



REGENTONE Service

BULLETIN NO. 105

Models ARG.99 Console & ARG.99/3 Console

CIRCUIT DESCRIPTION.—Five-valve superheterodyne. The aerial is coupled to the R.F. circuits by bottom end capacity coupling on Long and Medium Waves and by transformer action on Short waves.

On Long Waves the oscillator functions as a normal Colpitts, but on Medium and Short Waves acts as a modified Colpitts.

The frequency changer has cathode bias to prevent excess anode current under "no signal" conditions. When the receiver is switched to Gram the hexode grid and triode anode via its coupling condenser are connected to earth, while the oscillator grid is isolated from the coils, these precautions preventing signal break through.

The signal and the oscillation are mixed by the hexode section of the ECH 42 and the primary of the 1st I.F.T. selects the correct frequency at the anode. The voltage induced across the secondary is fed on to the grid of the EF 41 which is a conventional I.F. amplifier with cathode bias. The anode load of this valve is formed by the primary winding of the 2nd I.F.T. A voltage is induced across the secondary of this transformer and is passed to the signal diode of the EBC 41, which has cathode bias.

The A.F. voltage developed across the Volume Control R14 is fed to the grid of V3 and across R18 the anode load. An amplified voltage appears which reaches the grid of the cathode biased EL 41 output pentode via C31 and R22.

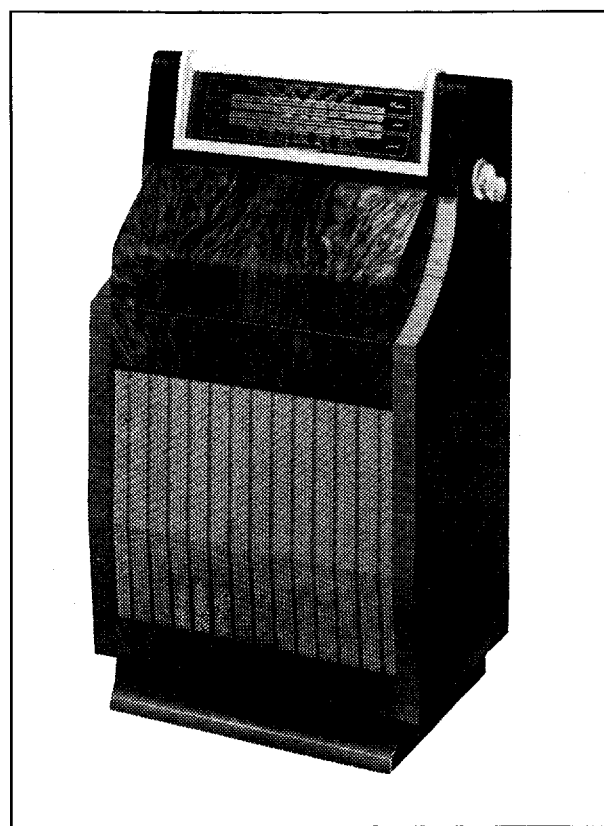
Negative feedback is provided by a potentiometer network R24. R17 across the secondary of the output transformer, the voltage across R17 being injected into the cathode of the EBC 41.

Tone control is obtained by varying the amount of treble attenuation.

Full wave rectification is used for H.T. supplies and separate heater windings are provided for Rectifier and valves.

AERIAL.—The cabinet is fitted with a back which is metalised on the inner surface, serving as a plate aerial. Provision is also made for normal aerial and earth connections.

CHASSIS MOUNTING.—It is essential that the three hexagonal headed screws securing the chassis to the baseboard should be slackened off when installing the receiver. This provides against microphony.



WAVEBANDS.—Frequency coverage as follows :
Long Wave ... 1,000—2,000 metres ; 300—150 Kc/s
Medium Wave ... 180— 550 metres ; 1,665—545 Kc/s
Short Wave ... 16.6— 50 metres ; 18— 6 Mc/s

INTERMEDIATE FREQUENCY.—470 Kc/s.

POWER SUPPLY.—100-120 volts or 200-240 volts A.C.

POWER CONSUMPTION.—90 Watts.

