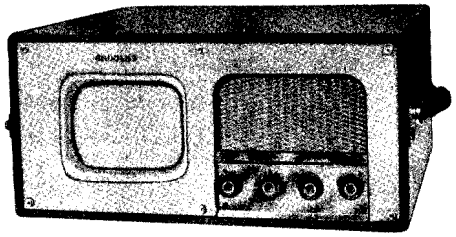
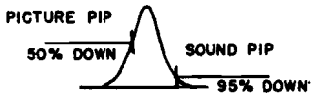
## DESCRIPTION

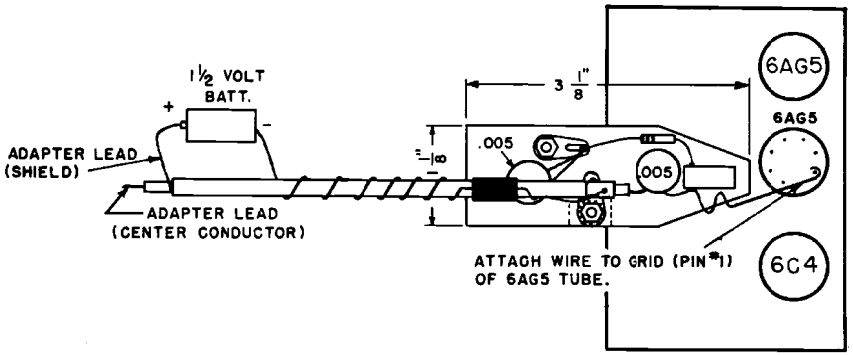
Type: Twenty-one tube, twelve channel.
Power Supply: 60 cycle a.c. only.
Voltage Rating: 110-120 volts.
Power Consumption: 175 w.
Max. Audio Output: 1.8 w.
Input Impedance: 300 ohm balanced.
Picture Size: 6-1/8 x 4-5/8 inches (25 sq. in.)
Speaker: 5-inch P.M. (Voice Coil Impedance - 3.2 ohms at 400 cycle).
Antenna: Portable Indoor Dipole.
I.F. Frequencies (Video):
Transformer T4-25.75 mc.
Transformer T2-25.75 mc.
Transformer T3-23.4 mc.
Transformer T1-23.4 mc.
I.F. Frequency (Sound:
Transformer T5- 4.5 mc.
Discriminator Frequency (Sound):
Transformer T6- 4.5 mc.






PICTURE OVERALL RESPONSE CURVE WITH PICTURE AND SOUND CARRIER MARKER PIPS.

FIG. 2




## TUBE COMPLEMENT

| Symbol | Type | Description |
|---|---|---|
| V1 | 6AG5 | R.F. Amplifier |
| V2 | 6AG5 | Modulator |
| V3 | 6C4 | Oscillator |
| V4 | 6AG5 | 1st I.F. Amplifier |
| V5 | 6AG5 | 2nd I.F. Amplifier |
| V6 | 6AG5 | 3rd I.F. Amplifier |
| V7 | 6AL5 | Video Detector |
| V8 | 6AU6 | Video Amplifier |
| V9 | 6AU6 | Sync. Separator |
| V10 | 6AU6 | I.F. Amplifier (Sound) |
| V11 | 6AL5 | Sound Detector |
| V12 | 6SQ7 | Audio Amplifier |
| V13 | 6AS5 | Audio Output |
| V14 | 6SN7GT | Horizontal Oscillator |
| V15 | 6SN7GT | Horizontal Amplifier |
| V16 | 6SN7GT | Vertical Oscillator |
| V17 | 6SL7GT | Vertical Amplifier |
| V18 | 6Y6G | H. V. Oscillator |
| V19 | 1B3GT | H. V. Rectifier |
| V20 | 6X5GT | Med. H. V. Rectifier |
| V21 | 7JP4 | Picture Tube (7") |

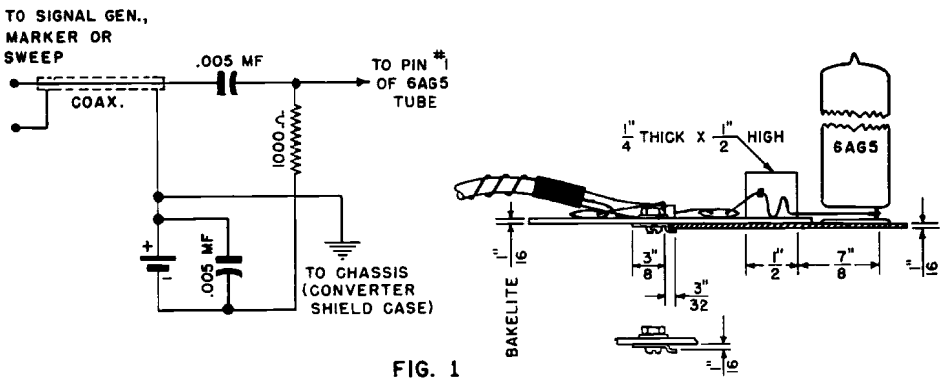
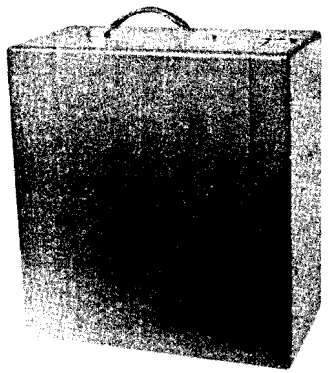



FIG. 1



## CAUTION

NEVER GRASP THE PICTURE TUBE BY ITS NECK OR ALLOW PRESSURE TO BE EXERTED ON THE NECK.
If for any reason the picture tube must be removed from the receiver, place it face down on a flat surface covered with a clean soft cloth in a location where it will not be disturbed. Do not remove or handle the picture tube in any manner unless heavy gloves and protective goggles are worn. Persons not so equipped should be kept away while handling picture tube. Keep the tube away from the body while handling.

| Channel Number | Channel Freq. (Mc) | Picture Carrier Freq. (Mc) | Sound Carrier Freq. (Mc) |
|---|---|---|---|
| 2 | 54-60 | 55.25 | 59.75 |
| 3 | 60-66 | 61.25 | 65.75 |
| 4 | 66-72 | 67.25 | 71.75 |
| 5 | 76-82 | 77.25 | 81.75 |
| 6 | 82-88 | 83.25 | 87.75 |
| 7 | 174-180 | 175.25 | 179.75 |
| 8 | 180-186 | 181.25 | 185.75 |
| 9 | 186-192 | 187.25 | 191.75 |
| 10 | 192-198 | 193.25 | 197.75 |
| 11 | 198-204 | 199.25 | 203.75 |
| 12 | 204-210 | 205.25 | 209.75 |
| 13 | 210-216 | 211.25 | 215.75 |

FIG. 3

## INSTALLATION

### ANTENNA

A portable antenna which in many locations will eliminate the need of a permanent television antenna is supplied for use with this receiver. Since the results obtained with an indoor antenna will be determined by the type of building and the distance from the television station, it is important that you understand the proper use and limitations of a portable indoor antenna.

Unless the television station signal reaches the area in which the indoor portable antenna is located, NO television receiver can reproduce the picture. Due to the high frequencies used by television stations, television signals reach only to the "line of sight". The actual area covered by the television station depends upon the height of the station and receiver antennas. In addition, steel constructed buildings, mountains, etc., reflect television signals so that in some locations the portable antenna will not function satisfactorily indoors even though the television station is only a short distance away.

The two arms of the antenna should be placed in a horizontal position. In general, the best results will be obtained when the antenna is broadside to the television station; however, always slowly rotate the antenna and adjust the length of the arms to the position of the best picture. The lower the channel number of the station tuned in, the greater the length of the two antenna arms will have to be. In changing from one television station to another, it may be necessary to readjust the antenna, as to length and position.

Placing the antenna near a window is ordinarily best, although sometimes better results will be obtained when it is in the center of the room, along one wall or mounted on the wall near the ceiling.

In locations where it is impossible to obtain satisfactory results with the indoor portable antenna, (because the signal is blocked or reflected by buildings, mountains, etc., or when located too far from the television stations) it will be necessary to use an outdoor television antenna.

Crosley "Teleflex," an out-door dipole antenna, is designed especially for use with Frequency Modulation receivers and Television receivers. It will provide the ultimate in high frequency reception. Crosley "Teleflex" antenna kits are sold by Crosley distributors everywhere.

The wires of the antenna lead-in must be connected to the two posts marked "A" mounted on the cabinet back. When the installation is close to sources of man-made interference, a reduction in this interference may be made by attaching a ground to the post marked "G" on the chassis.

TUBES—All the tubes, including the picture tube, are properly mounted in their sockets when the receiver is shipped. There is a possibility, however, that (except for the picture tube) they have worked loose during shipment. The tubes are accessible through the back of the cabinet; press them (except the picture tube) firmly into the sockets.

### ADJUSTMENTS

Each receiver is correctly aligned at the factory. However, due to possible rough handling in transit, slight readjustments may be necessary at the time of installation.

Be sure to operate the receiver for one-half hour or longer before making adjustments. The oscillator trimmers and the discriminator adjustment should be adjusted with a transmitted television station test pattern.

TO ADJUST OSCILLATOR TRIMMERS AND DISCRIMINATOR ADJUSTMENT:

(A) Pull off the four front panel control knobs and remove the escutcheon by unscrewing the 4 screws holding this to the front panel of the cabinet. This will expose the Oscillator Trimmer adjustment screws located around the Channel Selector Switch shaft.

