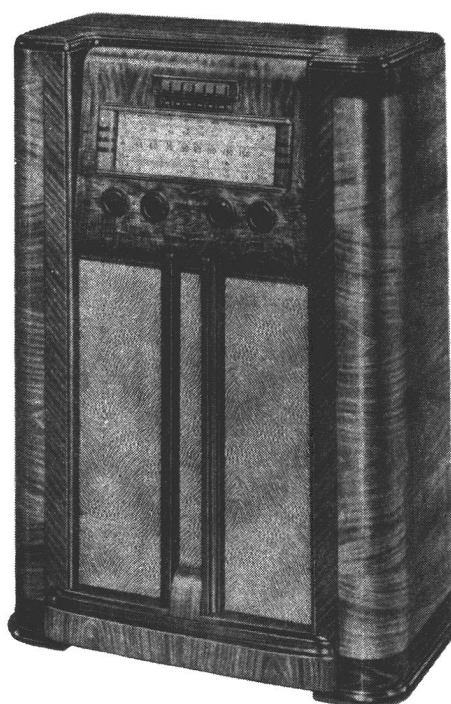


MODEL JK-66

Six-Tube, Five-Band, A-C Superheterodyne Receiver



Electrical Specifications

FREQUENCY RANGES

Standard Broadcast (A)	.....	530-1,580	k.c.
Short Wave (B)	.....	2,700-9,900	k.c.
31 M	.....	9,450-12,400	k.c.
25 M	.....	11,650-15,800	k.c.
19-13 M	.....	15,060-22,700	k.c.

Intermediate Frequency 455 k.c.

RADIOTRON COMPLEMENT

- | | |
|---------------|---------------------------|
| (1) Type-6SK7 | R-F Amplifier |
| (2) Type-6SA7 | First Detector-Oscillator |
| (3) Type-6SK7 | Intermediate Amplifier |

Pilot Lamps (2) Mazda No. 51, 7.5 volts, 0.2 amp.

POWER SUPPLY RATINGS

Rating A	.....	105-125 volts, 50-60 cycles, 75 watts
Rating B	.....	105-125 volts, 25-60 cycles, 75 watts

POWER OUTPUT

Undistorted	.....	3 watts
Maximum	.....	4.5 watts

R. F. ALIGNMENT FREQUENCIES

"B" (49 Meters)	.....	9,550 k.c. (osc.)
31 M (31 Meters)	.....	9,550 k.c. (osc., ant.)
25 M (25 Meters)	.....	11,800 k.c. (osc.)
19-13M (19-13 Meters)	.....	15,200 k.c. (osc., & ant.)
Standard Broadcast (A)	.....	600 k.c. (osc.), 1400 k.c. (osc., ant.)

- | | |
|---------------|----------------------------|
| (4) Type-6SQ7 | 2nd Det., A. V. C. & A. F. |
| (5) Type-6F6G | Power Output |
| (6) Type-5Y4G | Full wave Rectifier |

LOUDSPEAKER

Type	.....	12 inch Electrodynamic
Impedance (V.C.)	.....	3 ohms at 400 cycles

General Description

This receiver employs a six-tube, five band super-heterodyne circuit, the arrangement of which is shown in the Schematic Circuit Diagram. Features of design include: —Loop antenna as the first tuned circuit; high gain R.F. stage, stabilized oscillator circuit resulting in less frequency drift; magnetite core I.F. transformers; magnetite core oscillator coils on all bands;

automatic volume control; A.C. outlet on chassis back apron; variable tone control circuit; push key tuning of five Standard Broadcast stations by means of pre-set oscillator coils; dust proof electrodynamic loud-speaker; temperature stabilized capacitors in the oscillator circuits; and a large, edge lighted dial individually calibrated for each band.

Circuit Arrangement

The circuit consists of an R.F. amplifier stage incorporating the Loop Antenna as the first tuned circuit; first detector (oscillator) stage; I.F. amplifier stage; second detector, A.V.C. and first Audio stage and a single pentode output operating in Class A-B; and a well regulated power supply.

The Loop Antenna used as the first tuned stage is in the circuit on all bands; temperature compensated

capacitors are used in the oscillator circuits to reduce oscillator drift.

The intermediate frequency amplifier consists of a Type 6SK7 tube in a single stage transformer-coupled circuit. The windings of all I.F. Transformers are resonated by fixed capacitors and are adjusted by moulded magnetite cores to tune to 455K.C.

