



PHILCO



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TYPE CIRCUIT: Five-valve Superheterodyne Unit-constructed Receiver with full A.V.C. and Pentode output (5 watts) for operation on Short, Medium and Long Wavebands. Built-in connections for Philco All-Wave Aerial—aerial selector built into and operated by the wave-change switch. Provision is made for connecting a pick-up which may be left permanently connected to the receiver if desired, as the gramophone operation is controlled by the extreme clockwise rotation of the wave-change switch. Provision is also made for connecting an external speaker of the permanent magnet moving coil type having an impedance of 2-3 ohms.

POWER SUPPLY: Alternating current mains of 200-260 volts, 40-100 cycles, when the correct transformer tapping is employed. Two tappings are provided; green (labelled 220v.) covering 200-230 volts and white/black (labelled 245v.) covering 231-260 volts.

WAVE-BANDS: COVERAGE: Three; (a) Long, 150-320 Kc. (2,000-937.5 metres); (b) Medium, 530-1,750 Kc. (566-171.4 metres); (c) Short, 5.75-18 Mc. (52-16.6 metres).

TUNING DRIVE: Two-speed drive—ratios 9:1 and 40:1 for slow and accurate tuning. Glowing beam station indicator, new spread band 270 degrees scale, and shadow-meter tuning device.

TONE CONTROL: This is continuously variable, enabling a fine degree of tone between brilliant and mellow to be obtained. The on-off switch is combined with this control, thus allowing a particular setting of the separate volume control to be maintained.

LOUD SPEAKER: An 8 inch diameter fully energised moving coil speaker is used, which gives the highest efficiency audio output, and greater bass response is obtained due to the large baffle.

INTERMEDIATE FREQUENCY: 451 K.C.
POWER CONSUMPTION: 60 watts.

TABLE 1 — VOLTAGES.

Valve socket readings to chassis taken with an 065 or 077 Philco Set Tester, using the 500, 250 and 10 volt ranges. Volume control at minimum, tone control fully brilliant, wave-change switch in M.W. position and no aerial connected. AC line—230 volts, 50 cycles.

POSITION.	VALVE.	ANODE.	SCREEN.	BIAS.
1st Detector and Oscillator S.3	6A7	Pin 3. 230 v. Pin 5. 175 v.*	Pin 4. 100 v.	Pin 7. 3.5 v.
I.F. Amplifier, S5	78E	Pin 3. 230 v.	Pin 4. 100 v.	Pin 6. 2.5 v.
2nd Detector, A.V.C. and 1st L.F. Amplifier, S4	75	Pin 3. 125 v.	—	—
Pentode Output, S2	42E	Pin 3. 295 v.	Pin 4. 300 v.	20 volts. †
Full-wave Rectifier, S1	80	Pin 3. 360 v. A.C. Pin 4. 360 v. A.C.	—	—

* Oscillator Anode Volts.

† Bias measured between R1 tag 4 and chassis.

Total D.C. 380 volts (measured between S1 tag 2 and R1 tag 4).

V.1 filament, 5 v. A.C.; V.2, 3, 4, 5, L.P.1 and L.P.2 filaments, each 6.3 v. A.C., measured between pins 1 and 2 on each socket.

TABLE 2. — RESISTANCES OF COILS.

(Link on TB.2 to be in socket "B.")

