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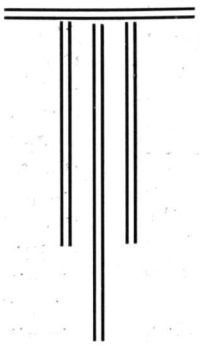
POLICE AUTO RADIO

Models 810 PA, 810 PB and 810 PV



TRANSITONE AUTOMOBILE RADIO CORPORATION
Tioga and C Streets Philadelphia, Pa.

GO: 6, 6S, 6, 21 U. S. only

INSTALLATION AND OPERATING INSTRUCTIONS

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POLICE AUTO RADIO

Models 810 PA, 810 PB and 810 PV

There are two new types of Philco police auto radio Receivers, each designed to meet the special requirements of this particularly rigorous service: The Model 810PV, a variable tuning Police Receiver — and the Models 810PA and PB, crystal controlled, fixed frequency Receivers, the DeLuxe Police Auto Radio.

HOUSING, PLATING, FINISH All are single unit Receivers, housed in containers 11 inches long by 7 3/8 inches wide by 7 inches deep. All corners are rounded, the chassis, housing and covers are all steel and are plated to prevent rusting. They are given an exterior black wrinkle finish.

MOUNTING BRACKETS The Receivers are furnished with metal mounting brackets. One bracket is bolted to the inside of the dash, the other bracket is fastened to back of the Receiver. The Receiver bracket engages on the dash bracket and is fastened by a single small screw. This makes the installation and removal of the Receiver a simple, rapid operation. The Receiver may be installed with the tubes upright or inverted, depending on the location of the Receiver in the car.

CONTROL SHAFTS, CONNECTIONS The volume control and (in case of 810 PV) the tuning control shaft, the "A" battery and the antenna connectors are located on one end of the housing. The shafts are the rapid coupling type with the locking gland nut at the Receiver end. The "A" battery and antenna connections are the quick, detachable bayonet locking type, with the "A" fuse placed in the "A" lead.

FLOATING CHASSIS AND CONDENSER The Receiver chassis is shock mounted within the housing, actually floating on live rubber bushings. The tuning condenser is likewise rubber mounted.

CONDENSER DRIVE The condenser drive gear ratio (Model 810PV) is 16:1. This eliminates practically all back lash and due to the mechanism used, prevents the tuning condenser from detuning from vibration. This high gear ratio also makes accurate tuning much easier.

CONTROL UNIT A steering column control unit, with illuminated dial (calibrated for the Model 810PV) is used.

SUPERHETERODYNE RANGE 810PV DRIFT A superheterodyne circuit is used for the 810PV, also the 810PA and PB. The frequency coverage of the Model 810PV is from 1575 K.C. to 2600 K.C. continuously in one band. The oscillator and I.F. circuits are especially designed to reduce frequency drift to a minimum.

RANGE 810PA AND 810PB The Models 810PA and 810PB, the fixed frequency Receiver can be furnished adjusted for any one particular frequency within the limits of the regular police band, i.e. the Model PA covers from 1575 K.C. to 1750K.C. and the Model 810PB covers from 2100 K.C. to 2500 K.C. A

CRYSTAL CONTROL crystal controlled oscillator circuit is employed in the Model 810PA and 810PB. The crystal control naturally holds the oscillator on the required frequency, and is responsible, in a large measure, for the greatly improved performance of this Receiver.

TUBE EQUIPMENT The tubes used in the 810PV and 810PA and 810PB are:

78 Tube— Tuned R. F. Amplifier with A. V. C.
6A7 Tube— First Detector—Oscillator Modulator with A. V. C.
78 Tube—I. F. Amplifier.
75 Tube—Second Detector and "Q" Relay Stage.
75 Tube—First A. F. Amplifier with "Q" Control.
41 Tube—Power Output Stage.
84 Tube—Full Wave Rectifier.

