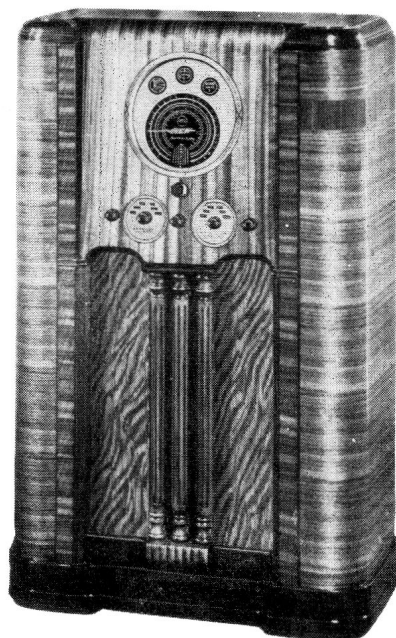


# Model 1121, 1121A

## The "London"

### Radio Receiver



### Specifications

#### Frequency Range:

Broadcast, White: 536 to 1560 K.C.

Police, Green: 1.580 to 4.510 megacycles

Shortwave #1 Yellow: 4.40 to 6.85 megacycles

Shortwave #2 Blue: 6.48 to 10.25 megacycles

Shortwave #3 Red: 9.8 to 16.2 megacycles

#### I.F.:

470 K.C.

#### Tubes:

Type	Function
6K7	R.F. Amplifier
6A8	Converter
6J7	A.F.C.
6K7	I.F. Amplifier
6H6	2nd Detector, A.V.C.
6H6	Discriminator Detector
6F5	1st A.F. Amplifier
6C5	2nd A.F. Amplifier
6V6G	Output
6V6G	Output
5X4G	Rectifier

#### Power Supply:

Model 1121—105 to 125 volts A.C., 60 cycles

Model 1121A—105 to 125 volts A.C.,  
25-60 cycles

#### A.V.C.:

Partial control on I.F. amplifier, full control on R.F. amplifier and converter tubes.

#### Controls:

Left to Right—A.C. switch and tone control; station selector switch; wave change switch; above latter main and vernier tuning control; fidelity switch; volume control.

#### Loudspeaker:

Ten inch electrodynamic enclosed in a "Mirrophonic Tone Chamber".

#### Cabinet:

Console models.

# MODEL 1121 RADIO RECEIVER

**GENERAL:**—This model is an a-c operated radio receiver in a console cabinet using eleven tubes and a superheterodyne circuit. There are five tuning bands, of which the Broadcast and Police have the usual range, but the three short-wave bands have "spread-tuning". The "Dial-O-Matic" tuning feature comprises the use of manual tuning with automatic frequency control on the Broadcast band, and the selection by means of the Station-Selector Switch of any of four predetermined stations. Variable selectivity is provided by means of the fidelity-control switch. The tuning indicator is an incandescent lamp that dims when a station is tuned in. This lamp does not light when the fidelity control is in the "High-Fidelity" position. A variable tone control is provided also. The chassis is of three-unit construction, in which the new-style "Centromatic" unit forms the centre part and mounts all the tuning mechanism and r-f tuned circuits. A special tuning capacitor gang, which has separate smaller sections for the spread bands, is mounted upon this unit on rubber cushions. A split knob is used on the tuning control shaft to give slow or fast tuning. A large size airplane dial with an edge-lighted glass dial is used, and has the calibrations printed in different colours. The tuning indicator, vernier tuning indicator, and the band indicator are located at the top of this dial as shown in Figure 1. The ten-inch loudspeaker is enclosed in a special "Mirrophonic Tone Chamber".

The a-c load rating at 115 volts is 118 watts for both the 60 and 25 cycle models. The Model 1121 operates on 60 cycles and the Model 1121-A on frequencies between 25 and 60 cycles.

For the various tuning bands, the frequency ranges and wave-change switch positions are as follows:

Band	Frequency Range	Dial-Scale Band Color	Wave-Change Switch Position
Standard Broadcast	536 to 1560 kilocycles	White	Furthest-to-left
Police	1.580 to 4.510 megacycles	Green	Second-from-left
Short Wave No. 1	4.40 to 6.85 megacycles	Yellow	Mid-position
Short Wave No. 2	6.48 to 10.25 megacycles	Blue	Second-from-right
Short Wave No. 3	9.8 to 16.2 megacycles	Red	Furthest-to-right

**CIRCUIT:**—The antenna section, item 1, of the wave-change switch selects the primaries of the antenna transformers. The resistor, item 29, shunts the primary, item 30, of the Police Band transformer to reduce the gain and noise on this band. Item 2, switch section, selects the secondaries and short-circuits all those not in use. Note that trimmers, items 32 and 35, are connected directly across the Police (Green) Band and Broadcast (White) Band secondaries, while the other three trimmers connect to ground at the lower end. Switch section, item 3, selects the item 15 section of the main tuning capacitor for the Broadcast and Police Bands and the smaller section, item 14, for the short-wave bands with band-spreading. Item 10 is the antenna tuning section of another switch that switches the coils from variable tuning to any one of the four preset trimmer capacitors, items 39, 40, 41 and 42. The same switch controls the automatic frequency control feature, which is described below.

The primaries and secondaries of the r-f transformers are selected by switch sections, items 4 and 5 respectively. The latter section also short-circuits the secondaries of coils not in use. Switch sections, items 7 and 8, perform similar functions for the oscillator coils. Switch sections, items 6 and 9, act similarly to item 3 section in selecting the correct tuning capacitor section for the various bands on the r-f. stage and oscillator, respectively. Switch sections, items 11 and 12, act similarly to item 10 section in switching the coils on the r-f stage and oscillator, respectively, from variable tuning to automatic frequency control and to any one of the preset trimmer capacitors, items 43,

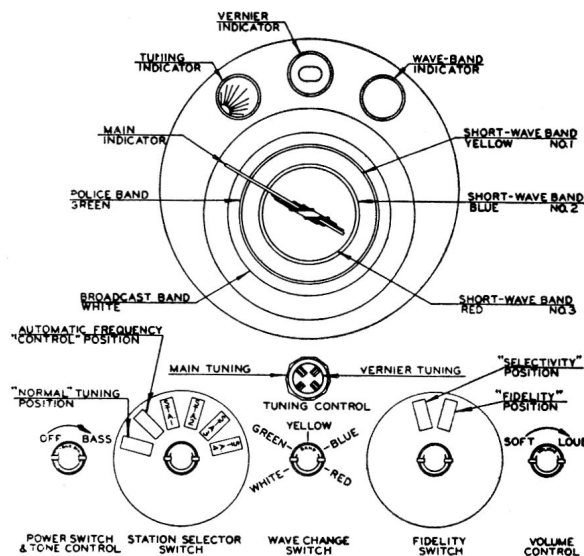


Figure 1.—Control Layout

44, 45 and 46, for the r-f stage, and items 47, 48, 49 and 50 for the oscillator.

