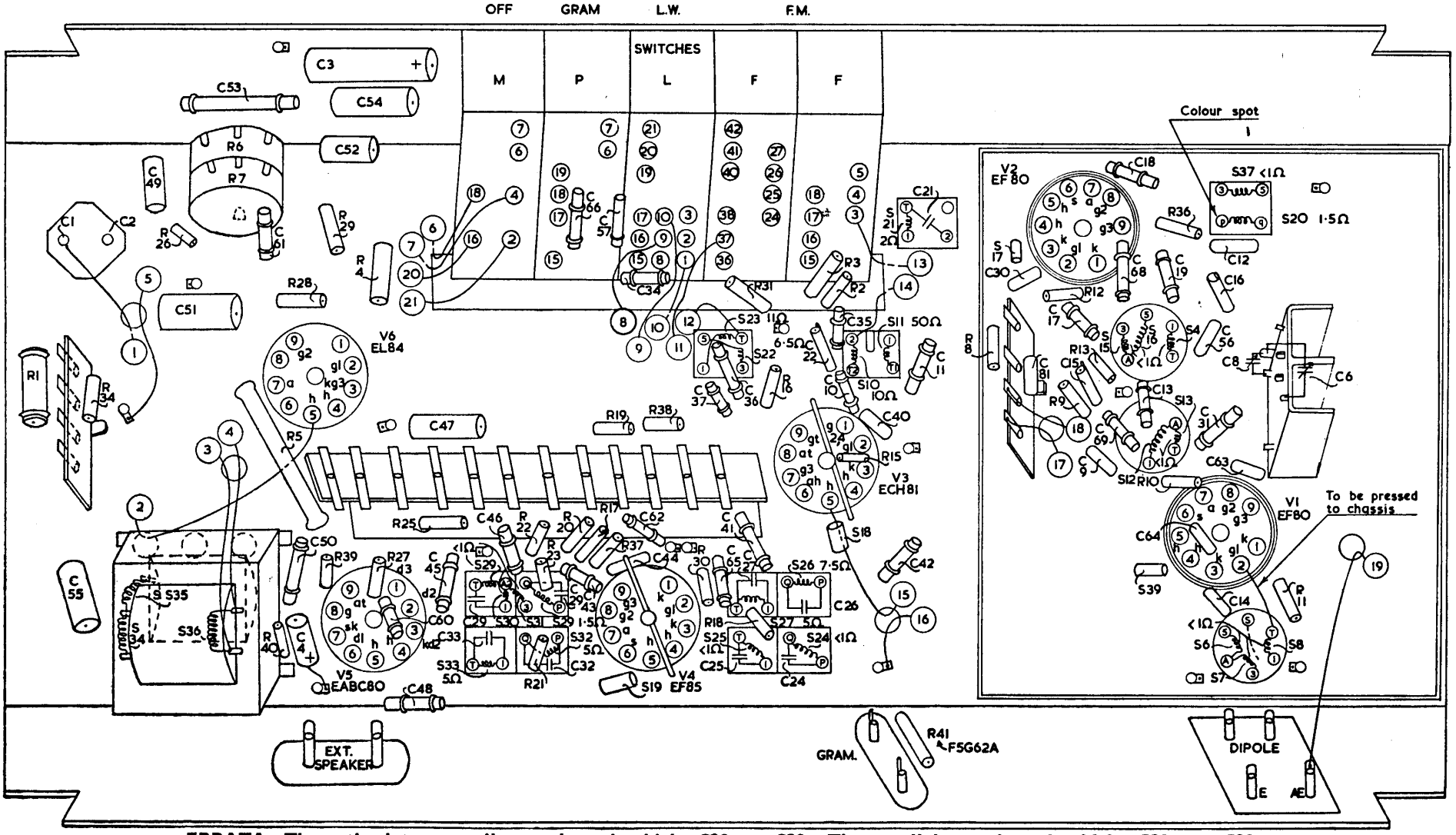
(b) H.F. Circuits

Set the pointer to 87 Mc/s.
Connect a valve voltmeter across C4.
Apply an unmodulated signal of 87 Mc/s to the F/M. aerial socket (*via* the matching pad) and trim S14 and then S12 for maximum output.
Connect a detector (as above) to V1.
Trim C16 for minimum radiation at mid-band position (i.e., minimum output from the detector).
Re-trim S14 and S12 at 87 Mc/s.
Apply a signal of 100 Mc/s, tune the receiver, and trim C15 for maximum output.
Re-trim S12 at 87 Mc/s.
With an input of 94 Mc/s, tune the receiver, and trim S8 for maximum output.