A. V. C. Both the R.F. stage and the first detector oscillator modulator stage have full automatic volume control supplied by the diode detector. In addition to this, the Receiver also has a

"Q" CIRCUIT "Q" or carrier relay circuit. The function of this circuit is to completely silence the Receiver when tuned off carrier, or when the carrier goes off the air. The correct values of the resistor network have been determined and used for satisfactory city operation where it is desirable to exclude street car noises, etc. A switch is provided on the face of the Receiver to open or close this circuit, since, when in remote sections of the territory, where the police transmitter signal might be very weak, slight additional sensitivity can be obtained with the "Q" circuit cut out. This "Q" circuit should not be confused with the conventional squelch circuit. The "Q" relay circuit operates on a carrier field strength equivalent to approximately 3 microvolts in the antenna. A carrier below this strength is almost always of insufficient strength to give satisfactory reception, especially in noisy locations.

DYNAMIC SPEAKER SPECIAL AUDIO A full powered electro-dynamic speaker is used to give clarity of reproduction and better articulation. The audio and the speaker circuits are especially designed to give the best reproduction of the voice frequencies. The Receiver and speaker are capable of delivering considerably greater undistorted output than is normally required.

PHILCO POLICE AUTO RADIO — MODELS 810 PA, 810 PB AND 810 PV INSTRUCTIONS

POWER SUPPLY The power supply is self contained and is not polarized. The Receiver can be installed in any car without reversing battery connections. Philco's full-wave Vibrator (more than three-quarters of a million in successful operation during the past three years) is used.

These models are without peer and are the most modern police Receivers obtainable. They represent the best designing, engineering and production skill in the industry.

GENERAL INSTALLATION

ANTENNA—In cars equipped with a top antenna, the antenna lead-in is usually brought down one of the windshield pillars and coiled behind the cowl trim panel. In such cases, the antenna lead (Receiver) must be spliced to the antenna lead-in as close as possible to the corner post and the shield pigtail on the lead grounded.

In cars having an all metal top, the Philco special under-car antenna should be installed (Part No. 45-1128 Kit). The shielded antenna lead, furnished with the kit must be brought up through the floor of the car and connected to the Receiver. Complete instructions are furnished with antenna kit.

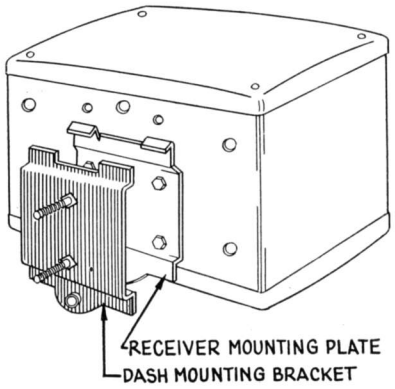

FIGURE 1

RECEIVER INSTALLATION—The Receiver must be installed under the cowl on the dash. Be sure that in the location selected, there is ample foot room and that the Receiver does not in any way interfere with the operation of the control pedals and ventilators. The Receiver can be installed on the right side of the dash, in the center or on the left side, above the steering column.

The standard mounting for the Police Auto Radio is with the mounting plate and bracket. Figure 1 shows how the mounting plate is attached to the Receiver housing while Figure 3 shows a typical Receiver installation above the steering column, with the control unit mounted on the steering column.

When installed on the right side or the left side, the control coupling end of the Receiver must be towards the center of the dash. When installed in the center of the dash, the control coupling end must be towards the control unit.

The Receiver mounting plate must be fastened to the back of the Receiver housing, using the four self-tapping screws. Six holes are provided in the Receiver housing. This permits fastening the bracket in either of the two positions so that the Receiver can be installed with the controls to the right or left as required. The rounded lip of mounting plate must extend below the lower edge of the Receiver housing.

Drill two $\frac{3}{8}$ inch holes in the dash for the mounting bracket. After drilling, bolt the mounting bracket to the inside of the dash.

Hang the Receiver mounting plate on the mounting bracket. Tighten the hex head retaining screw at the bottom of the mounting plate.

Before installing the Receiver, turn the volume control coupling counter-clockwise as far as it will go.