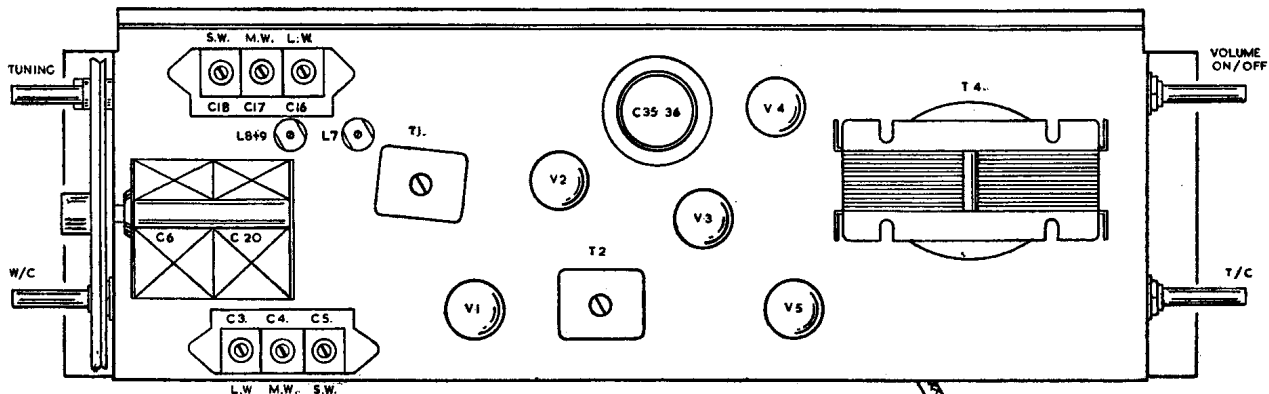
RECORD CHANGER.—Garrard R.C. 70 for Model Auto 99 Console. Garrard R.C. 72 for model Auto 99/3 Console. Suitable for operation on 100-120 volts or 200-240 volts A.C. mains. For Service Instructions see manufacturers leaflet.

POWER OUTPUT.—2.5 Watts.

PILOT LAMP.—(One) 6.5v. 0.3a.

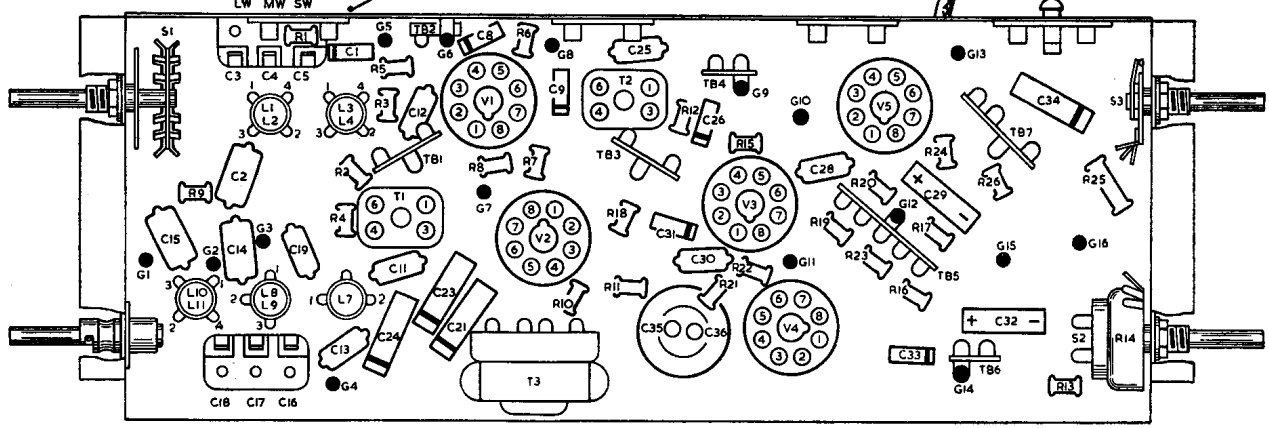
REGENTONE SERVICE

TOP CHASSIS



ARG/99/C

AERIAL ADJUSTMENTS



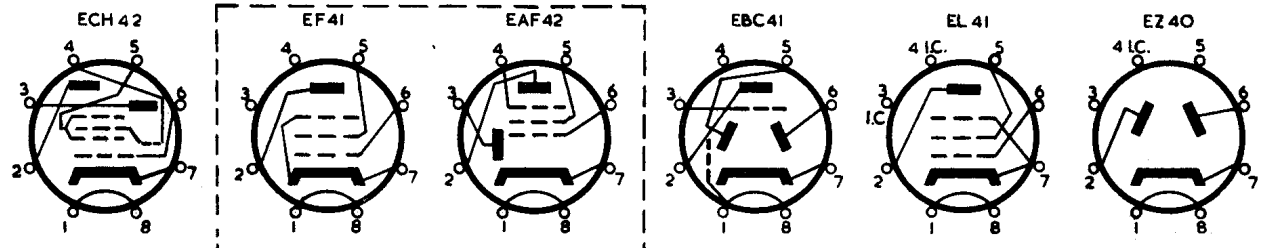
REFER TO TOP CHASSIS FOR C6, C20 & T4.

