



# PHILCO

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## Radio Service Bulletin No. 38

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### MODEL 205

**TYPE CIRCUIT:** Three valve battery driven receiver with Pentode output (0.5 watt). Band-pass circuit using coils of exceptional efficiency which give selectivity comparable with that of a normal superhet.

**POWER SUPPLY:** Low tension, accumulator, 2 volts; high tension. **PHILCO-PERTRIX:** 135 volts combined H.T. and grid bias battery, type P.295.

**VALVES USED:** 1 type 32E, H.F.; 1 type 32E, detector; 1 type 2101E, output.

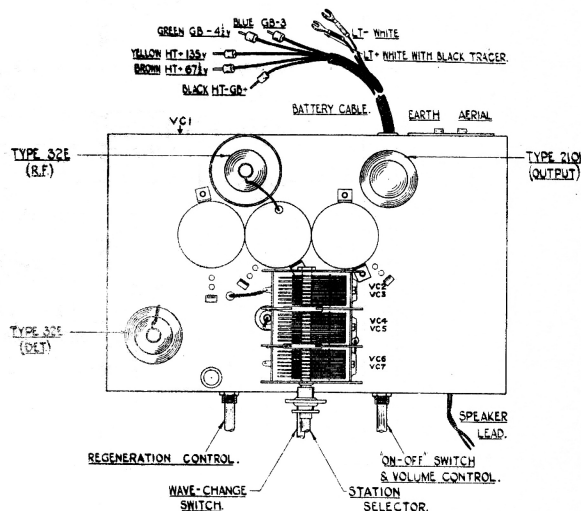
**WAVE-BANDS COVERAGE:** Two; (a) medium, 1,500-550 Kc. (200-550 metres); (b) long, 300-150 Kc. (1,000-2,000 metres).

**VARIABLE SELECTIVITY:** Obtained by means of a manual control on the signal input to the H.F. stage in conjunction with the manual reaction control on the detector stage. Band-pass tuning contributes greatly to the selectivity by reducing cross modulation practically to zero, while high note response is retained.

**TUNING DRIVE:** Slow motion dial geared 7 to 1, enabling fine tuning to be obtained.

**LOUD SPEAKER:** A permanent magnet speaker employing the latest nickel-aluminium alloy gives the highest efficiency audio output, and greater bass response is obtained due to the large baffle.

**POWER CONSUMPTION:** L.T. current 0.3 amp. H.T. current approximately 8.5 milliamperes.



### TABLE I. VOLTAGES.

Low tension accumulator 2 volts. High tension Philco-Pertrix 135 volts combined H.T. and Grid Bias, type P.295.