S	6. 20. 14.15.16. 12. 4 21. 5. 10. 26. 24. 27. 25. 38. 28. 32. 29. 33. 1. 2. 3.
C	16. 15. 20. 5. 7. 22. 23. 38. 59. 58. 1. 2.
R	14. 6. 7.



S	34. 35. 36. 29. 33. 30. 31. 32. 28. 19. 23. 22. 27. 25. 26. 24. 10. 18. 11. 21. 17. 15. 16. 12. 14. 13. 39. 37. 20. 6. 7. 8.
C	1. 55. 2. 49. 51. 53. 61. 50. 4. 3. 54. 52. 60. 48. 47. 45. 29. 33. 46. 32. 28. 66. 43. 57. 44. 34. 62. 36. 37. 65. 41. 27. 25. 26. 24. 22. 35. 10. 40. 42. 11. 21. 30. 81. 17. 15. 9. 18. 68. 69. 13. 19. 56. 16. 31. 64. 14. 12. 63. 8. 6.
R	1. 34. 26. 6. 7. 28. 40. 29. 39. 4. 27. 25. 22. 23. 21. 20. 17. 37. 19. 38. 30. 31. 18. 16. 3. 2. 15. 41. 8. 12. 9. 13. 36. 10. 11.

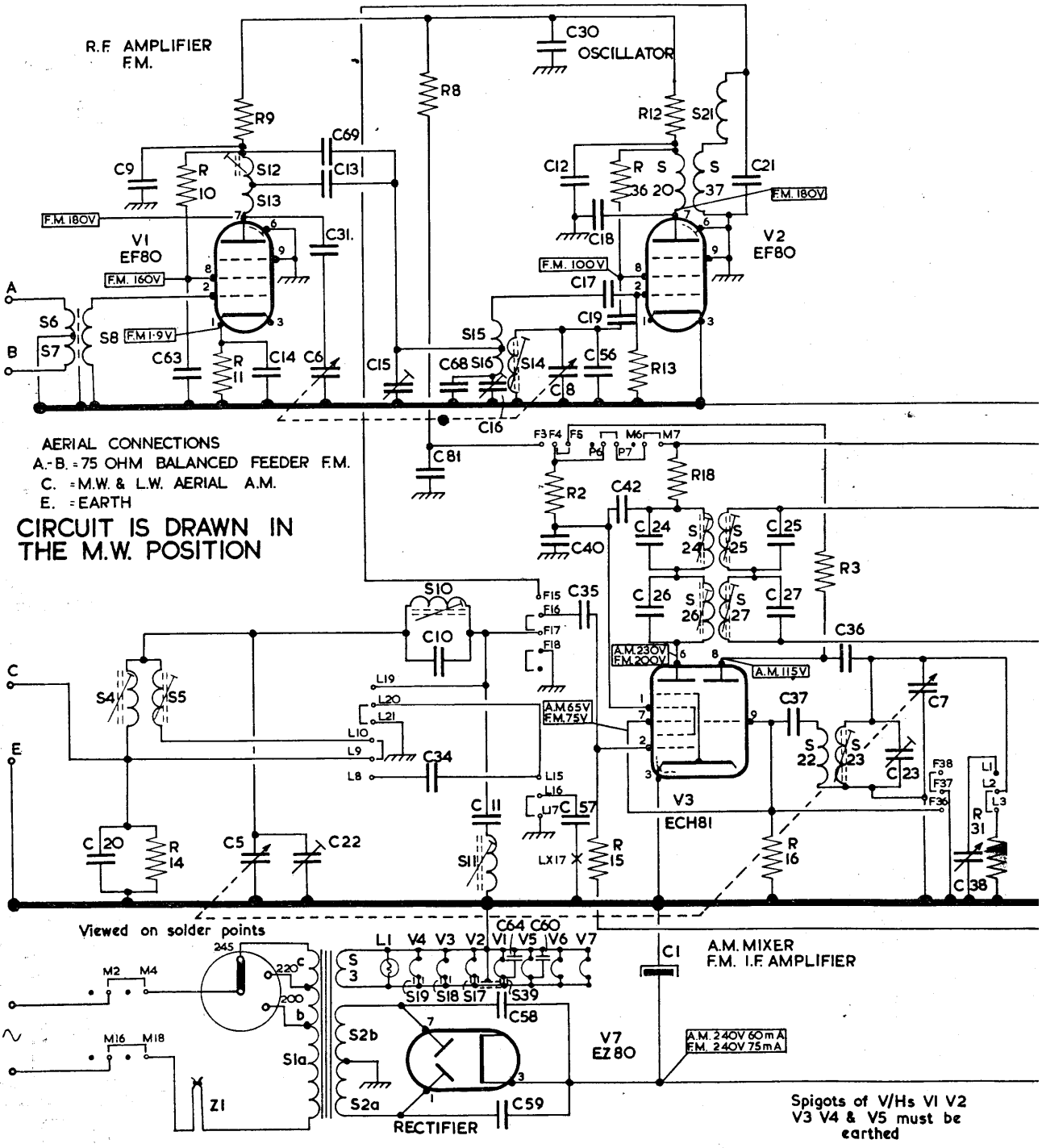


ERRATA—The ratio detector coil secondary should be S28 not S29. The parallel capacitor should be C28, not C29.