CONTROL UNIT—Mount the control unit on the steering column (see Figures 2 and 3). The clamp strap must be formed around the steering column and a hole reamed out for the clamp screw. Follow the details shown in Figure 2 for attaching the mounting bracket and the control unit. The felt strip must be placed next to the steering column under the clamp strap so that the finish will not be marred.

Unlock the control unit and turn the volume control knob clockwise half a turn. Seat the volume control shaft end in the proper coupling on the Receiver housing and fasten the shaft casing nut securely. The volume control knob must be turned counter-clockwise as far as it will go. Remove the knob and loosen the set screw in the shaft end. Turn the shaft counter-clockwise until the switch in the control head snaps "off." Tighten the set screw and replace the knob.

The tuning control flexible shaft (Model 810PV only) must be coupled in its shaft bushing on the Receiver also. The knurled shaft casing nuts must be securely tightened. Figure 3 shows the locations of these shaft bushings on the Receiver housing.

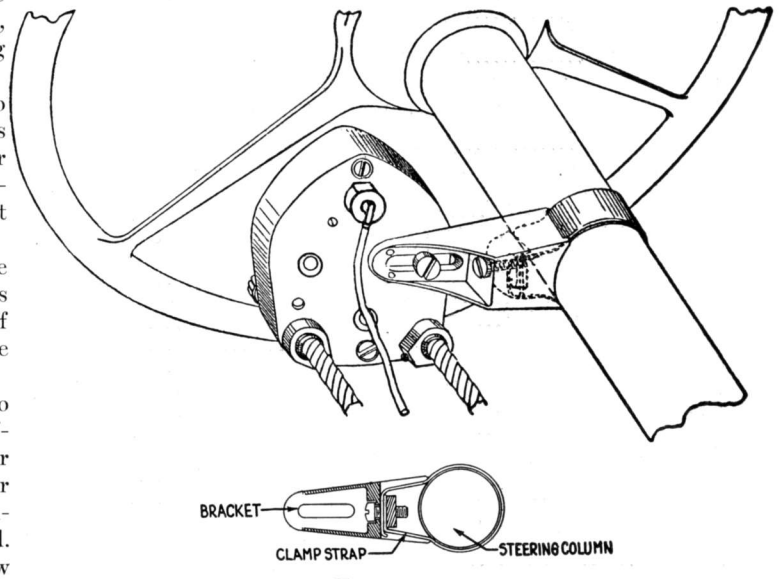

FIGURE 2

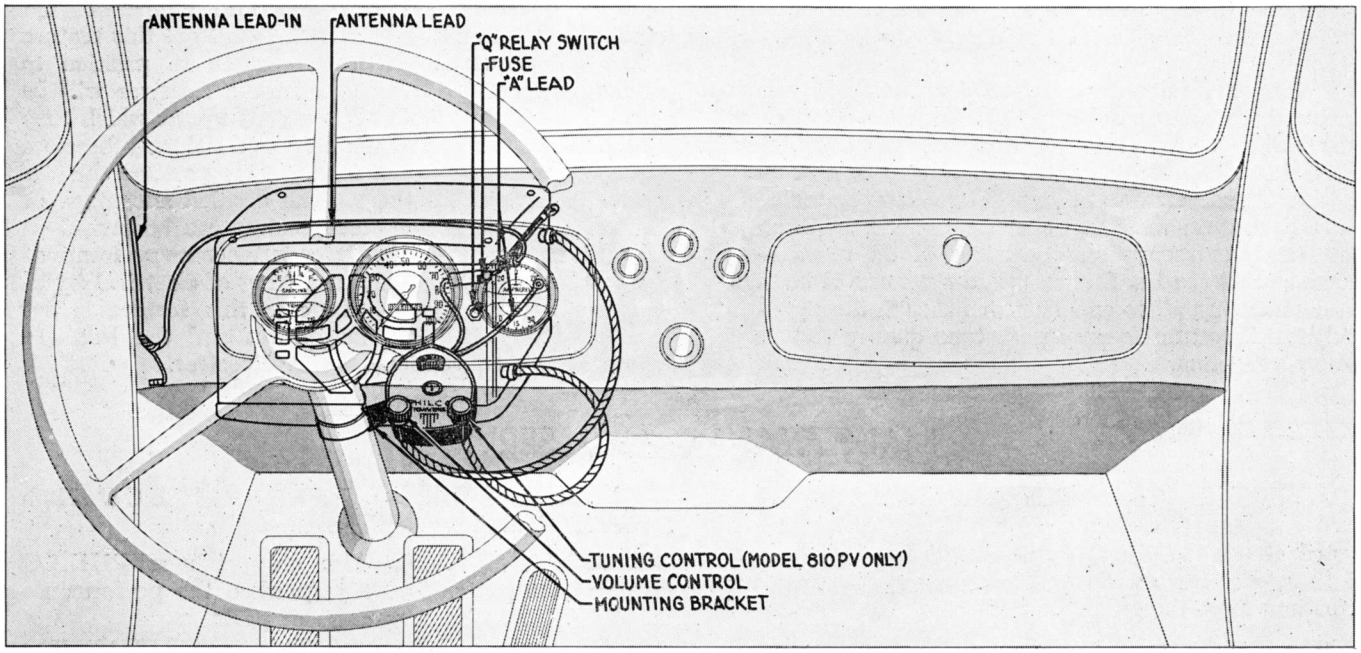

FIGURE 3

CABLE CONNECTIONS—Place the fuse and fuse insulator in the metal fuse housing in the control "A" lead. Couple this to the short Receiver lead and then connect the other "A" lead to the ammeter stud on the rear of the instrument board.

The antenna lead must be connected in its socket on the end of the Receiver housing.

TUNING SHAFT ADJUSTMENTS — MODEL 810PV ONLY— Turn on the Receiver and tune in a station in the emergency police band whose frequency in kilocycles is known. Pull the knob from the right hand control shaft and loosen the set screw found there. Turn the shaft until the indicator points to the correct number on the dial. Then tighten the set screw and replace the knob.

STANDARD SUPPRESSION—The standard spark plug resistors (33-1195) can be installed on the spark plugs of practically all cars. Likewise the distributor resistor (33-1196) can be connected in the high tension center lead to the distributor.

