



# PHILCO

## Radio Service Bulletin No. 56

Published by the Philco Radio & Television Corporation of Great Britain, Ltd., Perivale, Greenford, Middlesex

### Model K-627-T (12 Volts).

**TYPE CIRCUIT:** Six-valve superheterodyne 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 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 dashboard. The tuning control is geared 15-1 ratio, enabling smooth and accurate tuning, to be obtained.

**INTERMEDIATE FREQUENCY:** 125 Kc.

**POWER CONSUMPTION:** 2.3 amp. approx.

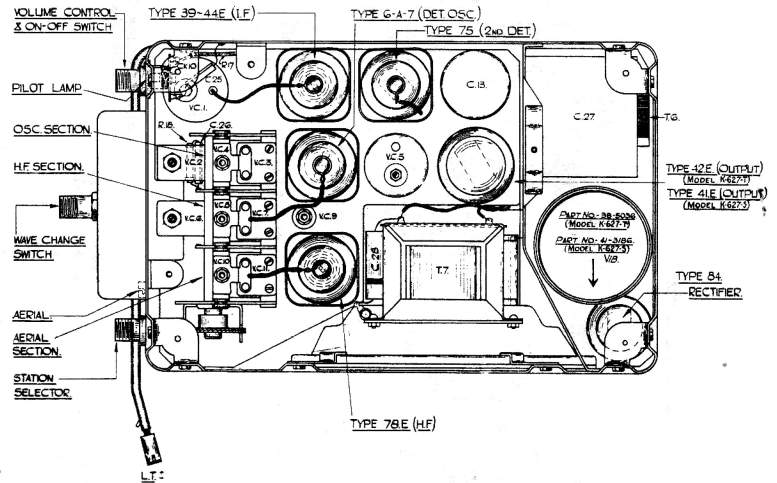


DIAGRAM SHOWING VALVE POSITIONS AND TRIMMERS.

TABLE I. VOLTAGES

Valve socket readings to chassis taken with an 065 or 077 PHILCO SET TESTER, using the 300, 30 and 10 volt ranges. Volume control at minimum, wave - change switch on M.W. position, gang condenser fully open and no aerial connected.

POSITION.	VALVE.	ANODE.	SCREEN.	BIAS.
H.F. Amplifier, S3 ...	78E	Pin 3. 260 volts	Pin 4. 55 volts.	Pin 6. 5 volts.
1st Detector and Oscillator, S2 ...	6A7	Pin 3. 260 volts Pin 5. 215 volts*	Pin 4. 55 volts.	Pin 7. 5 volts.
I.F. Amplifier, S1 ...	39/44E	Pin 3. 260 volts	Pin 4. 55 volts.	Pin 5. 4 volts.
2nd Detector, A.V.C. and 1st L.F. Amplifier S4 ...	75	Pin 3. 150 volts	—	Pin 6. 1.75 volts
Pentode Output, S5 ...	42E	Pin 3. 250 volts Pin 3. 280v. A.C. Pin 4. 280v. A.C.	Pin 4. 260 volts.	-19.5 volts†
Full-wave Rectifier, S6	84	—	—	—

\*Oscillator anode volts. †Bias measured between TB8 and chassis. Total D.C. 280 v. (measured between TB8 and CK3/3).

