

**MODEL 750, 751, 752,
753 (7B)**
**Service Notes
Socket Layout**

GENERAL HOUSEHOLD UTILITIES CO.

SERVICE DATA

Service Notes and Parts List

Grunow Radio

CHASSIS TYPE 7B

Receiver Model	Speaker Model
750	8A4—8C2
751	10A3
752	10A3
753	10A3

GENERAL HOUSEHOLD UTILITIES COMPANY

RADIO SERVICE DEPT. CHICAGO, U. S. A.

Chassis 7B —115 volt 60 cycle
Chassis 7B—115 volt 25-50 cycle
Power Consumption 75 watts.

Chassis 7BW 115 volt 50-60 cycle
Chassis 7BZ {110—135—220—250 volt
{50-60 cycle
Tubes—1-6D6, 1-6A7, 1-6F7, 1-75, 1-42, 1-76, 1-80

INTRODUCTION

The following characteristics apply to the Grunow Radio—Chassis Type 7B:

This model is a 7 tube Super-Heterodyne All Wave (540 to 21,500 KC) Receiver using 1-6D6 tube as an R. F. Amplifier, 1-6A7 tube as a 1st Detector or mixer—being electronically coupled to a 76 oscillator tube, 1-6F7 tube the pentode section of which is used as an I.F. amplifier with a frequency of 262 K.C. and the Triode section being used as a Signal Beacon or beat oscillator. Plate Voltage of the Signal Beacon being applied by closing the switch on the tone control. A 75 tube (double diode—high mu Triode) is used as a diode detector or signal rectifier, delayed automatic volume control (AVC) and high-gain audio amplifier. The 42 output tube is a power amplifier pentode and is capable of producing large power output with a relatively small input signal. This tube receives its bias through the voltage drop produced in the tapped speaker field. The rectifier tube is an 80, the output of which is well filtered through the choke action of the speaker field and the 16 and 18 mfd. electrolytic condensers.

The broadcast section of the receiver consists of the following 4 tuned circuits: R.F. input, bi-selector, mixer

input and oscillator. These circuits are tuned with a 4-gang variable condenser of rugged construction. The short wave section of the receiver consists of 3 tuned circuits, the bi-selector being cut out to prevent losses when the receiver is working at the higher frequencies.

The Signal Beacon is a beat oscillator using the triode section of the 6F7 tube, and is a feature of the 7B Chassis. When this section of the tube is brought into operation it acts as a local oscillator and beats against the incoming signal. The presence of a station's signal will be indicated by a high pitched "whistle", becoming lower in pitch as a "resonance", or exact tuning, is approached. The Signal Beacon note becomes very low and finally reaches zero; at this point the receiver is said to be tuned to "zero beat", which indicates that it is tuned exactly to the station. The Signal Beacon is also used to receive telegraph or continuous wave signals.

The remainder of the circuit is typical and has been designed along the lines of what is considered the best engineering practice to date. Parts are all oversize and of the finest quality.

The chassis frame is built in such a way that the end plates may be disconnected allowing easy inspection of the underside of the chassis assembly. (Fig. 6).

The range switch and coil assembly is made up in a unit and may be removed for inspection or repair. (Fig. 7). The removal of this assembly necessitates the unsoldering of 13 wire leads. These leads and the positions to which they are connected are marked on the illustrations with letters. The leads A-B-C on the Coil Assembly (Fig. 7) are attached to the points marked A-B-C on the Chassis Assembly (Fig. 5). The leads marked D-E-F-G on the Coil Assembly (Fig. 7) are attached to the points of corresponding letters on the Chassis Assembly (Fig. 6). Leads H-I-J-K-L-M on Coil Assembly are connected as follows:

Lead "H" connects the ground side of the short wave antenna transformer (Red) to the rotor ground of the variable condenser.

Lead "I" connects Arm 2 of Deck 5 to the No. 1 stator of the variable condenser.

Lead "J" is the shielded lead connecting the bi-selector transformer to the No. 2 stator of the variable condenser.

Lead "K" connects Arm 2 of Deck 3 to the No. 3 stator of the variable condenser.

