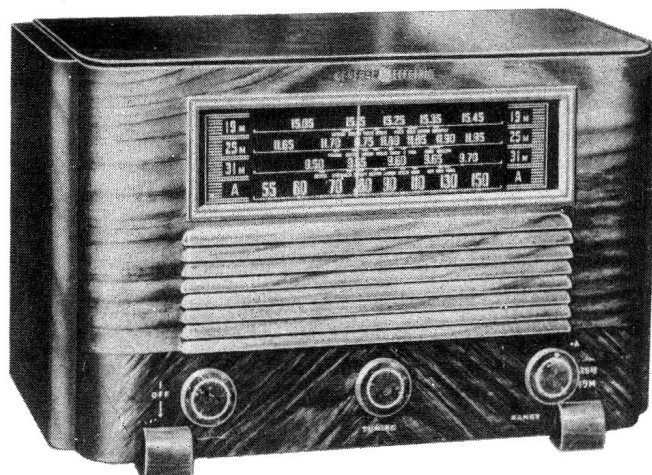


# MODEL KL-500

## Five-Tube, Four-Band, A-C Superheterodyne Receiver



### Electrical and Mechanical Specifications

#### FREQUENCY RANGES

Standard Broadcast "A"	540-1570 k.c.
31 Meter Spread Band	9,450-9,700 k.c.
25 Meter Spread Band	11,680-11,920 k.c.
19 Meter Spread Band	15,030-15,380 k.c.
Intermediate Frequency	455 k.c.

#### TUBE COMPLEMENT

(1) TYPE-6SA7	First Detector—Oscillator
(2) TYPE-6SK7	Intermediate Amplifier
(3) TYPE-6SQ7	Second-Detector, A.V.C., and A-F Amplifier
(4) TYPE-6K6G	Power Output
(5) TYPE-5Y4-G	Full-Wave Rectifier
Pilot Lamp (2)	Mazda 51, 6.3 volts, 0.2 amp.

#### POWER OUTPUT RATING

Undistorted	2 watts
Maximum	4 watts

#### LOUDSPEAKER

Type CRL-500-2	5-inch Permanent magnet
Voice-Coil Impedance	3.8 ohms at 400 cycles

#### POWER SUPPLY RATINGS

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

#### CABINET DIMENSIONS

Height	9 $\frac{3}{8}$ inches
Width	15 inches
Depth	7 $\frac{1}{8}$ inches
Tuning Drive Ratio	12 to 1

### General Description

Model KL-500 is a five tube, four band, table type superheterodyne receiver, designed to cover the standard broadcast range, and three short wave spread bands. Features of design include:—built in loop antenna for broadcast band reception; removable capacity type

short wave antenna; magnetite-core I.F. transformers and oscillator coils; automatic volume control; two position tone control; edge lighted straight line dial; phono input socket and a 5 inch dust-proof permanent magnet loudspeaker.

