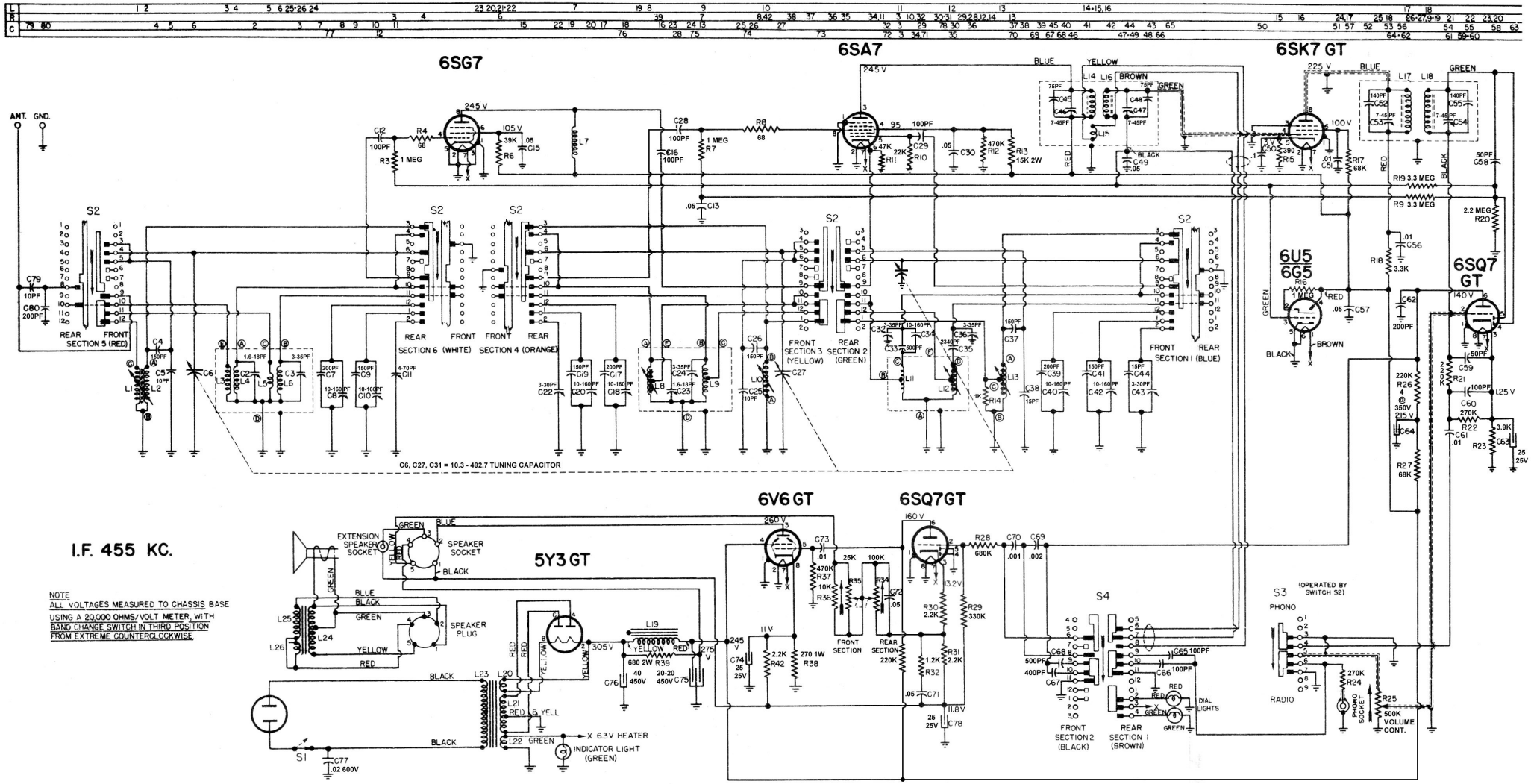
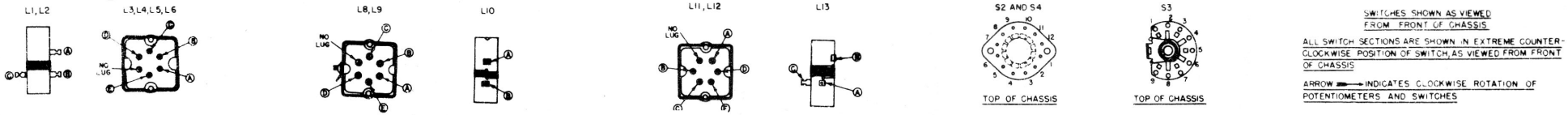


