



PHILCO

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MODEL 803T (Series 2)-12 Volts.

TYPE CIRCUIT: Highly developed six valve super-heterodyne for Medium and Long-wave bands. The receiver speaker and Philco Full-wave Vibrator are housed in a single, rugged, compact, fully shielded container, which is designed for quick and easy installation on the dash-board of all cars. Pentode output (2.5 watts).

POWER SUPPLY: The receiver is all-electric, operating entirely from the 12 volts car battery system.

WAVE-BANDS: COVERAGE: Two; (a) Medium, 550-1500 Kc. (545-200 metres); (b) Long, 150-300 Kc. (2,000-1,000 metres).

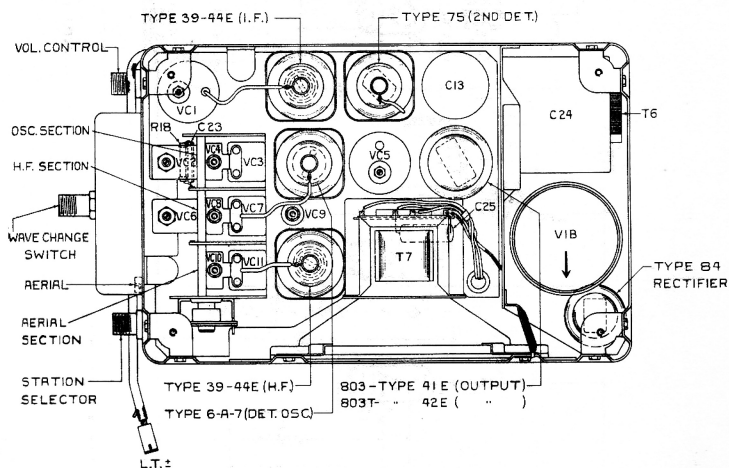
AUTOMATIC VOLUME CONTROL: The full A.V.C. system used, gives that smooth elastic control which counteracts fading while driving along and prevents blasting on local stations.

INTERFERENCE SUPPRESSION: Noise filters to cut out engine interference set up by the car ignition system and specially designed shielding make the receivers especially easy to instal.

CONTROLS: Remote controls are supplied for fitting to the steering column or dash-board. The tuning control is geared 15-1 ratio, enabling smooth and accurate tuning to be obtained.

INTERMEDIATE FREQUENCY: 125 Kc.

POWER CONSUMPTION: 2.5 amps. approximately.



TOP CHASSIS DIAGRAM

TABLE I. VOLTAGES.

Valve socket readings to chassis taken with an 025 or 099 PHILCO SET TESTER using the 300, 30 and 10 volt ranges. Volume control at minimum, wave-change switch in M.W. position, gang condenser fully open and no aerial connected.

POSITION.	VALVE.	ANODE.	SCREEN.	CONTROL GRID.	CATHODE.
H.F. Amplifier (S3) ...	39/44E	Pin 3.240 v.	Pin. 4. 50 v.	—	Pin 5. 4.5 v.
1st Det. and Oscillator (S2)	6A7	Pin 3.240 v. Pin 5.200 v.*	Pin 4. 50 v.	—	Pin 7. 4.5 v.
I.F. Amplifier (S1) ...	39/44E	Pin 3.240 v.	Pin 4. 50 v.	—	Pin 5. 3.5 v.
2nd Detector, A.V.C. and 1st L.F. Amplifier, (S4)	75	Pin 3.125 v.	—	—	Pin 6. 1.5 v.
Pentode Output (S5) ...	42E	Pin 3.235 v.	Pin 4. 240 v.	-16 v. †	—
Full-wave Rectifier (S6)	84	Pin 3.250 v.AC Pin 4.250 v.AC	—	—	—

* Oscillator anode volts. † Bias measured between TB8 and chassis. Total D.C. 260 volts (measured between TB8 and CK4/3).

TABLE 2. RESISTANCES OF COILS.