NOTE: T1 INCLUDES C7 & C10
T2 INCLUDES C22 & C27

P.U. SHUNTS ARE SITUATED UNDER MOTOR BOARD. SEE CIRCUIT DIAGRAM.

ARG. 99C.

UNDER CHASSIS



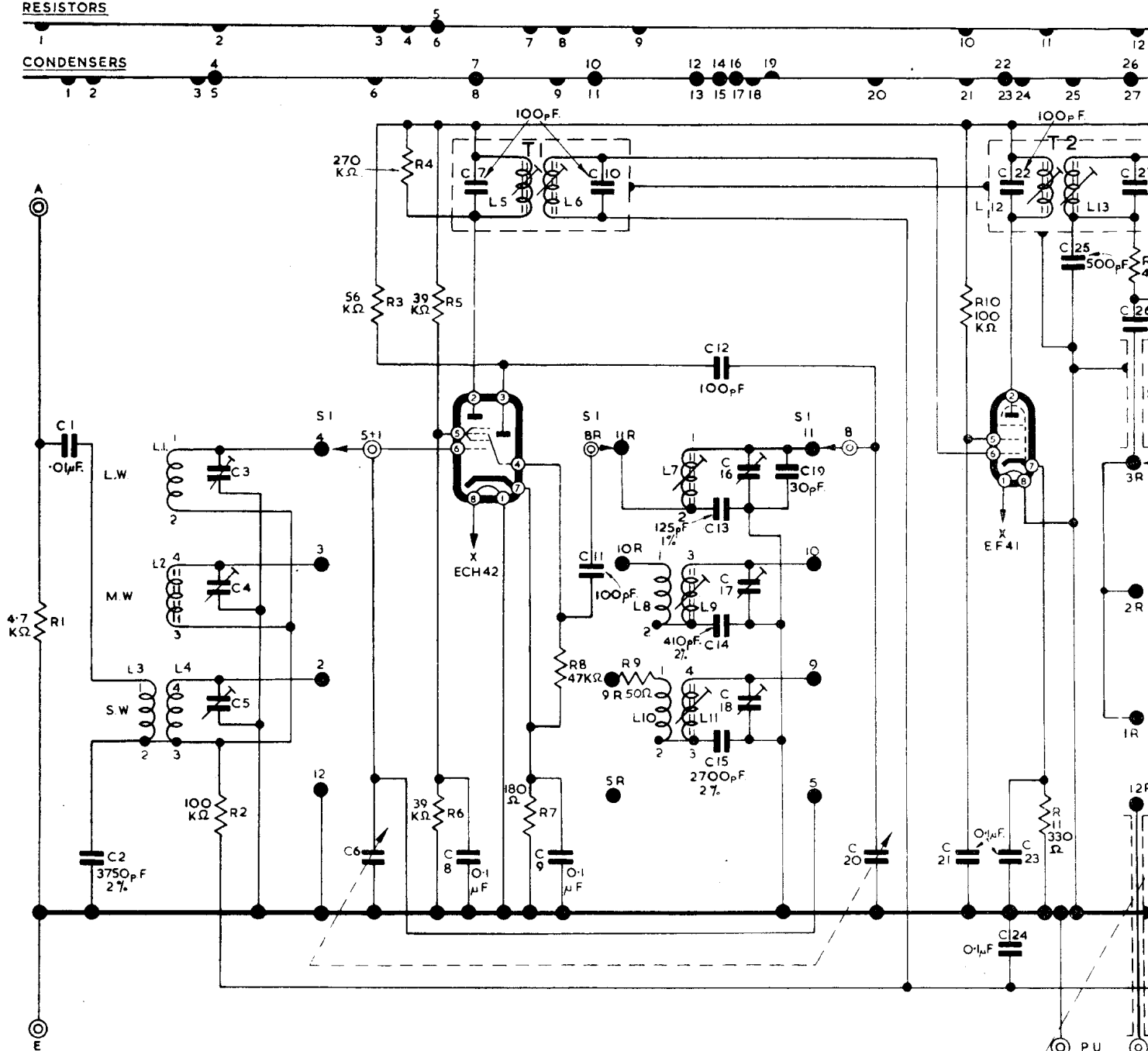
ALTERNATIVE VALVES

VALVE BASES

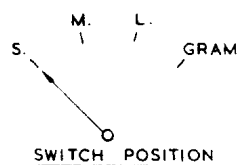
