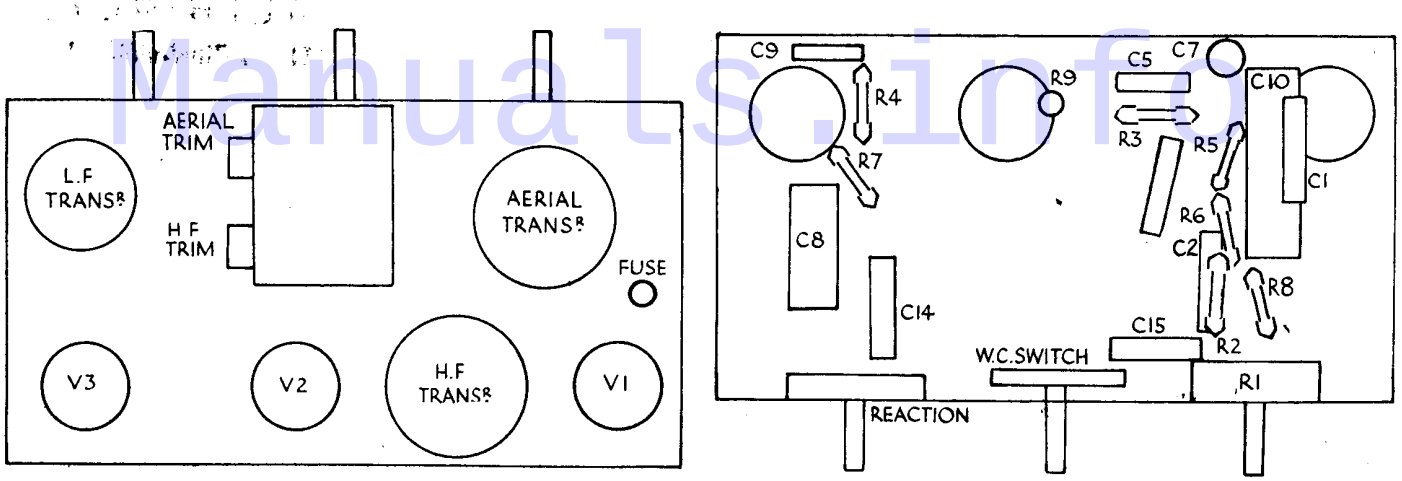


The construction of the chassis of the General Electric Co.'s S.G.3 is perfectly straightforward. A new wiring colour code is employed, of which details are given under "General Notes."

(*Continued from previous page.*)

General Notes.—A new colour code is used for the wiring in this receiver:—

White, high potential connections to the aerial circuit; green, control grid connections and high potential ends of signal circuits; blue, screen grid connections; orange, connections to the anodes of valves; black, connections to earth, frame, or low potential ends of signal circuits; slate, connections to H.T.−, where H.T.− is not connected to earth; red, connections to H.T. +; green-white, grid circuit decoupling and the addition of white to the above colours indicates a decoupling connection for the respective circuit.

The filament circuit is wired in black-red and black-white respectively, the former being the L.T.+ connections.

The condenser C10 across the bias potentiometer is a 50 mfd. 20 v. working electrolytic and the positive end is connected to chassis. The anchorage for the negative end is actually on the aerial transformer.

Replacing Chassis.—Lay chassis inside cabinet, replace knobs and holding screws.

BUSH RADIO'S S.A.C.5 FIVE-VALVE SUPERHET

Circuit.—The combined first-detector-oscillator, F.C.4 met. (V1) is preceded by a band-pass aerial tuner. Bias is obtained by cathode resistance and A.V.C., and oscillator tuning is in the grid circuit. Coupling to the next valve is by band-pass I.F. transformer (frequency 123 kc.).

The I.F. valve, VP4 met. (V2), has a grid stabilising resistance and is also biased by A.V.C. and cathode resistance, the latter being tapped to form a positive bias potentiometer to maintain current flow through the Westector, which is used as a half-wave second detector.