Disconnect the high tension leads to the spark plugs. Cut off the terminal end of the lead and screw the small elbow-type resistor on the lead. The resistor can then be snapped on the terminal of the spark plug. To avoid confusion when the leads cannot be identified easily, install the resistor and make all connections on one lead at a time.

Remove the coil-to-distributor high tension lead from the distributor head and cut the lead two inches from the end. Screw the resistor to the short end and then screw the resistor into the main lead. Reconnect the terminal end of the lead to the distributor.

In case the spark plugs are not equipped with a suitable terminal, the standard ferrules can be obtained and placed on the plugs. Cars equipped with twin ignition require a spark plug resistor on each plug. Cars equipped with two ignition coils require two distributor resistors.

Two interference condensers are furnished — one must be connected to the generator side of the cut-out, the other to the battery side of the primary of the ignition coil or to the ignition switch. The condenser bracket must be fastened securely to a grounded metal part of the car. The condenser on the generator usually can be fastened to the generator housing under the same screw that holds the cut-out, while the coil condenser can usually be fastened under the coil mounting bolts.

In some cases, it may be necessary to connect an additional condenser to the ammeter or to the dome light lead at the corner post.

There may be some interference caused by an excessive gap between the distributor rotor and the high-tension contacts. This can be overcome by lengthening the contact end of the rotor. Place the metal end of the rotor on a steel block and peen or hammer it with a small machinist's hammer. Dress the end with a file so that it retains its original shape. The rotor should not brush or wipe the contacts, but should just clear them.