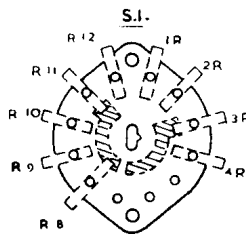
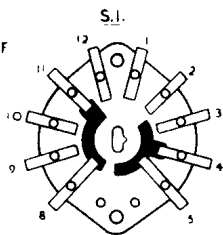
REGENTONE SERVICE

RESISTORS

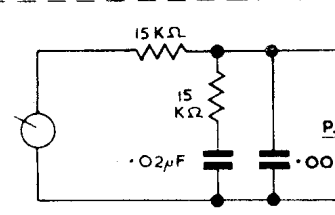
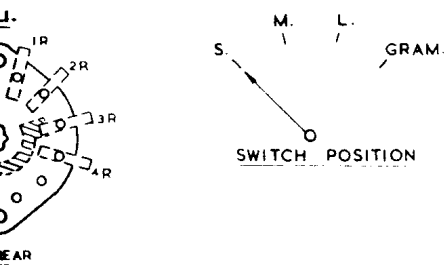
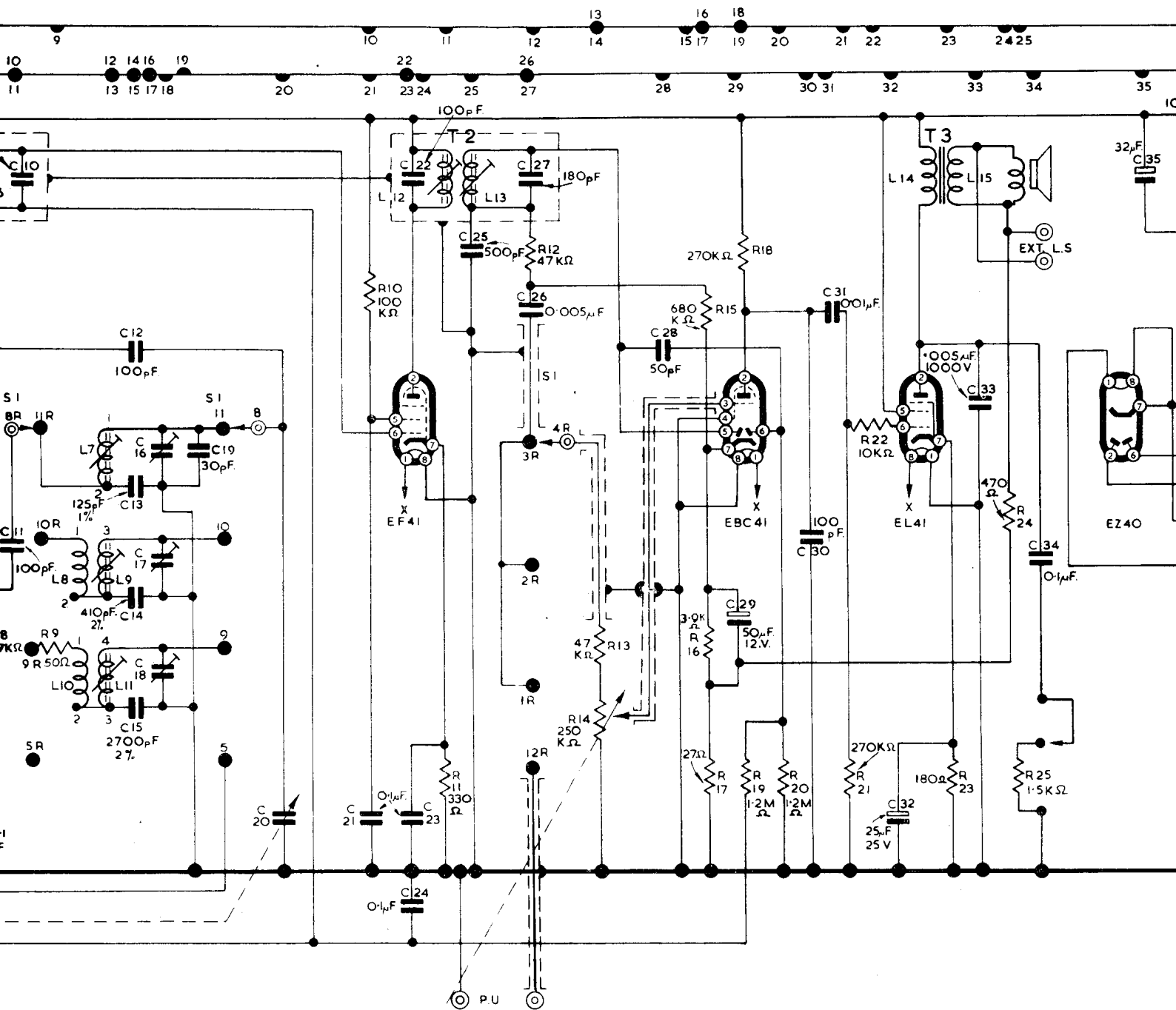
CONDENSERS