Both the D.C. and L.F. outputs from the Westector are utilised, the D.C. being fed through decoupling resistances to provide A.V.C., and the L.F. through a resistance capacity filter to the grid of the L.F. valve. The diode load is R 11.

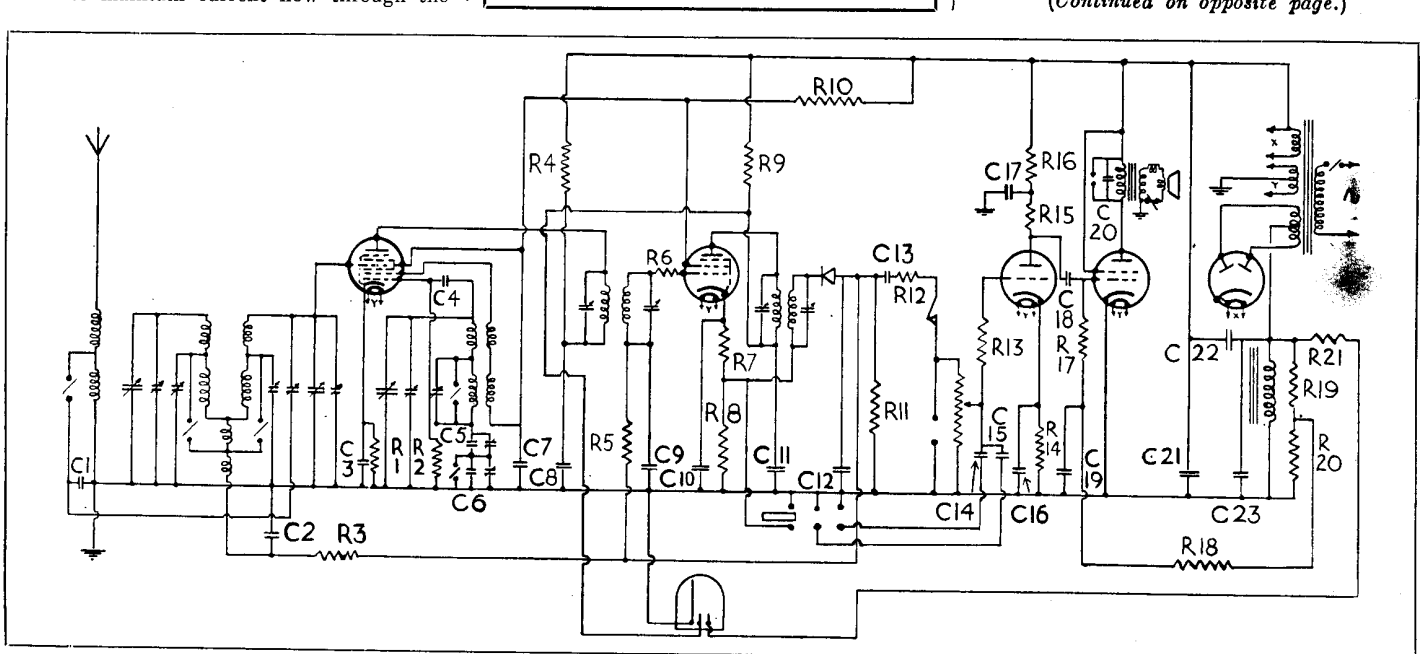
The L.F. valve, 354 V or 904 V met. (V3), has a grid stabilising resistance, and the grid leak is the potentiometer volume control. The

(*Continued on opposite page.*)

VALVE READINGS

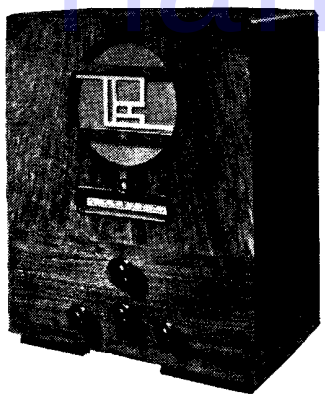
No signal on M.W.

