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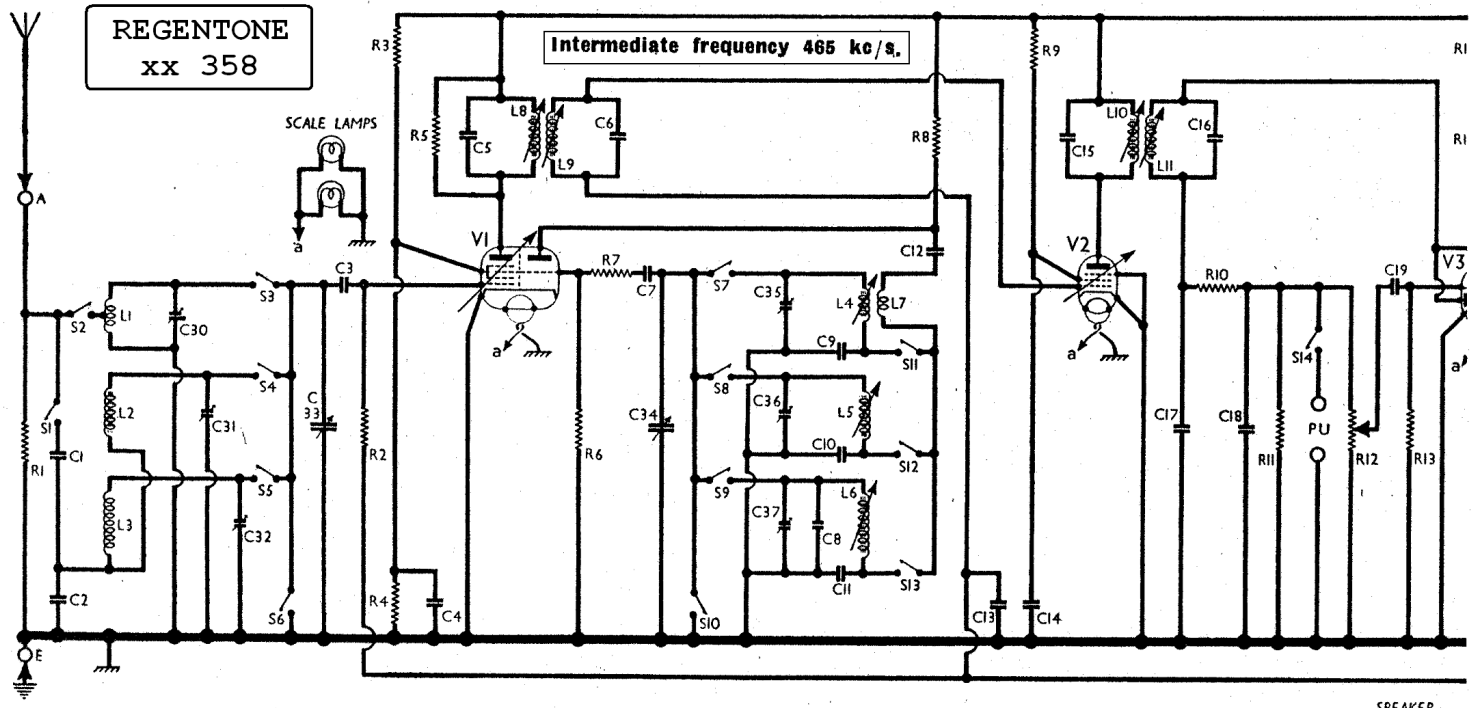
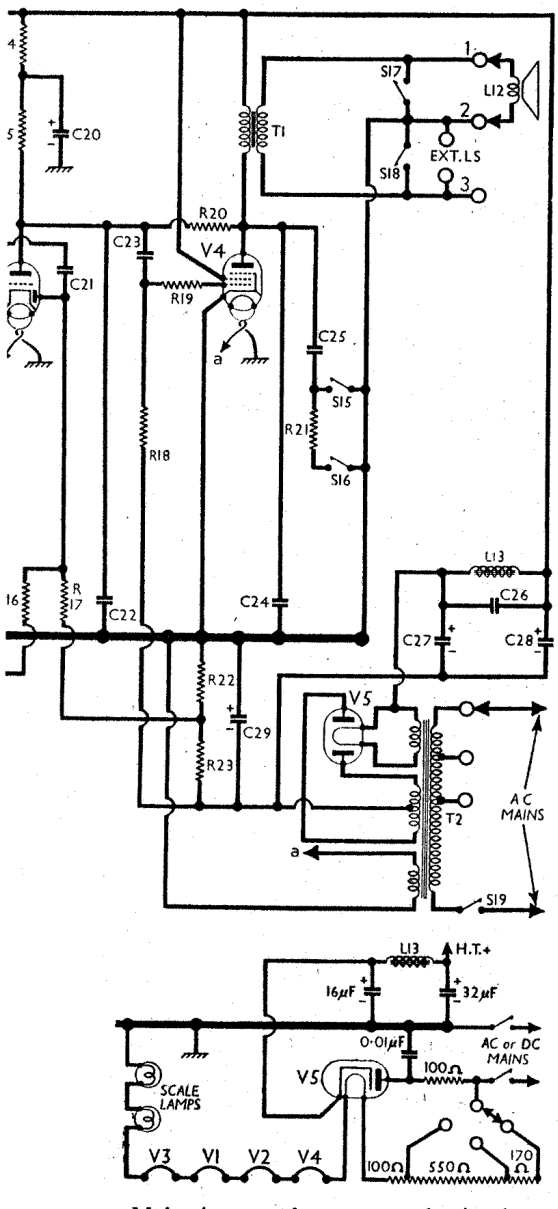
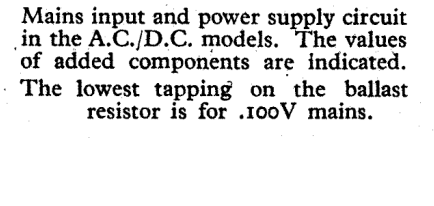