The r-f amplifier stage uses a type 6K7 tube. Resistors, items 97 and 101, shunt the secondaries, items 95 and 99, of the Police and Broadcast band r-f transformers, respectively, to balance the gains of the various bands. The converter tube is a type 6A8. The oscillator grid is coupled to the oscillator coil grid windings through the capacitor, item 107, with resistor, item 108, as grid leak.

The oscillator plate is fed by a separately filtered "B" supply. R.F. in the oscillator circuit is by-passed to ground through capacitor, item 71, and capacitor, item 69, with item 206 as the r-f filter resistor.

The first i-f transformer, item 110, has iron-dust wires with fixed shunt capacitors across the windings, and is permeability-tuned. Its secondary is split into two coils, items 114 and 115, which are connected in series by the fidelity-control switch, item 118, in the "high-fidelity" position, thus broadening the selectivity due to the increased coupling. Capacitor, item 116, provides a capacitive reactance to prevent detuning of the secondary circuit when the two secondary coils are in series. Resistor, item 117, in shunt with the capacitor furnishes a d-c path for the grid bias.

The second i-f transformer, item 122, has four windings and three tuned circuits. The secondary coil, item 130, is split at its centre, which is connected through the blocking capacitor, item 128, to the plate of the i-f amplifier tube. Coupling coil, item 131, is wound between the two halves of the tertiary winding. It serves to couple the tertiary circuit, which includes in series with it the very loosely coupled tertiary coil, item 132, and the trimmer capacitor, item 127. This tertiary circuit feeds the second detector, which is a type 6H6 diode tube. Only one diode plate is fed and the other plate is connected to ground with the cathodes. The volume control, item 146, serves as the a-v-c load resistor as well. Resistor, item 135, and capacitor, item 134, form an i-f filter. Resistors, items 144 and 145, in series form a voltage divider across the volume control to derive partial a.v.c. for the i-f amplifier and full a.v.c. for the r-f amplifier and converter tubes. Capacitor, item 109, is a bypass on the a-v-c line to the i-f amplifier. Resistor, item 143, and capacitor, item 102, as well as resistor, item 82, and capacitor, item 36, are a-v-c filters as well.

The secondary winding, item 130, of the second i-f transformer is tuned by the trimmer capacitor, item 126, and feeds the discriminator detector tube (type 6H6). The two diodes are connected in a rectifier-bridge circuit, in which resistors, items 150 and 151, are the load resistors. The voltages fed to the discriminator diodes from the split tertiary winding are 180 degrees out of phase. Combined with these is the voltage derived from the i-f plate circuit through capacitor, item 128. When the intermediate frequency is exactly the same as the frequency (470 k.c.) to which the tertiary circuit is tuned, the latter voltage is 90 degrees out of phase with the other voltages applied to the diode plates. The result is that the voltages across the resistors, items 150 and 151, due to the rectified signal, are equal and opposite.

It is the sum of the d-c voltages across these two resistors that determines the a-f-c bias which regulates the automatic-frequency-control tube. The capacitor, item 149, by-passes these resistors to i.f. Note that the shell of the tube is not grounded but connects to the cathode and both are below ground to d.c. by the bias across resistor, item 194, but are by-passed for a.f. and i.f. by capacitor, item 148. Grounding the shell would unbalance the discriminator and prevent tuning of the set. When the received signal is not exactly tuned, the voltages fed to the two diode plates are not equal and the voltage across one of the load resistors exceeds the other. The resultant voltage has a positive or negative polarity, depending upon whether the signal is above or below the resonant frequency. The push-button switch, item 152, which is located on the back of the chassis, is used to short-circuit the load resistors during alignment of the fixed capacitors for the preset stations. Item 13 is the bias control section of the Station-Selector Switch. In the "normal" position, the bias from resistor, item 194, is applied through resistors, items 153 and 154, to the control grid of the type 6J7 control tube. Capacitor, item 67, is a filter by-pass. When this switch is in the a-f-c (manual tuning) position or set to any one of the four stations with preset tuning, the bias on the control tube is that across resistor, item 194, and the a-f-c load resistors, item 150 and 151. This total bias is applied through resistor, item 155.

The type 6J7 control tube, which regulates the oscillator frequency (on the Broadcast Band only), is connected across winding, item 66, of the Broadcast Band oscillator coil and the capacitors, items 68 and 69, in series. The voltage across these three components is applied to the plate circuit through capacitor, item 79, and to the grid circuit through capacitors, items 78 and 77. Resistor, item 81, is the grid leak. Resistor, item 80, determines the phase of the voltage from the oscillator that is fed to the grid. Due to this grid voltage the plate impedance varies cyclically and draws an r-f current through the capacitors, items 68 and 69, in the oscillator lag circuit. This current is out of phase with the main oscillator current through these capacitors, and the effect of any alteration in the phase differences of the two currents is equivalent to changing the reactance, thereby shifting the oscillator frequency. Thus an increase or decrease in the a-f-c bias shifts the oscillator frequency to one side or the other of its normal value, and so brings the receiver automatically into tune with the signal. The range of this automatic frequency control is only a few kilocycles on either side of the normal frequency. If the control covered a wider range, the antenna and r-f amplifier circuits might be badly out of tune and cause distortion.

Item 120 is the 24-volt lamp that serves as the tuning indicator. Resistor, item 121, is in shunt with it to preserve circuit continuity if the lamp burns out. Item 119 is a section of the fidelity-control switch that short-circuits the lamp in the "high-fidelity" position.