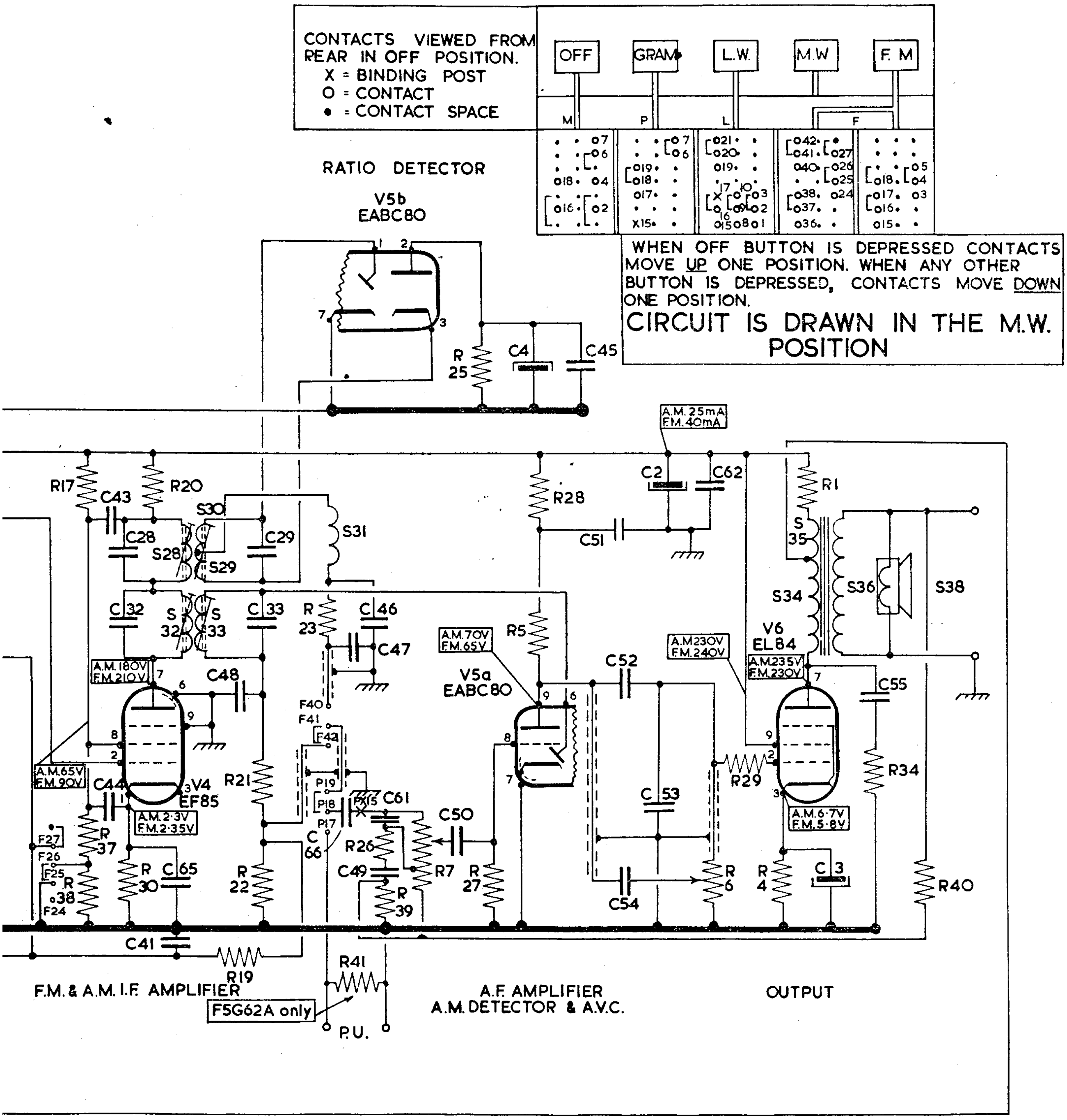
Capacitors

1	50 uF
2	50 uF
3	100 uF
4	5 uF
9	1 KpF
10	270 pF
11	12 pF
12	1 KpF
13	100 pF
14	1 KpF
15	18 pF
16	10 pF
17	33 pF
18	18 pF
19	47 pF
20	3 KpF
21	15 pF
22	20 pF
24	33 pF
25	33 pF
26	110 pF
27	195 pF
28	22 pF
29	47 pF
30	1 KpF
31	220 pF
32	195 pF
33	195 pF
34	3.9 pF
35	100 pF
36	470 pF
37	56 pF
38	400 pF
40	3.9 KpF
41	.01 uF
42	1.5 KpF
43	1.5 KpF
44	3.9 KpF
45	4.7 KpF
46	2.2 KpF
47	2.2 KpF
48	100 pF
49	1.5 KpF
50	18 KpF
51	0.1 uF
52	15 KpF
53	470 pF
54	15 KpF
55	1 KpF
56	3.3 pF
57	100 pF
58	500 pF
59	500 pF
60	4.7 KpF
61	33 pF
62	6.8 pF
63	1 KpF
64	1 KpF
65	0.1 uF
66	0.1 uF
68	8.2 pF
69	8.2 pF
81	1 KpF

S	6.7. 8. 4. 5. 12. 13. 1. 2. 3. 19. 18. 10. 17. 11. 39. 15. 14. 16. 20. 37. 21. 24. 26. 25. 27. 22. 23.
C	20. 9. 63. 5. 14. 22. 69. 13. 31. 6. 15. 81. 10. 34. 68. 16. 11. 64. 58. 60. 59. 30. 8. 40. 35. 57. 18. 17. 19. 56. 42. 1. 24. 26. 25. 27. 37. 36. 23. 7. 38.
R	14. 10. 11. 9. 8. 2. 15. 36. 13. 12. 18. 16. 3. 31.



28. 32. 30. 29. 33. 31.												35. 34. 36.	38.				