Starting with the first adjustment screw at the upper left side of the shaft and reading counter-clockwise the first slotted round head screw is the Channel 2 Oscillator Trimmer adjustment screw. The second screw is the Channel 3 Oscillator Trimmer adjustment screw, the third is Channel 4, etc.

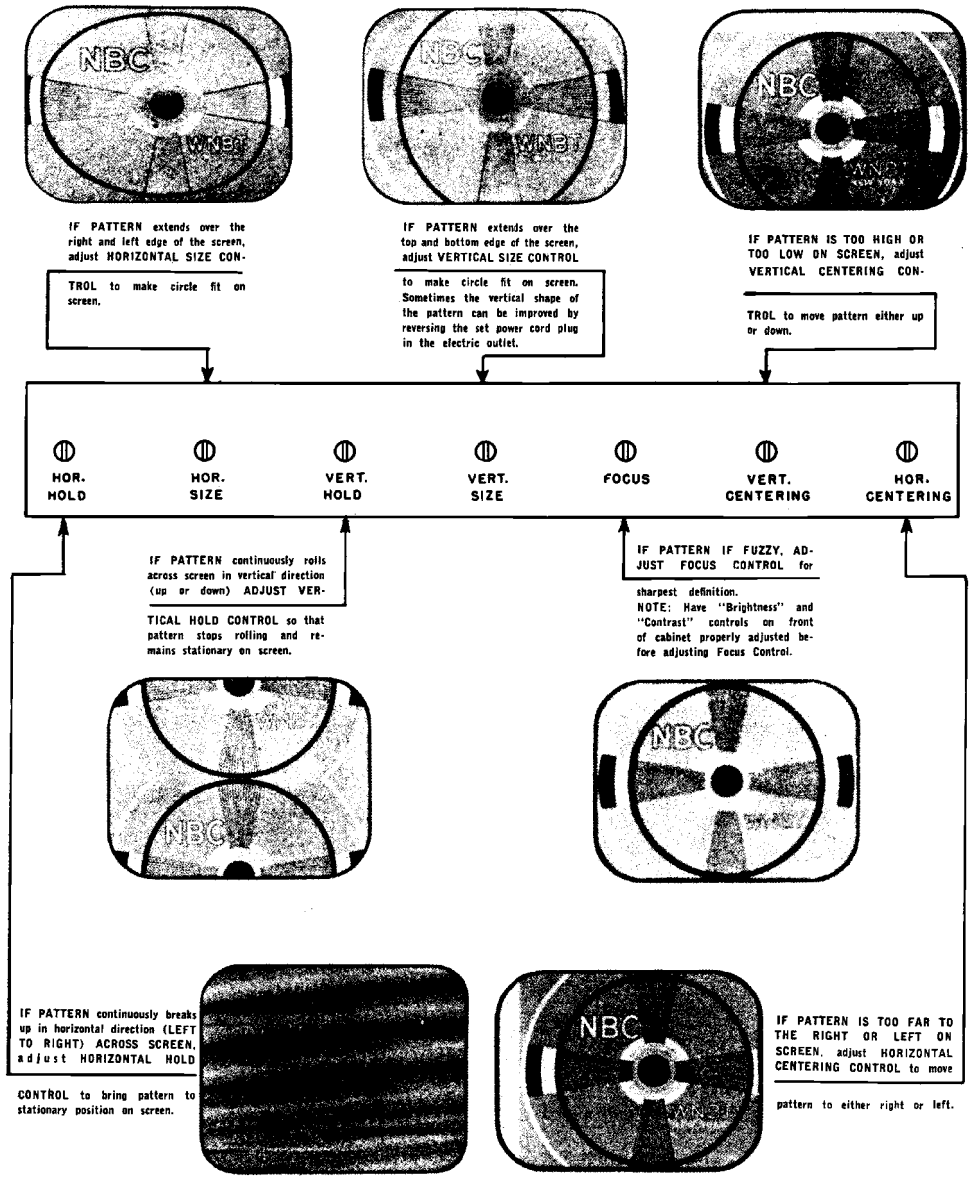
The extra adjustment screw located immediately above the Channel 13 adjustment screw is to be used only in case there is not enough range to any oscillator adjustment screw in the Channel 7 to 13 range. If this screw is touched then all channels from 7 to 13 will have to be rechecked.

(B) Turn receiver Channel Selector Switch to channel on which TV station is transmitting its modulated test pattern and adjust "Contrast" and "Brightness" control for best definition of pattern. IMPORTANT—There are 14 positions on the Channel Selector Switch. The MAXIMUM RIGHT and LEFT positions are NOT USED.

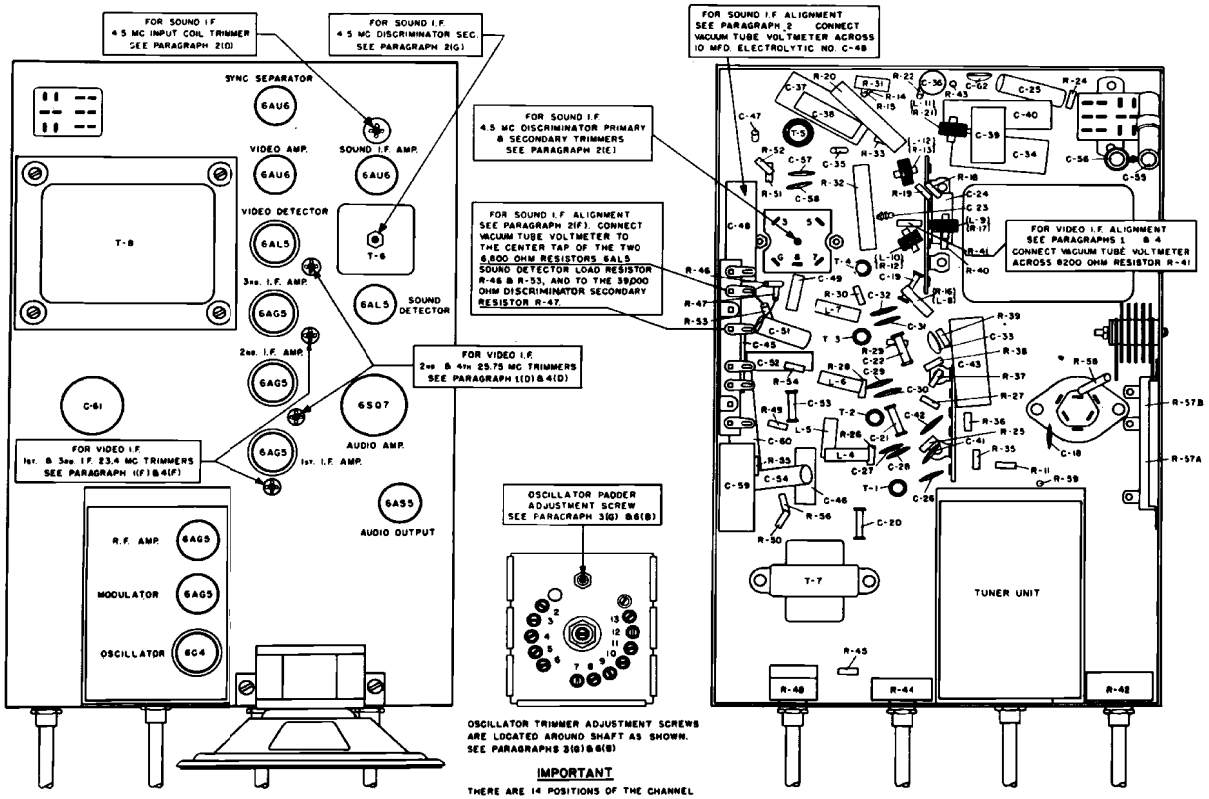
(C) Turn proper Oscillator Trimmer adjustment Screw clockwise until sound appears on pattern—indicated by bars across pattern and/or the lower vertical lines in pattern becoming wavy—then turn SAME Oscillator Trimmer adjustment screw counter-clockwise just to the point where the sound bars and/or wavy lines in pattern disappear.

IF STATION BUZZ is excessive and is NOT DUE to "Contrast" control being too far advanced in clockwise direction, adjust Discriminator Secondary adjustment screw for MINIMUM buzz. MAKE SURE THAT THIS POSITION IS BETWEEN the two MAXIMUM buzz peaks that will be noticed when adjusting screw is turned to the right and left of the MINIMUM buzz position. This screw is located on top of the Discriminator Coil Shield Can which is mounted on Tuner Chassis between 6AL5 Sound Detector tube and 6AU6 Sound I.F. Amplifier tube.

## REAR PANEL CONTROL ADJUSTMENTS



# TUNER CHASSIS




**IMPORTANT**

THERE ARE 14 POSITIONS OF THE CHANNEL SELECTOR SWITCH. THE MAXIMUM RIGHT AND LEFT POSITIONS ARE NOT USED.

## ALIGNMENT INFORMATION

TWO Alignment methods are shown — Procedures listed in Paragraphs (1), (2) and (3) of Method I require the use of a Marker Generator, Sweep Generator and Oscilloscope; procedures shown in Paragraphs (4), (5) and (6) of Method II require equipment more generally available to the service men.