REF. NO.	TEST PROD. 1	TEST PROD. 2	RESISTANCE (Ohms).	REF. NO.	TEST PROD. 1	TEST PROD. 2	RESISTANCE (Ohms).
T.1, Primary	TB.2 Socket "A"	Chassis	Sw.2 L.W. 80	T.7	V.3/6	SW.2/2 Tag 7	Sw.2 L.W. 16.5
T.1, Primary tapping 2	TB.2 Socket "Red"	Chassis	„ „ 10	T.6	V.3/6	SW.2/2 Tag 7	„ M.W. 8
T.1, Primary tapping 3	TB.2 Socket "C"	Chassis	„ „ 5	T.5	V.3/6	SW.2/2 Tag 7	„ S.W. 0.1 „ Gram. 32,000 (approx.)
T.1, Secondary	Sw.2/4 Tag 8	TB.4/3	„ „ 5	T.6, Reaction	V.3/5	SW.2/2 Tag 4	0.5
T.1, Secondary with T.4 in series	V.3 Cap	TB.4/3	„ „ 25	T.8, Primary	V.5/3	TB.4/11	12
T.3, Primary	TB.2 Socket "A"	Chassis	Sw.2 M.W. 2	T.8, Secondary	TB.4/7	V.4/5	8
T.3, Primary tapping	TB.2 Socket "C"	Chassis	„ „ 1	CK.1	EC.2 tag	EC.1 Green	660
T.3, Secondary	V.3 Cap	TB.4/3	„ „ 5	T.10, Primary	V.2/3	EC.1 Green	240
T.2, Primary	TB.2 Socket "A"	Chassis	„ S.W. 0.2 „ Gram. Infinity	T.10, Secondary	Output Trans.	Output Trans.	0.2*
T.2, Primary tapping	TB.2 Socket "C"	Chassis	„ S.W. 0.1 „ Gram. Infinity	Speech Coil	Lead 1	Lead 2	2*
T.2, Secondary	V.3 Cap	TB.4/3	„ S.W. 0.1 „ Gram. Zero	P.T.1, Primary	White	White/Black (245 v. Green (220 v.))	35
S.M. with R.18 in parallel	TB.4/10	TB.4/11	2,000 ohms (approx.)	P.T.1, Primary	White	White/Black (245 v. Green (220 v.))	30
T.9, Primary	V.3/3	TB.4/11	8	H.T. Secondary	V.1/3	R.1/4	240
T.9, Secondary	TB.4/3	V.5 Cap	12	H.T. Secondary	V.1/4	R.1/4	240
				Rectifier	V.1/1	V.1/2	0.1†
				L.T. Secondary	V.1/1	V.1/2	0.1†
				Heater	V.2/1	V.2/2	0.2†
				L.T. Secondary	V.2/1	V.2/2	0.2†

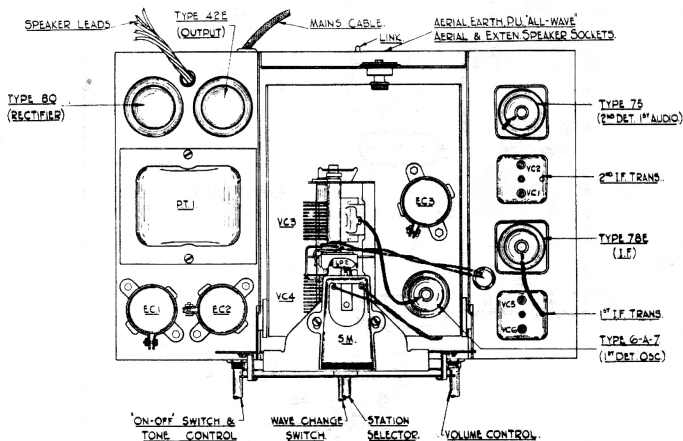
* Resistance of T.10 Secondary alone and Speech Coil alone (taken when disconnected).

† Resistance of L.T. windings taken with all valves removed.