Philips CM-25, CM-25A, CM-60, CM-60A, CM-70, CM-70A ETC

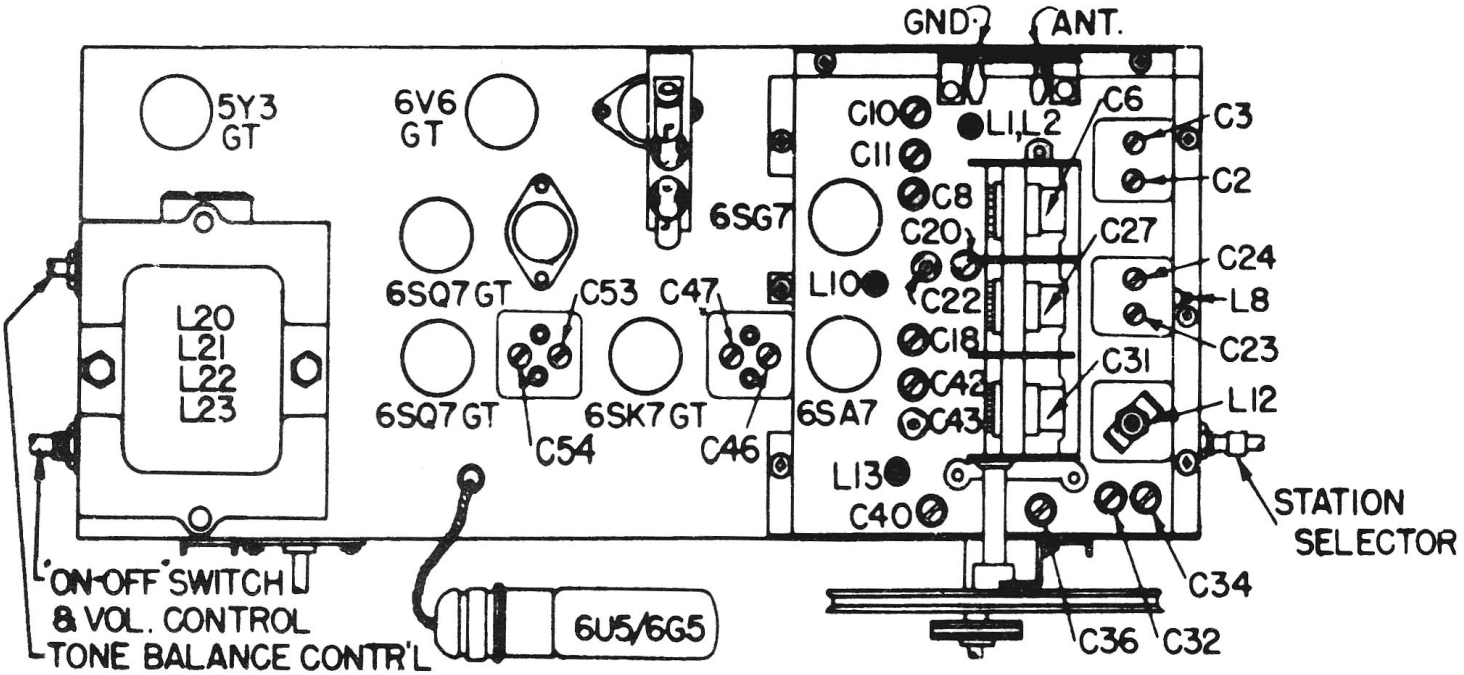


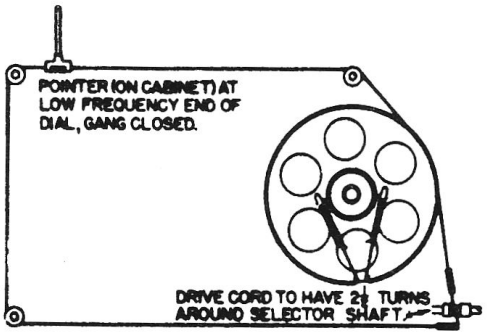
SWITCHES SHOWN AS VIEWED FROM FRONT OF CHASSIS