The Audio circuit is a conventional resistance-coupled class A-B stage.

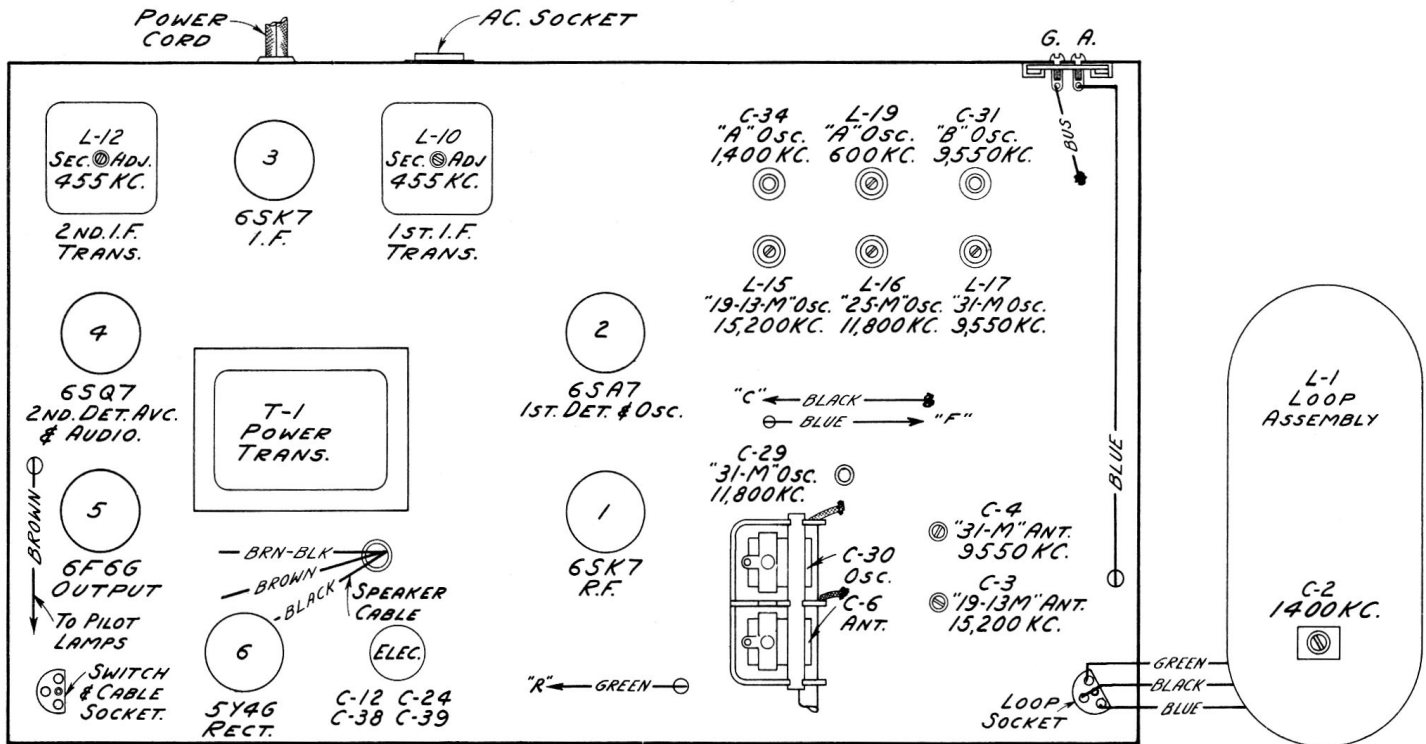


Fig. 1—Chassis Layout and Alignment Adjustments

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown on the schematic diagram.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord-Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the tuning drum. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang

in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The 0° mark on the drum scale must be vertical and directly above the center of the shaft of the tuning drum when the plates are fully meshed. The drum is held to the shaft by means of two set-screws, which must be tightened securely when the drum is in the correct position.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the chassis, and bend the wire so that it points to the 0° mark on the calibration scale when the plates are fully meshed.