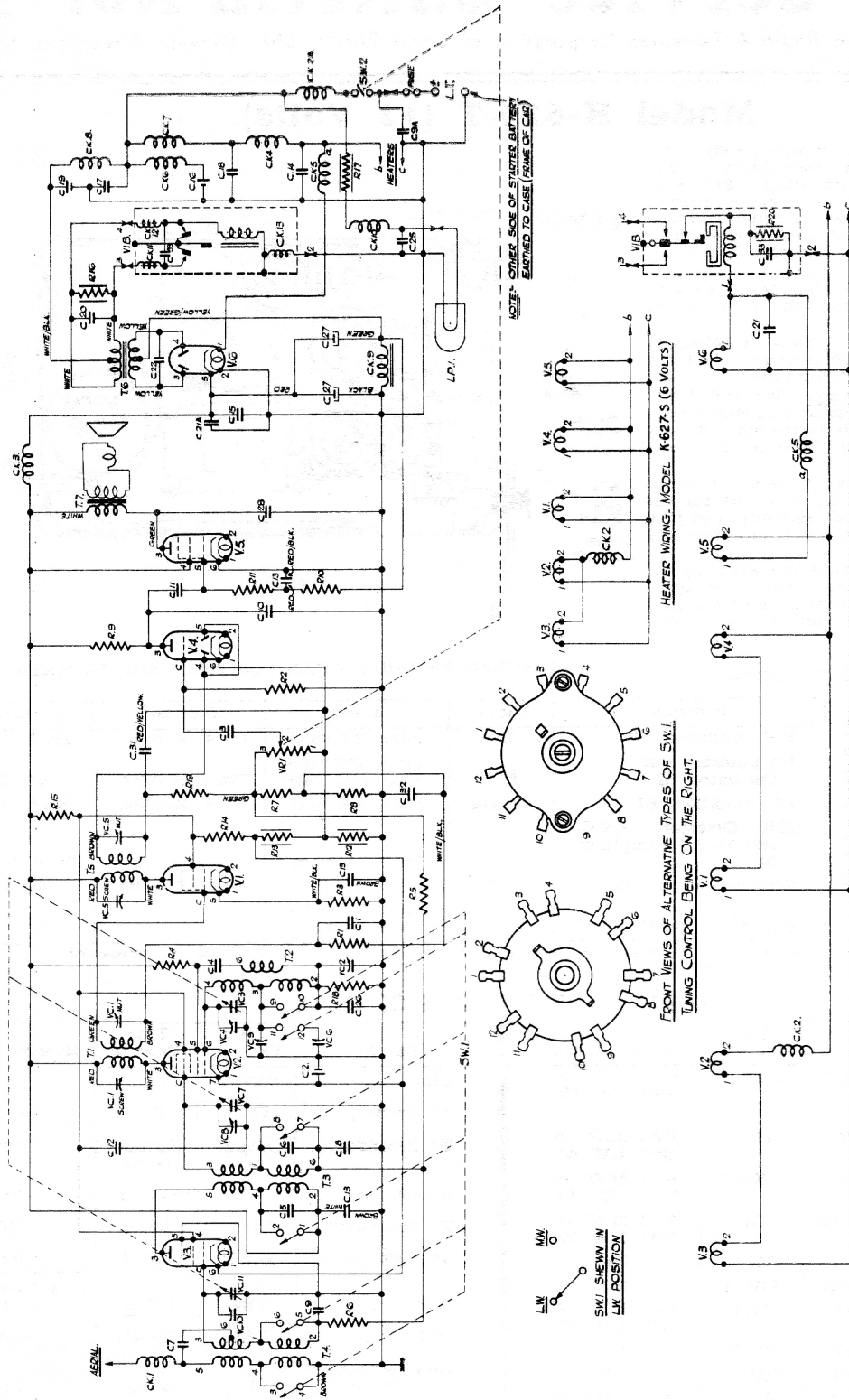
TABLE 2. — RESISTANCES OF COILS.

REF. NO.	TEST PROD. 1	TEST PROD. 2	RESIST. (ohms)	REF. NO.	TEST PROD. 1	TEST PROD. 2	RESIST. (ohms)
T4 Primary ... (With CK1 in series)	Aerial	Chassis	SW1 M.W. 20 SW1 L.W. 150	CK3 ...	CK3/1	V3/5	4
T4 Secondary...	V3 Cap.	T4/2	SW1 M.W. 8 SW1 L.W. 60	T7 Primary ...	V5/3	CK3/1	375
T3 Primary ...	V3/3	CK3/1	SW1 M.W. 65 SW1 L.W. 275	T7 Secondary...	Output Trans.	Output Trans.	0.2*
T3 Secondary...	V2 Cap.	TB4	SW1 M.W. 18 SW1 L.W. 70	Speech Coi ...	Lead 1	Lead 2	2*
T1 Primary ...	V2/3	CK3/1	180	T6 Secondary...	V6/3	V6/4	350
T1 Secondary...	V1 Cap.	TB1/2	180	T6 Primary ...	V1B.3	VIB. 4	0.5
T2 ...	V2/6	T2/2	SW1 M.W. 18 SW1 L.W. 50	CK8 ...	TB9	L.T. ±	0.1
T2 Reaction ...	T2/6	T2/2	3.5	CK9 ...	TB8	Chassis	400
T5 Primary ...	V1/3	CK3/1	250	CK4 (with CK7 in series) ...	L.T. ±	V5/2	0.1
T5 Secondary... (With R19 in series)	V4/4	VR1/3	100,000 approx.	Vib. Coil ...	VIB.1	VIB. 2	†12.5

\*Resistance of T7 Secondary alone and Speech Coil alone (taken when disconnected).