OPERATION

To operate the Receiver, the control must first be unlocked (Model 810PV only). The left-hand knob on the control is a combination switch and volume-control. Turn the volume control knob clockwise. The first range of motion operates the Receiver switch; from there on it is the manual volume control.

The Models 810PA and PB are fixed frequency Receivers and cannot be tuned. The Model 810PV is

a variable tuning Receiver and can be tuned to the various police frequencies (1575 K. C. to 2600 K. C.)

With the volume control turned on half-way, allow the tubes to heat up. Then turn the right-hand knob (the station selector) to tune in the various stations, (Model 810PV only). Adjust the volume to a suitable level and recheck the tuning. The Receiver must be tuned so that the maximum signal is obtained. Since the Receiver is extremely selective, it is of the utmost importance that the Receiver be tuned right on the station. Careless tuning off to one side even though the signal is still heard, results in very poor tone quality and very mushy reception.

The Receivers are equipped with a special "Q" carrier relay circuit and a switch to cut out this feature when not required. With the switch in position to operate the carrier relay system, the Receiver will be quiet until a carrier signal is picked up, at which time the relay functions and the Receiver suddenly becomes "alive." With the switch in the other position the Receiver is alive at all times. The decided advantage of the relay circuit is that the Receiver can be turned on at all times and used in the extremely noisy locations without the annoying crack and bang of electrical interference between signals. In case this feature is not wanted, the switch can be thrown and the Receiver operated as a conventional Police Receiver.

MAINTENANCE AND SERVICE

ADJUSTMENTS—The Models 810 PA and 810 PB are fixed frequency Receivers and have been carefully adjusted at the factory. Do not change the adjustments of these Receivers without first obtaining complete instructions from the factory.

The Model 810 PV has also been carefully adjusted at the factory. It should not need readjustment under normal conditions. Should it ever become necessary to readjust these Receivers, first obtain complete instructions from the factory.

REPLACEMENT TUBES— Use only PHILCO High Efficiency Tubes for replacements.

REPLACEMENT PARTS—Use only genuine PHILCO replacement parts. Don't jeopardize the performance of the Receiver by using inferior parts.

DO NOT ATTEMPT TO ADJUST THE VIBRATOR—The vibrator adjustment is very critical. Vibrators, poorly adjusted in the field may result in serious damage to the Receiver. Use only genuine Philco vibrators and take advantage of Philco's liberal adjustment plan.