The volume control and i-f transformer are connected to terminals, item 138, on the back of the chassis. With the strap connected as shown, these

two are connected together, and the phonograph pick-up is short-circuited if it is connected to the "Phono" terminals. If the strap is moved to the "P" position, the radio output of the diode transformer is disconnected from the volume control and grounded, and the phonograph pick-up is connected across the volume control.

The volume control, item 146, is resistance-capacitance coupled to the type 6F5, 1st a.f. amplifier, and the same type of coupling connects the latter to the 2nd a-f amplifier. The constant impedance tone control circuit includes the potentiometer, item 163, and capacitor, item 165. The grid leak resistors are items 162 and 166 (and part of the tone control), of which item 166 serves as an a-f filter with capacitor, item 164. The grid bias is developed across resistor, item 168. Resistor, item 167, also in the cathode circuit, has half the a-f plate voltage developed across it 180 degrees out of phase with that across the plate resistor, item 170. Both of these load resistors are resistance-capacitance coupled to the type 6V6G beam-power output tubes. Grid bias for these tubes is obtained from resistors, items 193 and 194, in the main filter. Resistor, item 174, and capacitor, item 175, form a hum-decoupling filter.

The output stage is a push-pull amplifier. The mica capacitors, items 176 and 177, prevent parasitic oscillation, and items 178 and 179 are plate by-pass capacitors. The loudspeaker plug, item 181, cuts off the high voltage from the electrolytic capacitors when

it is removed. Electrolytic capacitor, item 188, and resistor, item 192, form an additional filter in the "B" supply to the oscillator plate. There is also an additional filter, comprising resistor, item 141, and electrolytic capacitor, item 190, on the feed to the r-f, 1st detector, i-f, and control tube screens. Items 203 and 204 are filter capacitors to remove r-f line noise.

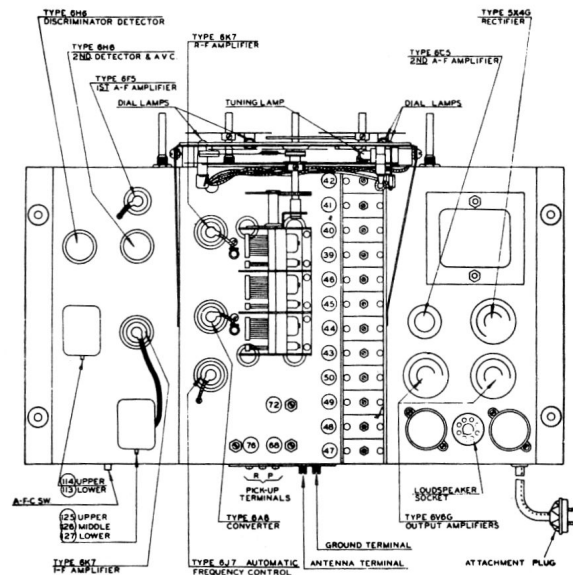


Figure 2.—Chassis Layout Showing Top Aligning Positions.

## COIL RESISTANCES

Item	Description	Ohms
20	SW-3 (Red) Ant. Trans., Pri.....	Below 0.5
21	SW-3 (Red) Ant. Trans., Sec.....	Below 0.5
23	SW-2 (Blue) Ant. Trans., Pri.....	Below 0.5
24	SW-2 (Blue) Ant. Trans., Sec.....	Below 0.5
26	SW-1 (Yellow) Ant. Trans., Pri.....	Below 0.5
27	SW-1 (Yellow) Ant. Trans., Sec.....	Below 0.5
30	Police (Green) Ant. Trans., Pri.....	3.2
31	Police (Green) Ant. Trans., Sec.....	1.2
33	B'dc't (White) Ant. Trans., Pri.....	24.
34	B'dc't (White) Ant. Trans., Sec.....	4.
51	SW-3 (Red) Osc. Trans., Pri.....	0.5
52	SW-3 (Red) Osc. Trans., Sec.....	Below 0.5
54	SW-2 (Blue) Ant. Trans., Pri.....	1.1
55	SW-2 (Blue) Ant. Trans., Sec.....	Below 0.5
57	SW-1 (Yellow) Ant. Trans., Pri.....	1.2
58	SW-1 (Yellow) Ant. Trans., Sec.....	Below 0.5
60	Police (Green) Osc. Trans., Pri.....	2.0
61	Police (Green) Osc. Trans., Sec.....	1.1
63	B'dc't (White) Osc. Trans., Pri.....	1.6
64	B'dc't (White) Osc. Trans., Sec.....	8.8
84	SW-3 (Red) R.F. Trans., Pri.....	1.0
85	SW-3 (Red) R.F. Trans., Sec.....	Below 0.5
88	SW-2 (Blue) R.F. Trans., Pri.....	0.6
89	SW-2 (Blue) R.F. Trans., Sec.....	Below 0.5

Item	Description	Ohms
91	SW-1 (Yellow) R.F. Trans., Pri.....	1.0
92	SW-1 (Yellow) R.F. Trans., Sec.....	Below 0.5
94	Police (Green) R.F. Trans., Pri.....	2.0
95	Police (Green) R.F. Trans., Sec.....	1.2
98	B'dc't (White) R.F. Trans., Pri.....	2.5
99	B'dc't (White) R.F. Trans., Sec.....	12.5
113	1st I.F. Trans., Pri.....	6.5
114	1st I.F. Trans., Sec.....	6.5
115	1st I-F Trans., Sec. No. 2.....	1.4
129	2nd I-F Trans., Pri.....	7.5
130	2nd I-F Trans., Sec.....	7.5
131	2nd I-F Trans., Coupling.....	7.5
132	2nd I-F Trans., Tertiary.....	
183	{ Output Trans., Pri.....	850.
	{ Output Trans., Sec.....	Below 0.5
184	Voice Coil (Imp. = 1.82 @ 400 cy.)..	1.7
185	Humbucking Coil.....	Below 0.5
186	Field Coil.....	540.
202	Power Trans., Prim. (60 cycle).....	2.0
	Power Trans., Prim. (25-cycle).....	3.1
	Power Trans., H.V. Sec. (60-cycle)...	350.
	Power Trans., H.V. Sec. (25-cycle)...	480.
	Power Trans., Heater.....	Below 0.5
	Power Trans., Rect. Fil.....	Below 0.5



## REALIGNING INSTRUCTIONS

To secure full advantage of the performance characteristics of this receiver, any realignment found necessary should be carried out carefully. A reliable oscillator or signal generator covering the entire frequency range, and an output meter should be employed.