43. 44. 28. 32. 65. 41. 48. 29. 33.	66. 47. 46. 61. 49.	50.	4.	45. 51.	52. 54. 53. 2. 62.			3.	55.				
17. 37. 38. 30. 20.	19. 21. 22.	23. 41. 26. 39.	7.	25. 27.	28. 5.		6. 29.	4.	1.	34.	40.		



VOLTAGES MEASURED WITH V.V. OF 10MΩ IMPEDANCE. 245V IN ON 245V TAP.

ERRATA—S29 and S30 should be reversed from their positions as shown above.

Resistors

1	1.2 K
2	39 K
3	33 K
4	150
5	.22 M
6	.5 M
7	2 M
8	1 K
9	2.2 K
10	10 K
11	180
12	2.2 K
13	.1 M
14	33 K
15	1.2 M
16	47 K
17	56 K
18	2.2 K
19	1.2 M
20	4.7 K
21	.18 M
22	.22 M
23	47 K
25	10 K
26	.22 M
27	10 M
28	.1 M
29	1 K
30	220
31	33 K
34	18 K
36	22 K
37	10 M
38	.1 M
39	47
40	1.2 K
41	.68 M

SPARE PARTS LIST — B3G63A, F5G62A and B5G64A

IMPORTANT.—When ordering spare parts, the type number of the receiver and the code number of the part, as given in this manual, MUST be quoted to enable the order to be correctly executed. When claiming free replacement under guarantee, the defective part should be returned and the type and serial number of the receiver, also the date of sale, should be quoted.