Lead "L" connects the switch assembly ground to the variable condenser rotor ground.

Lead "M" connects Arm 2 of Deck 2 with No. 4 stator of the variable condenser. Care should be exercised in making these connections. (A soldering iron with a bent point should be used in this operation).

Continuity and Voltage

Continuity and voltage readings should be taken from the underside of the Chassis. The values given on the schematic diagram are average and allow the service man to make a quick check of the chassis constants. The socket layout given on the schematic diagram show each socket from the underside.

The Range Switch

In servicing the 7-B Receiver, consider the radio frequency end as four different and distinct radios:

One working from 550 to 1500 k.c. (D Range)
One working from 1500 to 4200 k.c. (C Range)
One working from 4100 to 10,000 k.c. (B Range)
One working from 8500 to 21,500 k.c. (A Range)

These four radios are put into operation as desired by means of the Range Switch.

When on position "A" the short wave coils covering the range from 8,500 to 21,500 k.c. are connected into the three tuned circuits of the receiver, one coil as an R.F. Transformer, one as the Detector Coupler, and one as the Oscillator Transformer.

On position "B" the 4100 to 10,000 k.c. coils are put into operation.

On "C" position, the 1500 to 4200 k.c. coils are shunted across the 550 to 1500 k.c. coils in such a manner as to lower the total inductance of the combined coils and reduce the losses caused by open end coils.

On both the "C" and "D" positions, four coil sets are put into the circuit and the receiver operates as a four tuned circuit radio. On all four ranges the receiver works at maximum sensitivity and selectivity. All coils and condensers are of such construction that atmospheric and temperature changes have minimum effect.

Each circuit is completely shielded from each other, and the complete range switch and coil assembly may be removed for inspection or repair.

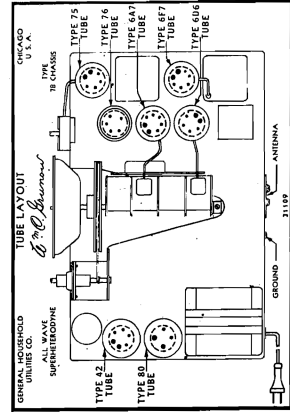
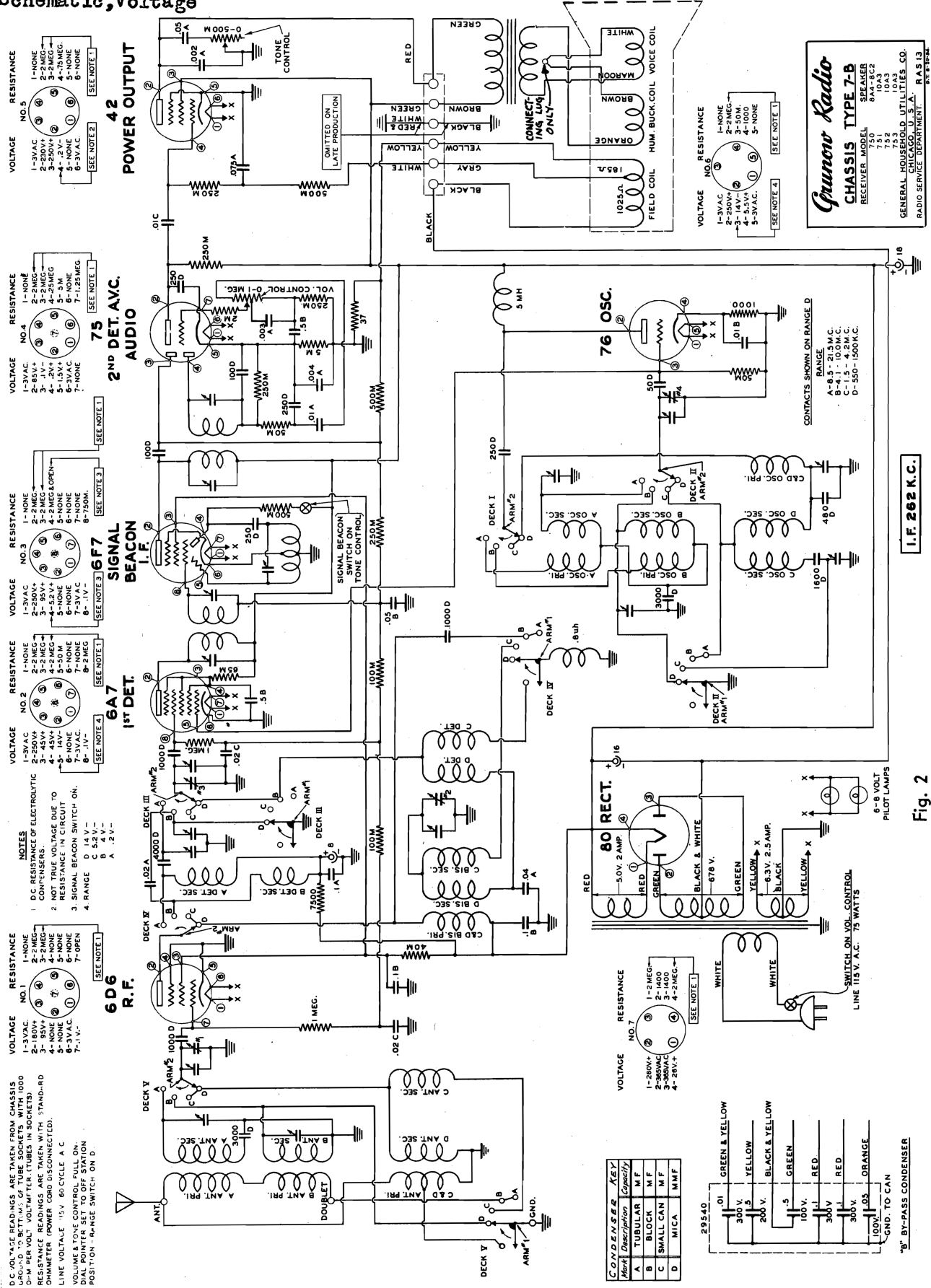