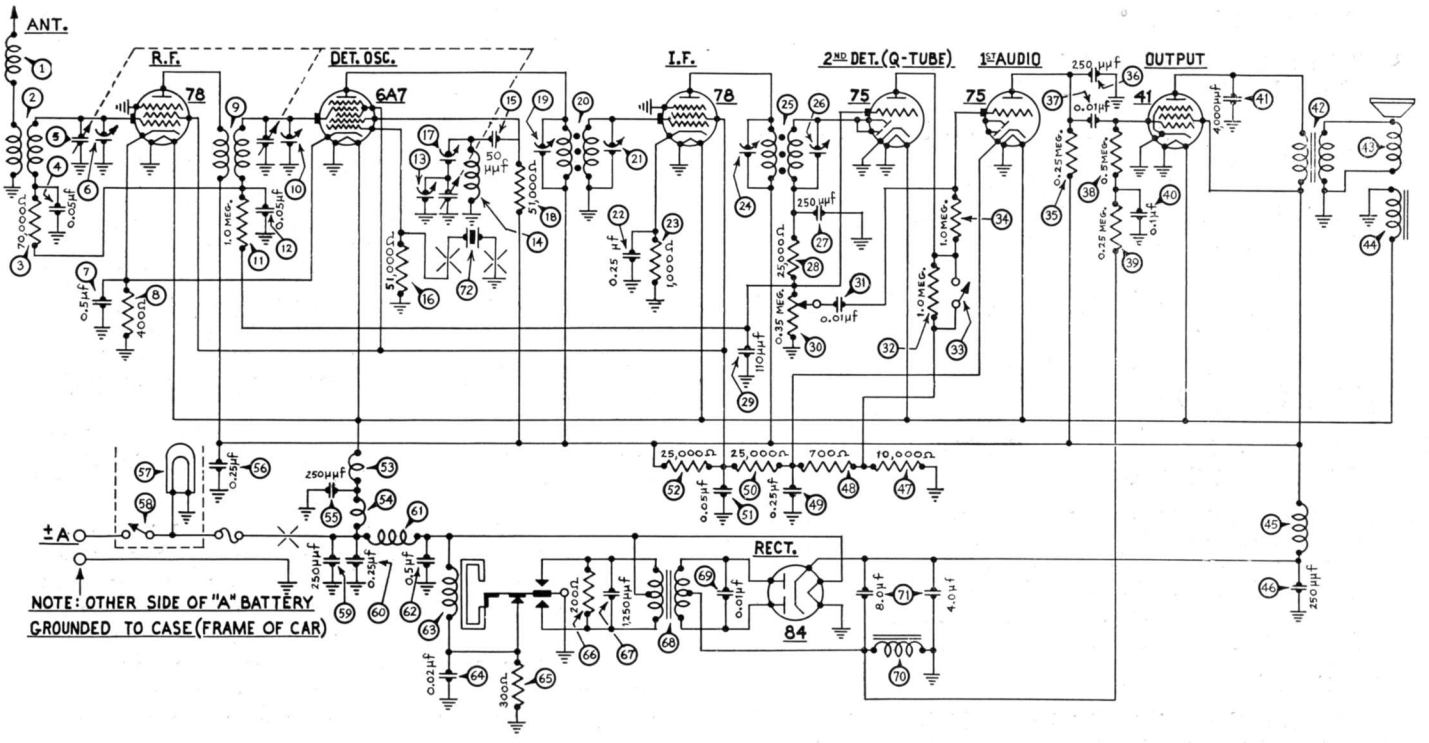

FIGURE 4

MODEL 810PA and 810PB

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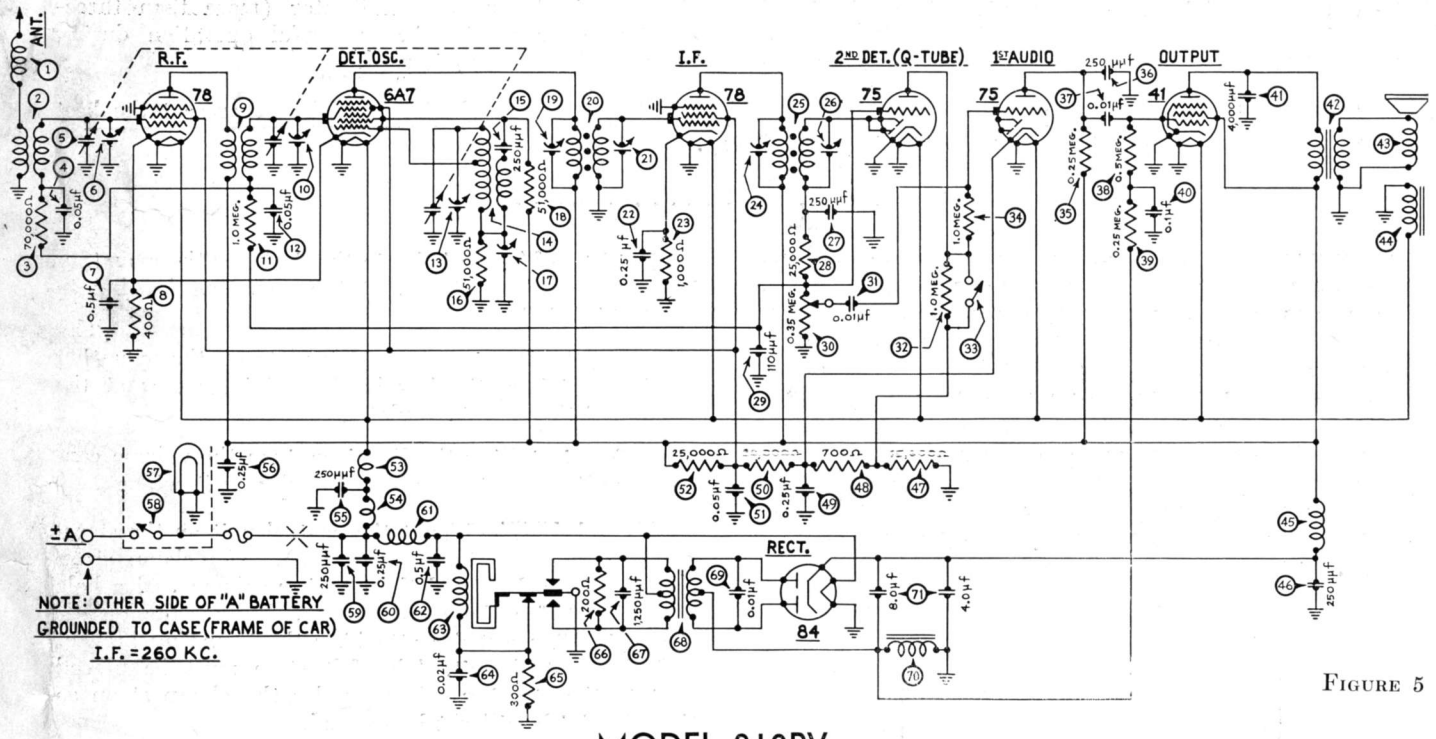