DO NOT re-align receiver unless it has been definitely determined that this is necessary. When re-aligning, provide a good metal to metal bond between television receiver and test equipment. Keep output of Signal Generator as low as possible to avoid circuit overload. The test equipment calibration MUST have the accuracy specified. If accuracy of Signal Generator is in doubt, be sure to check calibration.

HIGH VOLTAGE WARNING

Operation of this receiver with the interlock by-passed, or the chassis removed from the cabinet involves a shock hazard from the receiver power supplies. Work on the receiver should not be attempted by anyone not thoroughly familiar with the precautions necessary when working on high voltage equipment. When handling the high voltage lead to the picture tube the receiver power plug should be disconnected from the power receptacle.

ALIGNMENT METHOD I

Alignment instructions in Paragraphs (1) to (3) inclusive cover procedure for alignment with the following equipment:

D.C. VACUUM TUBE VOLTMETER OF THE VOLTOHMIST TYPE.

MARKER GENERATOR having a coverage from 25.75 Mc. to 23.4 Mc. and 50 Mc. to 216 Mc.

SWEEP GENERATOR capable of covering from 20 Mc. to 30 Mc. and 50 Mc. to 216 Mc. with a 10 Mc. sweep.

OSCILLOSCOPE.

ACCURATELY CALIBRATED AM SIGNAL GENERATOR that will supply a 4.5 Mc. modulated signal within 1/4 of 1% of this frequency.

6AG5 MODULATOR TUBE ADAPTER with a 1½ volt battery. This adapter may be made by following construction details in Fig. #1.

(1) PROCEDURE FOR VIDEO I.F. ALIGNMENT:

(A) Connect the Vacuum Tube Voltmeter across the 6AL5 video second detector 8200 ohm load resister. This resistor is in the Tuner Chassis and is attached to the center terminal of the 5-terminal tie-lug strip mounted on underside of chassis alongside of power transformer.

(B) Attach the flexible wire of the 6AG5 Adapter to the Grid (Pin #1) of the 6AG5 Modulator tube. Then press adapter down so that ground contact on bottom of adapter clamps to chassis—this will hold adapter in place and provide ground connection.

(C) Connect the Marker Generator leads to the two 6AG5 adapter leads. This adapter will then feed the output of the Marker Generator between the grid (Pin #1) of the 6AG5 Modulator tube and ground, and will apply a 1½ volt negative bias on grid of the 6AG5 Modulator tube.

(D) Set Marker Generator to deliver a 25.75 Mc. signal. KEEP OUTPUT OF GENERATOR SO THAT A READING OF APPROXIMATELY 3 VOLTS IS OBTAINED ON V.T.V.M.

(E) Adjust the fourth (4th) and second (2nd) Video I.F. adjustment screws (in that order) for maximum reading on the V.T.V.M.

The Video I.F. adjustment screws are mounted on top of the Tuner Chassis, adjacent to the three (3) 6AF5 and one (1) 6AG5 and one (1) 6AL5 tubes. Looking at the front of the Tuner chassis, the first trimmer is the one to use for adjusting the first (1st) Video I.F., the second one for the second (2nd) Video I.F., the third one for the third (3rd) Video I.F. and the fourth one for the fourth (4th) Video I.F.

(F) Set Marker Generator to deliver a 23.4 Mc. signal. KEEP OUTPUT OF GENERATOR SO THAT A READING OF APPROXIMATELY 3 VOLTS IS OBTAINED ON V.T.V.M.

(G) Adjust the third (3rd) and first (1st) Video I.F. adjustment screws (in that order) for maximum reading on the V.T.V.M.

After these adjustments have been completed, remove the 6AG5 Modulator tube adapter.

(2) PROCEDURE FOR SOUND I.F. ALIGNMENT

(A) Connect the V.T.V.M. across the 10 Mfd. electrolytic capacitor. This capacitor is connected between Pin #7 of the 6AL5 Sound Detector (Discriminator) tube sound and ground.

(B) Connect the output leads of an AM Signal Generator to Pin #5 (Plate) of the 6AU6 Video Amplifier tube socket, through a .01 Mfd. capacitor, and to chassis.

(C) Set AM Signal Generator to deliver a modulated 4.5 Mc. signal.

IMPORTANT: This must be within 1/4 of 1% of 4.5 Mc.

(D) Adjust the 4.5 Mc. input coil trimmer adjustment screw (this is mounted on top of Tuner Chassis adjacent to the 6AU6 Sound I.F. tube) for maximum reading on the V.T.V.M.

(E) Next adjust the 4.5 Mc. discriminator primary adjustment screw (this is located below the Discriminator Coil shield can and is accessible from bottom side of Tuner Chassis) for maximum V.T.V.M. reading.

(F) Remove the V.T.V.M. leads from the 10 Mfd. electrolytic capacitor and connect these leads between the terminal connected end of the 39,000 ohm discriminator secondary resistor and the center tap of the two 6800 ohm resistors in the output of the 6AL5 Sound Detector tube. Looking at the bottom from the rear of the Tuner Chassis, the 39,000 ohm resistor is connected to the third (3rd) terminal of the 6-terminal tie-lug strip that is attached to the right chassis flange below the 6AL5 Sound Detector tube socket. The center tap of the two 6800 ohm resistors in the output of the 6AL5 Sound Detector tube is connected to the second (2nd) terminal of the same tie-lug strip.

(G) Adjust the discriminator Secondary adjustment screw for zero V.T.V.M. reading. Make sure that this zero reading is between the two peaks that will be noticed when adjustment screw is turned to the right and left of the zero point. This screw is on top of the Discriminator Coil shield can—the shield can is mounted on top of the Tuner Chassis between the 6AL5 Sound Detector tube and 6AU6 Sound I.F. Amplifier tube.

(3) PROCEDURE FOR OSCILLATOR ALIGNMENT:

(A) Remove the V.T.V.M. leads from the 39,000 ohm resistor and center tap of the two resistors in the output of the 6AL5 Sound Detector tube.

(B) Connect the Sweep Generator leads to the 300 ohm receiver antenna terminals.

(C) Loosely couple the Marker Generator leads to the Sweep Generator leads—always keep coupling as loose as possible.

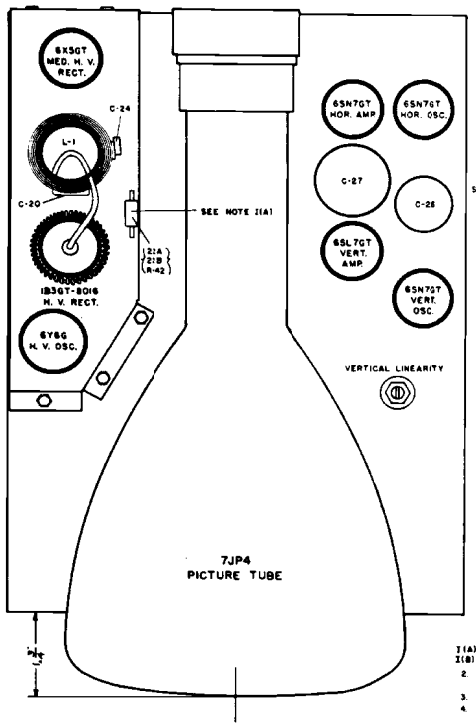
(D) Connect the Oscilloscope across the Video second detector 8200 ohm load resistor. This resistor is in the Tuner Chassis and is attached to the center terminal of the 5-terminal tie-lug strip mounted on underside of chassis alongside of power transformer.

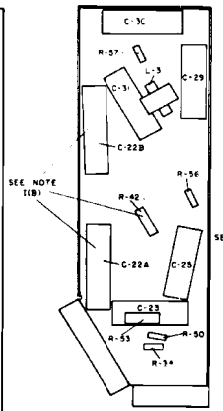
(E) Set receiver Channel Switch and Sweep Generator Switch for channel to be aligned.

(F) Set Marker Generator to deliver the proper marker pip for the channel to be aligned. See Fig. #3 for proper marker frequency to be used for each of the 12 television channels.

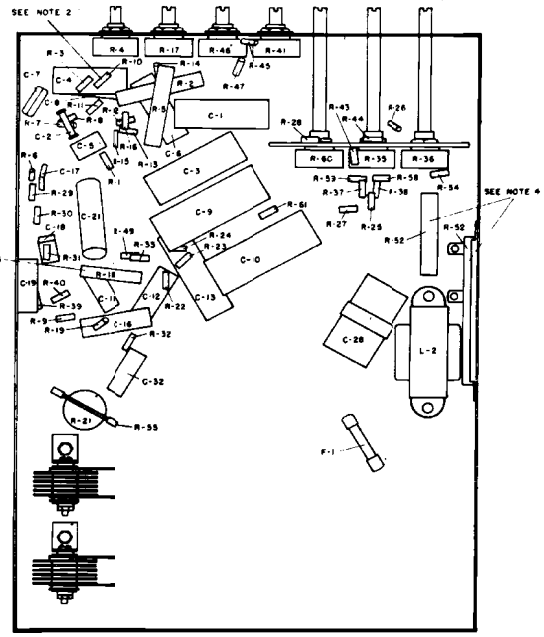
(G) Adjust the proper Oscillator Trimmer screw so that the picture marker pip is 50% down from the top peak of the Sweep Generator curve and the sound marker pip is approximately 95% down on the opposite side of the curve. See Fig. #2 for correct positions of pips. The Oscillator Trimmer adjustment screws are located around the Channel Selector Switch shaft, and are accessible through holes in the front of the tuner chassis. Looking at the

## PICTURE TUBE CHASSIS




BOTTOM VIEW OF HIGH VOLTAGE CHASSIS




NOTES

1(A) } USED IN SOME PICTURE TUBE CHASSIS. OTHER
1(B) } PICTURE TUBE CHASSIS HAVE SEPERATE .001 MFD 6000 V. CAPACITOR C-22A & C-22B ALSO A SEPARATE 100,000 OHM RESISTOR R-42.