ALL SWITCH SECTIONS ARE SHOWN IN EXTREME COUNTER-CLOCKWISE POSITION OF SWITCH, AS VIEWED FROM FRONT OF CHASSIS

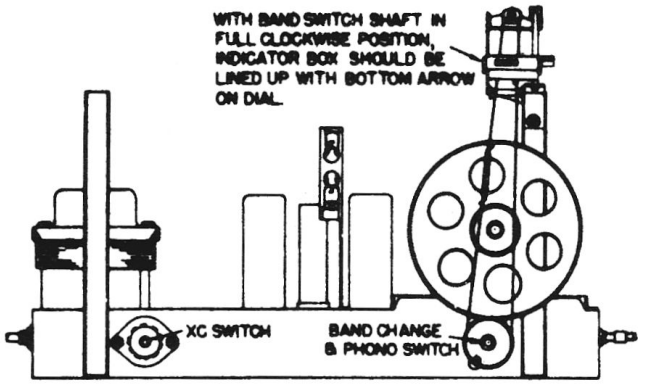
ARROW ⟶ INDICATES CLOCKWISE ROTATION OF POTENTIOMETERS AND SWITCHES

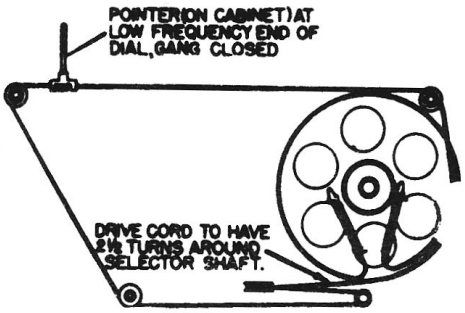
Layouts for Philips CM25, CM25A, CM60, CM60A, CM70, CM70A