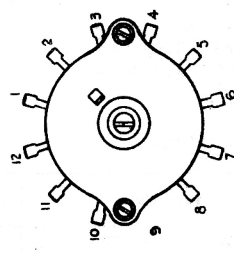
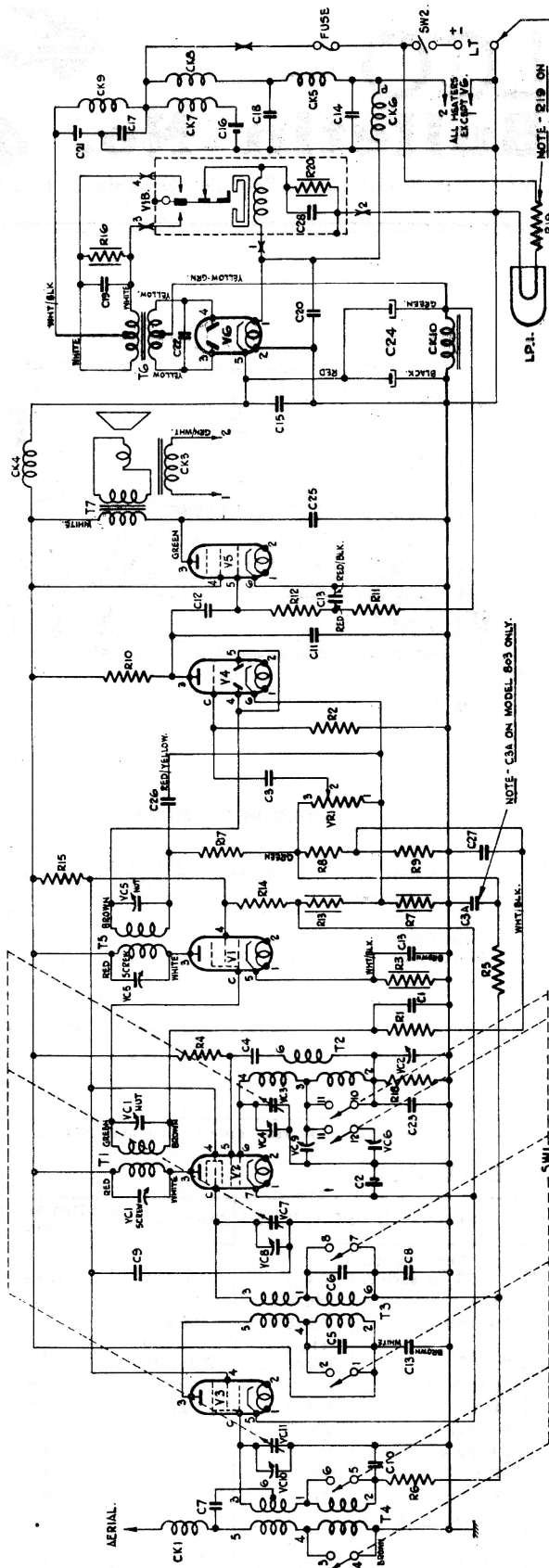
REFERENCE NO.	TEST PROD. 1	TEST PROD. 2	RESISTANCE (OHMS).	REFERENCE NO.	TEST PROD. 1	TEST PROD. 2	RESISTANCE (OHMS).
T.4 Prim. (with CK.1 in series)	Aerial	Chassis	S.W.1. M.W. 20 S.W.1. L.W. 150	T.5 Sec. (with R.17 in series)	V.4/4	VR.1/3	100,000 approx.
T.4 Sec. ...	V.3 Cap.	T.4/2	S.W.1. M.W. 8 S.W.1. L.W. 60	CK.4 ...	CK.4/1	V.6/5	4
T.3 Prim. ...	V.3/3	CK.4/1	S.W.1. M.W. 65 S.W.1. L.W. 275	T.7 Prim. ...	V.5/3	CK.4/1	375
T.3 Sec. ...	V.2 Cap.	TB.4	S.W.1. M.W. 18 S.W.1. L.W. 70	T.7 Sec. ...	Output Transfmr.	Output Transfmr.	0.2*
T.1 Prim. ...	V.2/3	CK.4/1	180	Speech Coil ...	Lead 1.	Lead 2	2*
T.1 Sec. ...	V.1 Cap.	TB.1/2	180	CK.3 ...	V.5/2	Chassis	19 †
T.2 ...	V.2/6	T.2/2	S.W.1. M.W. 18 S.W.1. L.W. 50	T.6 Sec. ...	V.6/3	V.6/4	350
T.2 Reaction ...	T.2/6	T.2/2	3.5	T.6 Prim. ...	Vib. 3	Vib. 4	0.5
T.5 Prim. ...	V.1/3	CK.4/1	260	CK.9 ...	TB.9	LT. +	0.1
				CK.10 ...	TB.8	Chassis	400
				CK.5 (with CK.8 in series) ...	LT. +	V.5/2	0.1
				Vib. Coil ...	Vib. 1	Vib. 2	12.5**