2. SOME CHASSIS USED A 1 MEG OHM 1/2 W RESISTOR, SOME HAVE (3) 330,000 OHM RESISTORS IN SERIES. AND SOME HAVE A 1 MEG OHM 2 W. RESISTOR. WHEN REPLACING ALWAYS USE 1 MEG OHM 2 W. RESISTOR.
3. SOME CHASSIS USED A 47,000 OHM 1 W. RESISTOR, OTHERS HAVE (2) 100,000 OHM 1/2 W RESISTORS IN PARALLEL
4. SOME MODELS USE A CANDOHM RESISTOR, OTHERS USE WIRE WOUND RESISTOR.

front of the tunerchassis and reading counter-clockwise, the first slotted round head screw located in the second adjustment hole is the Channel 2 oscillator trimmer adjustment screw. The second screw is the Channel 3 Oscillator Trimmer adjustment screw, the third is Channel 4, etc. The individual oscillator trimmer adjustments are independent of each other and can be aligned in any order.

The extra oscillator adjustment screw located above the Channel 13 Oscillator Trimmer adjustment screw is to be used only in case there is not enough range to any oscillator trimmer adjustment screw in the Channels 7 to 13 range. If this screw is touched then all channels from 7 to 13 will have to be rechecked. If insufficient range is still encountered then follow the procedure as outlined below regarding alignment of Channels 2 through 6.

If any in the 2 through 6 range, or the 7 through 13 range cannot be aligned properly because of insufficient range of its oscillator trimmer adjustment screw, it can be brought in by means of the Padder Trimmer Screw located above the Channel Selector Switch shaft. It is very important to remember that adjusting this padder will necessitate the realignment of ALL of the oscillator trimmers.

THE ABOVE PROCEDURES COVER ALL ADJUSTMENTS. THE ANTENNA AND R.F. STAGES ARE FACTORY PRE-SET AND, BECAUSE THEY ARE SUFFICIENTLY BROAD, WILL NOT REQUIRE ADJUSTMENT.

### ALIGNMENT METHOD II

This receiver can be aligned WITHOUT the use of a Marker Generator, Sweep Generator and Oscilloscope. However, to do this correctly, the AM Signal Generator MUST be accurate within 1/4 of 1% at 4.5 Mc., and within 1% at 25.75 Mc. and 23.4 Mc.

Required equipment:

Vacuum Tube Voltmeter of the Voltohmist type.

AM Signal Generator that will supply at 4.5 Mc. signal within 1/4 of 1% of this frequency and 23.4 Mc. and 25.75 Mc. signals within 1% of these frequencies.

6AG5 Modulator Tube Adapter with a 1½ volt battery. This adapter may be made by following construction details in Fig. #1.

FOR THE OSCILLATOR ADJUSTMENT, IT IS NECESSARY TO USE A PATTERN TRANSMITTED BY THE TELEVISION STATION OPERATING ON THE CHANNEL REQUIRING ALIGNMENT.

(4) PROCEDURE FOR VIDEO I.F. ALIGNMENT:

(A) Connect the V.T.V.M. across the Video Second Detector 8200 ohm load resistor. This resistor is in the Tuner Chassis and is attached to the center terminal of the 5-terminal tie-lug strip mounted on underside of chassis alongside of power transformer.

(B) Attach the flexible wire of the 6AG5 Adapter to the grid (pin #1) of the 6AG5 Modulator tube. Then press adapter down so that ground contact on bottom of adapter clamps to chassis—this will hold adapter in place and provide ground connection.

(C) Connect the AM Signal Generator leads to the two 6AG5 Adapter leads. This adapter will then feed the output of the Signal Generator between the grid (Pin #1) of the 6AG5 Modulator tube and ground, and will apply a 1½ volt negative bias on grid of the 6AG5 tube.

(D) Set AM Signal Generator to deliver a 25.75 Mc. signal, IMPORTANT—this must be within 1% of 25.75 Mc. KEEP OUTPUT OF GENERATOR SO THAT A READING OF APPROXIMATELY 3 VOLTS IS OBTAINED ON V.T.V.M.

(E) Adjust the fourth (4th) and second (2nd) Video I.F. adjustment screws (in that order) for maximum reading on the V.T.V.M.

The Video I.F. adjustment screws are mounted on top of the Tuner Chassis, adjacent to the three (3) 6AG5 and one (1) 6AL5 tubes. Looking at the front of the Tuner Chassis, the first trimmer is the one to use for adjusting the first (1st) Video I.F., the second one for the second (2nd) Video I.F., the third one for the third (3rd) Video I.F., and the fourth one for the fourth (4th Video I.F.

(F) Set AM Signal Generator to deliver a 23.4 Mc. signal. IMPORTANT—this must be within 1% of 23.4 Mc. KEEP OUTPUT OF GENERATOR SO THAT A READING OF APPROXIMATELY 3 VOLTS IS OBTAINED ON V.T.V.M.

(G) Adjust the third (3rd) and first (1st) Video I.F. adjustment screws (in that order) for maximum reading on the V.T.V.M.

(H) Check Video bandwidth by setting the AM Signal Generator first to 25.75 Mc. and then to 23.4 Mc. and noting the reading on the V.T.V.M. obtained with each of these signals. Voltage reading should be approximately the same for both. If the band width is not correct, as indicated by substantially different V.T.V.M. readings, a slight adjustment of the first (1st) Video I.F. adjustment screw probably will be sufficient to improve the band width.

NOTE: Slight differences in V.T.V.M. readings may be due to difference in AM Signal Generator output at 25.75 Mc. and 23.4 Mc. Always adjust AM Signal Generator output to same level for each frequency.

After these adjustments have been completed, remove the 6AG5 Modulator tube adapter.

(5) PROCEDURE FOR SOUND I.F. ALIGNMENT:

Follow same procedure given in visual alignment Paragraph (2) "Procedure for Sound I.F. Alignment."

(6) PROCEDURE FOR OSCILLATOR ALIGNMENT:

For Oscillator Alignment, the television station operating on the channel to be aligned must be transmitting its test pattern and modulating its sound carrier.

(A) Turn receiver Channel Selector Switch to the channel requiring aligament.

(B) Turn proper Oscillator Trimmer adjustment screw clockwise until sound appears on pattern—indicated by bars across pattern and/or the lower vertical lines in pattern become wavy—then turn SAME Oscillator Trimmer Adjustment screw counter-clockwise just to the point where the sound bars and/or wavy lines in pattern disappear.

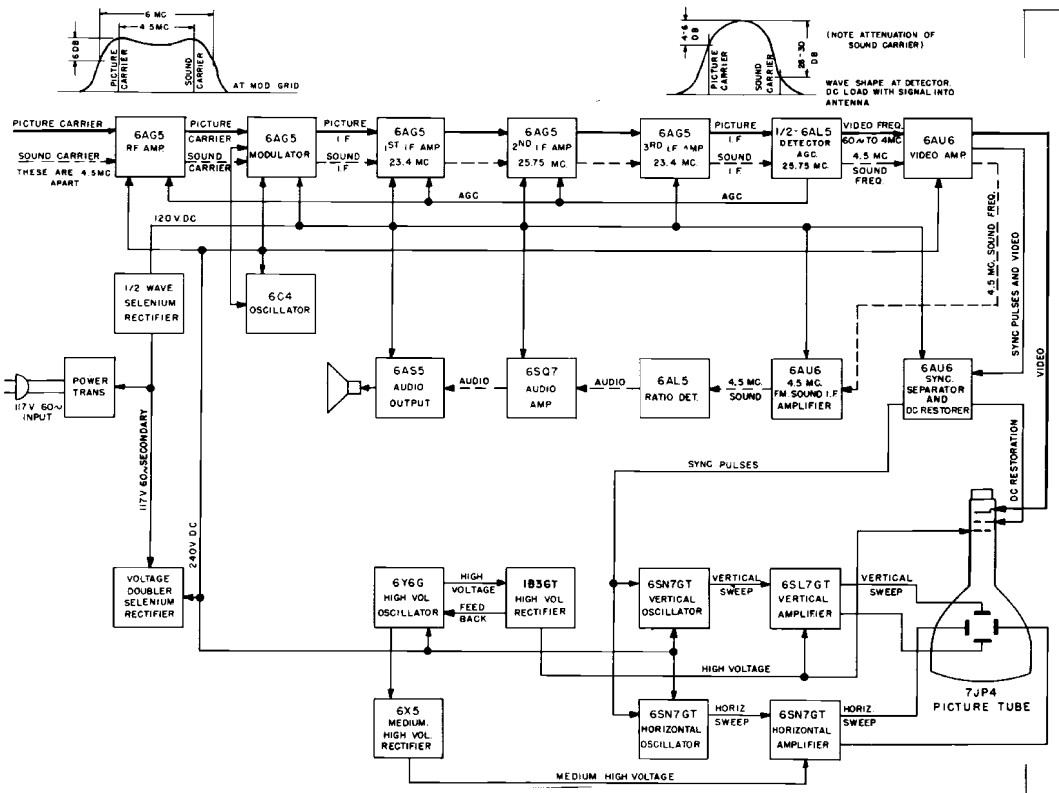
The Oscillator Trimmer adjustment screws are located around the Channel Selector Switch shaft, and are accessible through holes in the front of the tuner chassis. Looking at the front of the tuner chassis and reading counter-clockwise, the first slotted round head screw located in the second adjustment hole is the Channel 2 Oscillator Trimmer adjustment screw. The second screw is the Channel 3 Oscillator Trimmer adjustment screw, the third is Channel 4, etc. The individual oscillator trimmer adjustments are independent of each other and can be aligned in any order.

