



# PHILCO

REG. U.S. PAT. OFF

## Service Bulletin No. 222-A



### Model 116X (Code 122)

#### GENERAL SPECIFICATIONS

**Type Circuit:** Superheterodyne. Push-pull, 6A3 tubes, in output, 15 watts. Built in connections for Philco All-wave Aerial. Aerial Selector operated by waveband switch.

**Power Supply:** Alternating Current. Voltage and frequency as specified on chassis nameplate.

**Tubes Used: Eleven Total:** 1 type 78 R.F., 1 type 77 1st detector, 1 type 76 Oscillator, 2 type 78 I.F., 1 type 37 2nd Detector, 1 type 77 1st Audio, 1 type 42 Driver, 2 type 6A3 Output, 1 type 5-Z-3.

**Wave Bands:** Five—(1) Shortwave, daytime; (2) Short-wave, night-time; (3) Police and amateur; (4) Standard broadcast; (5) Longwave (weather forecasts).

**Frequency Ranges:** Band (1)—9.7-22.5 Megacycles; Band (2)—4.1-10.0 Megacycles; Band (3)—1.5-4.1 Megacycles; Band (4)—540 to 1500 K.C.; Band (5)—150-390 K.C.

**Program Control:** 5 positions: (1) Mellow, (2) Brilliant, (3) Speech, (4) Normal, (5) Noise-reducing. Last two positions recommended for foreign short wave stations.

**Tuning Meter:** Shadow type tuning meter, mounted directly above scale.

**Waveband Indicator:** Glowing arrow on tuning scale shifts to proper scale when waveband switch is turned.

**Automatic Volume Control:** Fully effective on all stations.

**Potentiometer:** To compensate for differences in characteristics of 6A3 tubes. Adjust for minimum low-pitched hum when set is in operation, volume at minimum.

**Acoustic Clarifiers:** Three: mounted on inclined sounding board with speaker.

**Bass Compensation:** Automatic, effective when needed.  
**Speaker:** Type U-9 (High-fidelity).

**Tuning Drive:** Dual Planetary, ball-bearing. 80 to 1 ratio for slow-speed tuning, 10 to 1 for main drive.

**Intermediate Frequency:** 460 K.C.

**Power Consumption:** 135 watts.

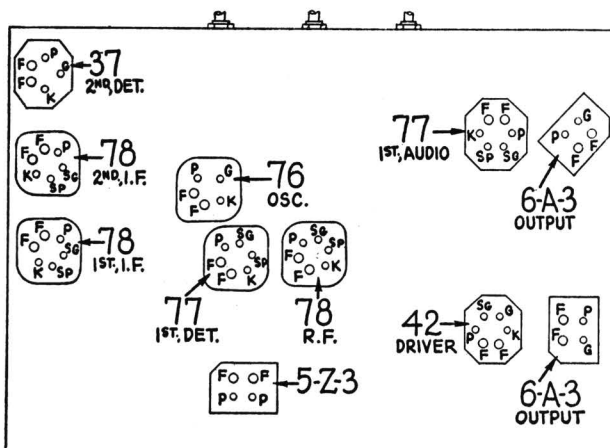


Fig. 1. Tube Sockets as viewed from bottom

#### Tube Socket Voltages

(Line Voltage 115) All Voltages Measured to Ground

Tube Point	78 R.F.	77 1st Det.	76 Osc.	78 1st I.F.	78 2d I.F.	37 2d Det.	77 1st A.F.	42 Driver	6A3 Output	5Z3
P	207	215	98	208	212	0	95	220	320	...
SG	89	89	...	89	89	..	72	220	320	...
K	2.2	5.2	5.2	2.1	6.4	0	..	...	...	340

Above voltages were obtained by using a PHILCO type 025 Circuit Tester (or 048A All-purpose Tester), using test prods applied to underside of chassis. Volume control at minimum; dial at 55; waveband switch at standard broadcast. Use Fig. 1 for test points. U-9 Speaker used.

#### Power Transformer Data

Terminals	A.C. Volts	Current	Circuit	Color of Leads
1-2	120	...	Primary	White
3-5	830	170 M. A.	Secondary	Yellow
6-7	5.0	3.0 A.	Rectifier Filament	Blue
8-9	6.3	2.7 A.	Filaments	Black
4	...	...	Center Tap of 3-5	Yellow, Green Tracer

#### Compensating Condensers

Adjustment same as Model 116 Code 121 (Refer to Bulletin No. 222)

#### Replacement Parts Model 116 (122)

Note: All parts on schematic and base view numbered from ① to ④ inclusive are the same as used on model 116B (121). Refer to Bulletin No. 222. Parts subsequent to 64 are listed herewith.