Valve	Type.	Electrode	Volts	Ma.
1	F.C.4 met (7)	anode ..	226	1.8
		aux. grid	75	
		osc. anode	75	
2	V.P.4 met (5) ..	anode ..	115	3.5
		aux. grid	75	
3	354v. met (5) ..	anode ..	150	3
4	Pen. 4V.A. (7) ..	anode ..	235	30
		aux. grid	250	5



Following frequency changing and I.F. stages, the Bush S.A.C.5 has a Westector used for both A.V.C. and signal purposes. Next follows an L.F. amplifier resistance coupled to the output pentode.

BUSH MODEL S.A.C.5 SUPERHET (Cont.)



The familiar speaker fret design is used for the S.A.C.5 receiver by Bush Radio, Ltd. The escutcheon incorporates a tuning indicator.

owing coupling is another R.C. filter with anode and grid decoupling.

The output valve, a Pen 4VA (V4), is used by connecting the grid return lead to a potentiometer across the speaker field, which is in the negative H.T. lead. Tone compensation is by a condenser across the primary of the output transformer.

Mains equipment, consists of transformer, full-wave indirectly heated rectifier and two 8 mfd. electrolytic condensers, used for smoothing.

Special Notes.—The neon tuning indicator utilises the operating potentials between the negative of the power unit and the V2 anode potential. The actual controlling voltage is that provided by the drop across R9.

The tuning indicator is mounted above the ganged condenser. There are no trimmers on the condenser as these are situated inside the coil cans and can be reached from underneath the chassis as shown in the diagram. Those nearer the front of the chassis are the long-wave trimmers.

The Westector is mounted inside the screening can of the second I.F. transformer.

R3 and C4 are inside the osc. coil can.

Quick Tests.—Between the terminals on the speaker transformer and chassis (note the polarity) :—

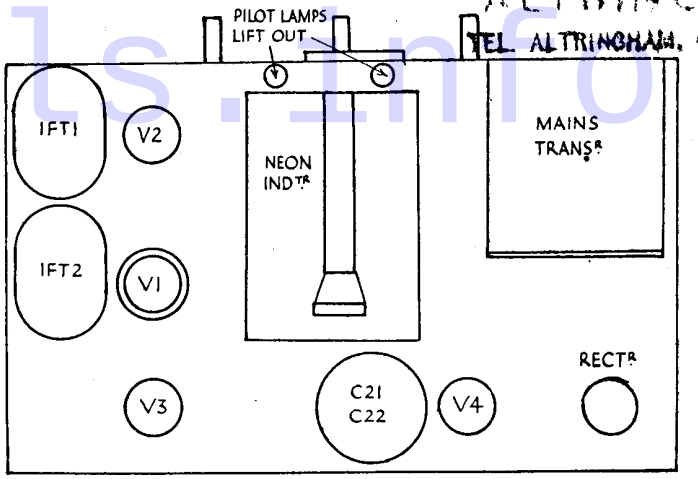
Top. (1) Red, 105 volts negative.
(2) Blue, H.T. smoothed, 250 volts positive.
(3) Brown 0.
(4) and (6) 0.
(5) Green, V4 anode, 235 volts positive.

(1) Gives the voltage drop across the speaker field resistance 2,000 ohms.

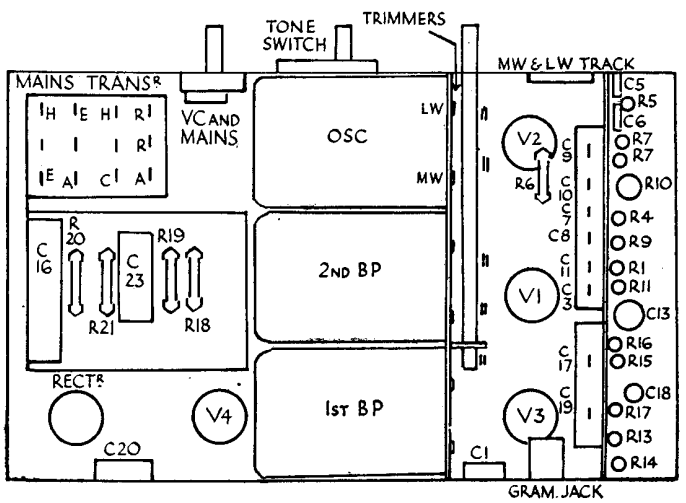
Removing Chassis.—Remove the knobs (grub screws), four screws underneath the cabinet, release the speaker cable from the cleat and lift the chassis out.