FIGURE 5

MODEL 810PV

PARTS LIST — MODELS 810PA, 810PB and 810PV

No.	Description	Part No.
(1)	Antenna Choke	32-1673
(2)	Antenna Transformer	32-1778
(3)	Resistor (70,000 ohms)	33-1115
(4)	Condenser (.05 mfd.)	30-4020
(5)	Tuning Condenser	31-1595
(6)	First Padder (on tun. cond.)	
(7)	Condenser (.5 mfd.)	30-4227
(8)	Resistor (400 ohms)	33-3016
(9)	R. F. Transformer	32-1779
(10)	Second Padder (on tun. cond.)	
(11)	Resistor (1,000,000 ohms)	33-1096
(12)	Condenser (.05 mfd.)	30-4020
(13)	Third Padder (on tun. cond.)	
(14)	(810PA & PB) Oscillator Transformer	32-1804
(14)	(810PV) Oscillator Transformer	32-1780
(15)	(810PA & PB) Condenser (50 mmfd.)	30-1029
(15)	(810PV) Condenser (250 mmfd.)	30-1032
(16)	Resistor (51,000 ohms)	6098
(17)	Fourth Padder (on tun. cond.)	
(18)	Resistor (51,000 ohms)	6098
(19)	Padder (Pri. 1st I. F. Transf.)	
(20)	First I. F. Transformer	32-1621
(21)	Padder (Sec. 1st I. F. Transf.)	
(22)	Condenser (.25 mfd.)	30-4146
(23)	Resistor (1,000 ohms)	33-3017
(24)	Padder (Pri. 2nd I. F. Transf.)	
(25)	Second I. F. Transformer	32-1622
(26)	Padder (Sec. 2nd I. F. Transf.)	
(27)	Condenser (250 mmfd.)	30-1032
(28)	Resistor (25,000 ohms)	33-1013
(29)	Condenser (110 mmfd.)	30-1031
(30)	Volume Control (350,000 ohms)	38-6605
(31)	Condenser (.01 mfd.)	30-4169
(32)	Resistor (1,000,000 ohms)	33-1096
(33)	Switch	3253
(34)	Resistor (1,000,000 ohms)	33-1096
(35)	Resistor (250,000 ohms)	33-1097
(36)	Condenser (250 mmfd.)	30-1032
(37)	Condenser (.01 mfd.)	30-4145
(38)	Resistor (500,000 ohms)	6097
(39)	Resistor (250,000 ohms)	33-1097
(40)	Condenser (.1 mfd.)	30-4122
(41)	Condenser (4000 mmfd.)	30-4185
(42)	Output Transformer	32-7019
(43)	Cone & Voice Coil	36-3406
(44)	Field Coil Assembly	36-3405
(45)	"B" Choke	32-1281
(46)	Condenser (250 mmfd.)	30-1032
(47)	Resistor (10,000 ohms)	4412
(48)	Resistor (700 ohms)	33-3019
(49)	Condenser (.25 mfd.)	30-4146
(50)	Resistor (25,000 ohms)	4516
(51)	Condenser (.05 mfd.)	30-4020
(52)	Resistor (25,000 ohms)	3656
(53)	"A" Choke	32-1348
(54)	"A" Choke	32-1644
(55)	Condenser (250 mmfd.)	30-1032
(56)	Condenser (.25 mfd.)	30-4134
(57)	Pilot Lamp	34-2040
(58)	On and Off Switch Assembly Model 810P only	42-5362
(59)	Condenser (250 mmfd.)	30-1032
(60)	Condenser (.25 mfd.)	30-4146
(61)	Vibrator Choke	32-1377
(62)	Condenser (.5 mfd.)	30-4227
(63)	Vibrator	38-5036
(64)	Condenser (.02 mfd.)	30-4039
(65)	Resistor (300 ohms)	33-3010
(66)	Resistor (200 ohms)	7217
(67)	Condenser (1250 mmfd.)	5886
(68)	Power Transformer	32-7352
(69)	Condenser (.01 mfd.)	30-4051
(70)	Filter Choke	32-7351
(71)	Filter Condenser (4—8 mfd.)	30-2109
(72)	Crystal (Model 810PA) 1875 K.C.	

