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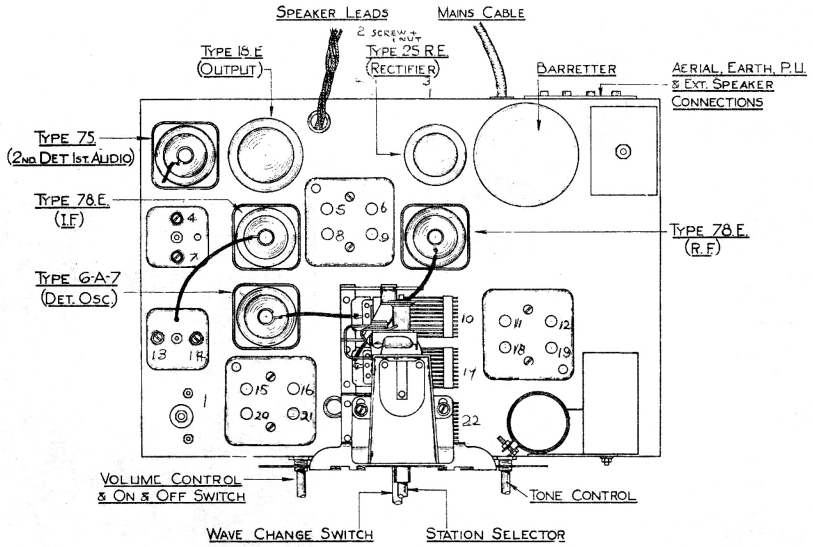
Model 290.



TYPE CIRCUIT.—Superheterodyne with Pre-selector R.F. Amplifier and Pentode Output. Built-in connections for Philco All-wave aerial—aerial selector built into and operated by waveband switch.

POWER SUPPLY.—Alternating or Direct currents without alteration or adjustment from 190-260 volts.

VALVES USED.—1, type 78E as R.F.; 1, type 6A7 as 1st Detector and Oscillator; 1, type 78E as I.F.; 1, type 75 as 2nd Detector, A.V.C. and 1st Audio; 1, type 18E as Output Pentode; 1, type 25RE as Rectifier; 1, type 301 as Barretter.

WAVEBANDS.—Three—1, Long-wave; 2, Medium; 3, Short.

COVERAGE OF EACH BAND.—BAND 1: 145-350 kcs. (2,068-857 metres); BAND 2: 538-1,720 kcs. (547-174 metres); BAND 3: 5.7-18 megacycles (52.6-16.6 metres).

TUNING DRIVE.—Two-speed gear drive; 9-1 and 72-1 ratios—slow tuning.

TONE CONTROL.—Four positions, giving Normal, Brilliant, Mellow and Deep Tones.

INTERMEDIATE FREQUENCY. 451 kcs.

VOLTAGE TABLE.

A.C. Line—240 volts, 50 cycles. D.C. Line—240 volts.

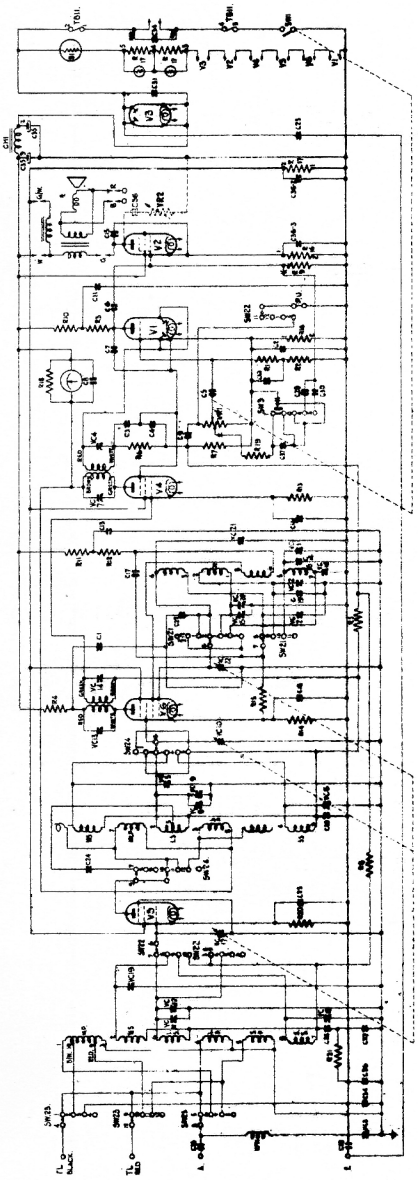
Readings taken between H.T.—and points indicated with an 099 Set Tester. Volume control at maximum; wave-change switch at "medium"; no aerial connected.