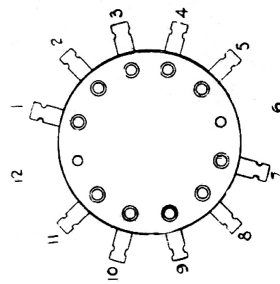
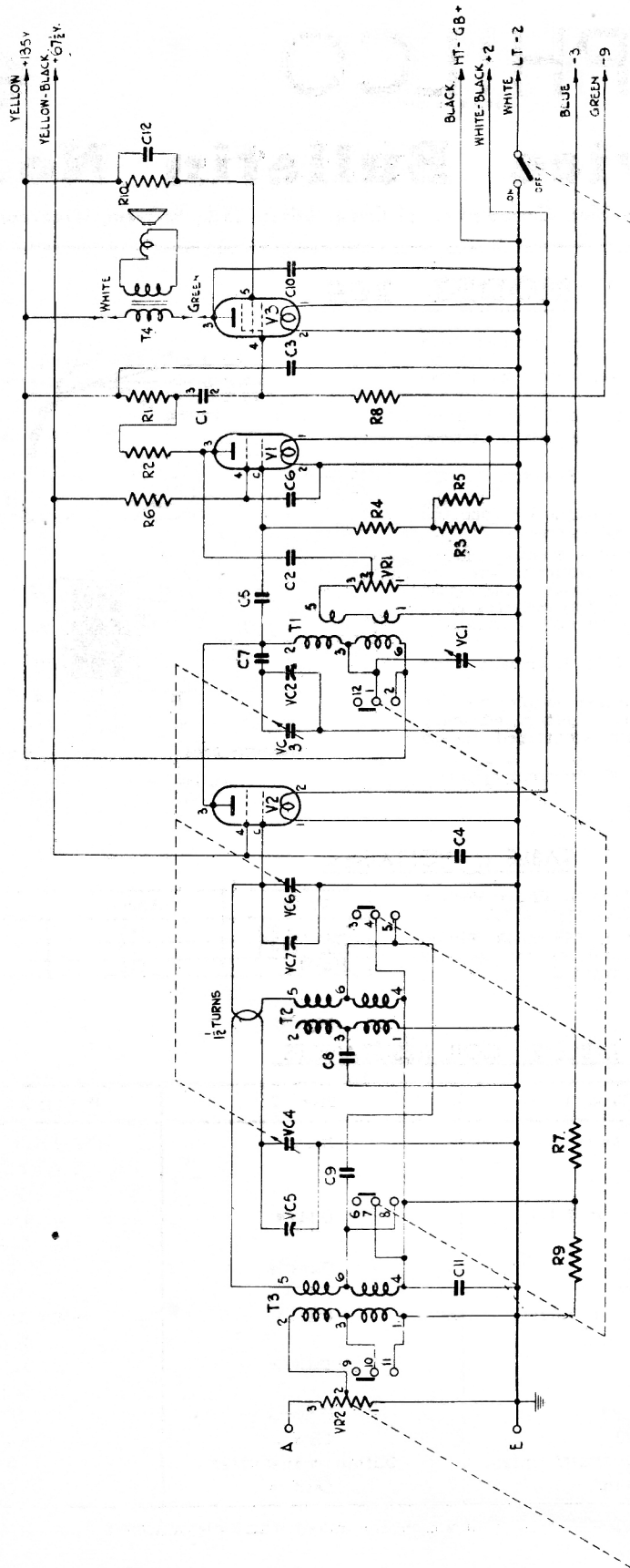
Valve socket readings to chassis taken with an 025 or 099 Philco Set Tester on the 300 volt range. Volume and reaction controls at minimum and no aerial connected.