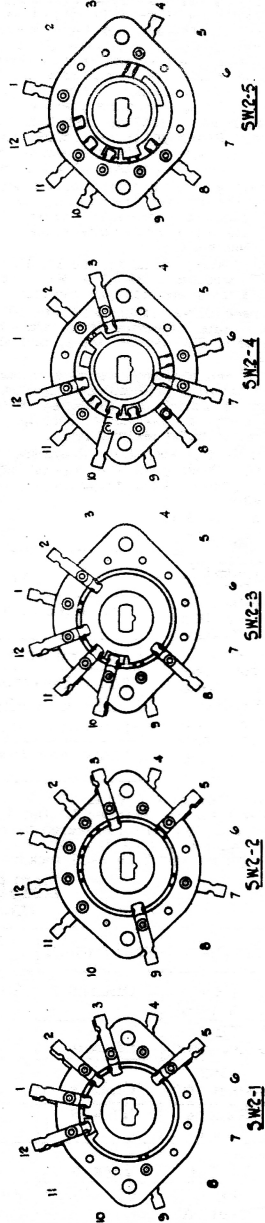
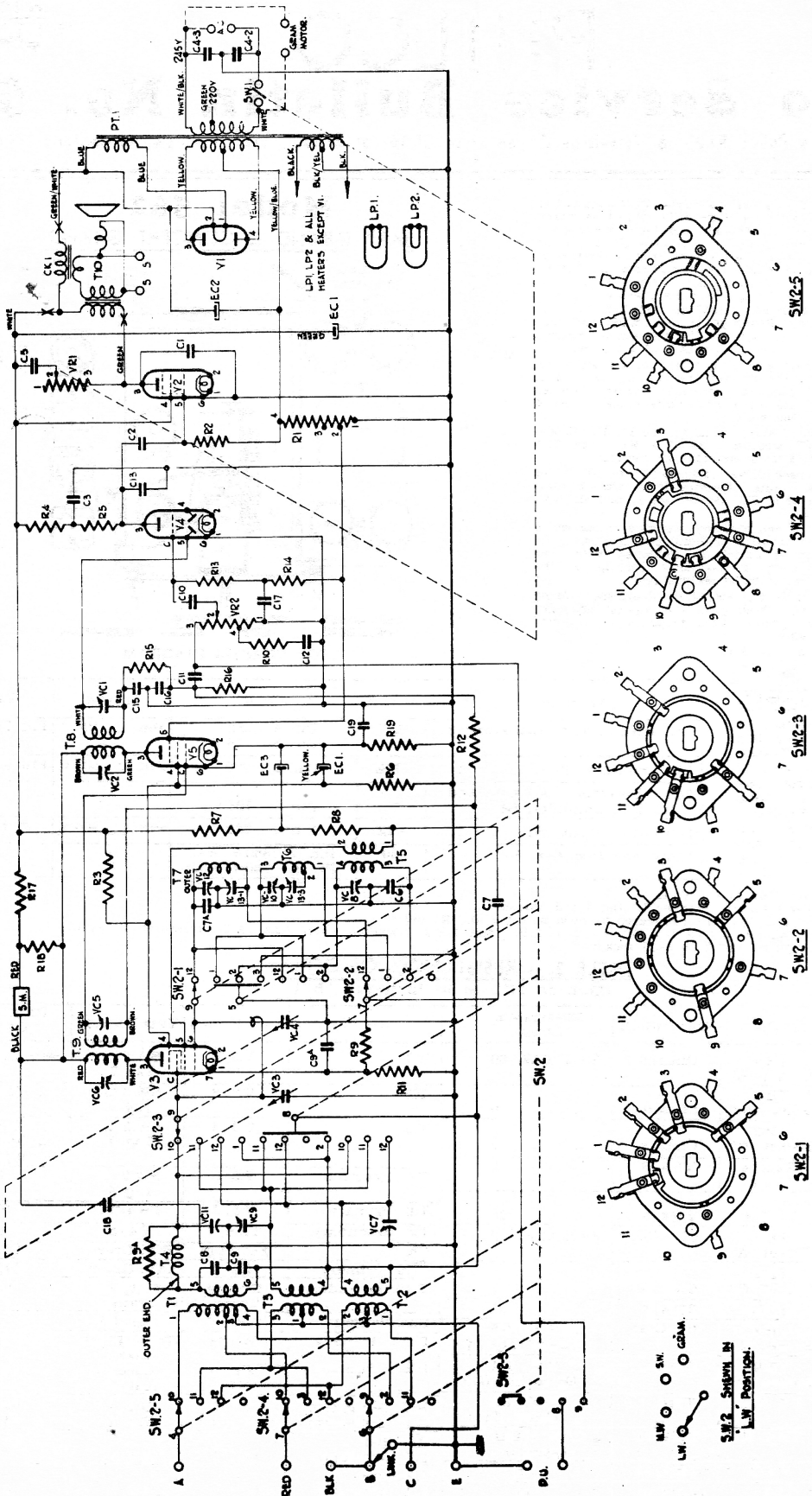
Note.—Reference numbers for valves should be read in conjunction with the socket numbers, e.g. V.1-S.1.

Model 582

BABY GRAND & CONCERT GRAND.