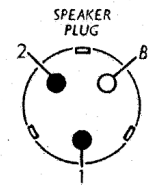


Mains input and power supply circuit in the A.C./D.C. models. The values of added components are indicated. The lowest tapping on the ballast resistor is for .100V mains.

CAPACITORS		Values (μF)	Locations
C1	Aerial coupling capacitors	0·01	J4
C2		0·00375	H4
C3	V1 hex C.G.	0·0001	H4
C4	V1 S.G. decoup.	0·1	H5
C5	1st I.F. trans. tun.	0·0001	A2
C6		0·0001	A2
C7	V1 osc. C.G.	0·0001	H4
C8	Osc. L.W. trim.	0·00003	G4
C9	Osc. S.W. tracker	0·00375	G4
C10	Osc. M.W. tracker	0·0004	G4
C11	Osc. L.W. tracker	0·00013	G4
C12	Osc. anode coup.	0·0001	G4
C13	V2 C.G. decoup.	0·1	G5
C14	V2 S.G. decoup.	0·1	F5
C15	2nd I.F. trans. tun.	0·0001	B2
C16		0·0001	B2
C17	I.F. by-pass cap.	0·0001	B2
C18		0·0001	B2
C19	A.F. coupling	0·01	E3
C20*	V3 H.T. decoup.	4·0	E4
C21	A.G.C. coupling	0·0001	E5
C22	I.F. by-pass	0·0001	D5
C23	A.F. coupling	0·01	D5
C24	Tone corrector	0·01	C5
C25	Tone control	0·01	D4
C26	H.T. choke tune	0·5	E4
C27*	H.T. smoothing capacitors	16·0	A1
C28*		16·0	A1
C29*	G.B. by-pass	25·0	F3
C30	Aerial S.W. trim.	0·00005	J4
C31‡	Aerial M.W. trim.	0·00005	J4
C32	Aerial L.W. trim.	0·00005	J5
C33	Aerial tuning	0·000412	A1
C34†	Oscillator tuning	0·000412	A1
C35‡	Osc. S.W. trim.	0·00005	G3
C36‡	Osc. M.W. trim.	0·00005	G4
C37‡	Osc. L.W. trim.	0·00005	G4

* Electrolytic. † Variable. ‡ Pre-set.