CABINET ASSEMBLY

Moulded Cabinet	B3G63A	MK.978.08
Ornamental strip	B3G63A	MK.877.34
Spire clips for backplate	B3G63A	MK.750.69
Rubber channel for chassis (2)	B3G63A	A3.589.41
Rubber strip for chassis (2)	B3G63A	A3.606.43
Chassis retaining bracket—		
200 metre end	B3G63A	MK.080.39
550 metre end	B3G63A	MK.066.95
Cabinet assembly—Wood	F5G62A	HY.073.10
Desk door	F5G62A	HY.080.46
Handle Assembly for door	F5G62A	MK.914.25
Threaded retainer for above (2)	F5G62A	MK.252.06
Tapered collar for above	F5G62A	MK.252.07
Hinge for desk door	F5G62A	HY.096.29
Stay assembly for desk door	F5G62A	HY.139.06
Magnetic door stop assembly	F5G62A	MK.889.35
Holder for pick-up heads	F5G62A	P4.380.35
Spring clip for 45 r.p.m. adaptor	F5G62A	MK.751.17
Pillar for 45 r.p.m. adaptor	F5G62A	MK.117.19
Spring clip for record spindle	F5G62A	A3.676.51
Domes of silence	F5G62A	MK.926.92
Cabinet assembly—Wood	B5G64A	MK.978.47
Ornamental strip	B5G64A	MK.877.57
Spring clip for backplate (4)	B5G64A	A3.648.56
Bottom bracket for backplate (3)	B5G64A	MK.065.81
Centre bracket for ornamental strip: B3G63A and B5G64A		MK.280.33
Ornamental frame for push buttons	F5G62A and B5G64A	MK.931.38
Fixing pins for above	F5G62A and B5G64A	A3.314.02

CONTROL KNOB—Small	MK.855.08
Spring clip for above	MK.751.21
Control knob—large	MK.855.07

BACKPLATE—B3G63A		MK.400.43
Backplate—Radio	F5G62A	MK.400.65
Spire clips for above (3)	F5G62A	MK.927.02
Special screw for above (3)	F5G62A	MK.961.20
Washer for above (3)	F5G62A	B.050.CH/5
Backplate—Speaker compmt.	F5G62A	MK.400.71
Backplate—B5G64A		MK.400.63
Backplate fixing screws		MK.946.88
Valve position label		PG.009.31

METALLISED BASEPLATE	B5G64A	MK.877.59
Screws for above (3)	B5G64A	MK.946.88

BAFFLE ASSEMBLY

Baffle board	B3G63A	MK.877.24
Speaker fabric (395x170mm.)	B3G63A	K.300.ZZ/48
Baffle retaining plates (7)	B3G63A	A3.522.35
Fibre plates for baffle (3)	B3G63A	A3.525.62
Baffle board	F5G62A	MK.877.62
Speaker fabric (620x250mm.)	F5G62A	K.300.ZZ/930
Baffle board	B5G64A	MK.877.58
Speaker fabric (510x215mm.)	B5G64A	K.300.ZZ/926
Baffle retaining plates (8)	B5G64A	MK.280.38
Philips trade name—	B3G63A & B5G64A	A3.308.24
Escutcheon for emblem	B3G63A & B5G64A	MK.909.30
Fixing pins for above	B3G63A & B5G64A	MK.926.99
Philips emblem	B3G63A & B5G64A	A3.357.11
Clamp plates for speaker (4)		MK.036.04
4BA nuts for speaker bolts (4)		G7.100.04

STATION SCALE—(Glass) B3G63A only	MK.705.16
Station scale—(Glass)	MK.705.35
Rubber fixing bush (2)	P5.420.03/08

POINTER ASSEMBLY F/M.—	MK.877.95
Felt ring for above	A3.654.36
Pointer assembly A/M.	A3.758.18
Nylon cord guide for above, 400mm.	K.299.ZZ/27

CHASSIS ASSEMBLY

SCALE DIFFUSION SCREEN	MK.877.26
Retaining springs (4)	A3.647.02

LAMPHOLDER ASSEMBLY	MK.956.60

POINTER DRIVE ASSEMBLY

Moulded pulley—large	23.681.81
Pulley—small	A3.322.40
Fixing pin for above	MK.646.01
Brass pulley	A3.680.02
Brass ring for above	MK.449.28
Shouldered fixing pin	A3.484.49
Drive cord	K.803.ZZ/900
Cord loop grip	MK.908.99
Outer casing for cord	08.010.54/280mm.
Nylon ferrules for above	MK.135.52
Cord tension spring (2)	MK.740.28