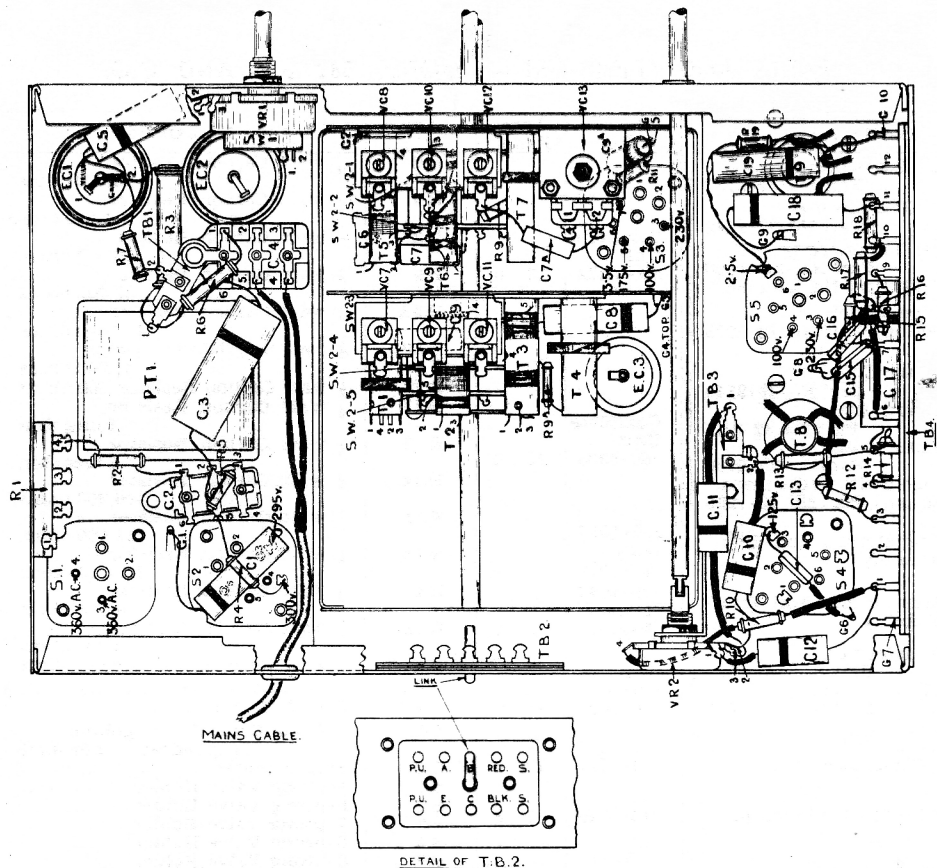


TOP CHASSIS DIAGRAM



VIEWS OF SWITCHES FROM FRONT
 CHASSIS BEING UPWARD DOWN
 NOTE - SYMBOL LOCATING SWITCHES AT BOTTOM.

SCHEMATIC DIAGRAM



UNDER CHASSIS DIAGRAM

ALIGNMENT PROCEDURE.

Before leaving the Factory, all Philco receivers are accurately aligned, but if misalignment is suspected through damage, it should not be attempted without instruction in the correct adjustment of the trimming and padding condensers. It should only be carried out with the aid of an accurately calibrated Signal Generator, and for this purpose the PHILCO ALL-PURPOSE SET TESTER MODEL 077 is recommended.

Connect the Output Meter across the Primary of the Output Transformer, i.e., green and white leads. With gang condenser fully open, check that indicator reads on index line (above 1,750 Kc.). Set wave-change switch in second position from left (M.W.), turn volume control fully clockwise and tone control as far counter-clockwise as possible without switching off.

Note. The link on TB.2 must be placed in socket "B."

INTERMEDIATE FREQUENCY. The I.F. trimmers (VC's 1, 2, 5 and 6) should first be carefully adjusted by feeding in a 451 Kc. signal from the Signal Generator to the grid cap of the 6A7 valve (with grid lead disconnected) and the Signal Generator earthed to the receiver chassis. Adjust the Signal Generator Attenuator to give a half-scale reading on the Output Meter. The I.F. trimmers must then be adjusted for maximum output.

Transfer Signal Generator lead via a Standard Dummy to the Aerial socket and replace grid lead of 6A7 valve.

LONG WAVES. Turn wave-change switch to L.W. position (fully counter-clockwise rotation) and set gang at 290 Kc. Feed in a 290 Kc. signal and trim VC's 12 and 11 underneath chassis in that order for maximum output.

Feed in and tune a 160 Kc. signal. Rock gang and pad VC.13 (nut) for maximum output. Readjust trimming at 290 Kc. and padding at 160 Kc. until no further improvement is obtainable.