The extra oscillator adjustment screw located above the Channel 13 Oscillator Trimmer adjustment screw is to be used only in case there is not enough range to any oscillator trimmer adjustment screw in the Channels 7 to 13 range. If this screw is touched then all channels from 7 to 13 will have to be rechecked. If insufficient range is still encountered then follow the procedure as outlined below regarding alignment of Channels 2 through 6.

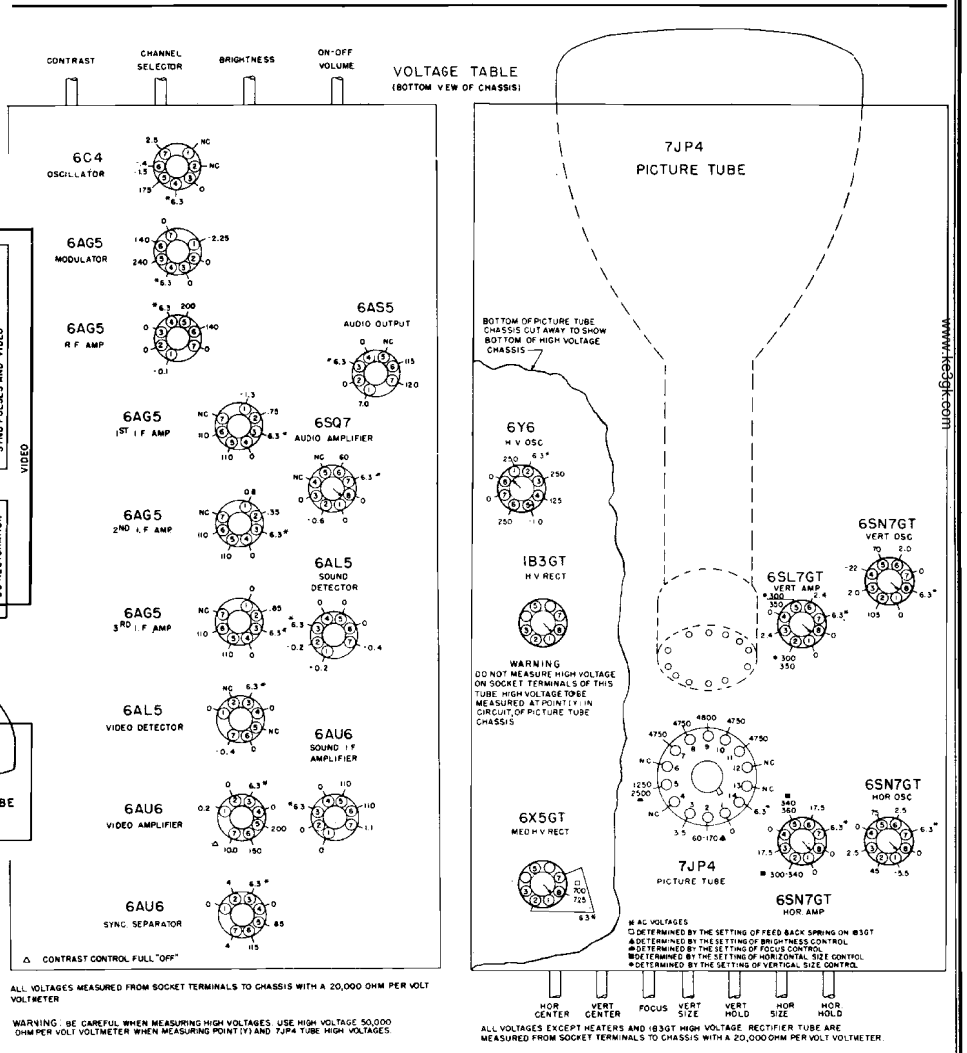
If any in the 2 through 6 range, or the 7 through 13 range cannot be aligned properly because of insufficient range of its oscillator trimmer adjustment screw, it can be brought in by means of the Padder Trimmer screw located above the Channel Selector Switch shaft. It is very important to remember that adjusting this padder will necessitate the realignment of ALL of the oscillator trimmers.

THE ABOVE PROVEDURES COVER ALL ADJUSTMENTS. THE ANTENNA AND R.F. STAGES ARE FACTORY PRE-SET AND BECAUSE THEY ARE SUFFICIENTLY BROAD WILL NOT REQUIRE ADJUSTMENT.