* Resistance of T.7 Secondary alone and speech coil alone (taken when disconnected).

† Resistance of CK.3 measured with all valves removed and SW.2 in "off" position.

** Resistance of vibrator coil taken with V.6 removed and SW.2 in "off" position.

NOTE: Reference numbers for valves should be read in conjunction with the socket numbers, e.g., V1.—S1.

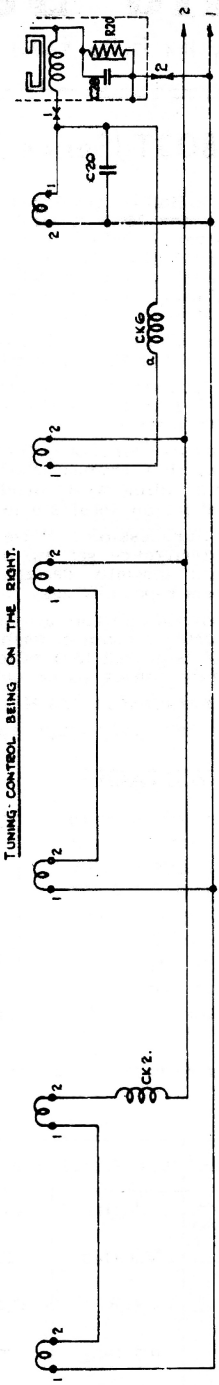


FRONT VIEW OF SW1.
TUNING CONTROL BEING ON THE RIGHT.

NOTE - OTHER SIDE OF STARTER BATTERY
EARTHED TO CASE (FRAME OF CAR)

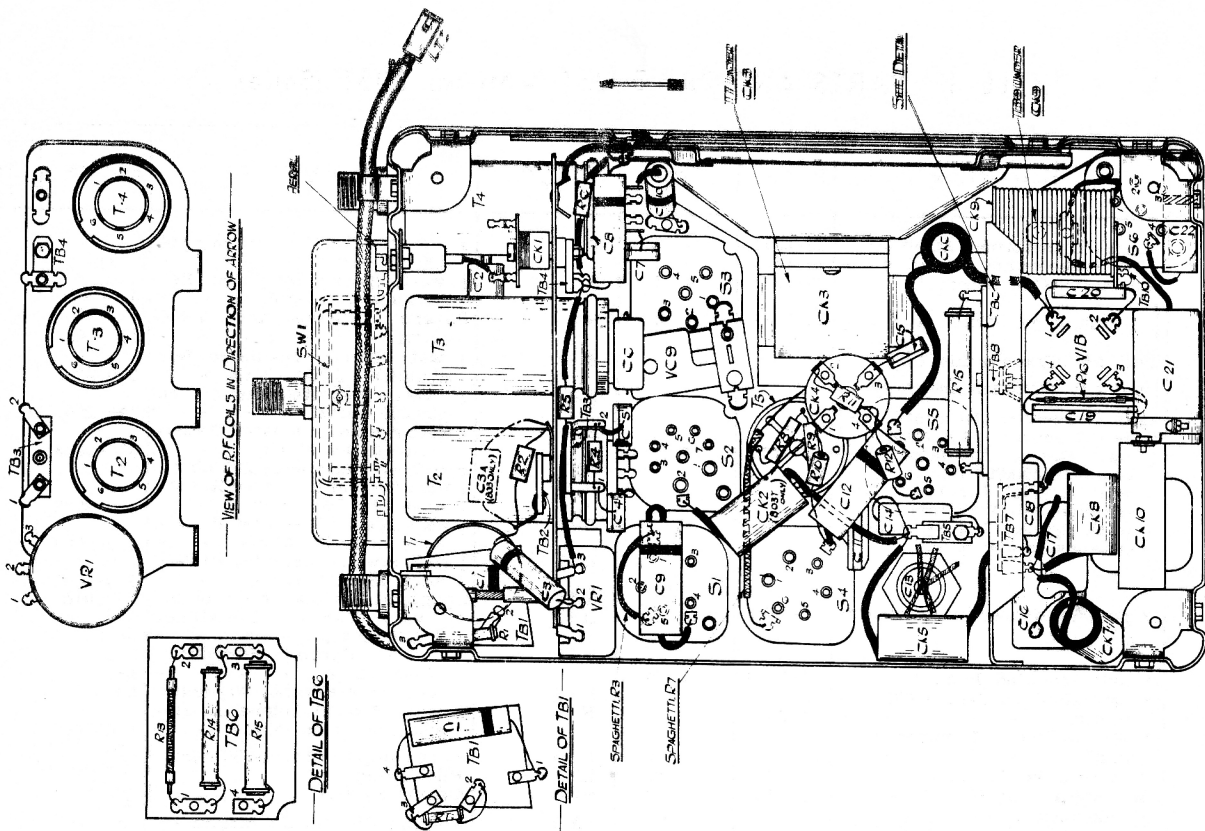
NOTE - C3A ON MODEL 803 ONLY.