Valve	Anode	Screen
32E (H.F.)	114	55
32E (Det.)	29	20
2101E	112	91

### TABLE 2. COIL RESISTANCES.

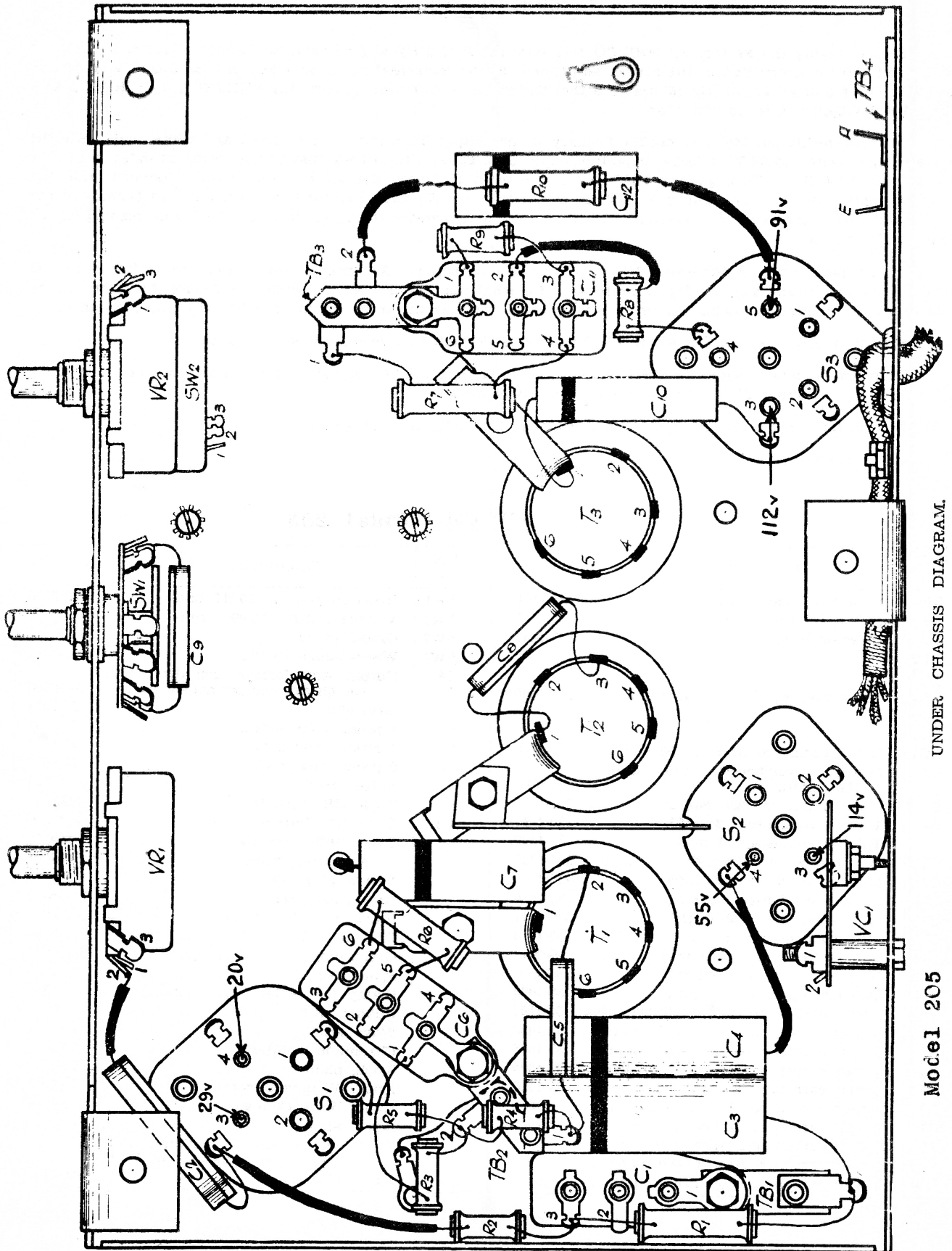
Ref. No.	Prod. 1	Prod 2	Resistance (Ohms)
T 3 Primary	Aerial	Earth	(VR.2 at maximum)
			SW.1 M.W. 3.5
Secondary	VC 5 or T 3/5	C 11/4	„ L.W. 120
			„ M.W. 5
			„ L.W. 50
T 2 Primary	T1/2	Chassis	120
			T1/2
Secondary	VC 7 or T 2/5	C 11/4	SW.1 M.W. 5
			„ L.W. 50
T 1	V 2/3	TB 3/2	„ M.W. 4.5
			„ L.W. 45
			13
Reaction	VR 1/3	Chassis	450
T 4 Primary	V 3/3	TB 3/2	0.2*
Secondary	Output transformer	Output transformer	2*
Speech coil	Lead 1	Lead 2	

\* Resistance of T 4 secondary and speech coil taken when disconnected.



FRONT VIEW OF SWITCH.  
CHASSIS BEING UPSIDE DOWN

SCHEMATIC DIAGRAM. Model 205.



Model 205 UNDER CHASSIS DIAGRAM.

Model 205

PADDING PROCEDURE.

Before leaving the Factory all PHILCO receivers are accurately aligned, and no further alignment should be attempted without instruction in the correct adjustment of the compensating condensers. This 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 099, is recommended.

Connect the Output Meter across the Primary of the Output Transformer, *e.g.*, green and white leads. Set the wave-change switch to M.W. (clockwise position) and open gang fully. Check that pointer reads on index line below 200 metres (1,500 Kc.). Turn gang to 1,400 Kc. (214 metres), and with the volume control at maximum and the reaction control at minimum, feed in a 1,400 Kc. signal from the Signal Generator through a standard Dummy to the aerial and earth sockets of the receiver. Adjust the Signal Generator attenuator to give a half scale reading on the Output Meter.

Adjust gang trimmers VC.5 and VC.7 to give maximum output. Advance the reaction control to just below the point of oscillation and adjust gang trimmer VC.2 for maximum output. At the same time reduce the reaction control to prevent continuous oscillation which will probably occur as the three circuits are brought into resonance.