MEDIUM WAVES. Turn wave-change switch to second position clockwise (M.W.) and set gang at 1,750 Kc. Feed in a signal of 1,750 Kc. and trim VC's 10 and 9 underneath chassis in that order for maximum output.

Feed in and tune a signal of 600 Kc. Rock gang and pad VC.13 (screw) for maximum output. Readjust trimming at 1,750 Kc. and padding at 600 Kc. until no further improvement results.

SHORT WAVES. Turn wave-change switch to third position (clockwise (S.W.)). Substitute a 400 ohms resistor for the Standard Dummy and feed in an 18 Mc. signal. Set gang at 18 Mc. and adjust VC.8 underneath chassis for the second signal heard from tight (care is necessary, as the two peaks are narrowly spaced).

Note. Due to the very small difference between the pre-selector and oscillator frequencies, the adjustment of VC.7 will have a tendency to "pull" or change the frequency of the oscillator. By shunting a 21-plate variable condenser (approx. .00035 mfd.) across the oscillator section of the gang and tuning it so that the second harmonic, instead of the fundamental, beats with the incoming signal, this "pull" can be minimised.

Connect the shunt condenser between VC.8 tag and chassis and tune it (about half open) for signal at 18 Mc. Trim VC.7 underneath chassis for maximum output. Disconnect shunt condenser and retrim VC.8.

Check that the 18 Mc. image is obtained at approximately 17.1 Mc.

Feed in and tune a signal of 6 Mc. and check for correct reading on scale. (There is no tracker adjustment for 6 Mc.)

Check calibration.

PARTS AND PRICE LIST — MODEL 582 B.G. AND C.G.