## BLOCK DIAGRAM



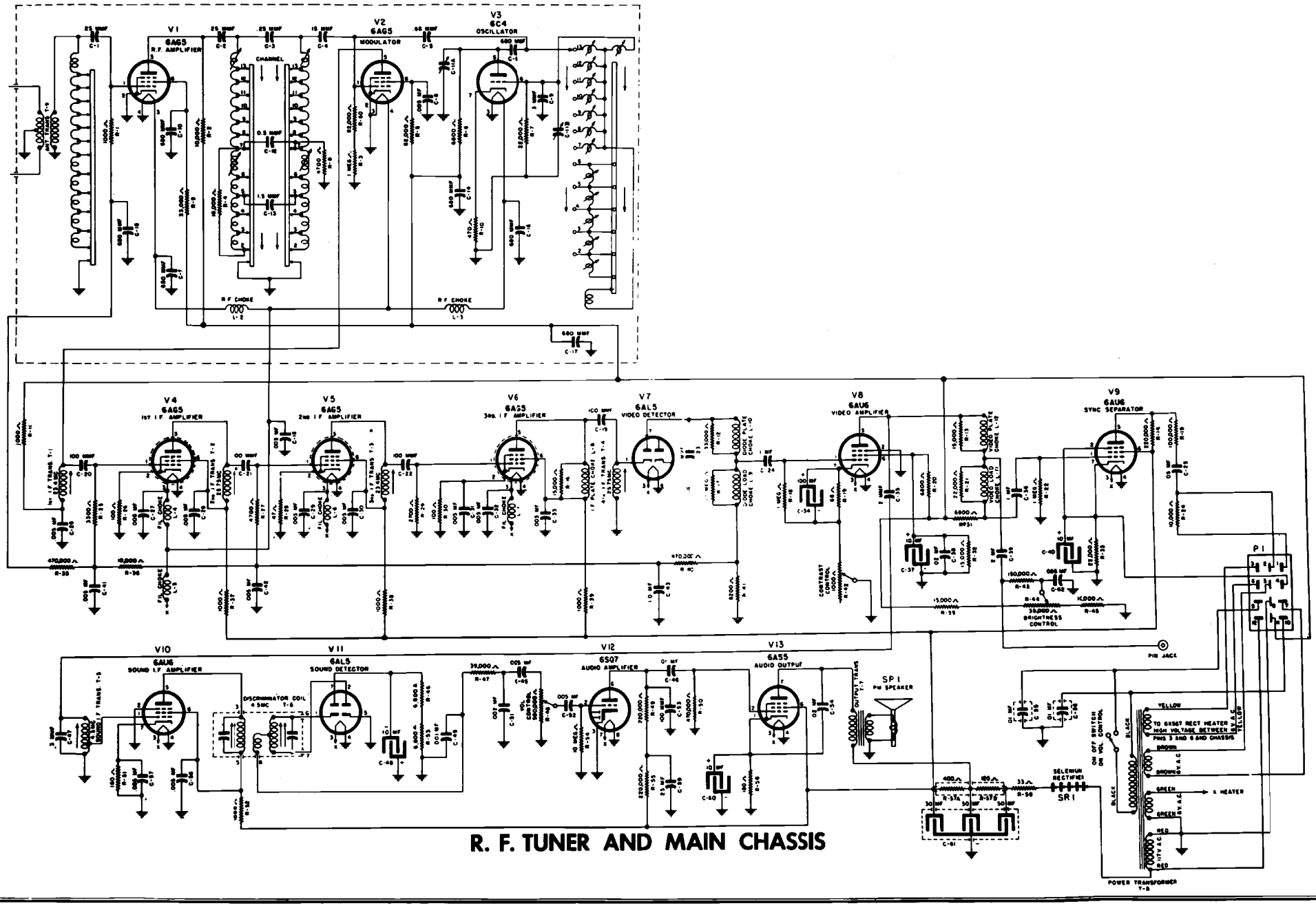

## SOCKET VOLTAGE CHART
### (BOTTOM VIEW OF CHASSIS)




ALL VOLTAGES MEASURED FROM SOCKET TERMINALS TO CHASSIS WITH A 20,000 OHM PER VOLT VOLTMETER

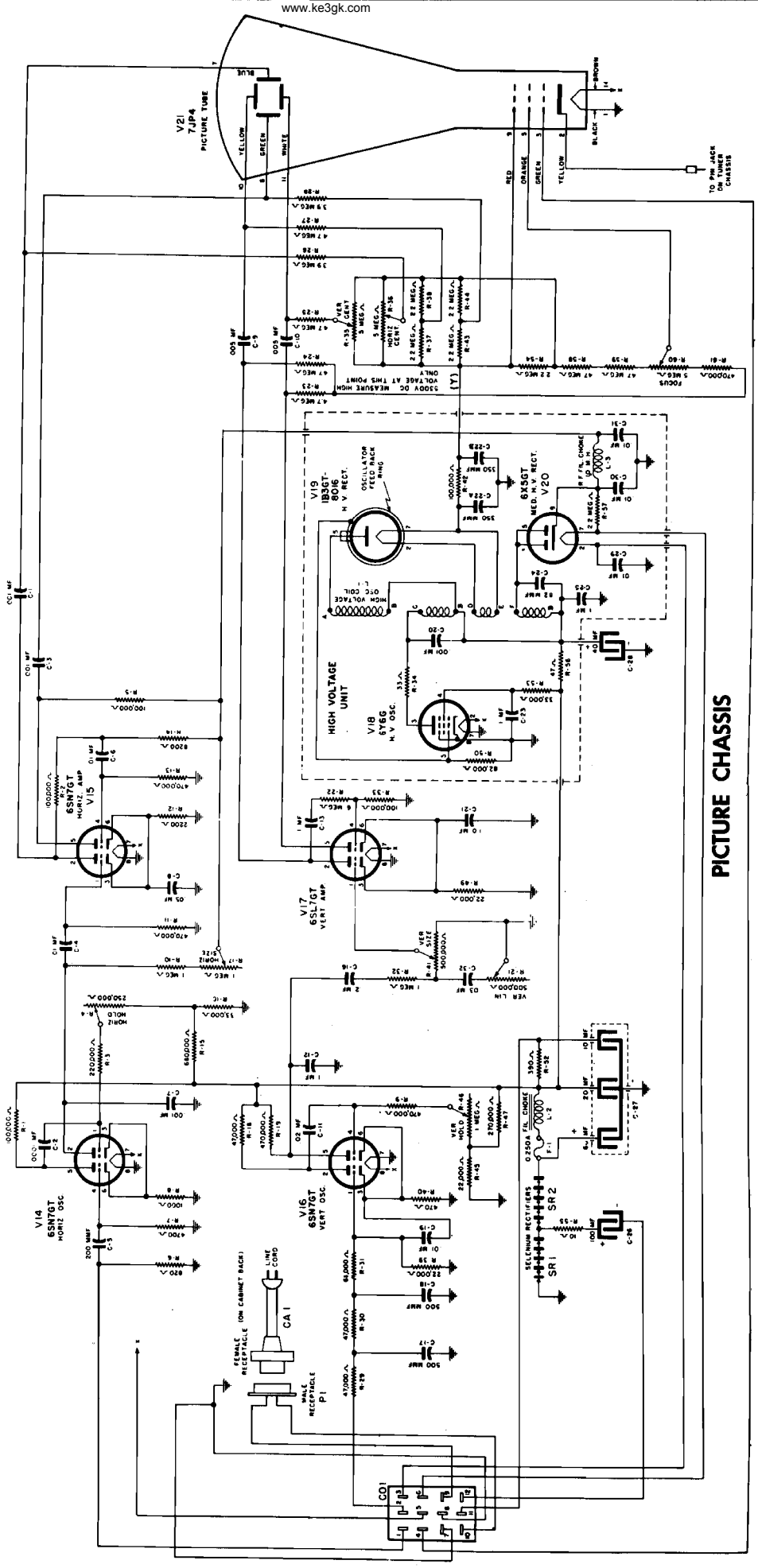
WARNING: BE CAREFUL WHEN MEASURING HIGH VOLTAGES. USE HIGH VOLTAGE 50,000 OHM PER VOLT VOLTMETER WHEN MEASURING POINT (Y) AND 7JP4 TUBE HIGH VOLTAGES.

ALL VOLTAGES EXCEPT HEATERS AND 1B3GT HIGH VOLTAGE RECTIFIER TUBE ARE MEASURED FROM SOCKET TERMINALS TO CHASSIS WITH A 20,000 OHM PER VOLT VOLTMETER.




# R. F. TUNER AND MAIN CHASSIS

MODEL 9-425



# REPLACEMENT PARTS LIST-MODEL 9-425

## R. F. Tuner Parts

| Symbol No. | Part No. | Description |
|---|---|---|
| C1 | | Capacitor,25 mmf.,10% ceramic |
| C2 | | Capacitor,25 mmf.,10% ceramic |
| C3 | | Capacitor,25 mmf.,± .02 mmf., ceramic |
| C4 | | Capacitor,15 mmf.,10% ceramic |
| C5 | | Capacitor,.68 mmf.,10% |
| C6 | | Capacitor,680 mmf.,10% |
| C7 | | Capacitor,680 mmf. |
| C8 | Part of | Capacitor,.005 mfd., Disc ceramic |
| C9 | R.F.Tuner | Capacitor,3 mmf.,± 5 mmf. |
| C10 | Assembly | Capacitor,680 mmf. |
| C11A | Part No. | Capacitor,Trimmer } Two Section |
| C11B | C-146924-201 | Capacitor,Trimmer } |
| C12 | | Capacitor,.5 mmf., 10% ceramic |
| C13 | | Capacitor,1.5 mmf., 10% |
| C14 | | Capacitor,680 mmf., |
| C15 | | Capacitor,680 mmf., |
| C16 | | Capacitor,680 mmf., |
| C17 | | Capacitor,680 mmf., |

| Symbol No. | Part No. | Description |
|---|---|---|
| R1 | | Resistor,1000 ohm,1/2w.,10% |
| R2 | | Resistor,10,000 ohm,1w.,10% |
| R3 | | Resistor,1.0 megohm,1/2w.,10% |
| R4 | | Resistor,18,000 ohm,1/2w.,10% |
| R5 | | Resistor,82,000 ohm,1/2w.,10% |
| R6 | Part of | Resistor,6800 ohm,1w.,10% |
| R7 | R.F.Tuner | Resistor,22,000 ohm,1/2w.,10% |
| R8 | Assembly | Resistor,4700 ohm,1/2w.,10% |
| R9 | Part No. | Resistor,33,000 ohm,1/2w.,10% |
| R10 | C-146924-201 | Resistor,470 ohm |
| R60 | | Resistor,82,000 ohm |
| T9 | | Transformer,Antenna |
| L2 | | Choke,Filament |
| L3 | | Choke,R.F. |
| | | Socket,Tube (V1,V2) |
| | | Socket,Tube (V3) |
| | | Shield,Tube (V3) |
| | C-146924-58 | Shield,Tube (V1) |
| | C-146924-201 | R.F. Tuner Assembly (Complete) |

## Main Chassis Parts

| Symbol No. | Part No. | Description |
|---|---|---|
| C18 | C-144675-2 | Capacitor,.005 mfd.,10%,500 v., disc ceramic |
| C19 | C-146924-1 | Capacitor,100mmf.,10%,Cceff.750,500v.,ceramic |
| C20 | C-146924-1 | Capacitor,100mmf.,10%,Coeff.750,500v.,ceramic |
| C21 | C-146924-1 | Capacitor,100mmf.,10%,Coeff.750,500v.,ceramic |
| C22 | C-146924-1 | Capacitor,100mmf.,10%,Coeff.750,500v.,ceramic |
| C23 | C-146924-2 | Capacitor,5mmf.,10%,500v.,ceramic |
| C24 | 39001-19 | Capacitor,.1mfd.,600v.,paper |
| C25 | 39001-17 | Capacitor,.05mfd.,600v.,paper |
| C26 | C-144675-2 | Capacitor,.005mfd.,10%,500v.,disc ceramic |
| C27 | C-144675-2 | Capacitor,.005mfd.,10%,500v.,disc ceramic |
| C28 | C-144675-2 | Capacitor,.005mfd.,10%,500v.,disc ceramic |
| C29 | C-144675-2 | Capacitor,.005mfd.,10%,500v.,disc ceramic |
| C30 | C-144675-2 | Capacitor,.005mfd.,10%,500v.,disc ceramic |
| C31 | C-144675-2 | Capacitor,.005mfd.,10%,500v.,disc ceramic |
| C32 | C-144675-2 | Capacitor,.005mfd.,10%,500v.,disc ceramic |
| C33 | C-144675-2 | Capacitor,.005mfd.,10%,500v.,disc ceramic |
| C34 | 39361-4 | Capacitor,100mfd.,10v.,Electrolytic |
| C35 | C-146924-3 | Capacitor,2mmf.,10%,500v.,ceramic |
| C36 | 39001-19 | Capacitor,.1mfd.,600v.,paper |
| C37 | C-146924-4 | Capacitor,10mfd.,+100%,-10%,250v.,Electrolytic |
| C38 | 39001-80 | Capacitor,.02mfd.,600v.,paper |
| C39 | 39377-25 | Capacitor,.2mfd.,10%,.600v., paper |
| C40 | C-146924-5 | Capacitor,10mfd.,+50%,-10%,25v.,Electrolytic |
| C41 | C-144675-2 | Capacitor,.005mfd.,10%,500v.,disc ceramic |
| C42 | C-144675-2 | Capacitor,.005mfd.,10%,500v.,disc ceramic |
| C43 | 39377-29 | Capacitor,1mfd.,600v., paper |
| C45 | 39001-11 | Capacitor,.005mfd.,600v.,paper |
| C46 | 39001-13 | Capacitor,.01mfd.,600v., paper |
| C47 | C-146924-6 | Capacitor,3mmf.,±.5mmf.,Temp.Coeff.-750, ceramic |
| C48 | C-146924-5 | Capacitor,10mfd.,+50%,-10%,25v.,electrolytic |
| C49 | C-146924-7 | Capacitor,.001mfd.,350v.,ceramic(Type Hi-K) |
| C51 | 39001-74 | Capacitor,.002mfd.,600v.,paper |
| C52 | 39001-11 | Capacitor,.005mfd.,600v., paper |
| C53 | C-146924-1 | Capacitor,100mmf.,10%,Coeff.750,500v.,ceramic |
| C54 | 39001-80 | Capacitor,.02mfd.,600v.,paper |
| C55 | C-146924-8 | Capacitor,.01mfd.,400v.,metal case |
| C56 | C-146924-8 | Capacitor,.01mfd.,400v.,metal case |
| C57 | C-144675-2 | Capacitor,.005mfd.,10%,500v.,disc ceramic |
| C58 | C-145675-2 | Capacitor,.005mfd.,10%,500v.,disc ceramic |
| C59 | 39001-87 | Capacitor,.25mfd.,600v.,paper |
| C60 | C-146924-5 | Capacitor,10mfd.,+50%-10%,25v.,electrolytic |
| C61 | C-146924-9 | Capacitor,30mfd.,150v. } Three Section<br>Capacitor,50mfd.,150v. } Electrolytic<br>Capacitor,50mfd.,150v. |
| C62 | C-145675-2 | Capacitor,.005mfd.,10%,500v.,disc ceramic |
| R11 | 39374-25 | Resistor,1000 ohm,10%,1/2w. |
| R12 | Part of L10 | Resistor,33,000 ohm |
| R13 | Part of L12 | Resistor,15,000 ohm |
| R14 | 39373-80 | Resistor,220,000 ohm,1/2w. |
| R15 | 39373-74 | Resistor,100,000 ohm,1/2w. |
| R16 | Part of L8 | Resistor,15,000 ohm |
| R17 | Part of L9 | Resistor,10 megohm |
| R18 | 39373-92 | Resistor,1.0 megohm,1/2w |
| R19 | 39374-11 | Resistor,68 ohm,10%,1/2w. |
| R20 | 39374-211 | Resistor,6800 ohm,10%,2w. |
| R21 | Part of L11 | Resistor,22,000 ohm |
| R22 | 39373-92 | Resistor,1.0 megohm,1/2w. |
| R24 | 39374-37 | Resistor,10,000 ohm,10%,1/2w. |
| R25 | 39374-31 | Resistor,3300 ohm,10%,1/2w. |