Order of Alignment	Test Oscillator			Range Selector	Receiver Dial Setting	Circuit to Adjust	Adjustment Symbols
	Connection to Receiver	Dummy Antenna	Frequency Setting				
1	6SK7 2nd I.F. Grid	.1 Mfd.	455 kc	"A"	No. Signal 1600 kc	2nd I.F. Trans.	L11 & L12
2	6SA7 Det. Grid	.1 Mfd.	455 kc	"A"	No. Signal 1600 kc	1st I.F. Trans.	L9 & L10
3	Loop Socket	300 Ohms	9,550 kc	31 M	9.55 mc (40°)	31 M Osc.	L17
4	Loop Socket	300 Ohms	11,800 kc	31 M	11.8 mc (166.5°)	31 M Osc.	C29
5	Loop Socket	300 Ohms	9,550 kc	31 M	9.55 mc (40°)	31 M Ant.	C4
6	Loop Socket	300 Ohms	15,200 kc	19-13 M	15.2 mc (25.5°)	19-13 Osc.	L15
7	Loop Socket	300 Ohms	15,200 kc	19-13 M	15.2 mc (25.5°)	19-13 M Ant.	C3
8	Loop Socket	300 Ohms	11,800 kc	25 M	11.8 mc (42°)	25 M Osc.	L16
9	Loop Socket	300 Ohms	9,550 kc	"B"	9.55 mc (170°)	B Osc.	C31
10	Loop Socket	300 Ohms	1,400 kc	"A"	1400 kc (155°)	"A" H-F Osc.	C34
11	Loop Socket	300 Ohms	600 kc	"A"	600 kc (33.5°)	"A" L-F Osc.	L19
12	Radiation Loop	....	1,400 kc	"A"	1400 kc (155°)	"A" Ant.	C2* (on Loop)

NOTE:—Align the I.F. Circuits by means of the oscillograph, for a symmetrical curve. Peak R.F. stages of all bands. * Radiation loop comprising two turns of wire 18 inches in diameter should be placed 4 feet from receiver loop, before aligning "C2".

Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

In exceptional cases, when the set is being serviced in a location where the noise level is high enough to prevent reception of short-wave stations, a test-oscillator may be used for alignment, but an extremely high degree of accuracy is required in the frequency settings of the test-oscillator, as a slight error will produce considerable inaccuracy on the spread-band dials. The frequency settings of the test-oscillator may be checked by one or both of the following methods:

1. Determine the exact dial settings of the test-oscillator (for frequencies at or close to the specified alignment frequencies) by zero-beating the test-oscillator against short-wave stations of known frequency.
2. Use harmonics of the standard-broadcast range of a test-oscillator, first checking the frequency settings on this range by means of a crystal calibrator (GE Stock No. 9572), or by zero-beating against standard broadcast stations.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave

stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.

NOTE:—Whenever possible spread band adjustments should be made with the chassis fastened in the cabinet and the pointer accurately aligned to the dial.

Spread-band Adjustments.—Alignment of the spread bands requires special procedure since test oscillators used alone are not ordinarily sufficiently accurate for this purpose. The GE Stock No. 9572 Crystal Calibrator affords a convenient and accurate alignment standard. Wrap a few turns of wire around the crystal calibrator and connect one free end to the antenna terminal of the receiver. Using the crystal calibrator to obtain the necessary accuracy, follow the tabulated alignment procedure for the "31M.", "25M.", and "19M." bands.

For the "B" band snap crystal calibrator "Hi-Lo" switch to "Hi", turn the range selector to "B" band, and set receiver dial pointer to 9.0 mc. Adjust oscillator capacitor C31 for maximum signal. Snap "Hi-Lo" switch to "Lo" and locate 9500 kc (the fifth 100 kc harmonic above 9000 kc.) Adjust for maximum signal on 9500 kc.