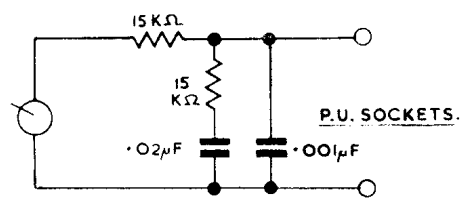
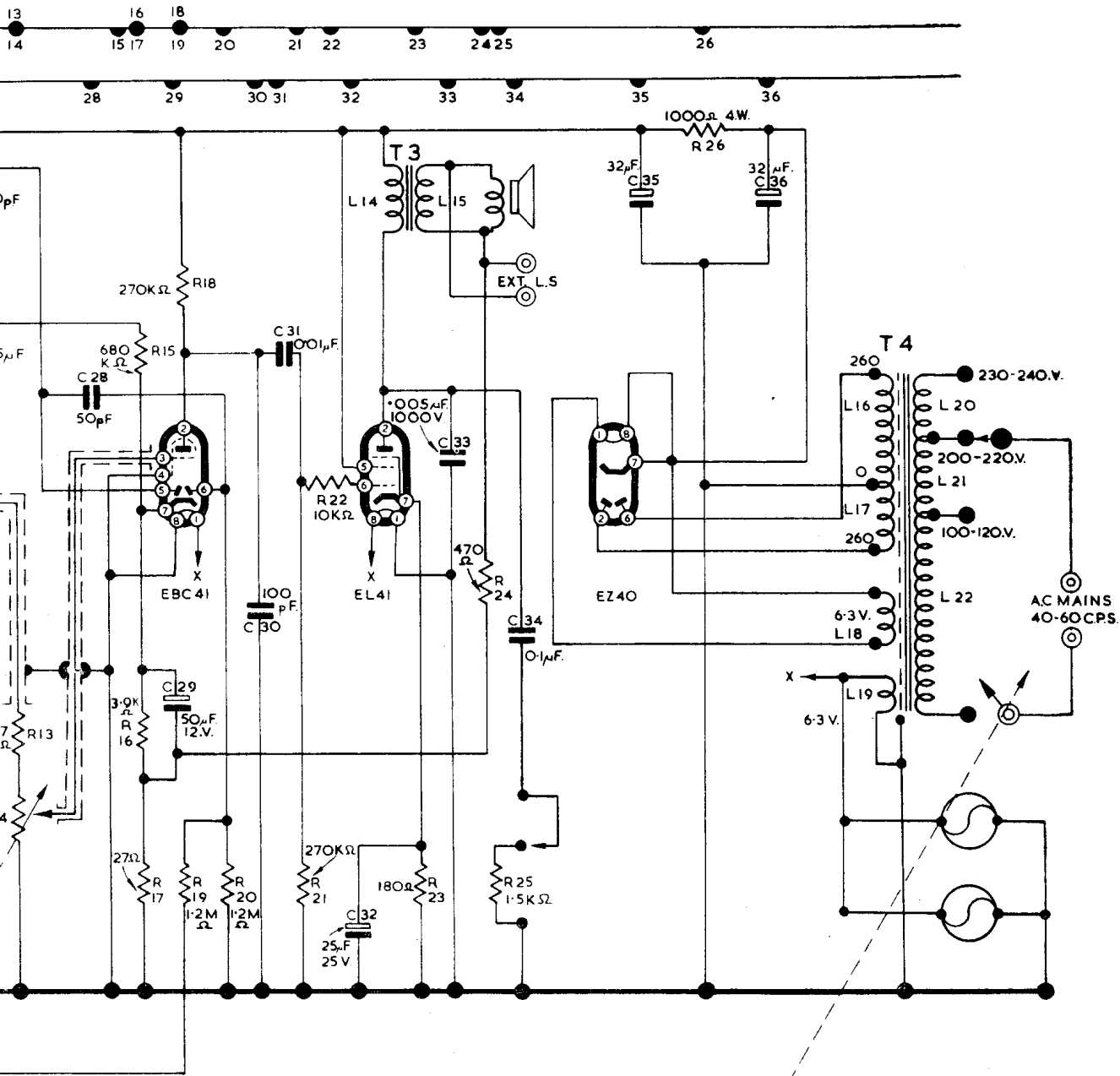
NOTE: C 6, C 20=12-528pF