TUNING UNIT

Gang capacitors—F/M.	49.002.15
Moulded drum for above	MK.906.28
Grubscrew (2)	B.061.ED/4×5
Gang capacitor—A/M.	49.002.04
Drum for above	MK.906.29

SPARE PARTS LIST — B3G63A, F5G62A and B5G64A—Continued

PUSH BUTTON UNIT complete ..	MK.892.84
TUNING SPINDLE—F/M.	MK.958.71
Tuning spindle—A/M.	MK.003.84
Locking ring for above	A1.756.55
VALVEHOLDERS, etc.	
Valveholder for V1 and V2	MK.225.70
Other valveholders	MK.225.77
Spring retainer for V7	A3.652.94
Screen for V2	MK.117.24
DI-POLE AERIAL complete	MK.820.24
Di-pole aerial complete—B3G63A only ..	MK.820.22
MAINS CONNECTION FOR RECORD CHANGER—F5G62A	MK.877.60
Contact sockets (2)	49.3I3.04
MISCELLANEOUS	
Voltage adjustment plate	MK.875.51
Voltage adjustment disc	MK.854.91
Presspahn cover for above	MK.336.96
Socket plate—Aerial	MK.877.25
Socket plates—Extension speaker and Pick-up	MK.874.45
Single pin plug	MK.875.34
Fixing spring for double coil	MK.730.23
Fixing spring for single coil	MK.750.98
Single clip for coil	MK.067.10
Double clip for coil	MK.067.11
Mains lead	K3.975.00
Chassis fixing screw F5G62A and B5G64A	B.054.ED/4×15
Chassis fixing screw (2)	B.054.ED/4×25
Distance pieces 6×4mm. (4)	B.001.AC/4.1×6×4
Distance pieces 6×8mm. (4) (F5G62A and B5G64A)	B.001.AE/4.1×6×8
Rubber grommet for above (4) (F5G62A and B5G64A)	A3.642.11
Mounting plate for chassis (2)	MK.033.95
Cover plate for chassis fixing (2)	MK.280.00
Special screws for F/M. chassis (4) ..	MK.946.98
Rubber grommet for above	MK.730.17
Sockets for speaker lead (2) (F5G62A only)	MK.242.09
Pin for speaker lead (2) (F5G62A only)	MK.615.93
Insulating sleeve for above (2) (F5G62A only)	G8.215.05/1½" Blk.

GENERAL SCREWS, NUTS AND WASHERS

CHEESEHEAD SCREWS	
3×4mm.	B.054.ED/3×4
3×6mm.	B.054.ED/3×6
4×15mm.	B.054.ED/4×15
4×25mm.	B.054.ED/4×25
COUNTERSUNK SCREW	
3×10mm.	B.055.ED/3×10
SELF-TAPPING SCREWS—ROUNDHEAD	
No. 5×¼"	B.070.AD/5N×¼"
No. 5×5/16"	B.070.AD/5N×5/16"
No. 8×5/16"	B.070AD/8N×5/16"
No. 8×16	B.070.AD/8N×⅝"
No. 4×10	B.071.AD/4N×⅜"
No. 8×¼"	B.070.AD/8N×¼"
NUTS	
3mm.	B.020.EE/3
4mm.	B.020.EE/4
WASHERS	
3mm.	B.050.CD/3
4mm.	B.050.CD/4
RECORD CHANGER UNIT	MK.978.27

Spare parts are identical to those listed in the AG1003 Service Manual with the exception of the following :—

MOUNTING SPRING ASSEMBLY (4)	MK.958.68
Washer for above	MK.449.22
Hexagonal nut for above	B.020.CD/8
Ornamental screw (4)	P5.515.65/14
Washer for above	B.050.CH/4
Transit screw (4)	MK.961.13
PICKUP-HEAD—Normal	AG 3012
Pickup-head—Microgroove	AG.3013
VALVES AND PILOT LAMPS	
V1	EF80
V2	EF80
V3	ECH81
V4	EF85
V5	EABC80
V6	EL84
V7	EZ80
L1 Pilot lamp	00.080.28D—00
TRANSFORMERS AND COILS	
S1–3 Mains transformer	MK.514.76
S4–5 Rod aerial M.W./L.W.	MK.820.16
S6–8 Aerial coil F/M.	MK.567.40
S10–11 Rej. Acc. I.F. filter coil	MK.566.29
S12–13 Coupling coil F/M.	MK.565.94
S14–16 Oscillator coil F/M.	MK.567.96
S17 Ferroxcube Bead	56.390.31/4B
S18 Ferroxcube Bead	56.390.31/4B
S19 Ferroxcube Bead	56.390.31/4B
S20/37 1st F/M. I.F. Primary coil ..	MK.566.48
S21 1st F/M. I.F. Secondary coil ..	MK.566.49