†Resistance of Vibrator Coil taken with V6 removed and SW2 in "off" position.

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



VIBRATOR & HEATER WIRING WITH ADDITION OF C.21, MODEL K 627-T (12 VOLTS)

CIRCUIT DIAGRAM.

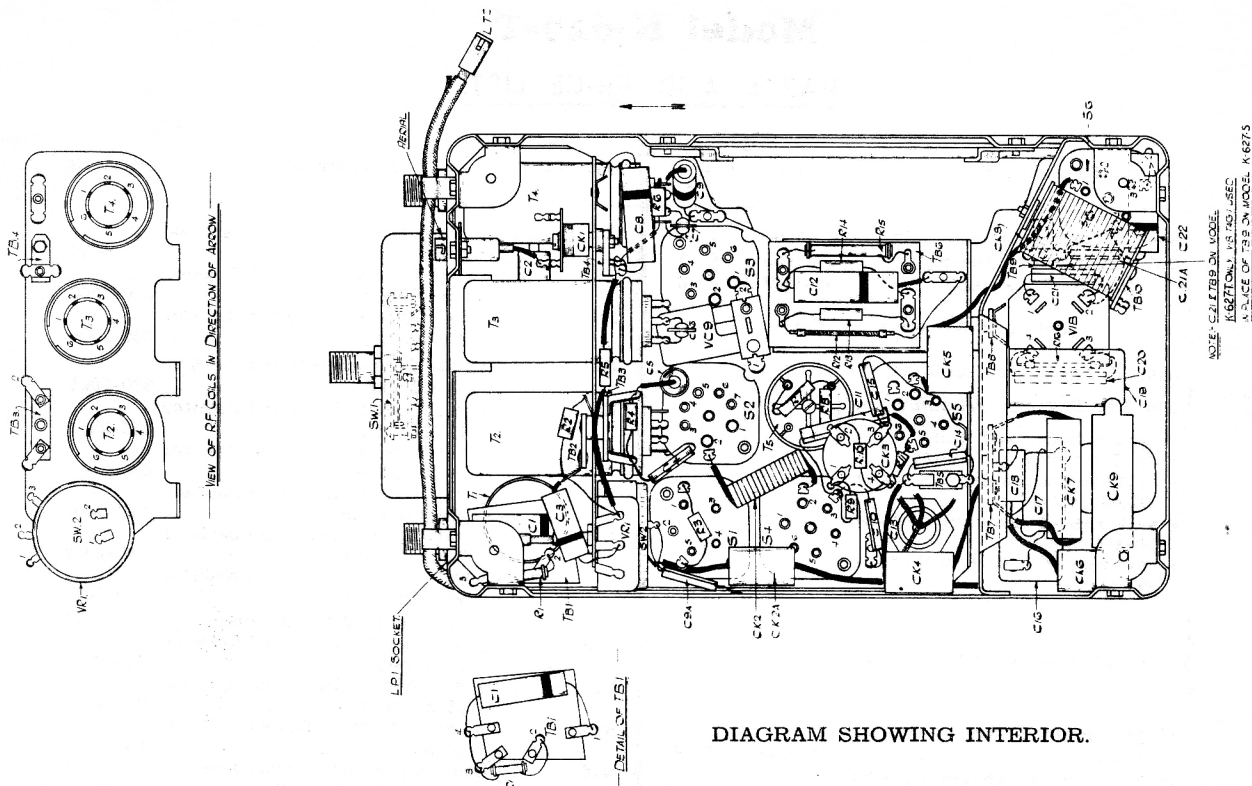


DIAGRAM SHOWING INTERIOR.

### 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.

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

**INTERMEDIATE FREQUENCY:** 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 V1 (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 VC5 nut and screw in that order for maximum output. Remove Signal Generator lead and connect it to the grid cap of the 6A7 valve V2 (with grid lead disconnected). Replace grid lead of I.F. valve V1. Now trim VC1 nut and screw for maximum output, afterwards re-trimming VC5 nut and screw and VC1 nut and screw in that order until satisfied that no further gain can be obtained.