SWITCH WAFER AS SEEN WHEN LOOKING AT REAR UNDERSIDE OF CHASSIS.

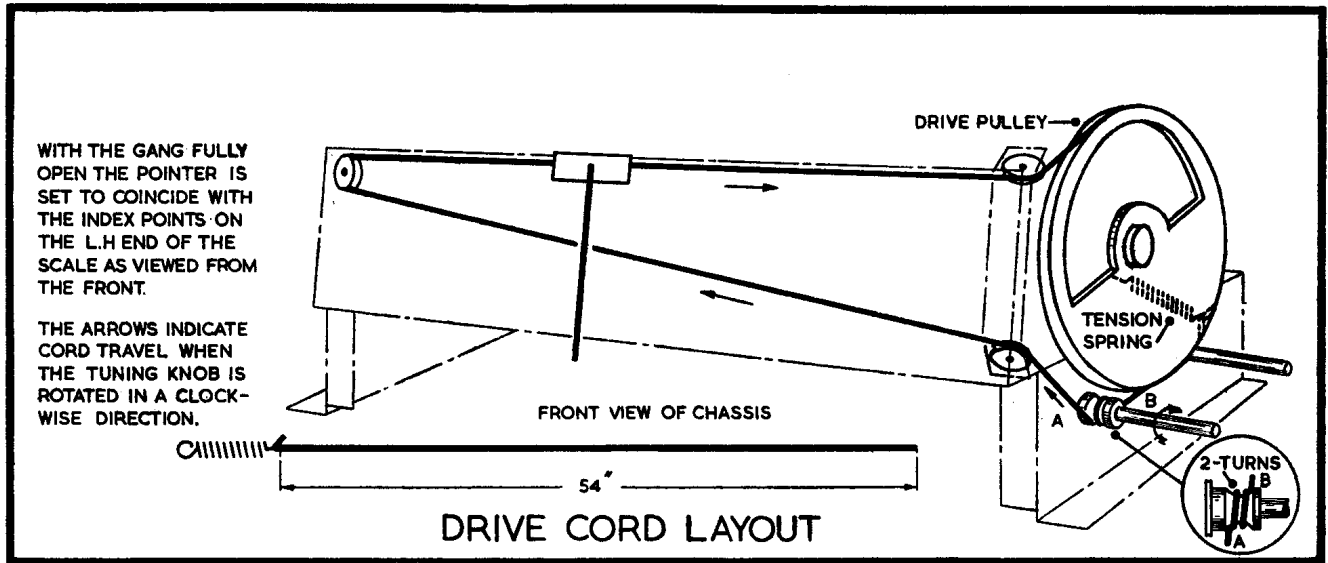
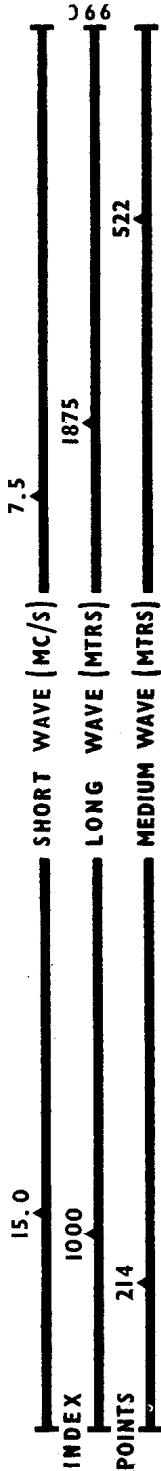


REGENTONE SERVICE



NOTE.—The information contained in this bulletin is in accordance with initial production receivers. Due to uncertainty of supplies, substitute components may have to be used, and the values of these may vary from the published information. Wherever possible, such substitutions will be controlled within permissible tolerances, and will have no adverse effect on the performance of the receiver.