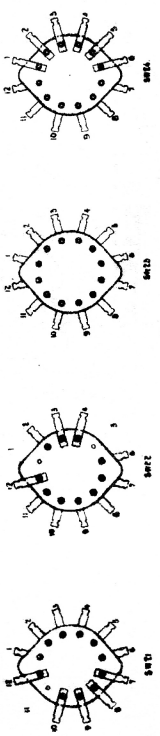
Point		78E R.F.	6A7	78E I.F.	75	18E.
Anode.	A.C.	172	172	175	58	175
	D.C.	160	160	162	52	172
Screen	A.C.	62	62	62	—	200
	D.C.	55	55	55	—	185
Osc. Anode	A.C.	—	140	—	—	—
	D.C.	—	130	—	—	—
Cathode	A.C.	2.6	2.25	2.45	0.9	12*
	D.C.	2.3	2.0	2.0	0.8	10

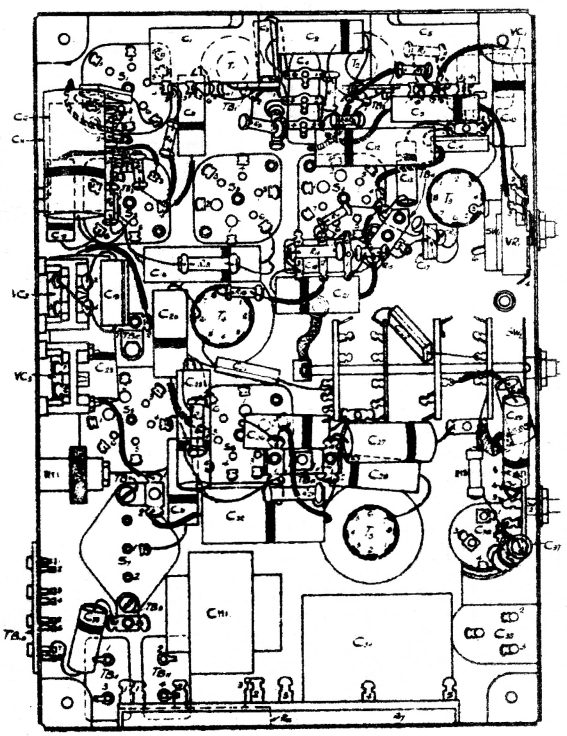
300 volt range.

10 volt range.

*30 volt range.







PADDING PROCEDURE ON THE MODEL 290.

Before leaving the factory all receivers are accurately adjusted, and no further adjustments should be made without first understanding the following procedure. It should only then be carried out with the aid of an accurately calibrated signal generator which covers all the wavebands used. For this purpose we recommend the Philco All-Purpose Set Tester Model 099, which also incorporates an Output meter.

Connect the Output meter across the Primary of the Output Transformer. Set the wavechange switch to Medium waveband (2nd position), Tone control fully counter clockwise, and Volume control at maximum. Set Gang at 1500Kcs.

The I.F. Padders VCs 4, 7, 13, and 14, should first be adjusted by feeding in a 451Kcs signal from the signal generator to the grid cap of the 6A7 valve (with grid lead disconnected.) Adjust the signal generator attenuator to give a half scale reading on the Output meter. Pad I.F Padders for maximum reading on the Output meter.