Fig. 1

MODEL 750, 751, 752
753 (7B) Schematic, Voltage

GENERAL HOUSEHOLD UTILITIES CO.



VOLTAGE RESISTANCE NO. 5

1-3VAC	1-NONE
2-250V+	2-2 MEC
3-85V+	3-2 MEC
4-14V+	4-75 MEC
5-NONE	5-NONE
6-3VAC	6-NONE
7-1V+	7-NONE
8-3VAC	8-NONE

VOLTAGE RESISTANCE NO. 4

1-3VAC	1-NONE
2-85V+	2-2 MEC
3-1V+	3-2 MEC
4-15V+	4-5M
5-3VAC	5-NONE
6-3VAC	6-NONE
7-NONE	7-1.25 MEC

VOLTAGE RESISTANCE NO. 3

1-3VAC	1-NONE
2-250V+	2-2 MEC
3-85V+	3-2 MEC
4-14V+	4-75 MEC
5-NONE	5-NONE
6-3VAC	6-NONE
7-3VAC	7-750M
8-3VAC	8-750M

VOLTAGE RESISTANCE NO. 2

1-3VAC	1-NONE
2-250V+	2-2 MEC
3-45V+	3-2 MEC
4-14V+	4-50M
5-NONE	5-NONE
6-NONE	6-NONE
7-3VAC	7-NONE
8-3VAC	8-750M

VOLTAGE RESISTANCE NO. 1

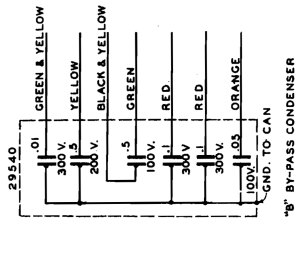
1-3VAC	1-NONE
2-180V+	2-2 MEC
3-85V+	3-2 MEC
4-14V+	4-50M
5-NONE	5-NONE
6-3VAC	6-NONE
7-1V+	7-OPEN

VOLTAGE RESISTANCE NO. 7

1-280V+	1-2 MEC
2-380VAC	2-1400
3-380VAC	3-1400
4-28V+	4-2 MEC

CONDENSER KEY

Mark	Description	Capacity
A	TUBULAR	M F
B	BLOCK	M F
C	SMALL CAN	M F
D	MICA	M F



Grunow Radio
CHASSIS TYPE 7-B
RECEIVER MODEL 750
SPEAKER MODEL 752
FIELD COIL MODEL 753
NUM. BUCK COIL VOICE COIL MODEL 754
GENERAL HOUSEHOLD UTILITIES CO.
CHICAGO, U.S.A. RAS 13
RADIO SERVICE DEPARTMENT 84 84 84

I.F. 262 K.C.