**MEDIUM WAVES:** Transfer Signal Generator lead via a Standard Dummy to the Aerial socket and replace grid lead of 6A7 valve. Set gang condenser to 1400 Kc. Feed in a 1400 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 VC4, and the one produced by minimum capacity must be used.

Feed in and tune a 600 Kc. signal. Rock gang and pad VC6 for maximum output. Readjust trimming at 1400 Kc. and padding at 600 Kc. until no further improvement is obtainable.

**LONG WAVES:** Turn wave-change switch to L.W. position (counter clockwise rotation). Feed in and tune a 290 Kc. signal, rock gang and trim VC9 for maximum signal. Feed in and tune a 160 Kc. signal, rock gang and pad VC2 for maximum signal. Readjust VC9 and VC2 at appropriate frequencies until no further improvement results. Remove Standard Dummy and Signal Generator.

**AERIAL TRIMMING:** To obtain best results, the Aerial trimmer VC10 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 1400 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 VC10 only for maximum output. A hole with removable button cover is provided in the bottom cover of the receiver when fitted for this purpose.

Check sensitivity and calibration.

# Model K-627-T.

## PARTS AND PRICE LIST.

REF. NO.	DESCRIPTION.	PART. NO.	LIST PRICE. s. d.	REF. NO.	DESCRIPTION.	PART. NO.	LIST PRICE. s. d.		
T4	Aerial Transformer Assembly ...	32-1594	7 3	R1	1/4 watt Carbon Resistor 490,000 ohms ...	6097	9		
T3	H.F. Transformer Assembly ...	32-1615	5 5	R2	1/4 watt Special Insulated Resistor 2 megohms ...	330-2000	9		
T2	Oscillator Coil Assembly ...	32-1595	4 6	R3	1/4 watt Special Insulated Resistor 2,000 ohms ...	330-2006	9		
VC1 Screw	1st I.F. Transformer Assembly...	32-1614	7 3	R4	1/4 watt Special Insulated Resistor 15,000 ohms ...	330-2005	9		
VC1 Nut...									
T5	2nd I.F. Transformer Coil...			R5	1/4 watt Special Insulated Resistor 490,000 ohms...	330-2001	9		
VC5 Screw	2nd I.F. Trimmer Assembly ...			R6	1/4 watt Special Insulated Resistor 99,000 ohms ...	330-2003	9		
VC5 Nut...									
C31	Mica Condenser 250 mmfd. ...			R7	1/4 watt Special Insulated Resistor 240,000 ohms ...				
C32	Mica Condenser 110 mmfd. ...			R8	1/4 watt Special Insulated Resistor 240,000 ohms ...				
R7	1/4 watt Special Insulated Resistor 240,000 ohms ...	32-1615	14 3	R9	1/4 watt Special Insulated Resistor 240,000 ohms...	330-2002	9		
R8	1/4 watt Special Insulated Resistor 240,000 ohms ...			R10	1/4 watt Special Insulated Resistor 240,000 ohms...	330-2002	9		
R19	1/4 watt Special Insulated Resistor 99,000 ohms ...			R11	1/4 watt Special Insulated Resistor 490,000 ohms...	330-2001	9		
VC3	3-Gang Condenser and Trimmers	31-1520	19 6	R12	Spaghetti Resistor 200 ohms ...	7217	6		
VC4						R13	1/4 watt Special Insulated Resistor 270 ohms ...	330-2009	9
VC7						R14	1/4 watt Special Insulated Resistor 25,000 ohms ...	330-2010	9
VC8						R15	1 watt Carbon Resistor 50,000 ohms ...	330-1011	9
VC10						R16	Spaghetti Resistor 800 ohms ...	33-3022	6
VC11						R17	Spaghetti Resistor 30 ohms ...	33-3036	1 6
VC2	Single Moulded Padder 100-250 mmfd. ...	31-6043	2 6	R18	1/4 watt Special Insulated Resistor 51,000 ohms ...	330-2004	9		
VC6	Single Moulded Padder 675-525 mmfd. ...	31-6037	2 3	VR1	Volume Control 0.5 megohm	380-5148	5 6		
VC9	L.W. Oscillator Trimmer 5-30 mmfd. ...	04000-E	6	SW2	On-off Switch ...				