Transfer Signal generator lead via a standard Dummy to the aerial socket, and feed in a signal of 451Kcs. Pad VC3 for minimum reading.

Throw waveband switch to Long position (1st position, left hand) and set Gang at 290 Kcs. Adjust Padder VC2 (nut) to three quarters of a turn from tight. Feed in 290 Kcs. signal and adjust Trimmers VCs 21, 8, 9, 11 and 12. There are two Trimmers each on the R.F. and aerial coils for this band, and fine adjustment can be obtained. If VC2 (nut) is too tight violent oscillation may occur.

Roll Gang and feed in a signal of 160Kcs. Adjust Padder VC2 (nut) to maximum. Readjust VCs 21, 8, 9, 11 and 12 at 290Kcs.

Turn waveband switch to Medium (2nd position) and Gang to 1400Kcs.

Feed in a signal of 1400Kcs and adjust Trimmers VCs 15 and 20. There are two oscillator Trimmers on this band; one is of smaller capacity and can be used for fine adjustment. Both should be reasonably tight. Adjust Trimmers VCs 5 and 19.

Roll the gang and feed in a 600Kcs signal. Adjust Padder VC2 (screw) and readjust VCs 20, 15 and 5, 19 at 1400Kcs.

Switch waveband switch to Short (3rd position). Substitute standard dummy by a 400w resistor. Set scale at 18MCs, and feed in an 18MCs signal across aerial and earth. Adjust Trimmer VC 16.

To avoid adjusting to the Image frequency trim VC 16, out from tight, until the second signal is obtained. Check for image signal, which will be weaker than the fundamental at approximately 17.1MC on the scale. Go back to 18MCs

Connect a 21 plate condenser across the condenser section nearest the scale (oscillator) and adjust Trimmers VCs 6 and 18. Disconnect shunt condenser and retrim VC 16.

Roll Gang and feed in 6MCs signal. Adjust Padder VC 1 and swing gang until maximum is obtained. This should be at 6MCs on the dial.

Set dial to 18MCs and feed in 18MCs signal. Readjust Trimmer VC 16 to maximum. Reconnect shunt condenser and check VCs 6 and 18. Disconnect shunt and finally check VC 16.

Check calibration.

Parts and Price List. Model 290 and 290 Radiogram.

TUBULAR CONDENSERS.

No.	Value.	Part No.	Price. s. d.
C 33.	.001 uf.	30-4201	6
C 31.	.01 „	30-4051	6
C 23.	.25 „	30-4134	1 2
C 32.	.25 „	30-4134	1 2
C 25.	.1 „	30-4122	6
C 20.	.05 „	30-4020	7
C 16.	.1 „	30-4122	6
C 8.	.05 „	30-4020	7
C 6.	.5 „	30-4227	1 3
C 15.	.0003 „	30-4042	7
C 2.	.05 „	30-4020	7
C 9.	.03 „	30-4025	7
C 12.	.25 „	30-4146	10
C 10.	.05 „	30-4020	7
C 13.	.01 „	30-4124	6
C 29.	.0003 „	30-4042	7
C 30.	.0003 „	30-4042	7
C 37.	.01 „	30-4169	7
C 28.	.05 „	30-4020	7
C 26.	.05 „	30-4020	7
C 27.	.05 „	30-4020	7
C 21.	.05 „	30-4020	7

MOULDED CONDENSERS.

No.	Value.	Part No.	Price. s. d.
C 1.	.05 uf.	3615 SG.	9
C 5.	.01 „	3903 SU.	7
C 4.	.00025 „	8317 SU.	10
C 9.	.01 „	3903 SU.	7
C 18.	.05 „	3615 SU.	8

MICA CONDENSERS.

No.	Value.	Part No.	Price. s. d.
C 19.	250 uuf.	300-1019	8
C 7.	110 „	300-1020	8
C 3.	110 „	300-1020	8
C 14.	2500 „	300-1008	1 1
C 17.	800 „	300-1005	8
C 22.	50 „	300-1015	7
C 24.	410 „	300-1011	8

MISCELLANEOUS CONDENSERS.