### I.F. ALIGNMENT:

- (a) Set the wave-change switch in the broadcast position, the tuning capacitor gang in the closed position, the fidelity control in the "normal" (contracted-selectivity) position, and the station selector ("Dial-O-Matic Tuning") switch in the "normal" or "tune" position. Accuracy in setting the signal generator to the required frequency of 470 k.c. is essential to ensure good tracking of the i-f and r-f circuits. Couple the output of the signal generator through a 0.1 mf. capacitor to the grid cap of the converter (6A8) tube.
- (b) In the contracted-selectivity position the first i-f transformer has a single sharp response. The second transformer tunes somewhat more broadly, and has three adjustments instead of 2. First align the trimmer capacitors, items 125, 126, and 127, of the second i-f transformer. (Note: Follow the order specified). Then adjust the inductance trimmers, items 113 and 114, of the first i-f transformer, for maximum output in each case.
- (c) Reduce the output of the signal generator to the lowest value that will produce an output reading and check all the adjustments. All trimmers should peak properly.
- (d) Set the fidelity control in the "high-fidelity" (expanded-selectivity) position. If the previous adjustments have been made correctly, as the generator frequency is varied a few kilocycles on either side of 470 k.c., the output from the receiver should remain nearly constant, due to the flat-top, band-pass response, and should drop off fairly abruptly and symmetrically for frequencies further above and below.

### R.F. ALIGNMENT—BROADCAST (White) BAND.

- (a) Connect the output of the signal generator through a 100 mmf. capacitor to the antenna terminal on the receiver. Ground the receiver ground terminal. For the r-f alignment of this and the other four bands, the fidelity-control switch should be in the "normal" (contracted-selectivity) position, and the station-selector switch in the "tune" position.
- (b) Set the signal generator and receiver at 1400 kilocycles. Adjust trimmer, item 65, to bring in the signal. Then adjust trimmers, items 100 and 35, for maximum output.
- (c) Set the generator at 600 k.c. and tune the receiver to it. While rocking the gang, adjust trimmer, item 68, for maximum sensitivity.
- (d) If the pointer does not track the scale at 600 k.c., turn it around on its shaft as required.
- (e) Recheck at 1400 k.c.

### R.F. ALIGNMENT—POLICE (Green) BAND.

- (a) Use the same connections from the generator as for the broadcast band alignment.
- (b) Turn the wave-change switch to the correct position, and set both generator and receiver at 4.0 megacycles. Adjust trimmer, item 62, to bring in the signal. (The oscillator is operated above the signal in frequency on all bands so that the image will be tuned in with the generator set at a frequency 940 k.c. higher than the wanted signal. Check that the set is not tuned to the image by locating the image at a higher frequency on the generator).
- (c) Adjust trimmers, items 96 and 32, for maximum output.
- (d) Set the generator at 1.7 k.c. and tune the receiver to it. While rocking the gang, adjust trimmer, item 72, for maximum sensitivity.
- (e) Recheck at 4.0 megacycles.

### R.F. ALIGNMENT—SHORT WAVE No. 1 (Yellow) BAND.

- (a) Substitute a 400-ohm resistor in place of the capacitor in the lead from the signal generator.
- (b) Turn the wave-change switch to the correct band position. Set the generator and receiver at 6.6 mc. Adjust trimmer, item 59, to bring in the signal. (Check that the set is not tuned to the image.)
- (c) Adjust trimmers, items 93 and 28, for maximum output.
- (d) Set generator at 4.6 mc. and tune the set to it. While rocking the gang, adjust trimmer, item 76, for maximum sensitivity.
- (e) Recheck at 6.6 mc.

### R.F. ALIGNMENT—SHORT WAVE No. 2 (Blue) BAND

- (a) Turn the wave-change switch to the correct position. Set the generator (with the same connections as for the short wave No. 1 band) at 10.0 mc., and put the receiver at the same setting. Adjust trimmer, item 56, to bring in the signal. (Check that the set is not tuned to the image frequency).
- (b) While rocking the gang, adjust trimmer, item 90, for maximum output. Adjust trimmer, item 15, similarly.
- (c) Check alignment at 6.8 mc. (the lag capacitor is fixed).

### R.F. ALIGNMENT—SHORT WAVE No. 3 (Red) BAND.

- (a) With the wave-change switch in the correct position, set receiver and generator at 15.5 mc. Adjust trimmer, item 53, to bring in the signal. (Make sure that the set is not tuned to the image frequency).
- (b) Adjust the r-f trimmer, item 87, for maximum output, at the same time rocking the gang. Proceed similarly with the antenna trimmer, item 22.
- (c) Check alignment at 10.25 mc. (The lag capacitor is fixed).

# AUTOMATIC-FREQUENCY-CONTROL ALIGNMENT.

There is only one adjustment that affects the a-f-c circuit. Trimmer, item 126, has been adjusted previously for the i-f alignment, but may require a finer adjustment. The need for re-alignment is indicated if the output volume falls off when the station-selector switch is turned from the "normal" to the "control" position.

- (a) Set the generator at exactly 1000 k.c. and at full output (about 1/10 volt signal input is required). Tune the receiver to the signal carefully with the volume control retarded as far as necessary to restrict the volume.
- (b) Adjust trimmer, item 126, with the station-selector switch in the "A.F.C." position, so that when the switch is returned to the normal position there is no change in output.
- (c) The a-f-c action can be checked on the air by tuning a local station in without a-f-c action and then detuning so that the station is just not heard. Then switch the a-f-c on and it should pull the circuits into tune with the station.

## ADJUSTMENT OF STATION-SELECTOR TRIMMERS FOR DIAL-O-MATIC TUNING.

**A. Ranges of Fixed Trimmers:**—When the station selector switch is turned to the position to tune any of

Station Selector Switch Position	Tuning Range	Schematic Item Nos.			Part Number and Dot Colour
		Antenna Trim.	R.F. Trim.	Osc. Trim.	
1	1000-1620 K.C.	42	46	50	K-3324-4 (Red Dot)
2	800-1375 K.C.	41	45	49	K-3324-3 (Blue Dot)
3	540-1000 K.C.	40	44	48	K-3324-2 (Green Dot)
4	530-775 K.C.	39	43	47	K-3324-1 (Black Dot)

the four stations, these trimmers replace the sections of the tuning capacitor gang.