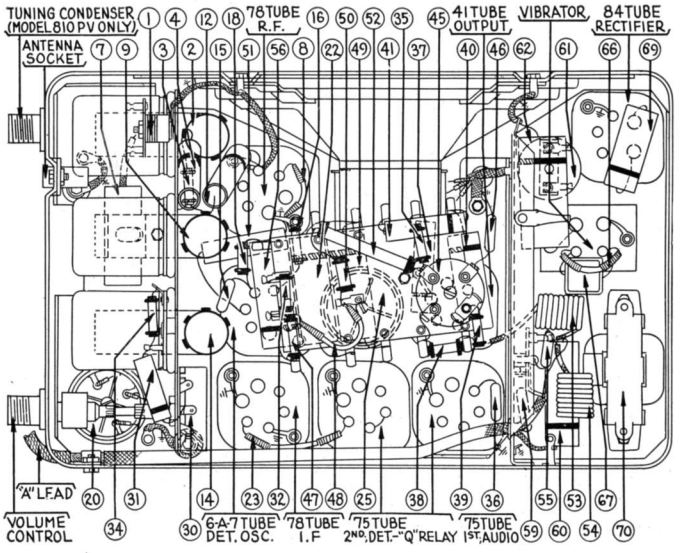

FIGURE 6

No.	Description	Part No.
	Receiver Range 1565 K.C. to 1665 K.C.	45-2101
	1970 K.C.	
	Receiver Range 1660 K.C. to 1760 K.C.	45-2102
(72)	Crystal (Model 810PB) 2410 K.C.	
	Receiver Range 2100 K.C. to 2200 K.C.	45-2103
	2510 K.C.	
	Receiver Range 2200 K.C. to 2300 K.C.	45-2104
	2610 K.C.	
	Receiver Range 2300 K.C. to 2400 K.C.	45-2105
	2710 K.C.	
	Receiver Range 2400 K.C. to 2500 K.C.	45-2106
	Set Mtg. Plate	29-1792
	Set Mtg. Plate	29-1791
	Set Mtg. Bolt	W1316A
	Set Mtg. Nut	W55A
	Control Mtg. Strap	04344
	Control Mtg. Bracket	6035
	Key	6091
	Dial (Model 810PV only)	27-5126
	Knobs	27-4058

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