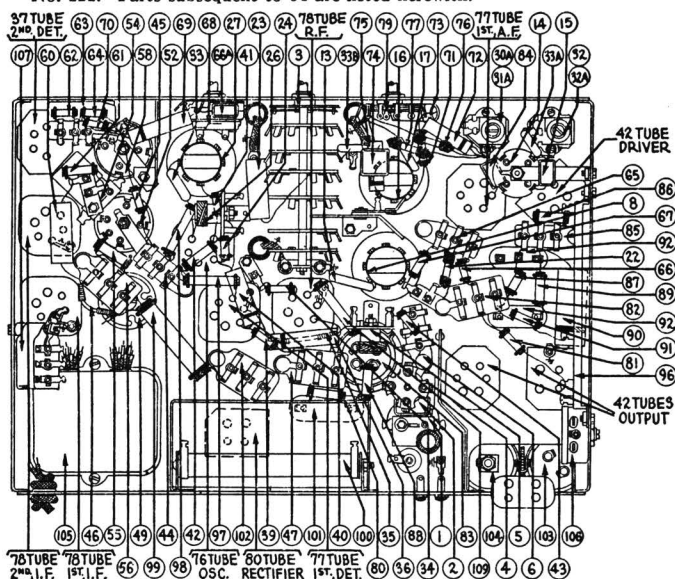
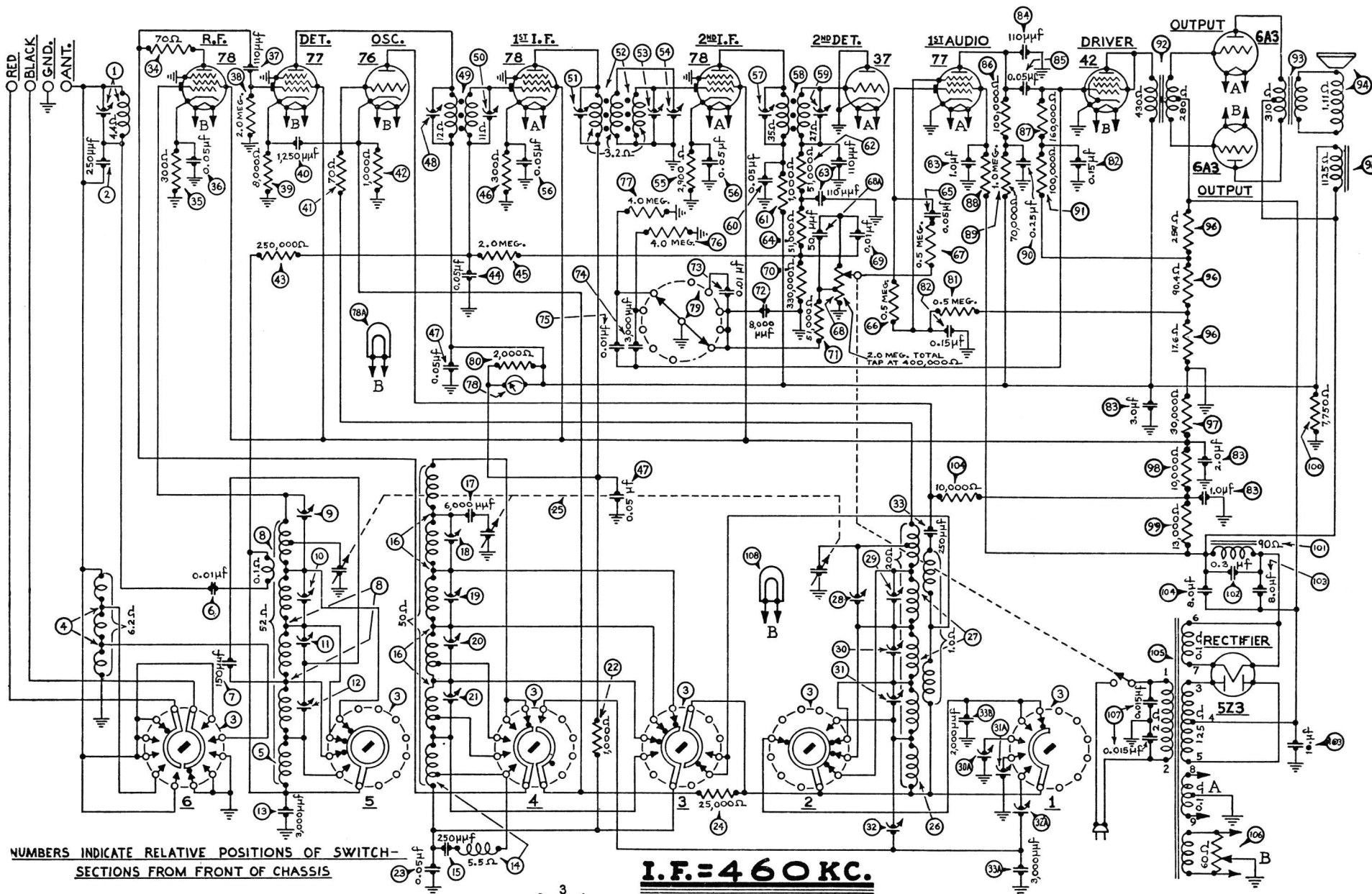