SPARE PARTS LIST — B3G63A, F5G62A and B5G64A—Continued

S22–23	Oscillator coil A/M.	A3.125.99
S24–25	2nd F/M. I.F. coil	A3.127.00
S26–27	1st A/M. I.F. coil	A3.126.98
S28–31	Ratio detector coil F/M. ..	A3.127.01
S32–33	2nd A/M. I.F. coil	MK.566.52
S34–36	Loudspeaker transformer ..	MK.514.72
S38	Loudspeaker	MK.956.68
S38	Loudspeaker—B3G63A only ..	MK.860.94
S39	Ferroxcube Bead	56.390.31/4B

FUSE

Z.1	08.100.99

CORES FOR COILS

S8	MK.905.72
S10	A3.739.11
S11	A3.367.32
S12	MK.954.84
S14	MK.954.95
S21, 23, 24, 25	P4.380.61/99
S26, 27, 32, 33	A3.750.70

SPARE PARTS LIST — B3G63A, F5G62A and B5G64A

CAPACITORS

			Working Voltage	*Permitted Tolerance %*	
C1–2	Electrolytic	50+50 uF	350		MK.182.35/50+50
C3	Electrolytic	100 uF	12		MK.183.01/100
C4	Electrolytic	5 uF	75		MK.180.93
C5–8	Gang	*See Spare Parts List.*			
C9	Ceramic	1,000 pF		+50 −25	MK.205.86
C10	Ceramic	270 pF		10	48.406.10/270E
C11	Ceramic	12 pF		10	48.406.10/12E
C12	Ceramic	1,000 pF		+50 −25	MK.205.86
C13	Ceramic	100 pF		10	48.406.10/100E
C14	Ceramic	1,000 pF		+50 −25	MK.205.86
C15	Trimmer	18 pF			49.005.59
C16	Trimmer	10 pF			49.005.64
C17	Ceramic	33 pF		10	48.406.10/33E
C18	Ceramic	18 pF		10	48.406.10/18E
C19	Ceramic	47 pF		10	MK.205.99
C20	Suflex	3,000 pF		5	MK.205.84
C21		15 pF			In coil S21
C22	Trimmer	20 pF			49.005.59
C23	Trimmer	3—30 pF			28.212.36
C24		33 pF			In coil S24–25
C25		33 pF			
C26		110 pF			In coil S26–27
C27		195 pF			
C28		22 pF			In coil S28–31
C29		47 pF			
C30	Ceramic	1,000 pF		+50 −25	MK.205.86
C31	Ceramic	220 pF		10	48.406.10/220E
C32		195 pF			In coil S32–33
C33		195 pF			
C34	Ceramic	3.9 pF		20	48.406.99/3E9
C35	Ceramic	100 pF		10	48.406.10/100E
C36	Ceramic	470 pF		10	48.406.10/470E
C37	Ceramic	56 pF		10	48.406.10/56E
C38	Trimmer	400 pF			49.005.54
C40	Tubular	3,900 pF		20	MK.198.98
C41	Ceramic	10,000 pF		+50 −20	48.207.50/10K
C42	Ceramic	1,500 pF		+50 −20	48.206.50/1K5
C43	Ceramic	1,500 pF		+50 −20	48.206.50/1K5
C44	Tubular	3,900 pF		20	MK.198.98
C45	Ceramic	4,700 pF		+50 −20	48.207.50/4K7
C46	Ceramic	2,200 pF		+50 −20	48.207.50/2K2
C47	Moulded	2,200 pF	400	10	48.751.10/2K2
C48	Ceramic	100 pF		10	48.406.10/100E
C49	Moulded	1,500 pF	400	10	48.751.10/1K5