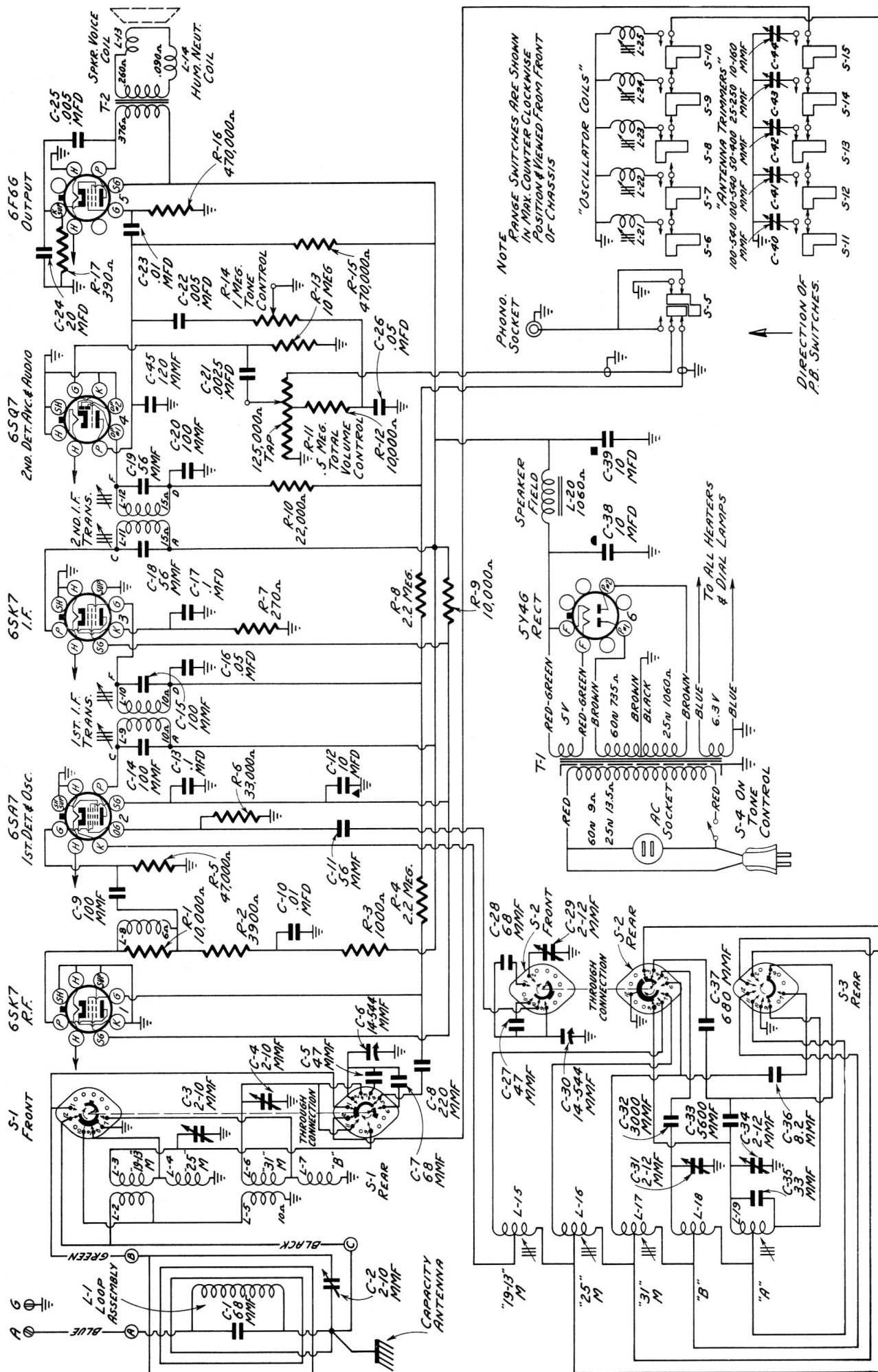


Figure 2—Schematic Circuit Diagram

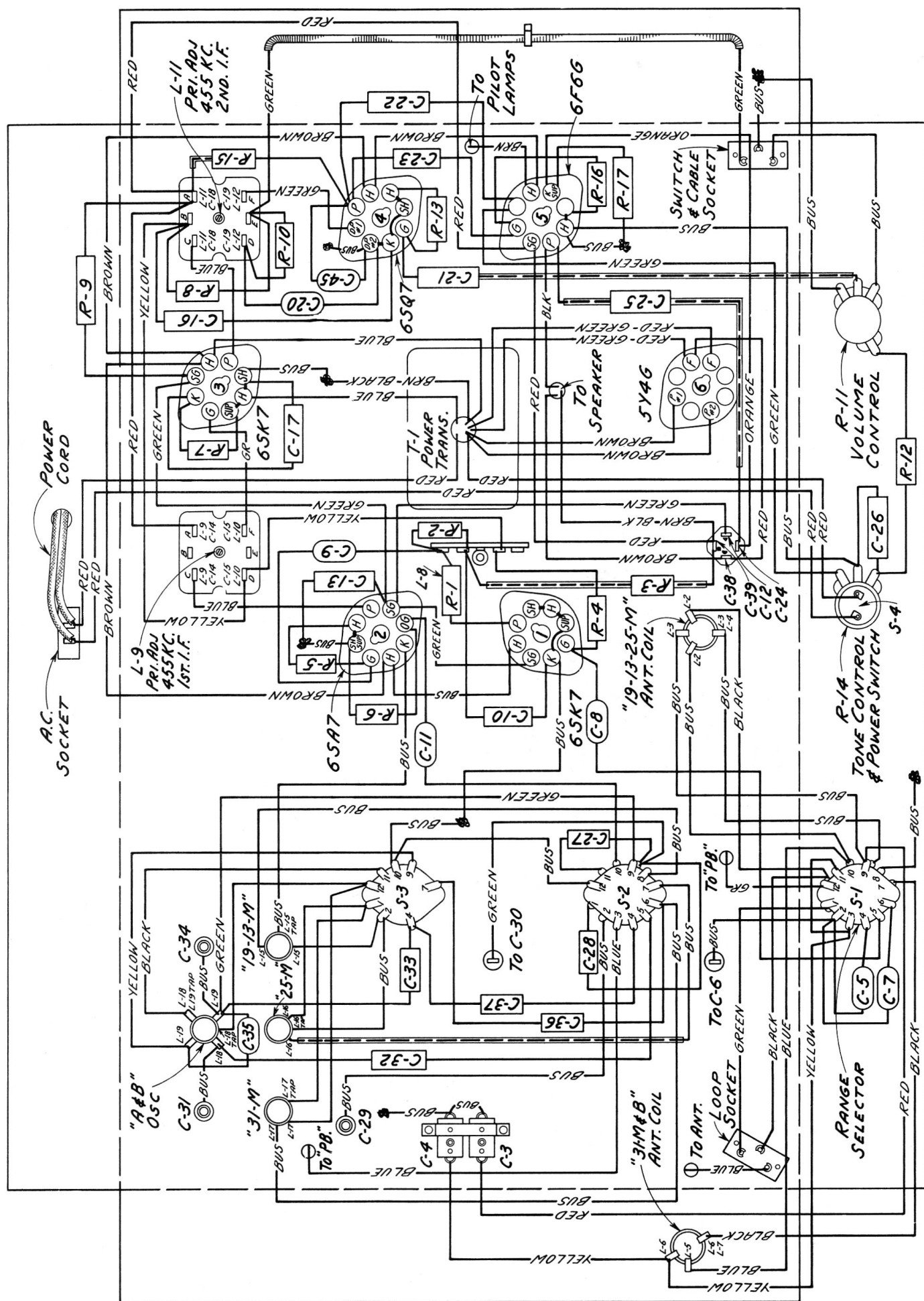


Figure 3—Chassis Wiring Diagram

RADIOTRON SOCKET VOLTAGES

Type	Plate	Screen Grid	Control Grid	Cathode	Heater
6SK7 R.F.	200V	95V	....	....	6.8V
6SA7 Conv.	215V	95V	....	....	6.8V
6SK7 I.F.	230V	95V	-.2V	....	6.8V
6SQ7 Audio	200V	....	....		6.8V
6F6 Output	320V	330V	....	22V	6.8V
5Y4G Rectifier	output measured across C39			330V	5.0V

Note:—All the above values hold within plus or minus 20% when measured with a 1,000 ohm-per-volt meter, on a line voltage of 115 volts. All voltages are measured to chassis.