Fig. 2

GENERAL HOUSEHOLD UTILITIES CO. MODEL 750,751,752 753 (7B) Trimmers,Coil

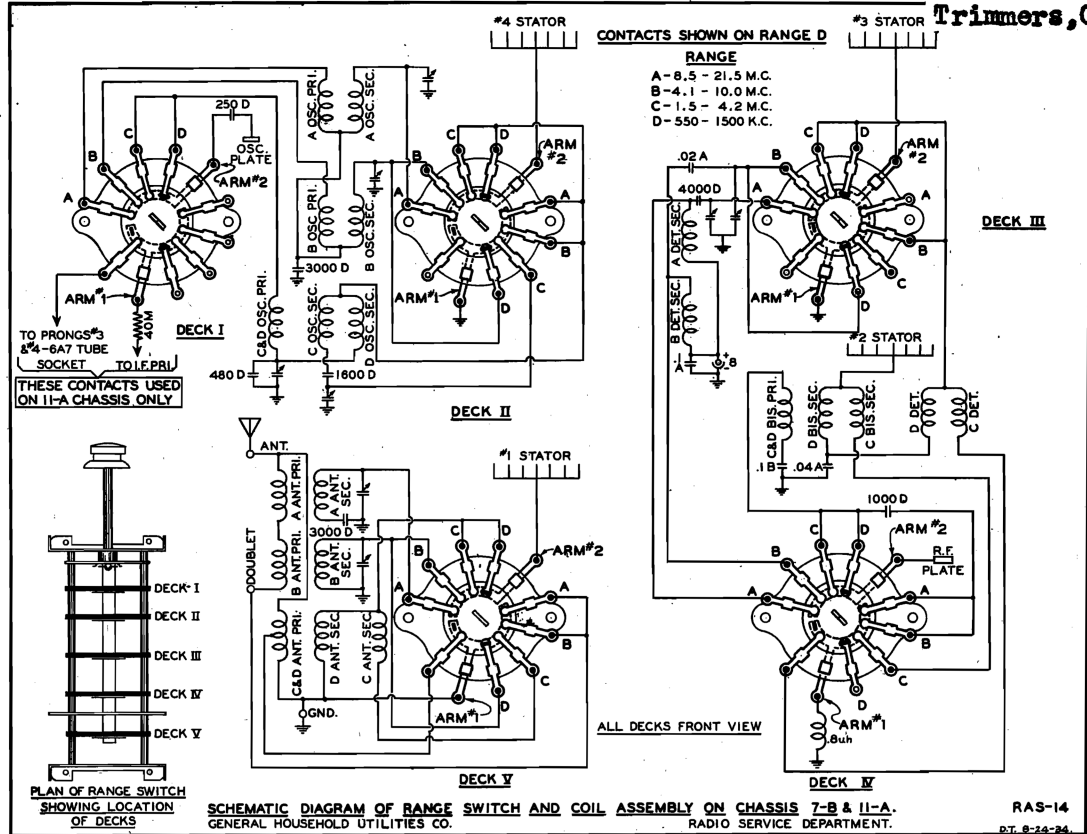
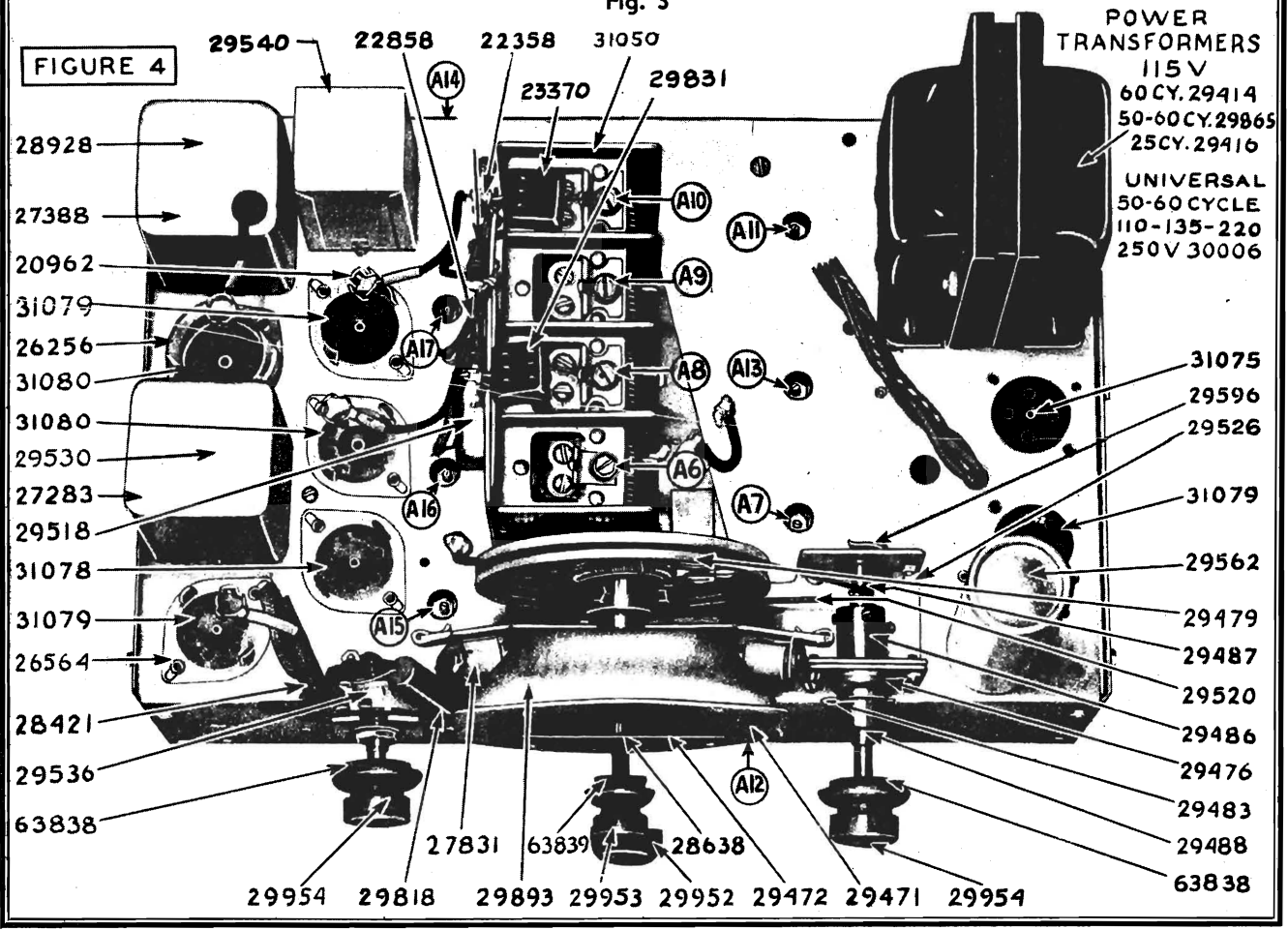