CK1	Aerial Choke, 12 turns ...	32-1372	10	SW1	Wave-change Switch ...	42-1103	2 3		
CK2	Self Supporting H.F. Choke ...	320-1048	8	T7	Output Transformer. 320-8002 ...				
CK2A	Self Supporting H.F. Choke ...	320-1050	8		Speech Coil and Cone 360-4001	360-1052	20 3		
CK3	H.F. Choke Assembly, 230 turns	32-1281	1 3		Permanent Magnet				
CK4	Self Supporting H.F. Choke ...	320-1051	8	T6	Power Transformer (12 volts) ...	32-7375	13 6		
CK5	Self Supporting H.F. Choke ...	320-1050	8	VIB	Vibrator Unit ...				
CK6	Self Supporting H.F. Choke ...	320-1049	8	C33	Fixed Condenser .02 mfd....	38-5036	27 6		
CK7	Self Supporting H.F. Choke ...	320-1052	8	R20	Spaghetti Resistor 300 ohms				
CK8	4-Layer H.F. Choke ...	320-1003	1 5	S1	5-Prong Socket ...	27-6035	5		
CK9	Iron Core Choke ...	32-7351	7 0	S2	7-Prong Socket ...	27-6037	5		
CK10	H.F. Choke, 12 turns ...	32-1372	10	S3	6-Prong Socket ...	27-6036	5		
C1	Tubular Condenser .03 mfd. ...	30-4025	7	S4	6-Prong Socket ...	27-6036	5		
C2	Metal Case Tubular Condenser 5 mfd. ...	300-4018	2 5	S5	6-Prong Socket ...	27-6036	5		
C3	Tubular Condenser .01 mfd. ...	30-4124	6	S6	5-Prong Socket ...	27-6035	5		
C4	Mica Condenser 250 mmfd. ...	300-1041	6	VIB Socket	4-Prong Socket ...	27-6006	6		
C5	Ceramic Condenser 75 mmfd. ...	300-1034	9	V1	Type 39/44E Variable-mu H.F. Pentode Valve ...	34-2025-E	12 6		
C6	Ceramic Condenser 30 mmfd. ...	300-1033	1 2	V2	Type 6A7 Variable-mu Heptode Valve ...	34-2002	15 0		
C7	Ceramic Condenser 50 mmfd. ...	300-1032	1 2	V3	Type 78E Variable-mu H.F. Pentode Valve ...	8315-E	12 6		
C8	Tubular Condenser .03 mfd. ...	30-4025	7	V4	Type 75 Double Diode Triode Valve ...	8002	12 6		
C9	Tubular Condenser .03 mfd. ...	30-4025	7	V5	Type 42E Pentode Output Valve	6447-E	13 6		
C9A	Mica Condenser 250 mmfd. ...	300-1041	6	V6	Type 84 Full Wave Rectifier Valve	34-2001	10 6		
C10	Mica Condenser 250 mmfd. ...	300-1041	6		Valve Shield ...	28-2726	2		
C11	Mica Condenser 10,000 mmfd. ...	300-1039	2 0		Grid Clip ...	28-2214	doz. 5		
C12	Tubular Condenser .25 mfd. ...	30-4146	10		Vibrator Rubber Buffer ...	27-4009	3		
C13	Block Condenser 0.5+0.25+0.1 mfd. ...	300-4017	5 2		Battery Cable Assembly (Receiver)	410-3000	2 3		
C14	Mica Condenser 250 mmfd. ...	300-1041	6		Battery Cable Assembly (External)	410-3001	3 0		
C15	Mica Condenser 250 mmfd. ...	300-1041	6		Control Head Assembly (32 in. Cables) ...	420-5020	40 0		
C16	Metal Case Tubular Condenser 1.0 mfd. with 1 1/8 in. lead ...	300-4020	2 6	LP1	Pilot Lamp ...	34-2064	1 4		
C17	Mica Condenser 6,000 mmfd. ...	300-1007	1 0		Fuse (10 amps.) ...	5676	5		
C18	Mica Condenser 250 mmfd. ...	300-1041	6		Fuse Insulator ...	270-2056	doz. 3		
C19	Metal Case Tubular Condenser 1.0 mfd. with 2 1/8 in. lead ...	300-4021	2 6		Aerial Cable Assembly ...	410-3002	2 6		
C20	Mica Condenser 6,000 mmfd. ...	300-1007	1 0		Suppressor Equipment "C" ...	400-9000	16 7		
C21	Mica Condenser 250 mmfd. ...	300-1041	6		Envelope Kit ...				
C21A	Mica Condenser 250 mmfd. ...	300-1041	6		Knob, Volume and Tune...	27-4188	3		
C22	Tubular Condenser .01 mfd. ...	300-4023	1 0		Knob, Wave-change ...	290-7003	6		
C25	Mica Condenser 250 mmfd. ...	300-1041	6						
C26	Mica Condenser 110 mmfd. ...	300-1020	8						
C27	Electrolytic Condenser 8+4 mfd. ...	300-4019	4 9						
C28	Tubular Condenser .004 mfd. ...	30-4185	6						