On the receiver as delivered, the trimmers are supplied in the positions shown in the table and will tune any station in the range indicated.

**B. Setting Trimmers for Stations Chosen:**—After ascertaining the set-user's choice of stations, proceed as follows:—

- (a) Set station-selector switch to the range in which the desired station falls, as shown in the table.
- (b) Press button on back of chassis and tune oscillator trimmer until desired station is heard. Tune for maximum dimming of tuning lamp or maximum sound output.
- (c) Tune antenna and r.f. trimmers for maximum dimming of tuning meter lamp or maximum sound output. It is NOT necessary to press push button while tuning the antenna and r.f. trimmers.

By following this procedure four different stations may be set up on the four sets of trimmers, to be tuned merely by the turn of a switch.

If two stations on one of the given tuning ranges are required, it will be necessary to remove one set of trimmers and substitute for them a set that will tune the desired station. The numbers of these trimmers are given in the table (in each range, antenna, r.f., and oscillator trimmers are the same) and they may be removed easily without disturbing the chassis, by simply unscrewing the machine screws at either end. Be sure to replace the trimmers so that the plate next the head of the adjusting screw is to the right facing the rear of the chassis.

Extra trimmers may be ordered by part number from the nearest Northern Electric dealer.

**C. Station-Call-Letter Cards:**—With the Instruction Folder envelope attached to each set is another envelope that contains these cards. They are printed in strips on celluloid and may be cut readily into cards to fit into the frames on the dial marked "Dial-O-Matic Tuning" that correspond to the chosen stations and the associated fixed trimmers.

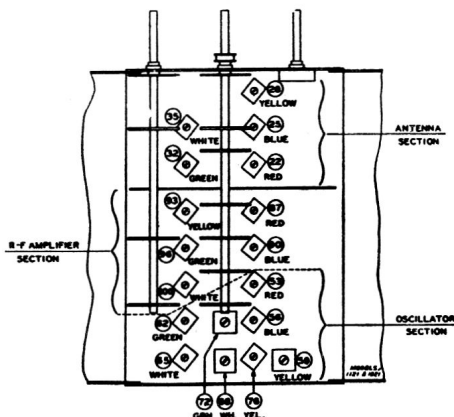


Figure 3.—Underside Aligning Positions

## SOCKET VOLTAGE READINGS

These readings were taken with the gang capacitor all in, wave-change switch in broadcast position, fidelity control switch in "high-fidelity" position, station-selector switch in "tune" position, and the line voltage at 115 volts. Voltage readings can be duplicated using any good voltmeter having a resistance of 1000 ohms per volt, such as the Weston Model 663 Volt Ohmmeter or the Weston Model 772 having a resistance of 20,000 ohms per volt. Current readings may be duplicated with the Model 772 and the Model 666-1A socket selectors. When taking readings using the selector attachment, connect a 0.1 mf. capacitor from the grid of the tube in the selector to the chassis, to prevent oscillation.

TUBE TYPE AND FUNCTION	VOLTAGES				CURRENTS (M.A.)		
	Heater (A.C.)	Plate	Screen	Cathode	Screen	Normal Bias	PLATE Bias red. 4½ volts
6K7 R-F Amplifier	6.3	250	90	2.2	1.6	7.5	10.
6A8 Converter	6.3	250*	90	3.5	4.2	4.0†	9.0
6J7 Aut. Freq. Cont.	6.3	230	90	0	0.15	.6	5.0
6K7 I-F Amplifier	6.3	250	90	2.3	1.3	6.0	8.0
6H6 2nd Det. & A.V.C.	6.3	—	—	—	—	—	—
6H6 Discr. Det.	6.3	—	—	—	—	—	—
6F5 1st A.F. Ampl.	6.3	90	—	0.7	—	0.35	0.65
6C5 2nd A-F Ampl.	6.3	180	—	37**	—	4.0	5.4
6V6G Output	6.3	235	250	—††	3.5	35	46
6V6G Output	6.3	235	250	—	3.5	35	46
5X4G Rectifier.	5.1	—	—	310	Plate No. 2 60	60	—

\* Anode Grid Voltage = 160 volts

\*\* 6C5 Grid Bias = 5.75 volts

† Anode Grid Current = 3.5 ma.

†† 6V6G Grid Bias = 17 volts

## SOCKET RESISTANCES TO GROUND — OHMS

TUBE TYPE	TOP CAP Control Grid	PIN No. 1 Shell	PIN No. 2 Heater	PIN No. 3 Plate	PIN No. 4 Screen	PIN No. 5	PIN No. 6	PIN No. 7 Heater	PIN No. 8 Cathode
6K7 (R.F.)	2.5 meg.	0	Below 0.5	14,000	13,000	(Suppressor) 300	—	0	300
6A8	2.4 meg.	0	Below 0.5	14,000	13,000	(Osc.-Grid) 50,300	(Anode-Grid) 54,500	0	300
6J7	3.5 meg.	0	0	29,000	13,000	(Suppressor) 0	—	Below 0.5	0
6K7 (I.F.)	715,000	0	Below 0.5	14,000	13,000	(Suppressor) 300	—	0	300
6H6 (2nd Det.)	—	0	Below 0.5	(Diode Plate) 480,000	0	(Diode Plate) 0	—	0	0
6H6 (Discr.)	—	1 meg.	Below 0.5	(Diode Plate) 1.5 meg.	2 meg.	(Diode Plate) 1.5 meg.	—	0	1 meg.
6F5	2 meg.	0	0	—	(Plate) 270,000	—	—	Below 0.5	4,000
6C5	—	0	Below 0.5	29,000	—	(Cont. Grid) 1.5 meg.	—	0	11,500
6V6G	—	0	Below 0.5	14,400	14,000	(Cont. Grid) 0.2 meg.	—	0	0
6V6G	—	0	Below 0.5	14,400	14,000	(Cont. Grid) 0.2 meg.	—	0	0
5X4G	—	—	—	320 (60 cy.) 387 (25 cy.)	—	(Plate) 320 (60 cy.) 387 (25 cyc.)	—	14,500	(Fil.) 14,500

These readings are taken with the set switched off, wave-change switch in the broadcast position, station-selector switch in the "tune" position and the fidelity-control switch set in the "high-fidelity" position. The pin numbers for the sockets correspond with those shown on the schematic circuit.