Fig. 3



**MODEL 750, 751, 752
753 (7B)
Alignment, Parts**

GENERAL HOUSEHOLD UTILITIES CO.

PARTS AND PRICE LIST

Part No.	Description	No. used	List Price
22858	Resistor, 1 Megohm, Carbon, 1/4 watt	3	.20
23284	Bakelite Washer, Trim, Condensers	13	.20
23370	Resistor, 100,000 ohm Carbon, 1/4 watt	3	.20
23849	Resistor, 500,000 ohm Carbon, 1/4 watt	3	.20
23853	Resistor, 50,000 ohm Carbon, 1/4 watt	2	.20
23998	Resistor, 250,000 ohm Carbon, 1/4 watt	4	.20
24251	Condenser, 100 Mmf. Mica	1	.15
24487	Condenser, 250 Mmf. Mica	2	.20
27283	2nd I. F. Transformer Shield	1	.35
27382	Trimmer Condenser Assembly	5	.35
27388	1st I. F. Transformer Shield	1	.30
27455	Tube Shield (Tubular)—76	1	.15
27490	Resistor, 1,000 ohm Carbon	1	.20
28183	Resistor, 7500 ohm Carbon, 1 watt	1	.20
28421	Resistor, 2000 ohm Carbon, 1/4 watt	1	.20
28717	Condenser, .002 Mfd., 700 Volt, Tubular	1	.25
28723	Condenser, .05 Mfd., 400 Volt Tubular	1	.25
28726	Condenser, .1 Mfd., 400 Volt, Tubular	1	.25
28928	1st I. F. Transformer (includes 27388)	1	2.90
29011	Resistor, 40,000 ohm Carbon, 1 watt	1	.20
29074	Condenser, 250-100 Mmf. Mica	1	.30
29083	Condenser, 50 Mmf. Mica	1	.20
29087	Tube Shield (Goat) 6A7, 6F7, 75	3	.10
29414	Power Transformer, 115 Volt, 60 cycles only	1	6.00
29416	Power Transformer, 115 Volt, 25 to 50 cycles only	1	\$ 7.25
29453	Condensers .01 Mfd., 400 V Tubular	1	.25
29471	Dial Chart for General Instrument Condenser only—see 30033	1	.50
29496	Antenna Transformer, Broadcast	1	1.75
29497	Bi-Selector Transformer, Broadcast	1	1.50
29498	1st Detector Transformer, Broadcast	1	1.25
29499	Oscillator Transformer, Broadcast	1	1.50
29500	Antenna Transformer, Short Wave (Red)	1	1.75
29501	1st Detector Transformer, Short Wave (Black)	1	1.25
29502	Oscillator Transformer, Short Wave (Green)	1	1.50
29508	Trimmer Condenser Assembly — includes 29989	1	.75
29509	Range Switch and Coil Assembly	1	26.50
29515	Resistor Panel Assembly — includes 29518	1	1.25
29518	Condenser, .02-.02 Mfd. (small can)	1	.75
29523	Condenser Mounting Bearing	1	.10
29524	Cable Tension Spring	1	.10
29526	Condenser Mounting Bracket Ass'ly	1	.60
29530	2nd I. F. Transformer Assembly	1	3.10
29533	Resistor, 5000-37 Ohm, Candohm	1	.40
29534	Condenser, .01 Mfd. (small can)	1	.60
29536	Volume Control, 0-1 Megohm	1	1.30

Part No.	Description	No. used	List Price
29537	Tone Control, 0-500,000 Ohm	1	\$ 1.15
29539	Oscillator Plate Choke	1	.60
29540	Bypass Condenser Block	1	2.50
29551	Antenna and Doublet Binding Post Assembly	1	.10
29552	Escutcheon Window	1	.15
29553	Window Retaining Ring	1	.10
29554	Escutcheon	1	.60
29558	Condenser, 16 Mfd., 450 Volt Dry Electrolytic	1	1.90
29559	See 31052	1	
29562	Condenser, 18 Mfd., 300 Volt Wet Electrolytic	1	1.25
29563	Resistor, 65,000 ohm Carbon, 1/2 watt	1	.20
29564	Condenser, .075 Mfd., 100 V Tubular	1	.30
29566	Condenser, 1600 Mmf. Mica	2	.30
29575	Tube Shield (Goat)	1	1.10
29579	Signal Beacon Assembly	1	2.25
29580	Signal Beacon Trimmer Condenser	1	.75
29582	Signal Beacon Coil Assembly	1	1.25
29584	Signal Beacon Shield	1	.30
29596	Drive Leaf Spring	2	.05
29611	Coupling Inductance Coil	1	.25
29612	Escutcheon Retaining Spring	1	.20
29613	Condenser, 4,000 Mmf. Mica	1	.50
29616	Insulated Terminal—Single	1	.10
29617	Insulated Terminal—Double	1	.15
29812	Condenser, .04 Mfd., 500 V Tubular	1	.30
29813	Condenser, .004 Mfd., 700 V Tubular	1	.25
29818	Condenser, .003 Mfd., 700 V Tubular	1	.25
29830	Condenser, 3,000 Mmf. Mica	2	.40
29831	Condenser, 1,000 Mmf. Mica	3	.30
29832	Tube Shield Body	4	.15
29836	Trimmer Condenser Assembly	1	.25
29850	Drive Drum Assembly	1	1.10
29865	Power Transformer, 115 Volt, 50-60 cycles only	1	* 7.00
29900	Trimmer Condenser Assembly	1	.50
29948	Insulated Terminal—Single	2	.10
29949	Insulated Terminal—Double	1	.10
29952	Knob—Range Switch	1	.30
29953	Knob—Tone Control	1	.20
29954	Knob—Selector or Volume Control	2	.20
29957	Decalcomania, "A, B, C, D"	1	.10
29989	Condenser, 480 Mmf. Mica	1	.30
29990	Condenser, .02 Mfd., 400 V Tubular	1	.20
29997	Speaker Cable	1	.95
30006	Power Transformer, 110-135-220-250 Volt, 50-60 cycles	1	7.50