RESISTORS		Values (ohms)	Locations
R1	Aerial shunt	5,000	J6
R2	V1 hex. C.G.	500,000	H5
R3	V1 S.G. potential divider resistors	56,000	G5
R4		47,000	G5
R5	I.F. stabilizer	100,000	G5
R6	V1 osc. C.G.	50,000	H6
R7	Osc. stabilizer	100	H5
R8	Osc. anode load	47,000	G5
R9	V2 S.G. feed	100,000	F5
R10	I.F. stopper	47,000	B2
R11	Sig. diode load	330,000	E5
R12	Volume control	2,200,000	E3
R13	V3 triode C.G.	4,700,000	E6
R14	V3 H.T. decoup.	51,000	E5
R15	V3 triode load	100,000	D5
R16	A.G.C. decoupling	1,200,000	F5
R17	A.G.C. diode load	1,200,000	E5
R18	V4 C.G. resistor	100,000	D5
R19	V4 C.G. stopper	10,000	D5
R20	F.-B. coupling	1,200,000	E5
R21	Part tone control	5,000	C3
R22	Fixed G.B., and A.V.C. delay, resistors	47	F3
R23		75	F3



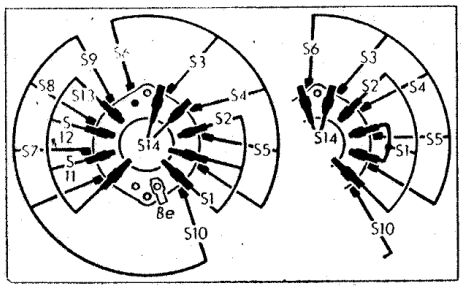
OTHER COMPONENTS		Approx. Values (ohms)	Locations
L1	Aerial tuning coils	Very low	J4
L2		2.25	J4
L3		86.0	J5
L4	Oscillator tuning coils	Very low	G3
L5		2.2	G4
L6		12.0	G4
L7	Osc. react. coil	0.5	G3
L8	1st I.F. trans. Pri.	7.0	A2
L9	1st I.F. trans. Sec.	7.0	A2
L10	2nd I.F. trans. Pri.	7.0	B2
L11	2nd I.F. trans. Sec.	7.0	B2
L12	Speech coil	2.5	—
L13	Smoothing choke	190.0	B1
T1	Output trans. Pri.	900.0	D4
	Output trans. Sec.	0.4	D4
T2	Main trans. Pri., total	27.0	B1
	Main trans. Heat. sec.	Very low	B1
	Main trans. Rect. heat. sec.	Very low	B1
	Main trans. H.T. sec., total	430.0	B1
S1-S14	W/band switches	—	H3
S15,16	Tone switches	—	C3
S17,18	Speaker switches	—	D6
S19	Mains sw., g'd R12	—	E3

VALVE ANALYSIS

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
A.C. Model				
V1 ECH35	253	3.9	86	1.4
	Oscillator			
	57	3.3		
V2 EF39	253	5.9	85	1.6
V3 EBC33	46	1.4	—	—
V4 EL33	218	34.0	253	4.3
V5 AZ31	267†	—	—	—
A.C./D.C. Model				
V1 CCH35	226	1.8	65	1.5
	Oscillator			
	68	3.5		
V2 EF39	226	4.9	82	1.4
V3 EBC33	106	0.9	—	—
V4 CL33	184	43.0	226	5.6
V5 CY31	*	—	—	—

† Each anode, A.C.
* Cathode to chassis 233 V.D.C.

Waveband Switch Unit



Left.—Diagram of the waveband switch unit, drawn as seen from the rear of an inverted chassis. *Right.*—The right-hand section only, viewed from the same position, as it may be found in some chassis. It may be recognised by the "strap" between the two tags forming part of **S1**. The waveband switch table is given below.

Switch	L.W.	M.W.	S.W.	Gram
S1	C	C	—	—
S2	—	—	C	—
S3	—	—	C	—
S4	—	C	—	—
S5	C	—	—	—
S6	—	—	—	C
S7	—	—	C	—
S8	—	C	—	—
S9	C	—	—	—
S10	—	—	—	C
S11	—	—	C	—
S12	—	C	—	—
S13	C	—	—	—
S14	—	—	—	C

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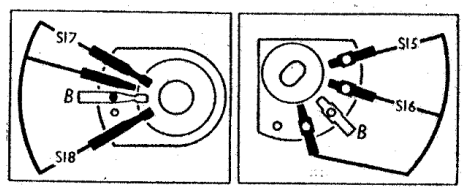
Other Switch Units



Left.—Diagram of the speaker circuit switch unit **S17, S18** drawn as seen from the under side of a chassis standing on its back. *Right.*—Diagram of the tone control switch unit **S15, S16,** drawn as seen from the rear of an inverted chassis. ***B*** indicates a blank tag.