### Miscellaneous Service Data

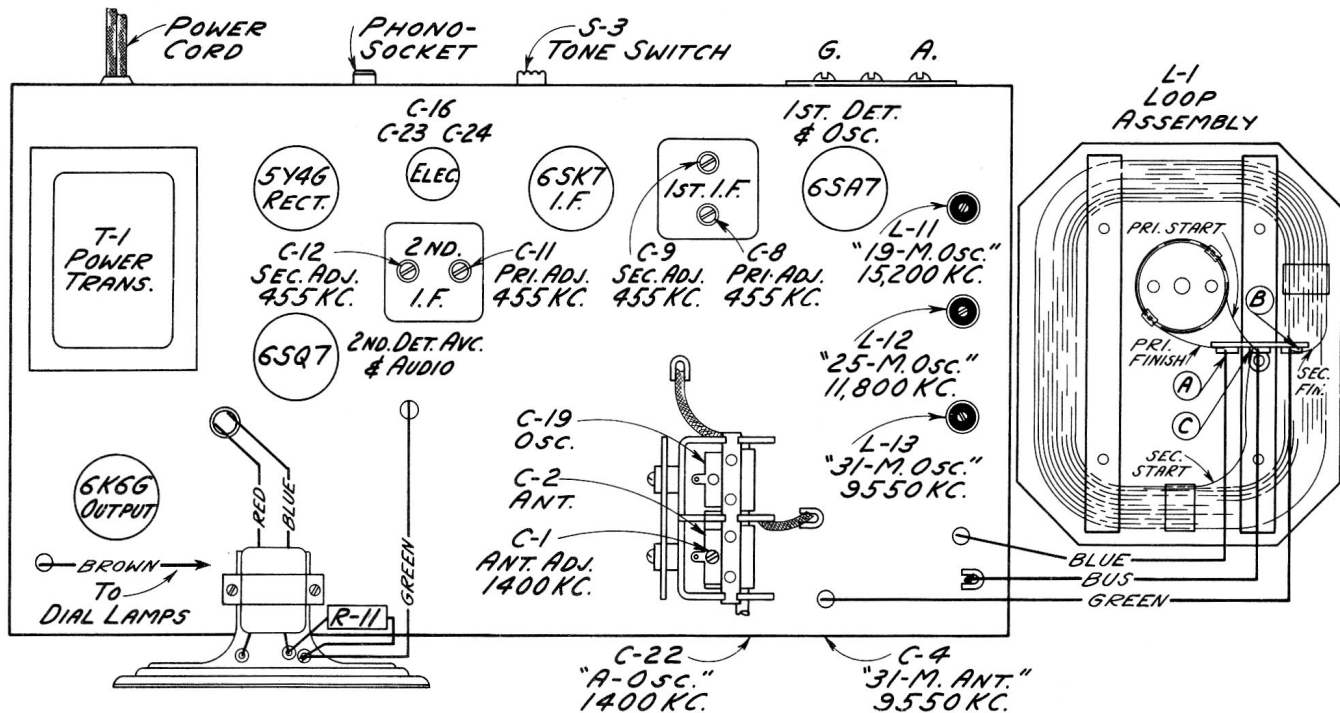
#### CAPACITY TYPE SHORT-WAVE ANTENNA:—

To obtain best results this antenna should be removed from the cabinet, the wire unwound, dropped to the floor and the form replaced in its receptacle.

#### RECORD PLAYER ATTACHMENT:—

A jack is provided on the rear of the chassis for connection of a Record Player attachment. The cable from the attachment should be terminated in a Stock No. 31048 plug to fit the jack.





Tube and Trimmer Locations

## Alignment Procedure

**Cathode-Ray Alignment** is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

**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 ground terminal, 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 rear of the drum which is mounted on the shaft of the gang condenser. The setting of the gang in degrees, 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 180° degree mark on the drum scale must be in a vertical position when the plates are fully meshed. The drum is held to the shaft by means of 2 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 gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

**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)

Order of Alignment	Test Oscillator			Range Selector	Receiver Dial Setting	Circuit to Adjust	Adjustment Symbols
	Connection to Receiver	Dummy Antenna	Frequency Setting				
1	Control grid 6SK7	.1 mfd.	455 kc	"A"	no signal 550-750 kc	2nd I.F. Trans.	C11 & C12
2	Control grid 6SA7	.1 mfd.	455 kc	"A"	no signal 550-750 kc	1st I.F. Trans.	C8 & C9
3	Ant. terminal	300 ohms	1400 kc	"A"	1400 kc 27°	"A" Osc.	C22
4	Radiated signal *	—	1400 kc	"A"	1400 kc 27°	"A" Ant.	C1
5	Ant. terminal	300 ohms	15,200 kc	19M	15,200 kc 93°	19M Osc.	L11
6	Ant. terminal	300 ohms	11,800 kc	25M	11,800 kc 82°	25M Osc.	L12
7	Ant. terminal	300 ohms	9,550 kc	31M	9,550 kc 104°	31M Osc.	L13
8	Ant. terminal	300 ohms	9,550 kc	31M	9,550 kc 104°	31M Ant.	C4

All adjustments indicated above except operation 4 are made with antenna link in the open position.

\* Radiation loop comprising two turns of wire 18 inches in diameter should be connected to test oscillator and placed approximately 4 feet from receiver before adjusting C1

\*\* Capacity antenna lead should be removed from ant. and ground terminal board before adjusting C4.

by zero-bearing 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 (CGE 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:**—All final spread band adjustments should be made with the chassis fastened in the cabinet and the pointer accurately aligned to the dial.

# Radiotron Socket Voltages

TYPE	PLATE	SCREEN GRID	CATHODE	HEATER
6SA7	165V	65V	—	6.8V
6SK7	165V	65V	—	6.8V
6SQ7	65V*	—	—	6.8V
6K6G	235V	160V	12V	6.8V
5Y4-G	A.C. VOLTAGE PER PLATE 280V			5.0V

\*NOTE: Values marked with an asterisk (\*) are operating voltages in circuits with high series resistance. The actual measured voltages will be lower, depending on the voltmeter loading. Above values hold within plus or minus 20% when measured with a 20,000 ohm-per-volt meter on a line voltage of 115 volts.