REF. No.	DESCRIPTION.	PART No.	LIST PRICE.	REF. No.	DESCRIPTION.	PART No.	LIST PRICE.
T.1	L.W. Aerial Transformer, Part No. 32-2187	Complete Unit 380-5222	17 0	R.6	¼ watt Carbon Resistor, 25,000 ohms	33-1013	9
T.2	S.W. Aerial Transformer, Part No. 32-2142			R.7	¼ watt Carbon Resistor, 11,000 ohms	33-1194	9
T.3	M.W. Aerial Transformer, Part No. 320-1063			R.8	¼ watt Carbon Resistor, 10,000 ohms	33-1000	9
T.4	Rejector Coil, Part No. 32-2188...	Complete Unit 380-5223	12 0	R.9	¼ watt Carbon Resistor, 32,000 ohms	33-1208	9
SW.2-3 } SW.2-4 } SW.2-5 }	Wave-change Switch, (Aerial Section), Part No. 42-1235			R.9A	¼ watt Carbon Resistor, 490,000 ohms	6097	9
T.5	S.W. Oscillator Coil, Part No. 32-2143			R.10	½ watt Insulated Resistor, 51,000 ohms	330-2015	9
T.6	M.W. Oscillator Coil, Part No. 32-2120			R.11	¼ watt Carbon Resistor 300 ohms	330-1008	9
T.7	L.W. Oscillator Coil, Part No. 32-2189			R.12	¼ watt Carbon Resistor, 1 megohm	33-1096	9
SW.2-1 } SW.2-2 }	Wave-change Switch (Oscillator Section), Part No. 42-1236	Complete Speaker 360-1028	21 0	R.13	¼ watt Carbon Resistor, 1 megohm	33-1096	9
T.8 } VC.1 } VC.2 }	2nd I.F. Transformer and Trim- mers Assembly			R.14	¼ watt Carbon Resistor, 490,000 ohms	6097	9
T.9 } VC.5 } VC.6 }	1st I.F. Transformer and Trim- mers Assembly			R.15	¼ watt Carbon Resistor, 51,000 ohms	6098	9
T.10	Output Transformer, Part No. 320-7035			R.16	¼ watt Carbon Resistor, 330,000 ohms	33-1200	9
CK.1	Field Coil			R.17	½ watt Carbon Resistor, 4,000 ohms	33-1040	9
VC.3 } VC.4 }	Two-gang Condenser			R.18	½ watt Carbon Resistor, 5,000 ohms	5310	9
VC.7 } VC.9 } VC.11 }	Triple Padder 35+35+35 mmfd....			R.19	½ watt Carbon Resistor 300 ohms	330-1006	9
VC.8 } VC.10 } VC.12 }	Triple Padder 35+35+35 mmfd....			VR.1	Tone Control 100,000 ohms ...	33-5167	3 6
VC.13	Double Padder 375+600 mmfd....			SW.1	On-off Switch		
EC.1	Electrolytic Condenser 8+4 mfd.			VR.2	Volume Control 2 megohms (Tapped at 1 megohm)	33-5166	2 6
EC.2	Electrolytic Condenser 8 mfd. ...	SM.	Shadowmeter	450-2001P	6 6		
EC.3	Electrolytic Condenser 16 mfd....	S.1	4-prong Valve Holder	27-6034	4		
C.1	Tubular Condenser .003 mfd. ...	S.2	6-prong Valve Holder	27-6036	5		
C.2	Moulded Condenser .015 mfd. ...	S.3	7-prong Valve Holder	27-6037	5		
C.3	Tubular Condenser .1 mfd. ...	S.4	6-prong Valve Holder	27-6036	5		
C.4	Moulded Condenser .015+.015 mfd.	S.5	6-prong Valve Holder	27-6036	5		
C.5	Tubular Condenser .02 mfd. ...	PT.1	Power Transformer	320-7037	17 3		
C.6	Mica Condenser 3,500 mmfd. ±2%	LP.1	Pilot Bulb	34-2141	1 4		
C.7	Mica Condenser 250 mmfd. ...	LP.2	Pilot Bulb	34-2141	1 4		
C.7A	Mica Condenser 50 mmfd. ... or 300-1015		Dial Screen	270-5039	7		
C.8	Tubular Condenser .03 mfd. ...		Dial Scale and Hub Assembly ...	380-5214	2 10		
C.9	Tubular Condenser .05 mfd. ...		Dial Scale Mask	270-5047	6		
C.9A	Tubular Condenser .1 mfd. ...		Dial Scale Guard	27-8324	2		
C.10	Tubular Condenser .01 mfd. ...		Valve Shield	27-2726	2		
C.11	Tubular Condenser .01 mfd. ...		Grid Clip	28-2214	doz. 5		
C.12	Tubular Condenser .01 mfd. ...		Rubber Bush	4126	1		
C.13	Mica Condenser 110 mmfd. ...		Rubber Buffers	270-7189	1		
C.15	Mica Condenser 110 mmfd. ...		Chassis Mounting Rubbers ...	5189	1		
C.16	Mica Condenser 110 mmfd. ...		Chassis Mounting Washers ...	29-2089	doz. 2		
C.17	Tubular Condenser .1 mfd. ...		Chassis Mounting Bolts	W-1345A	1		
C.18	Tubular Condenser .1 mfd. ...		Mains Cable	LO-1009	1 7		
C.19	Tubular Condenser .1 mfd. ...		Speaker Cable	LO-1035	1 3		
R.1	Candohm Wire-wound Resistor, 30+8+245 ohms		Large Tuning Knob and Spring	270-4035	8		
R.2	¼ watt Carbon Resistor, 1 megohm		Small Tuning Knob and Spring	270-4036	5		
R.3	2 watt Carbon Resistor, 20,000 ohms		Knob (Volume) and Spring ...	270-4037	5		
R.4	¼ watt Carbon Resistor, 99,000 ohms		Knob (Wave-change) and Spring	270-4038	5		
R.5	¼ watt Carbon Resistor, 240,000 ohms		Knob (Tone) and Spring ...	270-4039	5		
or	¼ watt Carbon Resistor, 250,000 ohms		Knob Spring for Large Knob ...	28-1738	doz. 3		
			Knob Spring for Small Knobs...	280-5262	doz. 2		
			Red Wander Plug	380-5087	2		
			Black Wander Plug	380-5015	1 6		
			Bezel Escutcheon	270-4045	doz. 10		
			Bezel Glass	270-7217	2 6		
			Bezel Spring	290-1160	1		
			Type 80 Full Wave Rectifier				
			Valve	3149	8 0		
		V.1	Type 42E Pentode Output Valve	6447E	13 6		
		V.2	Type 6A7 Variable-mu Heptode				
		V.3	Valve	34-2002	15 0		
		V.4	Type 75 Double Diode Triode				
		V.5	Valve	8002	12 6		
			Type 78E Variable-mu H.P.	8315E	12 6		

MODEL 582 RADIOGRAM.