Part No.	Description	No. used	List Price
30033	Dial Chart, for Reliance Condenser only	1	.50
30034	Tuning Condenser, 4 Gang, Reliance	1	7.50
31050	Tuning Condenser, 4 Gang, General Instrument	1	7.50
31052	Condenser, 8 Mfd., 350 Volt Dry, Electrolytic	1	1.25
31075	Tube Socket—4 Prong	1	.10
31078	Tube Socket—5 Prong	1	.10
31079	Tube Socket—6 Prong	3	.15
31080	Tube Socket—7 Prong	2	.15
31215	Tube Shield Cap	4	.10

SPEAKER PARTS

Part No.	Description	List Price
TYPE 10A3—USED ON MODEL No. 751-752-753		
20010	Speaker Pot & Pole Piece Assembly	\$ 1.15
20041	Speaker Pot Clamp	.10
20045	Terminal Strip Cover	.15
20047	Terminal Strip	.10
27240	Cone Gasket	.10
27591	Output Transformer	1.75
29964	Cone & Voice Assembly	3.30
29678	Speaker Complete	11.50
TYPE 8A4—USED ON MODEL No. 750		
20003	Speaker pot & pole piece assembly	.80
20040	Speaker Pot Clamp	.10
20045	Terminal Strip Cover	.15
20047	Terminal Strip	.10
29242	Field Coil Assembly	2.20
29673	Speaker Complete	10.00
29705	Cone Mounting Gasket	\$.10
29732	Output Transformer	1.75
30058	Spider Clamp Ring	.25
31309	Cone & Voice Coil Assembly	3.10
TYPE 8C2—USED ON MODEL No. 750		
20040	Speaker Pot Clamp	.10
20045	Terminal Strip Cover	.15
20047	Terminal Strip	.10
29677	Speaker Complete	10.00
29697	Speaker Field Coil Assembly	2.50
29699	Speaker Pot & Pole Piece	1.20
29705	Cone Mounting Gasket	.10
29732	Output Transformer	1.75
30058	Spider Clamp Ring	.25
31309	Cone & Voice Assembly	3.10

ALIGNMENT PROCEDURE

D—Align Set Oscillator or front trimmer A6, Fig. 4, on variable condenser. It may be necessary to approximate adjustment of the other three trimmers on variable condenser to obtain sufficient sensitivity to make 3700 K.C. adjustment.