NOTE - R19 ON
MODEL 803T ONLY.



REVISED WIRING OF HEATERS WITH ADDITION
OF CK2 ON MODEL 803T.

MODELS 803 & 803T, Series 2,
CIRCUIT DIAGRAM.



ALIGNMENT PROCEDURE—Models 803T & 803 (Series 2)

Before leaving the factory all Philco receivers are accurately aligned, but if mis-alignment 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 099 is recommended.

Remove the lid from the receiver and disconnect the aerial. Connect the Output Meter across the primary of the Output Transformer, i.e., green and white leads. Set wave-change switch to M.W. (clockwise rotation) and turn gang open to fullest extent. Check that pointer reads on 1,500 Kc. Turn Volume Control to maximum.

The I.F. Trimmers should first be adjusted by feeding in a 125 Kc. signal from the Signal Generator to the grid cap of the I.F. valve V.1 (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. Trim VC.5 nut and screw in that order for maximum output. Remove Signal Generator lead and connect it to the grid cap of the 6A7 valve V.2 (with grid lead disconnected). Replace grid lead of I.F. valve V.1. Now trim VC.1 nut and screw for maximum output, afterwards re-trimming VC.5 nut and screw and VC.1 nut and screw in that order until satisfied that no further gain can be obtained.

Transfer Signal Generator lead via a Standard Dummy to the Aerial socket and replace grid lead of 6A7 valve. Set gang condenser to 1,400 Kc. Feed in a 1,400 Kc. signal from the Signal Generator and adjust VC's 4, 8, and 10 in that order for maximum response.

NOTE: Two peaks are obtainable on VC.4 and the one produced by minimum capacity must be used.

Feed in and tune a 600 Kc. signal. Rock gang and pad VC.6 for maximum output. Re-adjust trimming at 1,400 Kc. and padding at 600 Kc. until no further improvement is obtainable.

Turn wave-change switch to L.W. position (left-hand rotation). Feed in and tune a 290 Kc. signal, rock gang and trim VC.9 for maximum signal.

Feed in and tune a 160 Kc. signal, rock gang and pad VC.2 for maximum signal. Re-adjust VC.9 and VC.2 at appropriate frequencies until no further improvement results. Remove Standard Dummy and Signal Generator.

To obtain best results, the Aerial trimmer VC.10 should be adjusted to suit the particular aerial with which the receiver is to be used. Connect the aerial to the receiver and turn the wave-change switch to M.W. position. Radiate a 1,400 Kc. signal by means of a short length of wire attached to the aerial terminal of the Signal Generator. No direct connection must be made to the receiver. Tune this signal and adjust VC.10 for maximum output.