CM25 CM60 LAYOUT & DIAL CORD

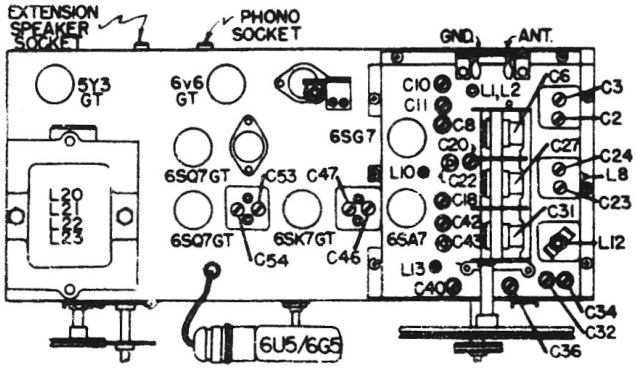


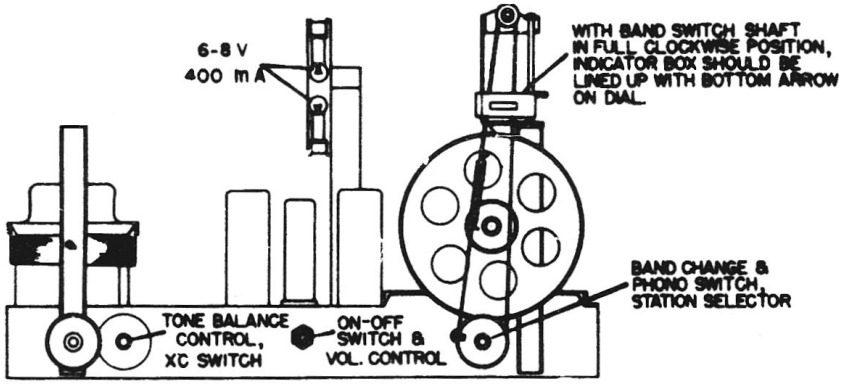


CM 70 LAYOUT & DIAL CORD

AC MODELS

CM-25A CM-60A
CM-70A CM-60A6
CM-70AF CM-70A6F

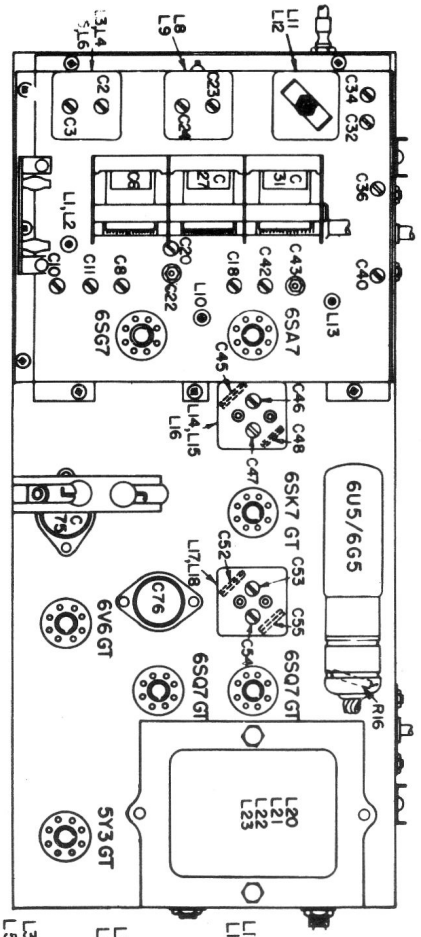


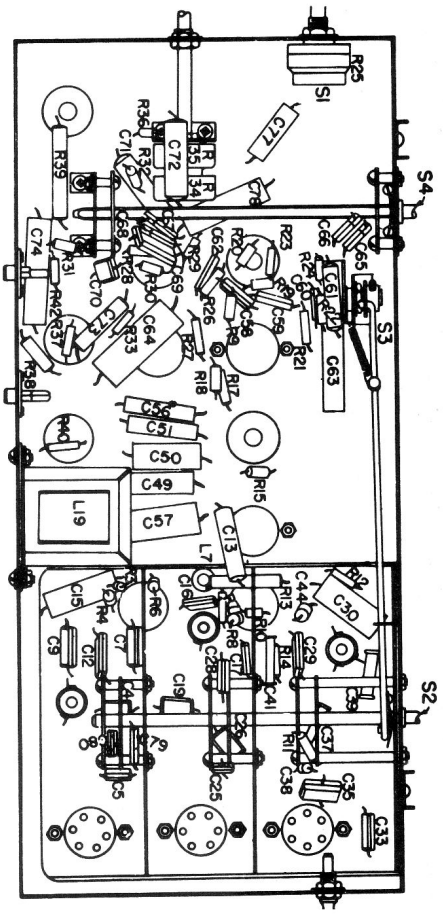


Philips CM25, CM25A, CM60, CM60A, CM70, CM70A

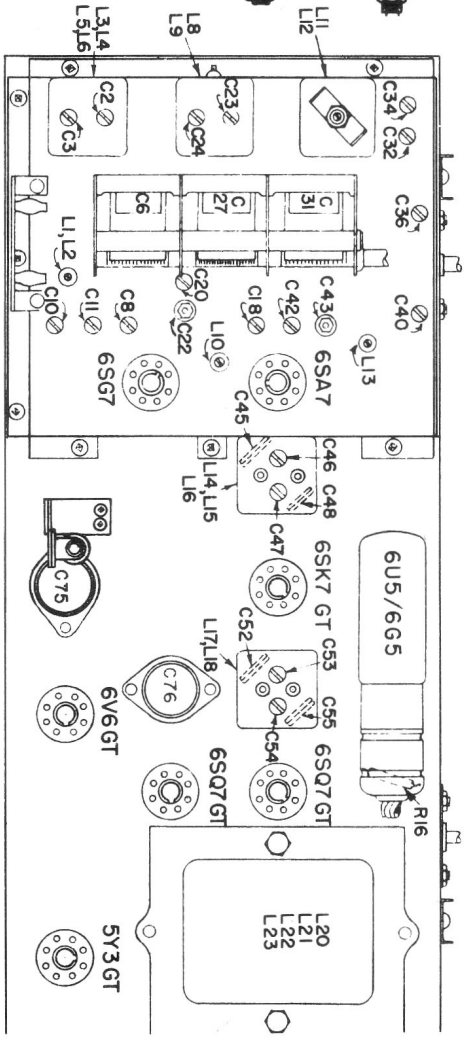
Location of Parts

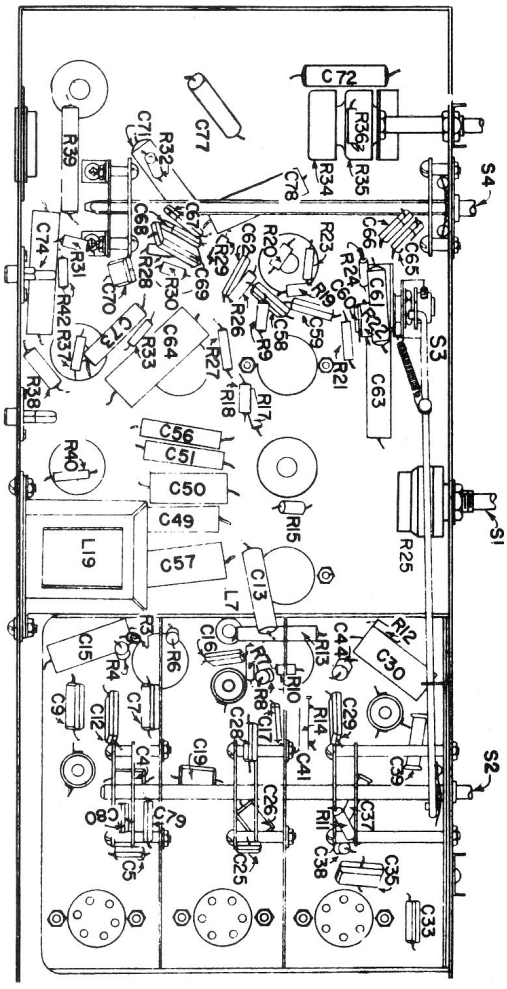
MODELS CM25 CM60





MODEL CM70





SERVICE DATA

WAVE RANGE SWITCH: The schematic diagram shows each section of this switch in a straight line form. The short stator contacts are represented as solid squares; the long contacts as solid rectangles and the rotor contacts as bars. All sections are shown in the counter clockwise (1st or phonograph) position. As the switch rotates clockwise, the rotor contacts move downwards through the remaining Range Switch Positions as listed above. The exact location of each stator contact on its wafer is shown on a front view drawing of a switch wafer on the schematic diagram.

TO REMOVE CHASSIS

1. Disconnect plug from line socket.
2. Remove antenna and ground connections.
3. Remove back cover and control knobs.
4. Disconnect the drive cord from the dial pointer.
5. Remove the tuning indicator from the bracket.
6. Disconnect the speaker cable plug from the chassis.
7. Remove the screw securing the top bracket to the inside of the cabinet.
8. Remove the chassis mounting screws through the bottom of cabinet.

TUBE SOCKET VOLTAGES

PIN	6SG7	6SA7	6SK7	6SQ7 Detector	6SQ7 2nd A.F.	6V6	5Y3	6U5
1	—	—	—	—	—	—	—	6.3 ac
2	—	—	—	—	—	—	305	21
3	—	245	—	1.25	13.2	260	—	*
4	*	95	*	—	—	245	300 ac	245
5	—	—	3	—	—	—	—	—
6	105	—	100	140	160	—	300 ac	—
7	6.3 ac	6.3 ac	6.3 ac	6.3 ac	6.3 ac	6.3 ac	—	—
8	245	*	225	—	—	11	305	—

Note: * Bias obtained from AVC system.