No.	Value.	Part No.	Price. s. d.
VC 3.	35 uuf.	31-6051	1 4
VC 2.	400 uuf. and 200 uuf.	31-6033	1 11
C 35.	Electrolytic 16 + 16 uf.	300-2004	8 6
C 36.	Electrolytic 8 + 4 + 25 uf.	30-2137	6 9
C 34.	Filter condenser block	300-4012	5 0
VC 1.	1500 max. uuf. 500 min. uuf.	31-6073	1 11
Speaker—B.G.		360-1009	21 6
„ C.G.		360-1014	28 6

RESISTORS.

No.	Value.	Rating.	Part No.	Price. s. d.
R 1.	490,000 w.	¼ watt.	6097	9
R 2.	490,000 w.	¼ watt.	6097	9
R 3.	240,000 w.	¼ watt.	33-1097	9
R 4.	10,000 w.	¼ watt.	33-1000	9
R 5.	490,000 w.	¼ watt.	6097	9
R 6.	51,000 w.	¼ watt.	6098	9
R 7.	330,000 w.	¼ watt.	33-1200	9
R 8.	490,000 w.	¼ watt.	6097	9
R 9.	490,000 w.	¼ watt.	6097	9
R 10.	70,000 w.	½ watt.	5385	9
R 11.	10,000 w.	¼ watt.	33-1000	9
R 12.	10,000 w.	¼ watt.	33-1000	9
R 13	800 w.	½ watt.	330-1005	9
R 14.	500 w.	½ watt.	330-1002	9
R 15.	51,000 w.	¼ watt.	6098	9
R 16.		Candohm.	33-3221	1 0
R 17.		Candohm.	33-3210	2 3
R 18.	20,000 w.	¼ watt.	33-1178	1 6
R 20.	800 w.	½ watt.	330-1005	9
R 21.	200 w.	½ watt.	330-1004	9
R 22.	Radiogram only.			

No.	Value or Description.	Part No.	Price. s. d.
SW1 VR1.	Volume control, on/off switch	33-5107	4 1
SW2.	Wave change switch	42-1133	9 3
SW3.	Tone Control switch	42-1141	2 2
S1.	6 prong valve socket	27-6036	5
S2.	„ „ „ „	27-6036	5
S3.	„ „ „ „	27-6036	5
S4.	7 prong valve socket	27-6037	5
S5.	6 prong valve socket	27-6036	5
S6.	„ „ „ „	27-6036	5
S7.	Barretter socket	380-5002	10
T1.	2nd I.F. Transformer	32-1706	5 3
T2.	1st I.F. Transformer	32-1705	5 4
T3.	Oscillator Transformer	32-1893	8 7
T4.	2nd Aerial Transformer	32-1892	12 3
T5.	1st „ „	32-1891	12 5
WT1.	Wave Trap Inductance	38-6851	1 0
CH1.	Smoothing Choke	320-7004	10 3
	Shadow Meter	450-2001P.	6 6
	Bulb	34-2068	1 4
	Gang Condenser (VCS. 10, 17 & 22)	31-1526	17 3
	Fuse	380-5019	3

EXTRA PARTS FOR 290 RADIOGRAM.

C 36.	Tubular Condenser, .006 uf.	30-4125	6
R 22.	Tone Control Resistor, 350,000 w.	330-5002	3 6
	10 uf. Electrolytic Condenser	300-2005	1 6
AUTOMATIC RECORD CHANGER COMPLETE		350-2003	£10
	or		
AC, DC, T.T. Motor assembly		350-2001	£4/7
Barretter Socket		270-4019	2 9
Radiogram Speaker (Tweeter)		360-1013	26 9
„ „		360-1012	24 6
Ballast Valve, type 301		340-9000	12 6
Valve, type 78E.		8315E.	13 0
„ „ 25RE.		34-2035	14 6
„ „ 6A7.		34-2002	16 0
„ „ 75		8002	14 0
„ „ 18E.		7209E.	18 6