Feed in and tune a signal of 600 Kc. (500 metres) and check that sensitivity remains good.

Turn wave-change switch to L.W. position and feed in a 275 Kc. signal. Tune signal and rock gang while simultaneously adjusting VC.1 until maximum output is obtained.

Feed in and tune a 175 Kc. signal and check that sensitivity remains good.

Check calibration.

PARTS LIST. Model 205

Ref. No.	Description.	Part No.	Ref. No.	Description.	Part No.
T3	1st aerial transformer .. .. .	32-1451	VR1	Reaction control, 30,000 ohms .. ..	33-5076
T2	2nd aerial transformer .. .. .	32-1451	VR2	Volume control, 20,000 ohms .. ..	33-5075
T1	Detector transformer .. .. .	32-1452	SW2	On-off switch .. .. .	
VC2	} Three gang condenser and trimmers..	310-1000	SW1	Wave-change switch .. .. .	42-1081
VC3			T4	Output transformer, complete with speech coil and permanent magnet	360-f.000
VC4			S1	Grid clip .. .. .	28-2214
VC5			S2	4 prong valve socket .. .. .	27-6034
VC6			S3	4 prong valve socket .. .. .	27-6034
VC7				5 prong valve socket .. .. .	27-6035
VC1			L.W. padding condenser, 5-50 mmfd...	04000D.	
C1	Moulded condenser, .015 mfd.+ 110 mmfd. .. .. .	8035D.	V1	Type 32E, Tetrode valve .. .. .	4193EF.
C2	Mica condenser, 1250 mmfd. .. ..	300-1017	V2	Type 32E Tetrode valve .. .. .	4193EF.
C3	Tubular condenser, .25 mfd. .. ..	30-4146	V3	Type 2101E Pentode valve .. .. .	34-2042F.
C4	Tubular condenser, .1 mfd. .. ..	30-4122		7 way battery cable .. .. .	LO.1008
C5	Mica condenser, 35 mmfd. .. ..	300-1009		Yellow plug, HT+135 v. .. .. .	380-5004
C6	Moulded condenser, .09 mfd. .. ..	4989SG.		Brown plug, HT+67.5 v. .. .. .	380-5005
C7	Tubular condenser, .05 mfd. .. ..	30-4020		Black plug, HT-GB+ .. .. .	380-5006
C8	Mica condenser, 250 mmfd. .. ..	300-1014		Blue plug-3 v. .. .. .	380-5008
C9	Mica condenser, 6 mmfd. .. ..	300-1018		Green plug, -4.5 v. .. .. .	380-5037
C10	Tubular condenser, .003 mfd. .. ..	30-4042		Spade tag .. .. .	280-1012
C11	Moulded condenser, .025 mfd. .. ..	7653SG.		Clamp for cable .. .. .	28-2345
C12	Tubular condenser, .05 mfd. .. ..	30-4020		Rubber bush .. .. .	4126
R1	½ watt carbon resistance, 100,000 ohms	33-1047		Wave scale .. .. .	270-5027
R2	¼ watt carbon resistance, 1,000 ohms..	33-1028		Chromium pointer .. .. .	290-1086
R3	¼ watt carbon resistance, 1,000 ohms..	33-1028		Knob, plain .. .. .	270-4021
R4	¼ watt carbon resistance, 2 megohms	33-1025		Knob, Volume Control .. .. .	270-4023
R5	¼ watt carbon resistance, 1,000 ohms	33-1028		Knob, Wave Change .. .. .	270-4024
R6	½ watt carbon resistance, 160,000 ohms	5331		Knob, Spring .. .. .	280-5262
R7	½ watt carbon resistance, 100,000 ohms	33-1047		Philco/Petrix 135 v. combined H.T. and grid bias battery, type P.295	
R8	¼ watt carbon resistance, 1 megohm..	33-1096		Knob, chromium .. .. .	270-4016
R9	¼ watt carbon resistor, 51,000 ohms ..	6098			
R10	½ watt carbon resistor, 15,000 ohms ..	6208			