REGENTONE SERVICE



REPLACEMENT PARTS LIST

The following list is limited to the principal components used in this Receiver, and replacements are available from stock. Other components not listed can be obtained from trade suppliers, but in cases of difficulty Regentone Service will assist. When ordering replacements, the Receiver model number and component part number MUST be quoted to enable the order to be executed correctly. Claims for free replacement under guarantee must be accompanied by the defective component. The model number, serial number and date of sale of the Receiver must also be quoted.

Part No.	Description	Part No.	Description
<i>Cabinet and Fittings</i>			
RA.408059	Back—Cabinet.	R.129575	Condenser 500 pF. 20%.
R.148579	{ Bracket, Pilot Lamp Mtg.	RA.450059	Bracket and Spindle Pulley.
	{ Bracket, chassis mtg., (Rear support).	R.129572	Condenser 410 pF. 2%.
RA.409083	Cabinet	R.129582	Condenser 125 pF. 1%.
R.590022	Cleat fibre.	R.129529	Condenser 100 pF. 5%.
R.142509	Clip—Scale Glass Mtg., (Bent).	R.129527	Condenser 50 pF. 10%.
R.142533	Clip—Scale Glass Mtg. (Flat).	R.129519	Condenser 30 pF. 10%.
R.142504	Clip knob retaining.	R.131550	Condenser 32-32 mF. Electrolytic.
R.189513	Gram Unit. Garrard R.C.70.	R.127515	Condenser 2 Gang Variable.
R.164501	Grommet chassis cushioning.	R.142502	Clip Pulley retainer. -
R.164517	Grommet Rear chassis support.	R.125557	Drum Drive.
R.169513	Knob Tone Control.	R.157516	Holder Pilot Lamp
R.169512	Knob Tuning Control.	R.166500	Nut Coil Mtg.
R.169512	Knob Volume Control.	R.138518	Panel Socket Aerial and Earth.
R.175533	Knob Wavechange Control.	R.138516	Panel Socket Pick-up.
R.580016	Scale Plate.	R.138517	Panel Socket Loudspeaker.
R.126612	Scale Glass.	R.138537	Panel Socket Voltage Taps.
R.190526	Speaker 8" P.M.	R.139507	Plate condenser mtg.
R.165504	Washer Felt Large.	R.138501	Plug Voltage taps.
R.165505	Washer Felt Small.	RA.407016	Pointer and Carriage.
		R.158563	Potentiometer $\frac{1}{2}$ Meg. S.P.S.T.
		R.125566	Pulley Idler.
		R.132506	Resistor 1K 4 W. Wire Wound.
		R.125561	Spindle 2 Speed Drive.
		R.122503	Spring Cord Tension.
		R.142501	Strap Coil Mtg.
		R.153534	Switch Tone Control.
		R.153535	Switch Wave-change.
		RA.415006	Transformer 1st I.F.
		RA.415007	Transformer 2nd I.F.
		R.159566	Transformer Mains.
		R.159585	Transformer Output.
<i>Chassis Components.</i>			
RA.430089	Coil Assy. M.W. & L.W. Aerial.		
RA.430228	Coil Assy. S.W. Aerial.		
RA.430001	Coil Assy. L.W. Oscillator.		
RA.430227	Coil Assy. M.W. Oscillator.		
RA.430062	Coil Assy. S.W. Oscillator.		
R.128516	Condenser 3 Bank Trimmer.		
R.129531	Condenser 3750 pF. 2%.		
R.129542	Condenser 2,700 pF. 2%.		

REGENTONE SERVICE

ALIGNMENT PROCEDURE

If alignment is necessary, the following sequence of operations should be carefully followed. A tuneable signal generator should be used and its output must always be limited, so that the Receiver output is just audible. The signal should be fed to the Receiver via a dummy aerial. For I.F. use a 0.05 mfd Condenser, for S.W. a 400 ohms resistor and a 400 pf condenser in series, and for M.W. and L.W. circuits a standard dummy aerial. This may consist of a 200 pf condenser, 25 ohms resistor and a 25 micro-henrys inductance in series.