Check sensitivity and calibration.

TABLE 3. PARTS AND PRICE LIST. - Model 803T (Series 2)

Reference No.	DESCRIPTION	Part No.	List Price s. d.	Reference No.	DESCRIPTION	Part No.	List Price s. d.			
T.4	Aerial Transformer Assembly -	32-1594	7 3	R.1	¼ watt Carbon Resistance					
T.3	H.F. Transformer Assembly -	32-1613	5 5		490,000 ohms. - - - -	6097	9			
T.2	Oscillator Coil Assembly -	32-1595	4 6	R.2	¼ watt Special Insulated Resistance 2 megohms. - -	330-2000	9			
T.1	1st I.F. Transformer Assembly	32-1614	7 3	R.3	Spaghetti Resistance 2,000 ohms. - - - -	33-3048	7			
VC.1 Screw										
VC.1 Nut				R.4	¼ watt Special Insulated Resistance 15,000 ohms. - -	330-2005	9			
T.5	2nd I.F. Transformer Coil -			R.5	¼ watt Insulated Resistance 490,000 ohms. - - - -	330-2001	9			
VC.5 Screw	2nd I.F. Trimmer Assembly			R.6	¼ watt Special Insulated Resistance 99,000 ohms. - -	330-2003	9			
VC.5 Nut										
C.26	Mica Condenser 250 mmfd. -			R.7	Spaghetti Resistance 200 ohms. - -	7217	6			
C.27	Mica Condenser 110 mmfd. -			R.10	¼ watt Special Insulated Resistance 240,000 ohms. - -	330-2002	9			
R.8	¼ watt Special Insulated Resistance, 240,000 ohms. -	32-1615	14 3	R.11	¼ watt Special Insulated Resistance 240,000 ohms. - -	330-2002	9			
R.9	¼ watt Special Insulated Resistance, 240,000 ohms. -			R.12	¼ watt Special Insulated Resistance 490,000 ohms. - -	330-2001	9			
R.17	¼ watt Special Insulated Resistance, 99,000 ohms. -			R.13	Spaghetti Resistance 400 ohms. - -	33-3016	6			
VC.3	3 gang Condenser and Trimmers	31-1521	18 9	R.14	1 watt Carbon Resistance 25,000 ohms. - - - -	3656	9			
VC.4										
VC.7							R.15	2 watt Carbon Resistance 51,000 ohms. - - - -	5868	1 6
VC.8							R.16	Spaghetti Resistance 800 ohms. - -	33-3022	6
VC.10							R.18	¼ watt Special Insulated Resistance 51,000 ohms. - -	330-2004	9
VC.11							R.19	Pilot Lamp Resistance 30 ohms. - -	Mounted in Control Head Assembly	
VC.2	Single Moulded Padder -	31-6043	2 6	LP.1	Pilot Lamp					
VC.6	Single Moulded Padder 675-525 mmfd. - - - -	31-6037	2 3	SW.2	On-Off Switch					
VC.9	L.W. Oscillator Trimmer 5-30 mmfd. - - - -	04000-E	6	VR.1	Volume Control 0.5 Megohm -	38-6635	6 9			
CK.1	Aerial Choke, 12 turns -	32-1372	10	SW.1	Wave-change switch (equivalent to 42-1103) - -	420-1007	3 9			
CK.2	Self-supporting H.F. Choke -	32-1561	8	T.6	Power Transformer (12 volts) -	32-7375	13 6			
CK.3	Speaker Field			VIB	Vibrator Unit					
T.7	Output Transformer			C.28	Fixed Condenser .02 mfd. -	38-5036	27 6			
	Speech Coil and Cone } Speaker complete	360-1008	18 9	R.20	Spaghetti Resistance 300 ohms. -					
CK.4	H.F. Choke Assembly, 230 turns - - - -	32-1281	1 3	S.1	5-Prong Valve Socket - - -	27-6035	5			