Values specified obtained by using a 20,000 ohm per volt voltmeter.
All voltages measured to chassis.
All voltages are D.C. positive except where noted.
All tubes must be in their sockets during test.
Readings may vary plus or minus 10% due to mains voltage fluctuations.

ALIGNMENT OF RECEIVER

All adjustments may be made with the receiver in the cabinet. Turn the volume control to the full clockwise position for maximum output and the tone control to the extreme counterclockwise position. Set the performance switch to the left position indicated by the red dial light. With the variable capacitor fully closed, adjust the dial pointer on the beginning of the dial scale to the left of the 550 kc calibration mark.

Equipment Required

OUTPUT INDICATOR: A high resistance A.C. voltmeter and an output transformer.

SIGNAL GENERATOR: A Generator capable of supplying modulated signals between 455 kc and 22 Mc.

Equipment Connections and Alignment Procedure

OUTPUT INDICATOR: Connect the A.C. voltmeter to the external loudspeaker connection located in the rear of the receiver. During the alignment, keep the output below 1.25 A.C. volts across this jack. If the meter used does not satisfactorily indicate 1.25 volts, connect the secondary of an output transformer to the external speaker connection and connect the A.C. voltmeter across the primary. When using the latter method, the maximum output reading should be kept below 30 A.C. volts. When the output indication increases, regulate the signal generator attenuator to restore the original indication.

SIGNAL GENERATOR: Connect the ground lead of the signal generator to the "ground" jack in the rear of the receiver and the output lead to the points indicated in the chart below, in series with the specified resistor or capacitor.

CIRCUIT ON SHEET 5.
LOCATION OF PARTS ON SHEET 7.