RADIOGRAM MODIFICATIONS

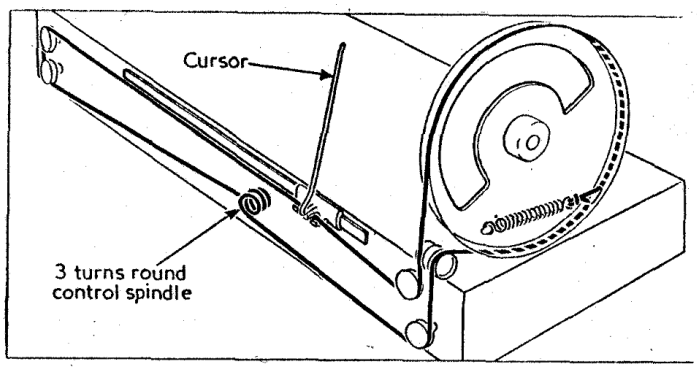
In the RG358, the ARG358 and the RG358U, the speaker switch unit **S17, S18** is mounted on the rear of the cabinet and is connected to chassis via the 3-pin plug which is used in the table model as the speaker connecting-plug. The external speaker sockets and the speaker, which is a 10in model in the radiograms, are connected to the switch unit.

In the pick-up circuit, a 100,000Ω resistor is inserted in the lead to **S14**, and a 250,000Ω shunts the P.U. input between **S14** and chassis.

The mains frequency on the autoradiogram ARG358 is limited to 50c/s. The gramophone motor units used are: in the RG358, a Garrard type AC7 or a Collaro type AC47; in the ARG358, a Garrard RC70 automatic record changer; in the RG358U a universal Garrard motor unit is used.

DRIVE CORD REPLACEMENT

Five feet of waxed fishing line is required for the drive cord, including ample surplus for tying off. The sketch below shows the complete system as seen from the front right-hand corner of the chassis when the gang is at maximum capacitance.



Sketch showing the tuning drive system, viewed from the front right-hand corner of the chassis when the gang is at maximum capacitance.

The whole cord can be made up as a complete loop, the ends being tied together round the ring on the tension spring. The loop is then threaded through the entry slot in the groove on the gang drum, from inside to out so as to leave the spring inside, when the cord can be run as shown in the sketch. It is finally pulled up by engaging the grip in the pointer carriage and by hooking the tension spring to its anchor. The inside length of our loop, stretched between two pins, was 28¼ inches.

If preferred, however, one end only can be tied to the tension spring while the cord is run, the other end being tied to the spring again at the end of its run. The pointer should be set to coincide with the double calibration marks at the bottom ends of the four scales when the gang is at minimum capacitance.

CIRCUIT ALIGNMENT

If the small detachable bottom cover is removed (four round-head wood screws), these operations can be carried out with the chassis in position in the cabinet.

I.F. Stages.—Switch set to M.W., turn gang capacitor and volume control to maximum, short-circuit **C34** (location reference A1), and connect signal generator, via an 0.1μF capacitor in the "live" lead, to control grid (top cap) of **V1** and the **E** socket. Feed in a 465 kc/s (645.16m) signal, and adjust the cores of **L11, L10, L9** and **L8** (B2, A2) for maximum output.

R.F. and Oscillator Stages.—With the gang at minimum capacitance the cursor should be coincident with the parallel lines at the low wavelength ends of the four scales. It may be adjusted in position by rotating the drive drum on its spindle, after slackening the grub screw. Transfer "live" signal generator lead to **A** socket, via suitable dummy aerial.

L.W.—Switch set to L.W., tune to 1,000m on scale, feed in a 1,000m (300 kc/s) signal, and adjust **C37** (G4) and **C32** (J5) for maximum output. Tune to 1,875m on scale, feed in a 1,875m (160 kc/s) signal, and adjust the core of **L6** (A2) for maximum output, while rocking the gang. Repeat these operations until no improvement results.

M.W.—Switch set to M.W., tune to 214.3m on scale, feed in a 214.3m (1,400 kc/s) signal, and adjust **C36** (G4) and **C31** (J4) for maximum output. Tune to 500m on scale, feed in a 500m (600 kc/s) signal, and adjust the core of **L5** (A1), while rocking the gang, for maximum output. Repeat these operations until no improvement results.

S.W.—Switch set to S.W., tune to 18 Mc/s on scale, feed in an 18 Mc/s (16.67m) signal, and adjust **C35** (G3) and **C30** (J4) for maximum output, choosing the peak for **C35**, which involves the lesser trimmer capacitance. Tune to 50m on scale, feed in a 50m (6 Mc/s) signal, and adjust the core of **L4** (A1), while rocking the gang, for maximum output. Repeat these operations until no improvement results.