Fig. 2. Base View

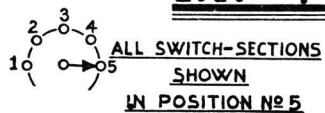
Description	Part No.	List Price
Condenser (.05 Mfd. Bakelite Block)	3615-1U	\$0.35
Resistor (.5 Meg.) (Yellow-White-Yellow)	6097	.20
Resistor (.5 Meg.) (Yellow-White-Yellow)	6097	.20

Description	Part No.	List Price
Volume Control and On-Off Switch	33-5110	\$1.45
Condenser (.0005 Mfd. Mica)	30-1029	.35
Condenser (.01 Mfd. Tubular)	30-4169	.30
Resistor (330000 ohms) (Orange-Orange-Yellow)	33-1200	.20
Resistor (51000 ohms) (Green-Brown-Orange)	6098	.20
Condenser (.008 Mfd. Tubular)	30-4112	.25
Condenser (.01 Mfd. Tubular)	30-4169	.30
Condenser (.003 Mfd. Mica)	30-1028	.60
Condenser (.01 Mfd. Tubular)	30-4169	.30
Resistor (4 Meg.) (Yellow-Black-Green)	6010	.20
Resistor (4 Meg.) (Yellow-Black-Green)	6010	.20
Shadow Tuning Meter	45-2083	2.50
Pilot Lamp for Shadow Tuning Meter	Part of ③	
Tone Control Switch	42-1119	.50
Resistor (2000 ohms) (Red-White-Red)	6984	.20
Resistor (.5 Meg.) (Yellow-White-Yellow)	6097	.20
Condenser (.15 Mfd. Twin Bakelite Block)	6287-DU	.40
Condenser (Electrolytic) (1 Mfd., 3 Mfd., 2 Mfd., 1 Mfd.)	30-2121	2.50
Condenser (.00011 Mfd. Mica)	30-1031	.35
Condenser (.05 Mfd. Bakelite Block)	3615-SU	.35
Resistor (100000 ohms) (White-White-Yellow)	4411	.20
Resistor (160000 ohms) (Brown-Blue-Yellow)	33-1191	.20
Resistor (1 Meg.) (Brown-Black-Green)	4409	.20
Resistor (70000 ohms) (Violet-Black-Orange)	5385	.20
Condenser (.25 Mfd. Tubular)	30-4134	.45
Resistor (100000 ohms) (White-White-Orange)	6099	.20
Audio Transformer	32-7447	3.00
Output Transformer (On Speaker)	32-7446	1.75
Cone & Voice Coil Assembly (U-9)	36-3381	1.75
Field Coil & Pot Assembly (U-9)	36-3088	8.00
Resistor (Wirewound, Flat Type—17.6, 90.4, 257 ohms)	33-3212	.65
Resistor (30000 ohms) (Orange-Black-Orange)	7836	.20
Resistor (10000 ohms) (Brown-Black-Orange)	3524	.20
Resistor (13000 ohms) (Brown-Orange-Orange)	6450	.40
Resistor (7750 ohms, Wirewound Porcelain Tube)	33-3020	.35
Filter Choke	32-7056	2.20
Condenser (.3 Mfd. Bakelite Block)	6287-DU	.40
Condenser (Electrolytic) (8 Mfd., 10 Mfd.)	30-2123	1.80
Condenser (Electrolytic) (8 Mfd.)	30-2011	1.40
Power Transformer { 115 Volts, 60 Cycles	32-7431	7.50
{ 115 Volts, 25 Cycles	32-7432	12.00
{ 230 Volts, 50 Cycles	32-7433	8.75
Potentiometer	33-5111	.70
Condenser (.015 Mfd. Twin Bakelite Block)	3793-DG	.40
Pilot Lamp (Dial Scales)	34-2064	.09
4-Prong Socket (6A3 Tubes)	27-6044	.10



NUMBERS INDICATE RELATIVE POSITIONS OF SWITCH-SECTIONS FROM FRONT OF CHASSIS

**I.F. = 460 KC.**



Schematic Diagram of Model 116-122

**PHILCO RADIO & TELEVISION CORPORATION**

Parts and Service Division