## Model K-627-S. (6 Volts).

Model K-627-S is similar in most respects to the Model K-627-T. The differences are as follow:—

POWER SUPPLY: Arranged for operation on 6-volt car battery systems.

POWER CONSUMPTION: 4.5 amps. approximately.

### TABLE I.—VOLTAGES.

Valve socket readings to chassis taken with an 065 or 077 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.	BIAS.
H.F. Amplifier, S3	78E	Pin 3. 245 volts	Pin 4. 55 volts	Pin 6. 4 volts
1st Detector and Oscillator, S2	6A7	Pin 3. 245 volts Pin 5. 200 volts*	Pin 4. 55 volts	Pin 7. 4 volts
I.F. Amplifier, S1	39/44E	Pin 3. 245 volts	Pin 4. 55 volts	Pin 5. 4 volts
2nd Detector, A.V.C. and 1st L.F. Amplifier, S4	75	Pin 3. 110 volts	—	Pin 6. 1.5 volts
Pentode Output, S5	41E	Pin 3. 235 volts	Pin 4. 245 volts	—18 volts†
Full-wave Rectifier, S6	84	Pin 3. 250 v. A.C. Pin 4. 250 v. A.C.	—	—

\* Oscillator Anode volts. † Bias measured between T.B.8 and chassis. Total D.C. 260 v. (measured between T.B.8 and C.K.3/3).

### TABLE 2. — RESISTANCES OF COILS

and

### ALIGNMENT PROCEDURE.

These are the same as for Model K-627-T.

### PARTS AND PRICE LIST.

Delete:—

REFERENCE NO.	DESCRIPTION.	PART NO.
R14 ..	½ watt Special Insulated Resistor, 25,000 ohms .. ..	330-2010
R16 ..	Spaghetti Resistor, 800 ohms .. .. .	33-3022
R17 ..	Spaghetti Resistor, 30 ohms .. .. .	33-3036
T6 ..	Power Transformer (12 volts) .. .. .	32-7375
V5 ..	Type 42E Pentode Output Valve .. .. .	6447-E
C21 ..	Mica Condenser 250 mmfd... .. .	300-1041
VIB ..	Vibrator Unit .. .. .	} 38-5036
C33 ..	Fixed Condenser .02 mfd. .. .. .	
R20 ..	Spaghetti Resistor 300 ohms .. .. .	
	Fuse (10 amps.) .. .. .	5676

Add:—

REFERENCE NO.	DESCRIPTION.	PART NO.	LIST PRICE. s. d.
R14 ..	½ watt Special Insulated Resistor 40,000 ohms .. ..	330-2020	9
R16 ..	Spaghetti Resistor 200 ohms .. .. .	7217	6
R17 ..	Spaghetti Resistor, 7 ohms.. .. .	5110	1 6
T6 ..	Power Transformer (6 volts) .. .. .	32-7352	13 6
V5 ..	Type 41E Pentode Output Valve.. .. .	6446-E	13 6
VIB ..	Vibrator Unit .. .. .	} 41-3186	27 6
C33 ..	Fixed Condenser 250 mmfd. .. .. .		
CK11 ..	H.F. Choke .. .. .		
CK12 ..	H.F. Choke .. .. .	} 7227	4
CK13 ..	H.F. Choke .. .. .		
	Fuse (15 amps.) .. .. .		