INTERMEDIATE FREQUENCY.—Switch to M.W., turn volume control fully clockwise and with tuning condenser fully open, set pointer on index points. Inject a signal of 470 Kc/s between the signal grid of the frequency changer and Receiver chassis, and adjust the cores of the I.F. transformers for maximum output, as shown by an output meter. The correct peak is that at which both cores are furthest from the base pins.

LONG WAVE.—Turn wavechange switch to L.W. position and inject 300 Kc/s signal between aerial and earth. Tune to 1000 metres and adjust oscillator and aerial trimmers for maximum output. Tune to 1875 metres and inject a signal of 160.0 Kc/s. Adjust oscillator core and simultaneously rock gang for maximum output. Repeat both operations until no further improvement can be achieved.

MEDIUM WAVE.—Switch to M.W. and tune to 214 metres. Inject a signal of 1400 Kc/s and adjust oscillator and aerial trimmers for maximum output. Tune to 522 metres and feed in a signal of 575 Kc/s. Adjust oscillator core and rock gang for maximum output. Repeat these operations until no further improvement is effected.

SHORT WAVE.—Switch to S.W. and tune to 15 Mc/s, feed in a signal of 15Mc/s and adjust the S.W. oscillator trimmer for the second signal heard from tight. Adjust aerial trimmer for maximum output. Tune to 7.5 Mc/s and inject a signal of this frequency. Adjust core of oscillator coil and rock gang for maximum output. Repeat both adjustments until no further improvement is possible.

COIL RESISTANCE TABLE

Ref.	Function.	Section.	Resistance.	
L1	Coil L.W. Aerial		35 ohms.	
L2	Coil M.W. Aerial		2.7 ohms.	
L3	Coil S.W. Aerial		0.3 ohms.	
L4	Coil S.W. Aerial	Aerial	Less than 1 ohm.	
L5	Coil 1st I.F.T.	Grid	6.5 ohms.	
L6	Coil 1st I.F.T.	Primary	6.3 ohms.	
L7	Coil 1st I.F.T.	Secondary	12.8 ohms.	
L8	Coil L.W. Osc.		0.5 ohms.	
L9	Coil M.W. Osc.	Grid	4.8 ohms.	
L10	Coil M.W. Osc.	Anode	0.5 ohms.	
L11	Coil S.W. Osc.	Grid	Less than 1 ohm.	
L12	Coil S.W. Osc.	Anode	7.3 ohms.	
L13	Coil 2nd I.F.T.	Primary	5.2 ohms.	
L14	Coil 2nd I.F.T.	Secondary	420 ohms.	
L15	Output Transformer	Primary	3 ohms.	
L16	Output Transformer	Secondary	255 ohms.	
L17	Mains Transformer	Secondary H.T.	255 ohms.	
L18	Mains Transformer	Secondary H.T.	0.7 ohms.	
L19	Mains Transformer	Secondary	Less than 1 ohm.	
L20	Mains Transformer	6.3V. Rectifier		
L21	Mains Transformer	6.3V. Valves		
L22	Mains Transformer	Primary	50 ohms.	
		240V. Tap.	} From common tap.	
		Primary		45 ohms.
		220V. tap.		
		Primary	10 ohms.	
		120V. tap.		

VOLTAGE AND CURRENT TABLE

The following readings are approximate only, and were obtained with the receiver connected to a 230 V. 50 cycles per second mains supply. The Volume Control

was set to minimum, the wavechange switch in the M.W. position, and the tuning condenser fully meshed. A 500 ohms per volt meter was used.

Ref.	Valve	Function	Electrode	Pin	V.	mA.	Electrode	Pin	V.	mA.
V1	ECH42	Frequency Changer	Hexode Anode	2	232	1.3	Screen	5	67	2.9
			Cathode	7	1.25					
V1	ECH42	Frequency Changer	Triode Anode	3	76	2.8	Triode Anode	3	38	3.5
			(Oscillating)				(Not Oscillating)			
V2	EF41	I.F. Amplifier	Anode	2	232	5.0	Screen	5	82	1.6
	(or EAF42)		Cathode	7	2					
V3	EBC41	Det. A.V.C. 1st.	Anode	2	70	0.7	—	—	—	—
		A.F. Amp.	Cathode	7	2.7					
V4	EL41	Power Amplifier	Anode	2	218	30.0	Screen	5	234	4.1
			Cathode	7	6					
V5	EZ40	Full Wave Rectifier	Anodes	2 & 6	265	V.A.C.	Cathode	7	284	50
			(From mains transformer, centre tap)				D.C.			

Smoothed H.T. 234 Volts.