- 1400 K.C. ALIGNMENT.
A—Place test oscillator in operation at 1400 K.C.
B—Turn dial pointer to 1400 K.C.
C—Turn Range Switch to range D.
D—Adjust 1400 K.C. padding condenser, A7, Fig. 4, which is the first of three located on top of chassis on the right hand side as you face it.
E—Adjust 1st Def. Trimmer A8, Fig. 4, which is the second from front on top of variable condenser.
F—Adjust Bi-selector trimmer A9, Fig. 4, which is the third from front on top of variable condenser.
G—Adjust Antenna Trimmer A10, Fig. 4, which is the fourth from the front on top of variable condenser.
- 600 K.C. ALIGNMENT.
A—Place test oscillator in operation at 600 K.C.
B—Tune in signal to maximum (this point does not have to be exactly at 600 K.C. dial setting).
C—Adjust the 600 K.C. Padding Condenser A11, Fig. 4, (which is on top of chassis on right hand side third from front as you face chassis), in direction of signal increases. At same time rock the tuning condenser back and forth through resonance while adjusting padding condenser until maximum output is obtained.
- 10 M.C. ALIGNMENT.
A—Connect signal lead of test oscillator through 400 Ohm resistor to Antenna binding post of chassis.
B—Connect the ground lead to ground terminal of Chassis.
C—Set Range Switch to Range "B" and turn dial pointer to 10 M.C.
D—Place test oscillator in operation at 10 M.C.
E—Adjust set oscillator trimmer A12, Fig. 4, (located on front face of chassis).
F—Adjust detector trimmer A13, Fig. 4, (located on right hand side on top of chassis second from front).
G—Adjust antenna trimmer A14, Fig. 4, (located on rear face of chassis).
8. 20 M.C. ALIGNMENT.
A—Set Range Switch on Range A.
B—Place Test Oscillator in operation at 20 M.C.
C—Turn Dial Pointer to 20 M.C.
D—Adjust set Oscillator trimmer A15, Fig. 4, (located on top of chassis on left of gang condenser, first from front).
E—Adjust Detector trimmer A16, Fig. 4, (located second from front on top of chassis on left hand side).
F—Adjust Antenna trimmer A17, Fig. 4, (located third from front on top of chassis on left hand side).

ALIGNMENT

Do not attempt to align the 7B Chassis without the proper equipment. Alignment instructions and are shown in the accompanying illustrations and are numbered in order of procedure.

- EQUIPMENT.
A—Test Oscillator.
B—Modulated oscillator capable of producing signals at 262 K.C.—600 K.C.—1400 K.C.—3700 K.C.—10 M.C. and 20 M.C. is necessary for alignment of the 7B chassis.
C—Insulated screw driver—(All bakelite or fibrol) about 6" long.
D—Output Meter.
E—This may be any of the standard output meters on the market but should be sufficiently sensitive to provide a good deflection at low signal strength, and should also incorporate an adjustable shunt so that extremely strong signals may be read.

- Coupling Means.
Coupling Condensers of 200 mmf., .25 Mfd., and a 400 Ohm resistor should be used when coupling oscillator to receiver during alignment as specified in the following paragraphs.
E—The receiver should be aligned in a location free from local interference (mean made static)—as high frequency disturbances will cause difficulties when the short wave section is being adjusted. (A screen room is to be recommended).
- DIAL SETTING.
Turn dial knob until condensers are fully meshed. The dial pointer should be on the horizontal line of the dial.
- I. F. ALIGNMENT.
1. Connect signal lead of test oscillator to grid of the 6A7—(1st Detector Tube) through .25 Mfd. Condenser. Connect the ground lead to the chassis.
A—Set Dial pointer to 1400 K.C. and range switch on position D.
B—Place test Oscillator in operation at 262 K.C. Turn receiver volume control and tone control to maximum.
C—Attenuate test oscillator output to lowest value consistent with obtaining a readable indication on output meter.
D—Adjust four I. F. Trimmers, A1-A2-A3-A4 Fig. 6, located on under side of chassis, until maximum output is obtained. During alignment, maintain as low a value of signal as will allow obtaining of accurate adjustment.
E—Turn the tone control counter clockwise until the Signal Beacon switch snaps on.
F—Adjust Signal Beacon trimmer, A5, Fig. 5, which is located on left hand face of chassis to zero beat with the 262 K.C. incoming signal.
- 3700 K.C. ALIGNMENT.
A—Connect signal lead of test oscillator through 200 Mmf condenser to Antenna binding post.
B—Connect the test oscillator ground lead to the ground post of chassis.
C—Turn range switch to range "C" and set dial pointer to 3700 K.C.