MODEL 1582 AUTOMATIC RADIOGRAM.

Models 582 R.G. and 1582 are five-valve Superheterodyne radio gramophone receivers employing the same circuit as Model 582 B.G. and C.G., but with the following refinements:—

MODEL 582 R.G.—A.C. motor, turntable and 2,000 ohms pick-up, Type A.C.7 fitted.

MODEL 1582.—Type R.C.4 automatic record changing equipment (with A.C. motor and 2,000 ohms pick-up) is incorporated which plays either eight 10-inch or eight 12-inch records consecutively if desired. Any record may be rejected whilst the instrument is in operation should it be desired to do so, and the turntable is automatically stopped at the conclusion of the final record.

GRAMOPHONE.—Operation of the gramophone is controlled by the extreme clockwise rotation of the wave-band switch, which makes change over from radio to gramophone without the possibility of radio break through.

CONTROLS.—All controls are on the motor board.

REMOVAL OF CHASSIS.—This is easily effected by loosening the bracket nuts inside the cabinet, allowing the chassis to be lowered and lifted out after the knobs have been removed.

POWER SUPPLY.—The range of operation is limited by reason of the gramophone motor to 200-250 volts, 50-60 cycles.

LOUDSPEAKER.—A full-size (11-inch) auditorium speaker is used on the Model 1582. This speaker embodies the latest principles in acoustic design and covers the entire useful range of audio frequencies.

TOP CHASSIS AND UNDER CHASSIS DIAGRAMS.—Same as for Model 582 B.G. and C.G. except for addition of Motor Cable alongside Mains Cable.

CIRCUIT DIAGRAM.—Connections for gramophone motor shown in dotted lines on diagram. Tables 1 and 2 and Alignment Procedure are the same as for Model 582 B.G. and C.G.

TABLE 3 — PARTS AND PRICE LIST.

MODEL 582 R.G.

Remove:—			Add:—			
REF. No.	DESCRIPTION.	PART No.	REF. No.	DESCRIPTION.	PART No.	LIST PRICE.
	Chassis Mounting Rubbers ...	5189		Extruded Washer (Rubber) ...	27-4199	doz. 2 1
	Chassis Mounting Washers ...	29-2089		Plain Washer (Rubber)	27-4198	2
	Chassis Mounting Bolts	W-1345A		Bracket	280-7001	1 2
				Bolt (Coach type)	WB-1109	1
			or	Nut (Square)	WN-1109	1
				Nut (Hexagon)	WN-1104	1
				Motor Cable	LO-1013	8
				Pick-up Cable	LO-1017	1 9
				Aerial Panel and Leads Assembly	380-5259	2 3
				Type A.C.7 Motor, Turntable, and Pick-up Assembly	350-2002	£3 2 6
				Needle Cup (Bakelite)	270-4042	3

MODEL 1582.

Remove:—			Add:—			
REF. No.	DESCRIPTION.	PART No.	REF. No.	DESCRIPTION.	PART No.	LIST PRICE.
T.8	Output Transformer, Part No. 320-7035	Complete Speaker 360-1028	T.8	Output Transformer, Part No. 320-7035	Complete Speaker 360-1033	26 0
	Speech Coil and Cone, Part No. 360-3020			Speech Coil and Cone, Part No. 360-3026		
CK.1	Field Coil		CK.1	Field Coil		
	Chassis Mounting Rubbers ...	5189		Extruded Washer (Rubber) ...	27-4199	doz. 2 1
	Chassis Mounting Washers ...	29-2089		Plain Washer (Rubber)	27-4198	2
	Chassis Mounting Bolts	W-1345A		Bracket	280-7001	1 2
				Bolt (Coach type)	WB-1109	1
			or	Nut (Square)	WN-1109	1
				Nut (Hexagon)	WN-1104	1
				Motor Cable	LO-1013	8
				Pick-up Cable	LO-1017	1 9
				Aerial Panel and Leads Assembly	380-5259	2 3
				Type R.C.4 Automatic Record Changer, Motor, Turntable, Needle Cups and Pick-up Assembly ...	350-2014	£7 10 0