| Symbol No. | Part No. | Description |
|---|---|---|
| R26 | 39374-13 | Resistor,100 ohm,10%,1/2w. |
| R27 | 39374-33 | Resistor,4700 ohm,10%,1/2w. |
| R28 | 39374-9 | Resistor,47 ohm,10%,1/2w. |
| R29 | 39374-30 | Resistor,2700 ohm,10%,1/2w. |
| R30 | 39374-13 | Resistor,100 ohm,10%,1/2w. |
| R31 | 39375-217 | Resistor,6800 ohm,5%,1w. |
| R32 | 39374-215 | Resistor,15,000 ohm,10%,2w. |
| R33 | 39374-41 | Resistor,22,000 ohm,10%,1/2w. |
| R35 | 39374-57 | Resistor,470,000 ohm,10%,1/2w. |
| R36 | 39374-37 | Resistor,10,000 ohm,10%,1/2w. |
| R37 | 39374-25 | Resistor,1000 ohm,10%,1/2w. |
| R38 | 39374-25 | Resistor,1000 ohm,10%,1/2w. |
| R39 | 39374-25 | Resistor,1000 ohm,10%,1/2w. |
| R40 | 39373-87 | Resistor,470,000 ohm,1/2w. |
| R41 | 39375-71 | Resistor,8200 ohm,5%,1/2w. |
| R42 | C-146924-10 | Control,Contrast (1000 ohm) |
| R43 | 39373-77 | Resistor,150,000 ohm,1/2w. |
| R44 | C-146924-11 | Control,Brightness (35,000 ohm) |
| R45 | 39374-37 | Resistor,10,000 ohm,10%,1/2w. |
| R46 | 39375-69 | Resistor,6800 ohm,5%,1/2w. |
| R47 | 39374-44 | Resistor,39,000 ohm,10%,1/2w. |
| R48 | C-146924-12 | Control,Volume(500,000 ohm) & on-off switch |
| R49 | 39374-53 | Resistor,220,000 ohm,10%,1/2w. |
| R50 | 39373-87 | Resistor,470,000 ohm,1/2w. |
| R51 | 39374-16 | Resistor,180 ohm,10%,1/2w. |
| R52 | 39374-25 | Resistor,1000 ohm,10%,1/2w. |
| R53 | 39375-69 | Resistor,6800 ohm,5%,1/2w. |
| R54 | 39373-107 | Resistor,10 megohm,1/2w. |
| R55 | 39373-80 | Resistor,220,000 ohm,1/2w. |
| R56 | 39374-16 | Resistor,180 ohm,10%,1/2w. |
| R57A | C-146924-13 | Resistor,400 ohm,10%,1w. } Two Section |
| R57B | | Resistor,120 ohm,10%,1w. } Wire Wound |
| R58 | 39374-95 | Resistor,33 ohm,10%,1w. |
| R59 | 39374-127 | Resistor,15,000 ohm,10%,1w. |
| L4 | C-146924-14 | Coil,Filament Choke |
| L5 | C-146924-14 | Coil,Filament Choke |
| L6 | C-146924-14 | Coil,Filament Choke |
| L7 | C-146924-14 | Coil,Filament Choke |
| L8 | C-146924-15 | Coil,Plate Choke (I.F.) |
| L9 | C-146924-16 | Coil,Load Choke (Diode) |
| L10 | C-146924-17 | Coil,Plate Choke (Diode) |
| L11 | C-146924-18 | Coil,Load Choke (Video) |
| L12 | C-146924-19 | Coil,Plate Chake (Video) |
| T1 | C-146924-20 | Transformer,1st I.F. |
| T2 | C-146924-20 | Transformer,2nd,I.F. |
| T3 | C-146924-20 | Transformer,3rd I.F. |
| T4 | C-146924-20 | Transformer,4th I.F. |
| T5 | C-146924-21 | Transformer,Sound I.F. |
| T6 | C-146924-22 | Transformer,Discriminator |
| T7 | C-146924-23 | Transformer,Output (Sound) |
| T8 | C-146924-24 | Transformer,Power |
| | C-146924-51 | Speaker,5" P.M. |
| | C-146924-52 | Jack,Single Contact |
| | C-146924-53 | Plug,Male (12 Contact) |
| | C-146924-54 | Rectifier,Selenium |
| | C-146924-57 | Socket,Tube (V12) |
| | C-146924-55 | Socket,Tube (V4,V5,V6,V7) |
| | C-146924-56 | Socket,Tube (V8,V9,V10,V11,V13) |
| | C-146924-58 | Shield,Tube (V4,V5,V6,V7) |