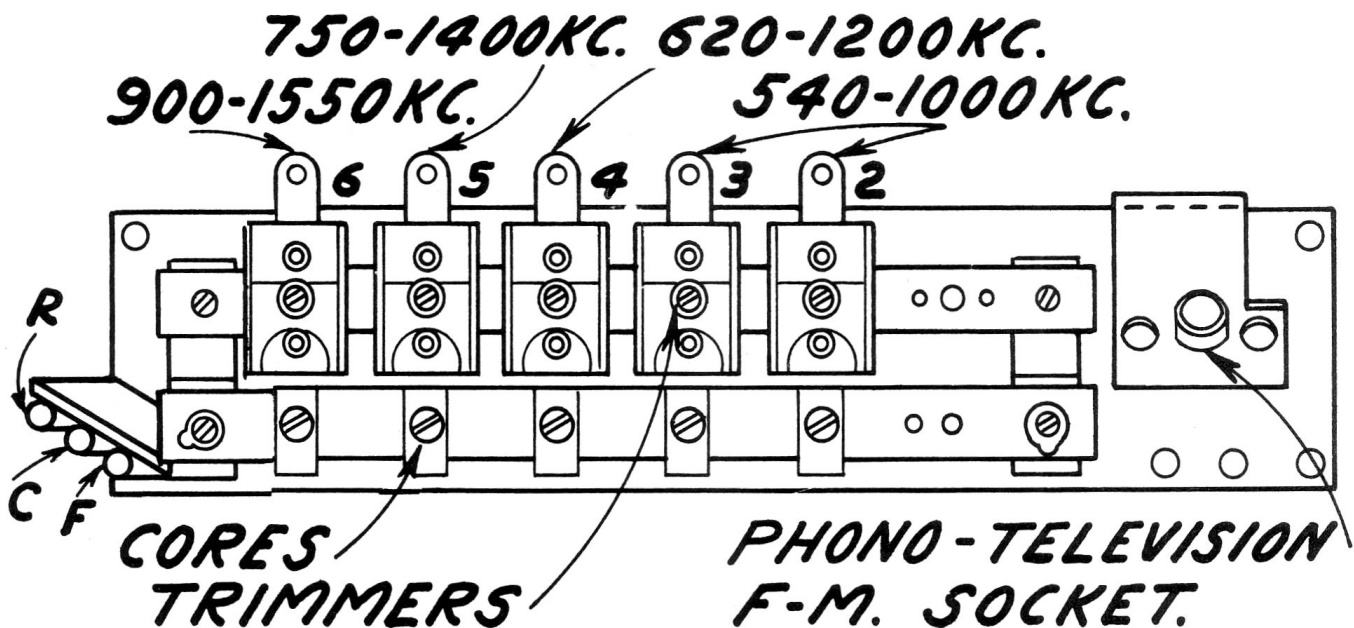


Fig. 4

Keyboard Adjustment

The push key may be adjusted for any five stations on the "A" band. The preferable arrangement is to adjust for stations in order of frequency.

Proceed as follows:—

(1) Turn "Range selector" to "A" position and manually tune in the first station, say 560 k.c.

(2) Turn "Range selector" to "P.B." position, press key No. 2 located second from left on front panel.

(3) Referring to Figure 4, adjust core and padder No. 2 for a peak at 560 k.c.

(4) Proceed to adjust the other four stations in order of frequency, as outlined above.

When a station is inaudible due to reception conditions a test oscillator should be substituted for the station signal.