General Notes.—The pilot lamps are 3.5 volt type and are wired in series.

Connections to mains transformer (see diagram) : R, R, rectifier heater; A, A, rectifier anodes; C, H.T.+; H, H, set heaters; E, chassis.



There are no trimmers on the gang condenser of the S.A.C.5. They are fitted to the coils and are adjusted from below the chassis.



Compact, orderly arrangement of parts is found in the Bush receiver, and the use of assemblies facilitates clean wiring.

RESISTANCES

R.	Purpose.	Ohms.
1	V1 cathode bias	250
2	V1 osc. grid leak	15,000
3	Decoupling V1 grid	.25 meg.
4	Decoupling V1 anode	10,000
5	Decoupling V2 grid	.25 meg.
6	V2 grid stabiliser	250
7	V2 cathode bias ptr.	250
8	V2 cathode bias ptr.	600
9	Decoupling V2 anode	40,000
10	Voltage dropping to V1 and V2 aux. grids	20,000
11	Westector load	.25 meg.
12	H.F. stopper	50,000
13	H.F. stopper	100,000
14	V3 cathode bias	1,000
15	V3 anode coupling	30,000
16	V3 anode H.T. decoupling	10,000
17	V4 grid leak	.5 meg.
18	V4 grid decoupling	.5 meg.
19	V4 bias ptr.	.15 meg.
20	V4 bias ptr.	.5 meg.
21	Voltage control on neon tube	.25 meg.

CONDENSERS

	Purpose.	Mfd.
1	Short-circuiting L.W. on aerial coil	.0011
2	Decoupling V1 grid	.1
3	V1 cathode by-pass	.1
4	V1 osc grid reservoir	.0005
5	M.W. osc. tracking	
6	L.W. osc. tracking	
7	V1 aux. grid by-pass	.1
8	V1 anode decoupling	.1
9	V2 grid decoupling	.1
10	V2 cathode by-pass	.1
11	V2 anode decoupling	.1
12	H.F. by-pass from detector	.0002
13	L.F. coupling from detector	.005
14	Tone control circuit, V3 grid	.001
15	Tone control circuit, V3 grid	.001
16	V3 cathode by-pass	50 el.
17	V3 anode decoupling	.5
18	V3, V4, L.F. coupling	.005
19	V4 grid decoupling	.5
20	Tone compensating V4 anode	.005
21	H.T. smoothing	8
22	H.T. smoothing	8
23	Tuning L.S. field	.1

The smoothing condensers, C 21 and C 22, are in one container, the case is negative of C 21, the red lead is the common positive, and the black lead is the negative of C 22.

Soldering tags on the ends of the small resistance condenser panel are used as anchorages for the leads.

The condensers in the blocks are .1 mfd. and the cases are earthed.

The small twisted wire condenser on V1 holder is the second channel suppressor coupling.

Replacing Chassis.—Lay the chassis inside the cabinet, replace holding screws and knobs, catch the speaker cable under the cleat.

SERVICE EQUIPMENT BY E.M.I.

E.M.I. Service, Ltd., of Sheraton Works, Hayes, has introduced a range of equipment of the service workshop.

The gear includes a bench for two engineers at 12 guineas, an insulation tester at £7 2s. 6d., an oscillator at £8 5s., a cabinet refinishing kit at 17s. 6d., and a stand for the adjustment of gramophone motors and charge units at £1 17s. 6d.

The firm has also prepared detailed instructions for the planning and equipment of both the workshop and office sections of a service department.

A complete administration system has been worked out and the necessary stationery and files are available.