SPARE PARTS LIST — B3G63A, F5G62A and B5G64A—Continued

C50	Ceramic	18,000 pF	..	..	..	..	..	48.207.50/18K
C51	Moulded	0.1 uF	..	400	..	20	..	48.751.10/100K
C52	Moulded	15,000 pF	..	400	..	20	..	48.751.10/15K
C53	Ceramic	470 pF	..	..	..	10	..	48.406.10/470E
C54	Moulded	15,000 pF	..	400	..	10	..	48.751.10/15K
C55	Moulded	1,000 pF	..	800	..	10	..	48.757.10/1K
C56	Ceramic	3.3 pF	..	..	..	± 0.5 pF	..	MK.205.97
C57	Trimmer	100 pF	..	..	..	..	..	49.005.51/80pF
C58	Ceramic	500 pF	..	..	..	+100 / — 0	..	MK.205.85
C59	Ceramic	500 pF	..	..	..	+100 / — 0	..	MK.205.85
C60	Ceramic	4,700 pF	..	..	..	±50 / 20	..	48.207.50/4K7
C61	Ceramic	33 pF	..	..	..	10	..	48.406.10/33E
C62	Ceramic	6,800 pF	..	350	..	+50 / —20	..	49.206.50/6K8
C63	Ceramic	1,000 pF	..	..	..	+50 / —25	..	MK.205.86
C64	Ceramic	1,000 pF	..	..	..	+50 / —25	..	MK.205.86
C65	Ceramic	10,000 pF	..	..	..	+50 / —20	..	48.207.50/10K
C66	Ceramic	10,000 pF	..	..	..	+50 / —20	..	48.207.50/10K
C68	Ceramic	8.2 pF	..	..	..	±20	..	48.406.99/8E2
C69	Ceramic	8.2 pF	..	..	..	20	..	48.406.99/8E2
C81	Ceramic	1,000 pF	..	..	..	+50 / —25	..	MK.205.86

SPARE PARTS LIST — B3G63A, F5G62A and B5G64A

RESISTORS

N.B.—Wattage is based upon an ambient temperature of 70° C.

			Wattage	*Permitted Tolerance %*	
R1	Wirewound	1,200 Ω	3	10	48.468.10/1K2
R2	.. ..	39,000 Ω	1	10	48.427.10/39K
R3	.. ..	33,000 Ω	1	10	48.427.10/33K
R4	.. ..	150 Ω	1	10	48.427.10/150E
R5	.. ..	0.22M Ω	1	20	MK.771.09
R6	Volume and Tone Control	0.5M Ω	Log Law	..	MK.811.15
R7		2.0M Ω			
R8	.. ..	1,000 Ω	½	10	48.426.10/1K
R9	.. ..	2,200 Ω	½	10	48.426.10/2K2
R10	.. ..	10.000 Ω	½	10	48.426.10/10K
R11	.. ..	180 Ω	½	10	48.426.10/180E
R12	.. ..	2,200 Ω	½	10	48.426.10/2K2
R13	.. ..	0.1M Ω	½	10	48.426.10/100K
R14	.. ..	33,000 Ω	½	10	48.426.10/33K
R15	.. ..	1.2M Ω	½	10	48.426.10/1M2
R16	.. ..	47,000 Ω	½	10	48.426.10/47K
R17	.. ..	56,000 Ω	½	10	48.426.10/56K
R18	.. ..	2,200 Ω	½	20	48.426.10/2K2
R19	.. ..	1.2M Ω	½	10	48.426.10/1M2
R20	.. ..	4,700 Ω	½	10	48.426.10/4K7
R21	.. ..	0.18M Ω	½	10	48.426.10/180K
R22	.. ..	0.22M Ω	½	10	48.426.10/220K
R23	.. ..	47,000 Ω	½	10	48.426.10/47K
R25	.. ..	10,000 Ω	½	10	48.426.10/10K
R26	.. ..	0.22M Ω	½	10	48.426.10/220K
R27	.. ..	10.0M Ω	½	20	48.426.10/10M
R28	.. ..	0.1M Ω	½	20	48.426.10/100K
R29	.. ..	1,000 Ω	½	20	48.426.10/1K
R30	.. ..	220 Ω	½	10	48.426.10/220E
R31	.. ..	33,000 Ω	½	20	48.426.10/33K
R34	.. ..	18,000 Ω	1	10	48.427.10/18K
R36	.. ..	22,000 Ω	½	10	48.426.10/22K
R37	.. ..	10.0M Ω	½	20	48.426.10/10M
R38	.. ..	0.1M Ω	½	10	48.426.10/100K
R39	.. ..	47 Ω	½	10	48.426.10/47E
R40	.. ..	1,200 Ω	½	10	48.426.10/1K2
R41	(F5G62A only)	0.68M Ω	½	20	48.426.10/680K