CK.5	Self-supporting H.F. Choke -	32-1561	8	S.2	7-Prong Valve Socket - - -	27-6037	5			
CK.6	Self-supporting H.F. Choke -	32-1606	8	S.3	5-Prong Valve Socket - - -	27-6035	5			
CK.7	Self-supporting H.F. Choke -	32-1644	8	S.4	6-Prong Valve Socket - - -	27-6036	5			
CK.8	Self-supporting H.F. Choke -	32-1644	8	S.5	6-Prong Valve Socket - - -	27-6036	5			
CK.9	4-Layer H.F. Choke - - -	320-1003	1 5	S.6	5-Prong Valve Socket - - -	27-6035	5			
CK.10	Iron Core Choke - - - -	32-1351	7 0	V1B Socket	4-Prong Valve Socket - - -	27-6006	6			
C.1	Tubular Condenser .03 mfd. -	30-4025	7	V.1	Type 39/44E Variable-mu H.F. Pentode Valve - - - -	34-2025-E	14 0			
C.2	Metal Case Tubular Condenser .5 mfd. - - - -	300-4018	2 5	V.2	Type 6A7 Variable-mu Heptode Valve - - - -	34-2002	16 0			
C.3	Tubular Condenser .01 mfd. -	30-4124	6	V.3	Type 39/44E Variable-mu H.F. Pentode Valve - - - -	34-2025-E	14 0			
C.4	Mica Condenser 250 mmfd. -	300-1014	6	V.4	Type 75 Double Diode Triode Valve - - - -	8002	14 0			
C.5	Mica Condenser 75 mmfd. -	300-1025	6	V.5	Type 42E Pentode Output Valve	6447-E	14 0			
C.6	Mica Condenser 30 mmfd. -	300-1024	9	V.6	Type 84 Full Wave Rectifier Valve - - - -	34-2001	12 9			
C.7	Mica Condenser 50 mmfd. -	300-1003	5		Valve Shield - - - -	28-2726	2			
C.8	Tubular Condenser .03 mfd. -	30-4025	7		Grid Clip - - - -	28-2214	doz.			
C.9	Tubular Condenser .05 mfd. -	30-4020	7		Vibrator Rubber Buffer - - -	27-4009	3			
C.10	Tubular Condenser .03 mfd. -	30-4025	7		Battery Cable Assembly - - -	41-3129	3 3			
C.11	Mica Condenser 250 mmfd. -	300-1014	6		Speaker Cable - - - -	L-1835	5			
C.12	Tubular Condenser .01 mfd. -	30-4145	7		Control Head Assembly (21" Cables) - - - -	420-5009	55 0			
C.13	Block Condenser, 0.5+0.25+0.1 mfd. - - - -	300-4017	5 2		or					
C.14	Mica Condenser 250 mmfd. -	300-1014	6		Control Head Assembly (32" Cables) - - - -	420-5005	55 0			
C.15	Mica Condenser 250 mmfd. -	300-1014	6		Pilot Lamp - - - -	34-2064	1 4			
C.16	Metal Case Tubular Condenser 1.0 mfd. - - - -	4522-P	2 5		Fuse - - - -	5676	5			
C.17	Mica Condenser 6,000 mmfd. -	300-1007	1 0		Aerial Lead Assembly - - -	38-5131	1 10			
C.18	Mica Condenser 250 mmfd. -	300-1014	6		Suppresser Equipment, "C" -					
C.19	Mica Condenser 6,000 mmfd. -	300-1007	1 0		Envelope Kit - - - -	400-9000	16 6			
C.20	Mica Condenser 50 mmfd. -	300-1003	5		Key, Control Head - - - -	28-2782	9			
C.21	Metal Case Tubular Condenser 1.0 mfd. - - - -	4522-P	2 5							
C.22	Tubular Condenser .01 mfd. -	30-4051	6							
C.23	Mica Condenser 110 mmfd. -	300-1020	8							
C.24	Electrolytic Condenser 8+4 mfd. - - - -	30-2109	5 6							
C.25	Tubular Condenser .004 mfd. -	30-4185	6							