## REPLACEMENT PARTS PRICE LIST

(Prices subject to change)

These prices supersede prices of similar part numbers in any previous bulletin.

Item	Description	Part Number	Price	Item	Description	Part Number	Price
1	Ant. Prim. Sect. W/C Switch	K-3200	2.50	45	Capacitor, Trim., 50-250 mmf.	K-3324-3	.35
2	Ant. Sec. Sect. W/C Switch..			46	Capacitor, Trim., 10-70 mmf.	K-3324-4	.35
3	Ant. Gang Sect. W/C Switch			47	Capacitor, Trim., 160-485 mmf. ....	K-3324-1	.35
4	R-F Prim. Sect. W/C Switch			48	Capacitor, Trim., 125-375 mmf. ....	K-3324-2	.35
5	R-F Sec. Sect. W/C Switch..			49	Capacitor, Trim., 50-250 mmf.	K-3324-3	.35
6	R-F Gang Sect. W/C Switch			50	Capacitor, Trim., 10-70 mmf.	K-3324-4	.35
7	Osc. Prim. Sect. W/C Switch			51	SW-3 (Red) Osc. Coil, Prim.	K-3415	1.00
8	Osc. Sec. Sect. W/C Switch..			52	SW-3 (Red) Osc. Coil, Sec. . .		
9	Osc. Gang Sect. W/C Switch	K-3308	1.30	53	Capacitor, Trim., 1.5-10 mmf.	K-1458-5	.18
10	Ant. Sect. Station-Sel. Switch			54	SW-2 (Blue) Osc. Coil, Prim.	K-3412	1.00
11	R-F Sect. Station-Sel. Switch			55	SW-2 (Blue) Osc. Coil, Sec. . .		
12	Osc. Sect. Station-Sel. Switch			56	Capacitor, Trim., 3-25 mmf.	K-1458-6	.18
13	A-F-C Sect. Station-Sel. Sw..	K-3121	3.80	57	SW-1 (Yel.) Osc. Coil, Prim.	K-3409	1.00
14	Ant. (Sw.) Sect. Cap. Gang, max. 89 mmf. ....			58	SW-1 (Yel.) Osc. Coil, Sec. . .		
15	Ant. (B. & P.) Sect. Cap. Gang, max. 414 mmf. ....			59	Capacitor, Trim., 3-25 mmf.	K-1458-6	.18
16	R-F (Sw.) Sect. Cap. Gang, max. 89 mmf. ....			60	Pol. (Green) Osc. Coil, Prim.	K-3406	1.00
17	R-F (B. & P.) Sect. Cap. Gang, max. 414 mmf. ....			61	Pol. (Green) Osc. Coil, Sec. . .		
18	Osc. (Sw.) Sect. Cap. Gang, max. 89 mmf. ....			62	Capacitor, Trim., 3-25 mmf.	K-1458-6	.18
19	Osc. (B. & P.) Sect. Cap. Gang, max. 414 mmf. ....			63	B'dc't (White) Osc. { Including Coil, Prim. ....	K-3327	1.00
20	SW-3 (Red) Ant. Trans. Prim.			64	B'dc't (White) Osc. { Item 66		
21	SW-3 (Red) Ant. Trans. Sec.	K-3413	1.00	65	Capacitor, Trim., 3-25 mmf. .	K-1458-6	.18
22	Capacitor, Trim., 3-25 mmf.	K-1458-6	.18	66	B'dc't (White) Osc., A-F-C Coupling Coil. .... Part of 63-64		—
23	SW-2 (Blue) Ant. Trans. Prim. ....	K-3410	1.00	67	Capacitor, 0.05 mf., 175V. . .	K-2227-8	.16
24	SW-2 (Blue) Ant. Trans. Sec.	K-1458-6	.18	68	Capacitor, Lag, 40-120 mmf. .	K-3083-3	.20
25	Capacitor, Trim., 3-25 mmf. .			69	Capacitor, Mica, 2000 mmf. ± 5% . . . . .	K-1952-6	.25
26	SW-1 (Yel.) Ant. Trans. Prim.	K-3467	1.00	70	Capacitor, Mica, 300 mmf. ± 5% . . . . .	K-1611-10	.20
27	SW-1 (Yel.) Ant. Trans. Sec.			71	Capacitor, 0.001 mf., 350 V. .	K-2228-1	.20
28	Capacitor, Trim., 3-25 mmf.	K-1458-6	.18	72	Capacitor, Lag., 220-680 mmf.	K-3083-6	.25
29	Resistor, 10,000 Ohm. ....	K-2226-10	.23	73	Capacitor, Mica, 1000 mmf. ± 5% . . . . .	K-1611-30	.20
30	Police (Green) Ant. Trans. Prim. ....	K-3404	1.00	74	Capacitor, Mica, 2000 mmf. ± 5% . . . . .	K-1952-5	.25
31	Police (Green) Ant. Trans. Sec. ....			75	Capacitor, Mica, 1050 mmf. ± 3% . . . . .	K-1952-17	.25
32	Capacitor, Trim., 3-25 mmf. .	K-1458-6	.18	76	Capacitor, Lag., 220-680 mmf.	K-3083-6	.25
33	B'dc't (White) Ant. Trans. Prim. ....	K-3325	1.00	77	Capacitor, Mica, 100 mmf. . .	K-1611-2	.20
34	B'dc't (White) Ant. Trans. Sec.	K-1458-6	.18	78	Capacitor, Mica, 65 mmf. . . .	K-1611-8	.20
35	Capacitor, Trim., 3-25 mmf			79	Capacitor, 0.001 mf., 350 V. .	K-2228-1	.20
36	Capacitor, 0.05 mf., 175V. . .	K-2227-8	.16	80	Resistor, 600 ohm. ....	K-2226-56	.23
37	Resistor, 300 ohm. ....	K-2226-20	.23	81	Resistor, ½ meg. ....	K-2226-3	.23
38	Capacitor, 0.05 mf., 175 V. . .	K-2227-8	.16	82	Resistor, 1/10 meg. ....	K-2226-5	.23
39	Capacitor, Trim., 160-485 mmf. ....	K-3324-1	.35	83	Capacitor, 0.1 mf., 175 V. . .	K-2227-9	.16
40	Capacitor, Trim., 125-375 mmf. ....	K-3324-2	.35	84	SW-3 (Red) R.F. Trans. Prim.	K-3414	1.00
41	Capacitor, Trim., 50-250 mmf.	K-3324-3	.35	85	SW-3 (Red) R.F. Trans. Sec. .		
42	Capacitor, Trim., 10-70 mmf.	K-3324-4	.35	86	Capacitor, Coupling, 6 mmf. .	K-3411	1.00
43	Capacitor, Trim., 160-485 mmf. ....	K-3324-1	.35	87	Capacitor, Trim., 1.5-10 mmf.	K-1458-5	.18
44	Capacitor, Trim., 125-375 mmf. ....	K-3324-2	.35	88	SW-2 (Blue) R.F. Trans., Prim. ....	K-3411	1.00
				89	SW-2 (Blue) R.F. Trans. Sec. .		
				90	Capacitor, Trim., 3-25 mmf.	K-1458-6	.18