DRUM SCALE DIVISIONS

Band Switch Position	Frequency	Drum Scale Reading
2 & 3 Broadcast	570 kc	10.6
	1000 kc	58.4
	1600 kc	88.9
4 Short Wave	2.9 Mc	22.9
	5.0 Mc	65.1
	7.0 Mc	88.4
7 Bandspread	15.2 Mc	25.9
	21.5 Mc	90.9
6 Bandspread	11.6 Mc	73.7
5 Bandspread	9.6 Mc	46.8

Zero on drum scale corresponds to gang condenser fully closed.

The dial of this model is permanently fastened to the cabinet, therefore, the removal of the chassis necessitates other means of calibrating the receiver. Located on the tuning drum is an 0 to 100 scale. This scale is read from the edge of the bracket near its face and is to be used in aligning the receiver, when the chassis has been removed from the cabinet.

The conversion of dial scale readings to gang condenser drum scale readings for alignment frequencies is given to the left.

ALIGNMENT PROCEDURE

Operation Steps	SIGNAL GENERATOR: Output Connections to Receiver	Frequency	RECEIVER: Range Switch	Tuning Capacitor	See Notes	Adjust in stated order for Maximum Output
1	To 6SK7GT Control Grid (4) Through .05 mfd. Capacitor	455 kc	Pos. 3	Min.		2nd I.F. Trimmers C54, C53.
2	To Stator C27 Through .05 mfd. Capacitor	455 kc	Pos. 3	Min.	A	1st I.F. Trimmers C47, C46.
3	To Antenna Contact Through 200 mmfd. Capacitor	570 kc	Pos. 3	570 kc		Broadcast Padder C34 BC-RF Coil L8
4	To Antenna Contact Through 200 mmfd. Capacitor	1600 kc	Pos. 3	1600 kc	B	BC-Osc. Trimmer C32 BC-RF Trimmer C23 BC-Ant. Trimmer C2
5	To Antenna Contact Through 400 ohms Resistance	7.0 Mc	Pos. 4	7.0 Mc	C	SW-Osc. Trimmer C36 SW-RF Trimmer C24 SW-Ant. Trimmer C3
6	To Antenna Contact Through 400 ohms Resistance	2.9 Mc	Pos. 4	2.9 Mc	D	SW-Osc. Coil L12
7	To Antenna Contact Through 400 ohms Resistance	21.5 Mc	Pos. 7	21.5 Mc	C	BS-Osc. Trimmer C43
8	To Antenna Contact Through 400 ohms Resistance	15.2 Mc	Pos. 7	15.2 Mc	D	BS-Osc. Coil L13
9	To Antenna Contact Through 400 ohms Resistance	21.5 Mc	Pos. 7	21.5 Mc	E	BS-RF Trimmer C22 BS-Ant. Trimmer C11
10	To Antenna Contact Through 400 ohms Resistance	15.2 Mc	Pos. 7	15.2 Mc	F	BS-RF Coil L10 BS-Ant. Coil L2
11	To Antenna Contact Through 400 ohms Resistance	11.6 Mc	Pos. 6	11.6 Mc	C	BS-Osc. Trimmer C42 BS-RF Trimmer C20 BS-Ant. Trimmer C10
12	To Antenna Contact Through 400 ohms Resistance	9.6 Mc	Pos. 5	9.6 Mc	C	BS-Osc. Trimmer C40 BS-RF Trimmer C18 BS-Ant. Trimmer C8

ALIGNMENT NOTES

Note "A"—After step 2 has been completed, do not make any further adjustments to the 2nd I.F. Trimmers C54 and C53.
Note "B"—After operation 4 has been completed, return to 570 kc and repeat operation 3, then repeat operation 4.
Note "C"—Unscrew oscillator trimmer capacitor to minimum capacity (counter clockwise). Turn adjustment clockwise until first output peak is obtained. Make adjustments using this peak.
Note "D"—Check high frequency end of dial for accuracy, adjust oscillator trimmer slightly if necessary.
Note "E"—Rock tuning capacitor while adjusting antenna trimmer for maximum output.
Note "F"—Repeat operation 9.

IMAGE FREQUENCY

When the receiver is properly aligned, the maximum output corresponding to the image frequency should occur when the receiver is tuned to a frequency approximately 900 kc *lower* than the signal frequency. It may be necessary to increase the value of input signal when it is desired to make this test.