MODEL 803 (Series 2) - 6 Volts.

The Model 803 (Series 2) is similar in most respects to the Model 803T (Series 2).

The differences are as follows:—

POWER SUPPLY: The receiver is all-electric, operating entirely from the 6 volts car battery system.

POWER CONSUMPTION: 5 amps. approximately.

TABLE I. VOLTAGES.

Valve socket readings to chassis taken with an 025 or 099 PHILCO SET TESTER using the 300, 30 and 10 volts ranges. Volume Control at minimum. wave-change switch in M.W. position, gang condenser fully open and no aerial connected.

POSITION.	VALVE.	ANODE.	SCREEN.	CONTROL GRID.	CATHODE.
H.F. Amplifier (S3) ...	39/44E	Pin 3, 210 v.	Pin 4, 50 v.	—	Pin 5, 4 v.
1st Detector and Oscillator (S2)	6A7	Pin 3, 210 v. Pin 5, 165 v*	Pin 4, 50 v.	—	Pin 7, 4 v.
I.F. Amplifier (S1) ...	39/44E	Pin 3, 210 v.	Pin 4, 50 v.	—	Pin 5, 3.5 v.
2nd Detector, A.V.C. and 1st L.F. Amplifier (S4) ...	75	Pin 3, 100 v.	—	—	Pin 6, 1.5 v.
Pentode Output (S5) ...	41E	Pin 3, 200 v.	Pin 4, 210 v.	-14.5 v. †	—
Full-wave Rectifier (S6) ...	84	Pin 3, 200 v.AC Pin 4, 200 v.AC	—	—	—

* Oscillator anode volts. † Bias measured between TB8 and chassis. Total D.C. 225 volts (measured between TB8 and CK4/3).

TABLE 3. PARTS LIST.

Same as for Model 803 (Series 2) except as follows:—

Delete:—

REFERENCE No.	DESCRIPTION.	PART No.	LIST PRICE s. d.
CK.2 ...	Self-supporting H.F. Choke ...	32-1561	8
CK.3 ...	Speaker Field	360-10.8	18 9
T.7 ...	Output Transformer } Speaker complete ...		
	Speech Coil and Cone }		
C.9 ...	Tubular Condenser .05 mfd. ...	30-4020	7
C.20 ...	Mica Condenser 50 mmfd. ...	300-1003	5
R.14 ...	1 watt Carbon Resistance 25,000 ohms. ...	3656	9
R.15 ...	2 watt Carbon Resistance 51,000 ohms. ...	5868	1 6
R.16 ...	Spaghetti Resistance 800 ohms. ...	33-3022	6
R.19 ...	Pilot Lamp Resistance 30 ohms. ...	Mounted in Control Head Assy.	
LP.1 ...	Pilot Lamp		
SW.2 ...	On-off Switch		
T.6 ...	Power Transformer (12 volts) ...	32-7375	13 6
V.5 ...	Type 42E Pentode Output Valve ...	6447-E	14 0
	Control Head Assembly (21" Cables) ...	420-5009	55 0
	or		
	Control Head Assembly (32" Cables) ...	420-5005	55 0
	Pilot Lamp ...	34-2064	1 4
<i>Add:—</i>			
CK.3 ...	Speaker Field	360-1017	19 3
T.7 ...	Output Transformer } Speaker Complete ...		
	Speech Coil and Cone }		
C3A ...	Mica Condenser 500 mmfd. ...	300-1006	8
C.9 ...	Tubular Condenser .25 mfd. ...	30-4146	10
C.20 ...	Mica Condenser 250 mmfd. ...	300-1014	6
R.14 ...	1 watt Carbon Resistance 40,000 ohms. ...	330-1010	9
R.15 ...	1 watt Carbon Resistance 50,000 ohms. ...	330-1011	9
R.16 ...	Spaghetti Resistance 200 ohms. ...	7217	6
LP.1 ...	Pilot Lamp	Mounted in Control Head Assy.	
SW.2 ...	On-Off Switch		
T.6 ...	Power Transformer (6 volts) ...	32-7352	13 6
V.5 ...	Type 41E Pentode Output Valve ...	6446E	14 0
	Control Head Assembly (21" Cables) ...	420-5008	55 0
	or		
	Control Head Assembly (32" Cables) ...	420-5004	55 0
	Pilot Lamp ...	34-2039	1 4