## REPLACEMENT PARTS — MODEL KL-500

STOCK NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
<b>RECEIVER ASSEMBLIES</b>			
34025	Board-Ant. & Grnd. Terminal Board..	30732	Resistor-47 ohm-1/2 watt (R6).....
S-3099	Capacitor-Adjustable Trimmer Bank, comprising one of 2-10 mmfd., one of 3-30 mmfd. (C4, C22).....	30499	Resistor-470 ohm-1/2 watt (R10, R11)...
12723	Capacitor-56 mmfd. (C6).....	30151	Resistor-18,000 ohm 1 watt (R4).....
S-3123	Capacitor-62 mmfd. (Temp. comp.) (C20)	13998	Resistor-22,000 ohm 1/4 watt (R13)....
12724	Capacitor-120 mmfd. (C5).....	12454	Resistor-33,000 ohm 1/4 watt (R2).....
13003	Capacitor-180 mmfd. (C13).....	12285	Resistor-470,000 ohm 1/4 watt (R8, R9)..
12694	Capacitor-220 mmfd. (C15).....	12679	Resistor-2.2 megohm 1/4 watt (R1, R3)...
S-2895	Capacitor-220 mmfd. (Close tol.) (C18).....	13601	Resistor-10 megohm 1/4 watt (R7).....
12952	Capacitor-330 mmfd. (C3).....	S-3107	Shaft-Station selector drive shaft....
12537	Capacitor-560 mmfd. (C21, C25).....	31364	Socket-Dial lamp socket.....
5107	Capacitor-.0025 mfd. (C14).....	31319	Socket-Tube socket.....
4937	Capacitor-.01 mfd. (C17, C26).....	14278	Socket-Phono input socket.....
32787	Capacitor-.05 mfd. (C7, C10).....	30585	Spring-Drive cord tension spring (Pkg. 2).....
S-3131	Capacitor-Electrolytic comprising two sections of 20 mfd. and one section of 10 mfd. (C16, C23, C24)..	S-3097	Switch-Range Switch (S1).....
S-3109	Coil-"C" Band Antenna (L2, L3, L4, L5)	33634	Switch-Tone switch (S3).....
S-3111	Coil-"A" Band Oscillator (L14)....	S-3115	Transformer-1st I.F. transformer (L6, L7, C8, C9).....
S-3114	Coil-19 M Band Oscillator (L11)..	S-3116	Transformer-2nd I.F. transformer (L8, L9, C11, C12).....
S-3112	Coil-25 M Band Oscillator (L12)..	S-3117	Transformer-Power 105-125 volt 50/60 cycle (T1).....
S-3113	Coil-31 M Band Oscillator (L13)..	S-3118	Transformer-Power 105-125 volt 25/60 cycle (T1).....
S-3094	Condenser-2 gang tuning condenser (C1, C2, C19).....	S-3095	Volume control and power switch (R5, S2).....
§S-3124	Condenser-2 gang tuning condenser (C1, C2, C19).....	<b>SPEAKER ASSEMBLIES</b>	
S-3126	Cord-Indicator pointer drive cord (approx. 48").....	32907	Cap-Dust cap for cone centre (Pkg. 5)..
31372	Drum-Drive cord drum assembly....	S-3121	Cone-Speaker cone and voice coil (L10).....
§S-3110	Drum-Drive cord drum assembly....	S-3120	Speaker complete.....
S-3098	Indicator-Station selector indicator pointer.....	S-3042	Transformer-Output (T2).....
11765	Lamp-Dial lamp Mazda #51.....	<b>MISCELLANEOUS ASSEMBLIES</b>	
S-3108	Loop-Antenna loop assembly (L1)...	S-3096	Dial-Station selector dial scale.....
S-3105	Loop-Short wave capacity antenna..	S-3104	Knob-Range switch knob.....
33726	Retainer-"C" washer for drive shaft (Pkg. 5).....	S-3103	Knob-Volume or tuning knob.....
S-3127	Resistor-4500 ohm wirewound (R12)..	14270	Spring-Knob retaining spring (Pkg. 2)..

§ Used on chassis stamped Sub.3.

THIS C.G.E. MODEL KL-500 IS THE SAME AS THE 1946 C.G.E. MODEL KM-500