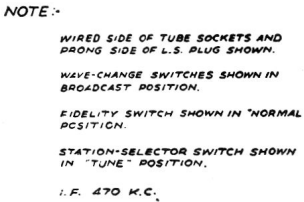
## REPLACEMENT PARTS PRICE LIST—(Continued)

Item	Description	Part Number	Price	Item	Description	Part Number	Price
91	SW-1 (Yel.), R.F. Trans., Prim.....	K-3408	1.00	139	Resistor, 15,000 ohm.....	K-3315-11	.27
92	SW-1 (Yel.), R.F. Trans. Sec.			140	Resistor, 10,000 ohm.....	K-3315-12	.27
93	Capacitor, Trim., 3-25 mmf.	K-1458-6	.18	141	Resistor, 5000 ohm.....	K-2226-12	.23
94	Pol. (Green), R.F. Trans., Prim.....	K-3405	1.00	142	Resistor, 8000 ohm.....	K-3315-14	.27
95	Pol. (Green), R.F. Trans., Sec.....			143	Resistor, 2 meg.....	K-2226-1	.23
96	Capacitor, Trim., 1.5-10 mmf.	K-1458-5	.18	144	Resistor, 2 meg.....	K-2226-1	.23
97	Resistor, 1/10 meg.....	K-2226-5	.23	145	Resistor, 1 meg.....	K-2226-2	.23
98	B'dc't (White), R.F. Trans., Prim.....	K-3326	1.00	146	Volume Control, ½ meg....	K-3228	1.00
99	B'dc't (White), R.F. Trans., Sec.....			147	Capacitor, 0.02 mf., 175 V...	K-2227-7	.16
100	Capacitor, Trim., 1.5-10 mmf.	K-1458-5	.18	148	Capacitor, 0.25 mf., 175 V...	K-2227-10	.25
101	Resistor, 1/10 meg.....	K-2226-5	.23	149	Capacitor, 0.1 mf., 175 V...	K-2227-9	.16
102	Capacitor, 0.05 mf., 175 V...	K-2227-8	.16	150	Resistor, ½ meg.....	K-2226-3	.23
103	Resistor, 15,000 ohm.....	K-2226-9	.23	151	Resistor, ½ meg.....	K-2226-3	.23
104	Capacitor, 0.05 mf., 350 V...	K-2228-8	.20	152	Switch, A.F.C. Shorting....	—	—
105	Resistor, 300 ohm.....	K-2226-20	.23	153	Resistor, 1 meg.....	K-2226-2	.23
106	Capacitor, 0.05 mf., 175 V...	K-2227-8	.16	154	Resistor, 2 meg.....	K-2226-1	.23
107	Capacitor, Mica, 100 mmf....	K-1611-2	.20	155	Resistor, 2 meg.....	K-2226-1	.23
108	Resistor, 50,000 ohm.....	K-2226-6	.23	156	Capacitor, Mica, 100 mmf....	K-1611-2	.20
109	Capacitor, 0.05 mf., 175 V...	K-2227-8	.16	157	Resistor, 2 meg.....	K-2226-1	.23
110	1st I-F Trans. Assy. (Items 111-115).....	K-3220	1.60	158	Resistor, 4000 ohm.....	K-2226-28	.23
111	Capacitor, 83 mmf. (Not replaceable).....	—	—	159	Capacitor, 5 mf, 25 V.....	K-3442-1	.60
112	Capacitor, 98 mmf. (Not replaceable).....	—	—	160	Resistor, ¼ meg.....	K-2226-4	.23
113	1st I-F Trans., Prim.....	—	—	161	Capacitor, 0.02 mf., 350 V...	K-2228-7	.20
114	1st I-F Trans., Sec.....	—	—	162	Resistor, ½ meg.....	K-2226-3	.23
115	1st I-F Trans., Sec. No. 2....	—	—	163	Tone Control, ½ meg. Var..	K-3335	.75
116	Capacitor, 0.02 mf., 175 V...	K-2227-7	.16	164	Capacitor, 0.05 mf., 175 V...	K-2227-8	.16
117	Resistor, 1/10 meg.....	K-2226-5	.23	165	Capacitor, 0.001 mf., 350 V..	K-2228-1	.20
118	I-F Sect. Fidelity-Control Switch.....	K-3226	.40	166	Resistor, ½ meg.....	K-2226-3	.23
119	Lamp Sect. Fidelity-Control Switch.....			167	Resistor, 10,000 ohm.....	K-2226-10	.23
120	Lamp, 24 V. (Tuning Indicator).....	K-2643	.50	168	Resistor, 1500 ohm.....	K-2226-15	.23
121	Resistor, 10,000 ohm.....	K-3315-12	.27	169	Capacitor, 0.02 mf., 175 V...	K-2227-7	.16
122	2nd I-F Trans. Assy. (Items 123-135 included).....	K-3285	1.85	170	Resistor, 10,000 ohm.....	K-2226-10	.23
123	Capacitor, Mica 75 mmf....	K-3450-3	.20	171	Capacitor, 0.02 mf., 350 V...	K-2228-7	.20
124	Capacitor, Mica, 100 mmf....	K-3450-4	.20	172	Resistor, 1/10 meg.....	K-2226-5	.23
125	Capacitor, Trim., 32-90 mmf.	—	—	173	Resistor, 1/10 meg.....	K-2226-5	.23
126	Capacitor, Trim., 32-90 mmf.	—	—	174	Resistor, 1/10 meg.....	K-2226-5	.23
127	Capacitor, Trim., 32-90 mmf.	—	—	175	Capacitor, 0.1 mf., 175 V...	K-2227-9	.16
128	Capacitor, Mica, 100 mmf....	K-3450-4	.20	176	Capacitor, Mica, 100 mmf....	K-1611-2	.20
129	2nd I-F Trans., Prim.....	—	—	177	Capacitor, Mica, 100 mmf....	K-1611-2	.20
130	2nd I-F Trans., Sec.....	—	—	178	Capacitor, 0.001 mf., 350 V..	K-2228-1	.20
131	2nd I-F Trans., Coupling Coil	—	—	179	Capacitor, 0.001 mf., 350 V.	K-2228-1	.20
132	2nd I-F Trans., Tertiary.....	—	—	180	Resistor, 5000 ohm.....	K-2226-12	.23
133	Capacitor, Mica, 100 mmf....	K-3450-4	.20	181	Loudspeaker Plug.....	K-2678	.16
134	Capacitor, Mica, 100 mmf....	K-3450-4	.20	182	Loudspeaker Cable.....	—	—
135	Resistor, 50,000 ohm.....	K-2226-6	.23	183	Output Trans.....	K-2718-7	1.40
136	Resistor, 300 ohm.....	K-2226-20	.23	184	Voice-Coil & Diaph. Assem.	K-3138	2.50
137	Capacitor, 0.05 mf., 175 V...	K-2227-8	.16	185	Hum-Buck Coil.....	—	—
138	Ant. Grnd-Phono-Terminal Strip.....	K-2986	.20	186	Field Coil.....	K-2543-6	2.00
				187	Capacitor, Dry Elec., 8 mf., 275 V.....	K-3241	1.50
				188	Capacitor, Dry Elec., 4 mf., 210 V.....		
				189	Capacitor, Dry Elec., 8 mf., 250 V.....		
				190	Capacitor, Dry Elec., 8 mf., 100 V.....	K-3399	.85
				191	Capacitor, Wet Elec., 16 mf., 440 V.....	K-3240	.85
				192	Resistor, 30,000 ohm.....	K-2363-3	.23
				193	Resistor, 100 ohm.....	K-3315-30	.27
				194	Resistor, 40 ohms ± 5%....	K-2363-44	.23