## Picture Chassis Parts

| Symbol No. | Part No. | Description |
|---|---|---|
| C1 | C-146924-101 | Capacitor,.001mfd.,+40%-10%,6000v.,paper |
| C2 | C-146924-1 | Capacitor,.0001mfd.,10%,Temp.Coeff.-.00075, ceramic |
| C3 | C-146924-101 | Capacitor,.001mfd.,+40%-10%,6000v.,paper |
| C4 | C-146924-102 | Capacitor,.01mfd.,1200v.,paper |
| C5 | C-146924-103 | Capacitor,200mmf.,500v.,ceramic |
| C6 | C-146924-102 | Capacitor,.01mfd.,1200v.,paper |
| C7 | C-146924-104 | Capacitor,.001mfd.,10%,500v.,mica |
| C8 | 39001-17 | Capacitor,.05mfd.,600v.,paper |
| C9 | C-146924-105 | Capacitor,.005mfd.,+40%-10%,6000v.,paper |
| C10 | C-146924-105 | Capacitor,.005mfd.,+40%-10%,6000v.,paper |
| C11 | 39001-80 | Capacitor,.02mfd.,600v.,paper |
| C12 | 39377-23 | Capacitor,.1mfd.,10%,600v.,paper |
| C13 | 39377-23 | Capacitor,.1mfd.,10%,600v.,paper |
| C16 | 39377-25 | Capacitor,.2mfd.,10%,600v.,paper |
| C17 | C-146924-106 | Capacitor,500mmf.,500v.,mica |
| C18 | C-146924-106 | Capacitor,500mmf.,500v.,mica |
| C19 | 39001-13 | Capacitor,.01mfd.,600v.,paper |
| C20 | C-146924-107 | Capacitor,.001mfd.,5%,500v.,mica |
| C21 | 39001-72 | Capacitor,1mfd.,200v.,paper |
| C22A | C-146924-108 | Capacitor,Filter,5000v. } Two Section** |
| C22B | C-146924-108 | Capacitor,Filter,5000v. } |
| C23 | C-146924-109 | Capacitor,.1mfd.,10%,400v.,Molded Paper |
| C24 | C-146924-110 | Capacitor,72mmf.,5%,Temp.Coeff.-750,1000v, ceramic |
| C25 | 39377-23 | Capacitor,.1mfd.,10%,600v.,paper |
| C26 | C-146924-111 | Capacitor,100mfd.,150v.,Electrolytic |
| C27 | C-146924-112 | Capacitor,60mfd.,300v. } Three Section<br>Capacitor,20mfd.,300v. } Electrolytic<br>Capacitor,10mfd.,300v. } |
| C28 | C-146924-113 | Capacitor,40mfd.,300v.,Electrolytic |
| C29 | C-146924-102 | Capacitor,.01mfd.,1200v.,paper |
| C30 | C-146924-102 | Capacitor,.01mfd.,1200v.,paper |
| C31 | C-146924-102 | Capacitor,.01mfd.,1200v.,paper |
| C32 | 39001-82 | Capacitor,.03mfd.,600v.,paper |
| R1 | 39373-74 | Resistor,100,000 ohm,1/2w. |
| R2 | 39373-294 | Resistor,100,000 ohm,2w. |
| R3 | 39373-80 | Resistor,220,000 ohm,1/2w. |
| R4 | C-146924-118 | Control,Horizontal Hold (250,000 ohm) |
| R5 | 39373-294 | Resistor,100,000 ohm,2w. |
| R6 | 39374-24 | Resistor,820 ohm,10%,1/2w. |
| R7 | 39374-33 | Resistor,4700 ohm,10%,1/2w. |
| R8 | 39374-25 | Resistor,1000 ohm,10%,1/2w. |
| R9 | 39373-87 | Resistor,470,000 ohm,1/22. |
| R10 | 39373-312 | Resistor,1.0 megohm,2w. |
| R11 | 39373-87 | Resistor,470,000 ohm,1/2w. |
| R12 | 39374-29 | Resistor,2200 ohm,10%,1/2w. |
| R13 | 39373-87 | Resistor,470,000 ohm,1/2w. |
| R14 | 39374-36 | Resistor,8200 ohm,10%,1/2w. |
| R15 | 39373-90 | Resistor,680,000 ohm,1/2w. |
| R16 | 39374-43 | Resistor,33,000 ohm,10%,1/2w. |
| R17 | C-146924-119 | Control,Horizontal Size (1.0 megohm) |
| R18 | 39374-133 | Resistor,47,000 ohm,10%,1w. |
| R19 | 39373-87 | Resistor,470,000 ohm,1/2w. |
| R21 | C-146924-116 | Control,Vertical Linearity (500,000 ohm) |
| R22 | C-146924-117 | Resistor,6 megohm,1/2w. |
| *R23 | C-146924-114 | Resistor,4.7 megohm,10% (Special Hi-Voltage) |
| *R24 | C-146924-114 | Resistor,4.7 megohm,10% (Special Hi-Voltage) |

| Symbol No. | Part No. | Description |
|---|---|---|
| R25 | 39373-102 | Resistor,4.7 megohm,1/2w. |
| R26 | 39373-101 | Resistor,3.9 megohm,1/2w. |
| R27 | 39373-102 | Resistor,4.7 megohm,1/2w. |
| R28 | 39373-101 | Resistor,3.9 megohm,1/2w. |
| R29 | 39374-45 | Resistor,47,000 ohm,10%,1/2w. |
| R30 | 39374-45 | Resistor,47,000 ohm,10%,1/2w. |
| R31 | 39374-47 | Resistor,68,000 ohm,10%,1/2w. |
| R32 | 39373-92 | Resistor,1.0 megohm,1/2w. |
| R33 | 39374-49 | Resistor,100,000 ohm,10%,1/2w. |
| R34 | 39374-7 | Resistor,33 ohm,10%,1/2w. |
| R35 | C-146924-115 | Control,Vertical Centering (5 megohm) |
| R36 | C-146924-115 | Control,Horizontal Centering (5 megohm) |
| R37 | 39373-97 | Resistor,2.2 megohm,1/2w. |
| R38 | 39373-97 | Resistor,2.2 megohm,1/2w. |
| R39 | 39374-29 | Resistor,22,000,10%,1/2w. |
| R40 | 39374-21 | Resistor,470 ohm,10%,1/2w. |
| R41 | C-146924-116 | Control,Vertical Size (500,000 ohm) |
| **R42 | Part of C22A & C22B | Resistor,100,000 ohm,10%,1w. |
| R43 | 39373-97 | Resistor,2.2 megohm,1/2w. |
| R44 | 39373-97 | Resistor,2.2 megohm,1/2w. |
| R45 | 39374-41 | Resistor,22,000 ohm,10%,1/2w. |
| R46 | C-146924-119 | Control,Vertical Hold (1.0 megohm) |
| R47 | 39373-82 | Resistor,270,000 ohm,1/2w. |
| R49 | 39374-41 | Resistor,22,000 ohm,10%,1/2w. |
| R50 | 39374-48 | Resistor,82,000 ohm,10%,1/2w. |
| R52 | C-146924-120 | Resistor,390 ohm,10%,2w.,wire wound |
| R53 | 39374-131 | Resistor,33,000 ohm,10%,1w. |
| R54 | 39373-97 | Resistor,2.2 megohm,1/2w. |
| R55 | C-146924-121 | Resistor,10 ohm,2w.,wire wound |
| R56 | 39374-9 | Resistor,47 ohm,10%,1/2w. |
| R57 | 39373-97 | Resistor,2.2 megohm,1/2w. |
| *R58 | C-146924-114 | Resistor,4.7 megohm,10% (Special Hi-Voltage) |
| *R59 | C-146924-114 | Resistor,4.7 megohm,10% (Special Hi-Voltage) |
| R60 | C-146924-115 | Control,Focus (5 megohm) |
| R61 | 39373-87 | Resistor,470,000 ohm,1/2w. |
| F1 | 144348 | Fuse,.25 amp. |
| L1 | C-146924-122 | Coil,High Voltage Cscillator |
| L2 | C-146924-123 | Coil,Filter Choke (B+) |
| L3 | C-146924-124 | Coil,Filter Choke (R.F.) |
| | C-146924-153 | Socket,Female (12 contact) |
| | C-146924-152 | Receptacle,Male (A.C.,2 contact) |
| | C-146924-54 | Rectifier,Selenium |
| | C-146924-154 | Socket,Tube (V14,V15,V16,V17) |
| | C-146924-155 | Socket,Tube (V19) |
| | C-146924-156 | Socket,Tube (V18,V20) |
| | C-146924-157 | Socket,Picture Tube (V21) |
| | C-146924-158 | Socket & Insulator Assy. (V19) |
| | C-146924-159 | Insulator,Tube Socket (V19) |
| | C-146924-160 | Tip (Phone),Picture Tube Cathode Connector |
| | C-146924-161 | Spring,Feed Back (V19) |
| | C-132300-6 | Cable & Plug Assy, Power |
| | C-146924-162 | Support,Picture Tube (Lower) |
| | C-146924-163 | Cushion (Rubber),Picture Tube Support (Lower) |
| | C-146924-164 | Clamp,Picture Tube (Upper) |
| | C-146924-165 | Cushion (Rubber) Picture Tube Clamp (Upper) |
| | C-146924-166 | Support & Bracket Assy.,Picture Tube (Rear) |
| | C-146924-167 | Clamp,Picture Tube (Rear) |

## Cabinet Parts

| Symbol No. | Part No. | Description |
|---|---|---|
| | C-146897 | Antenna,Portable |
| | 146972 | Back |
| | W-146885 | Bracket,Cabinet Back |
| | R-146896 | Cabinet |
| | AB-147009 | Escutcheon |
| | 146969 | Foot (Metal) |
| | W-146952 | Foot (5 Used) |
| | B-146884 | Grille |
| | C-146890 | Grommet (Rubber),Picture Tube Mask |
| | 146970 | Handle Assembly |
| | W-146903 | Hinge |
| | W-146900 | Knob |
| | W-146963 | Knob,Channel Selector |
| | 146971 | Latch Assembly |
| | 146974 | Lid |
| | B-145601-4 | Name Plate (Crosley) |
| | W-146951 | Nut,Antenna Mtg. |

| Symbol No. | Part No. | Description |
|---|---|---|
| | 146973 | Panel,Front |
| | B-146902 | Plate,Control |
| | W-146880 | Screen,Bottom |
| | B-146888 | Screen,Back |
| | W-144498-1 | Screw,Escutcheon |
| | 39355-2SB | Screw,Screen (Bottom & Back) |
| | 39152-73SB | Screw,Cabinet Back |
| | 39172-74SB | Screw,Chassis Mtg. |
| | 39352-23SB | Screw (Oval Head),Hinge |
| | 39350-33SB | Screw (Round Head),Hinge |
| | 39351-24CL | Screw,Picture Tube Window |
| | W-144498-2 | Screw,Front Panel |
| | 39352-35SB | Screw (Countersunk),Cabinet Back |
| | W-146901 | Terminal Board |
| | W-146954-1 | Washer,Front Panel |
| | W-146954-2SB | Washer (Countersunk),Cabinet Back |
| | B-146871 | Window,Picture Tube |

* Items R23, R24, R58, R59 sometimes are each composed of two 2.4 megoum, 10% resistors (Part No. C-146924-15) Special High Voltage Type.

** On some sets C22A and C22B are separate capacitors (part No. C-146924-101) mounted underneath the High Voltage Supply Chassis. These capacitors have a capacity of .001 mfd., and a voltage rating of 6000 volts. When these capacitors are used, a separate resistor, R42 (part No. 39374-137) is secured to a terminal strip lug under the high voltage supply chassis.