REPLACEMENT PARTS — MODEL JK-66

STOCK NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
RECEIVER ASSEMBLIES			
S-2876	Board-Antenna-Grd terminal board....	S-2902	Socket-Loop antenna or push button switch cable socket.....
12714	Capacitor-Adjustable air trimmer 2-12 mmfd (C29,31,34).....	31364	Socket-Dial lamp socket.....
S-2991	Capacitor-Adj. mica trimmer, two 2-10 mmfd (C3,4).....	31251	Socket-Tube socket.....
S-3007	Capacitor-8.2 mmfd (Ceramic) (C36)...	13638	Spring-Drive cord tension spring (Pkg.5).....
12948	Capacitor-33 mmfd (C35).....	S-2990	Switch-Range switch (S1,2,3).....
35644	Capacitor-47 mmfd (Ceramic) (C27)...	S-2892	Tone control and power switch (R14,S4).....
S-3008	Capacitor-47 mmfd (C5).....	35636	Transformer-1st I.F. transformer (L9,L10,C14,C15).....
12723	Capacitor-56 mmfd (C11).....	35628	Transformer-2nd I.F. transformer (L11,L12,C18,C19).....
35645	Capacitor-68 mmfd (Ceramic) (C28)....	S-2903	Transformer-Power 110 V.25/60 cy. (T-1).....
S-3009	Capacitor-68 mmfd (C7).....	S-2904	Transformer-Power 110 V.50/60 cy. (T-1).....
12720	Capacitor-100 mmfd (C9,20).....	S-2906	Volume control (R11).....
12724	Capacitor-120 mmfd (C45).....	REPRODUCER ASSEMBLIES	
12694	Capacitor-220 mmfd (C8).....	13866	Cap-Dust cap for centre of cone (Pkg.5).....
S-2988	Capacitor-680 mmfd (Silver mica) (C37)	S-2458	Coil-Field coil.....
35643	Capacitor-3,000 mmfd (C32).....	11469	Coil-Neutralizing coil.....
13895	Capacitor-5,600 mmfd (C33).....	31275	Cone-Reproducer cone and voice coil.
5107	Capacitor-.0025 mfd. (C21).....	5118	Plug-3 contact plug (male).....
33584	Capacitor-.005 mfd. (C22,25).....	S-2827	Reproducer complete.....
4937	Capacitor-.01 mfd. (C10,23).....	S-2855	Transformer-Output transformer(T2)..
32787	Capacitor-.05 mfd. (C16,26).....	KEYBOARD SWITCH ASSEMBLY	
4839	Capacitor-.1 mfd. (C13,17).....	S-2907	Cable-Shielded phono cable less plug
33014	Capacitor-Electrolytic 3 of 10 mfd., 1 of 20 mfd. (C12,24,38,39).....	S-2908	Capacitor-Trimmer capacitor bank (C40,41,42,43,44).....
S-2992	Coil-Antenna Coil "B",31" (L5,6,7)...	35805	Coil-Oscillator coil (L21,22,23,24,25)
S-2993	Coil-Antenna coil, 25,19,13 M (L2,3,4).....	32641	Plug-3 prong male plug for phono cable.....
35876	Coil-Choke..... (L8,R1).....	S-2910	Socket-Phono input socket.....
S-2994	Coil-Oscillator coil "A & B" (L18,19)	S-2911	Switch-Push key switch assembly (S5 to S15).....
S-2995	Coil-Oscillator coil 19,13 M (L15)...	MISCELLANEOUS ASSEMBLIES	
35625	Coil-Oscillator coil - 25M (L16)....	S-2986	Dial-Station selector dial scale....
S-2996	Coil-Oscillator coil - 31M (L17)....	S-2918	Escutcheon-Push key escutcheon.....
S-2989	Condenser-2 gang variable tuning condenser (C6,30).....	S-2919	Escutcheon-Call letter escutcheon...
S-2897	Cord-Indicator pointer drive cord (53-1/2").....	S-2920	Key-Push key.....
31273	Drum-Drive cord drum.....	S-2921	Knob-Volume, tone or tuning control knob.....
S-2886	Indicator-Station selector indicator	S-2922	Knob-Range switch knob (front section).....
11765	Lamp-Dial lamp (Mazda 51).....	S-3011	Knob-Range switch knob (rear section).....
5119	Plug-3 contact female speaker plug..	S-2916	Loop-Antenna loop assembly (L1,C1,C2).....
31280	Pulley-Drive cord pulley.....	S-2909	Marker-Keyboards call letter marker (1 set).....
14887	Retainer-Drive cord pulley retainer (Pkg.10).....	S-2924	Spring-Knob retaining spring (Pkg.2)
S-2587	Resistor-10,000 ohm, 4 watt (R9)....	14270	Spring-Knob retaining spring (Pkg.2).....
S-2901	Resistor-270 ohm, 1/2 watt (R7)....	S-2547	Tool-Keyboards set up tool.....
31388	Resistor-390 ohm, 1 watt (R17).....		
14720	Resistor-1000 ohm, 1/4 watt (R3)....		
30694	Resistor-3900 ohm, 1/2 watt (R2)....		
14559	Resistor-10,000 ohm, 1/4 watt (R12)..		
13998	Resistor-22,000 ohm, 1/4 watt (R10)..		
12454	Resistor-33,000 ohm, 1/4 watt (R6)...		
12412	Resistor-47,000 ohm, 1/4 watt (R5)...		
12285	Resistor-470,000 ohm, 1/4 watt (R15,16)		
12679	Resistor-2.2 meg., 1/4 watt (R4,8)...		
13601	Resistor-10 meg. 1/4 watt (R13).....		
S-2888	Shaft-Station selector drive shaft..		
35633	Shaft-Range indicator shaft.....		
S-2824	Socket-A.C. socket.....		

THIS C.G.E. MODEL JK-66 IS THE SAME AS THE 1946 C.G.E. MODEL KM-67