## REPLACEMENT PARTS PRICE LIST—(Continued)

Item	Description	Part Number	Price	Description	Part Number	Price
195	Resistance Wire, 0.62 ohm. (6 in. long).....	K-3436-26	ft. .30	Cable, Bronze (Use 32" overall)...	K-1694	.10
196 } 201 }	Lamp Dial, 6.3 V.....	K-2589-3	.18	Cable Spring.....	No. 103164	.10
202	Power Trans., 60 cycle.....	K-3242-3	7.00	Insulation Strip (3 plus 1).....	K-2180	.10
202a	Power Trans., 25 cycle.....	K-3242-4	7.50	Insulation Strip (Single Six).....	K-1888-1	.10
203	Capacitor, 0.025 mf., 520 V., a.c.....	K-1750	.40	Insulation Strip (Double).....	K-1683-1	.05
204	Capacitor, 0.025 mf., 520 V., a.c.....			A.F.C. Push Button.....	K-3517	doz. .10
205	A-C Switch.....	Part of 163		Insulation Strip (2 terminal—4 lug)	K-1683-1	.05
206	Resistor, 10,000 ohm.....	K-2226-10	.23	Phono Link.....	K-2520-3	.05
<b>MISCELLANEOUS:</b>				Chassis Mounting Screw (1/4-20- 1 1/4").....	K-1109-10doz.	.10
Loudspeaker, with O.T. and Plug				Rubber Grommet (Chassis mount- ing).....	K-2498-3	doz. .25
Assy.....				Tee Nut.....	K-3282	.05
Loudspeaker only.....				Escutcheon (Fidelity).....	K-3393-2	1.50
Tube Socket.....				Escutcheon Pins.....	PP-21152	doz. .05
Insulation Strip.....				Knob—"Tuning" (large).....	K-3356-1	.15
Shield for Antenna Lead.....				Knob—"Tuning" (small).....	K-2830-5	.15
Trimmer Mounting Strip.....				Knob—"Volume".....	K-2765-3	.15
Insulation Strip.....				Knob—"Tone-On-Off".....	K-2765-6	.15
Grid Clips.....				Knob—"Band".....	K-2765-9	.15
Drive Disc Assy.....				Knob—(plain).....	K-2765-1	.15
Indicator Disc (A.T.).....				Felt Washers (under large knob)..	K-2491-1	doz. .05
Indicator, Tuning.....				Felt Washers (under small knob)..	K-2491-4	doz. .15
Drive Belt.....				Station Call Letters Card.....	K-3492	.60
Band Indicator Scale.....				Main Escutcheon, complete.....	K-3245	1.30
Dial Scale (with facing).....				Escutcheon Crystal.....	K-3246	.25
Reduction Drive Assy.....				Escutcheon Retaining Ring.....	K-3249	.10
Dial Lamp Sockets.....				Escutcheon—"Dial-O-Matic"....	K-3393-1	2.00
Tuning Lamp Socket.....				Tuning Light Scale.....	K-3236	.20
Insulator Shell for T.L. Socket....				No. 8 Auto Washer (Tone Chamber Cover).....	K-3353-2	doz. .05
Indicator Scale.....				Tone Chamber Cover Screw.....	K-3354-12doz.	.10
				Tuning Wrenches—all models....	K-836	.70

---





# MODEL 1121 RADIO RECEIVER

