

# Motorola<sup>®</sup> Television

## SERVICE MANUAL

### MODELS

VT105  
VT105M  
VK106  
VK106B  
VK106M  
VT107  
VT107M

### CHASSIS

TS-9  
TS-9A  
TS-9B  
TS-9C  
TS-9D

### BRIEF DESCRIPTION OF CHASSIS

Chassis TS-9. This television chassis has 22 tubes plus a 10" picture tube. The picture, sound and scanning circuits, together with their power supply, are contained on a single chassis. Four type 25Z6GT tubes, operating in a bridge circuit, are used to supply "B" power. It is designed to operate on 105 to 125 volts, 60 cycle alternating current.

Chassis TS-9A. Same as Chassis TS-9 except that the four 25Z6GT bridge circuit rectifier tubes are replaced with a conventional power supply circuit using 2 rectifier tubes (5Y3GT & 5U4G). The power transformer in this chassis differs from the one used in Chassis TS-9. A total of 20 tubes plus a 10" picture tube are used in this chassis.

Chassis TS-9B. Same as Chassis TS-9 except that a reflexed type audio circuit was added to obtain greater audio amplification. The 1st sound IF amplifier is used as a combination 21.9 Mc IF amplifier and as an audio amplifier.

Chassis TS-9C. Similar to Chassis TS-9A but has added sound IF stage to reduce variations in sound level with setting of contrast control. This chassis has 21 tubes plus a 10" picture tube.

Chassis TS-9D. A new clipping and horizontal synchronization system was incorporated in this chassis. V-13 (6SN7GT) was replaced by a 12AU7 and an additional 12AU7 and 6AL5 were added bringing the tube total to 23 plus a 10" picture tube. Two trimmer adjustments, "Horiz Lock-in" and "Horiz Fine Freq" were eliminated from the rear of the chassis. The "Horiz Oscillator" adjustment which was formerly on the top of the chassis was placed at the rear, and the "Focus" control pot which replaced the variable resistor in the late TS-9C chassis was retained in the TS-9D.

### ANTENNA CONNECTIONS

By means of the four connection antenna receptacle, either a 75 ohm unbalanced, or 300 ohm balanced input is available. This receiver is normally wired to match a 300 ohm balanced line. If the receiver is to be used with a 75 ohm line, rewire the input circuit as shown in Figure 1.

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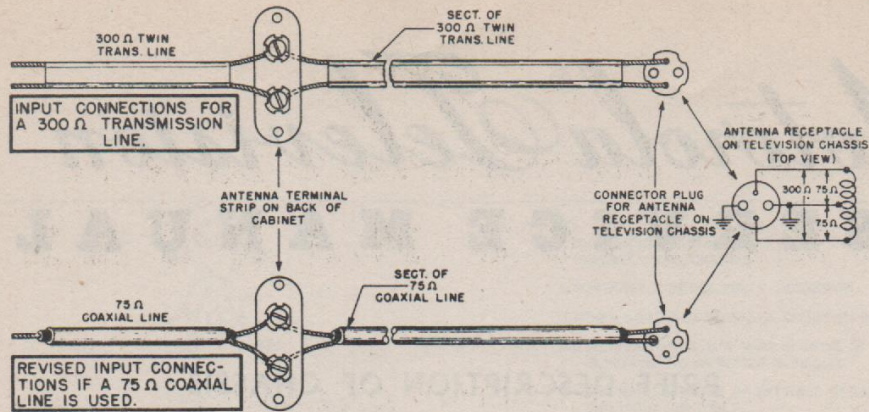


FIGURE 1. ANTENNA CONNECTIONS FOR 300 OR 75 OHM LINES

## OPERATING CONTROLS

There are 8 controls on the front panel of your receiver. See Figure 2. Note that each front panel control is a dual control, consisting of a small knob and a large knob. The function of each control is indicated by markings on the front panel; the "circle" indicates the large knob while the "dot" indicates the small knob. See Figure 2 for front panel control functions.

NOTE: ● INDICATES LARGE OUTER KNOB. ● INDICATES SMALL INNER KNOB.

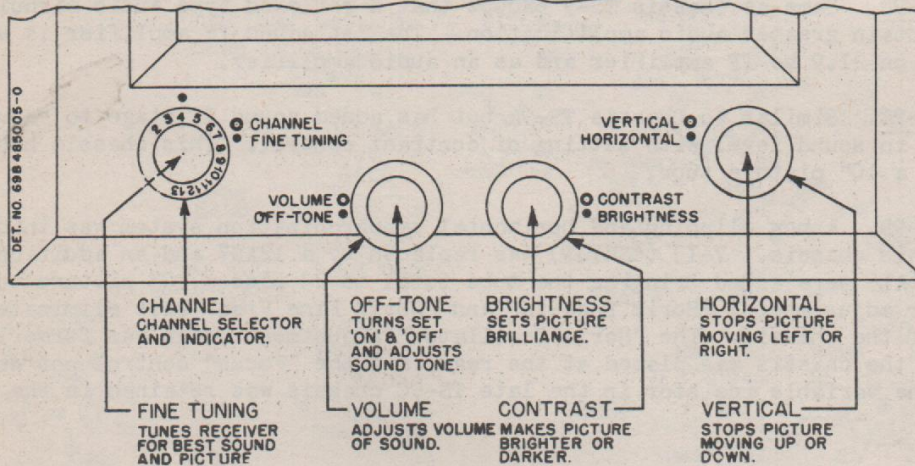


FIGURE 2. OPERATING CONTROLS

## SERVICE ADJUSTMENT CONTROLS

The receiver is completely adjusted at the factory, so normally none other than the front panel control operating instructions need be followed in putting the receiver in operation. However, to provide for any misadjustment of the service controls, due to handling, the following instructions are in order. See Figures 3A, B & C for location of service adjustment controls.

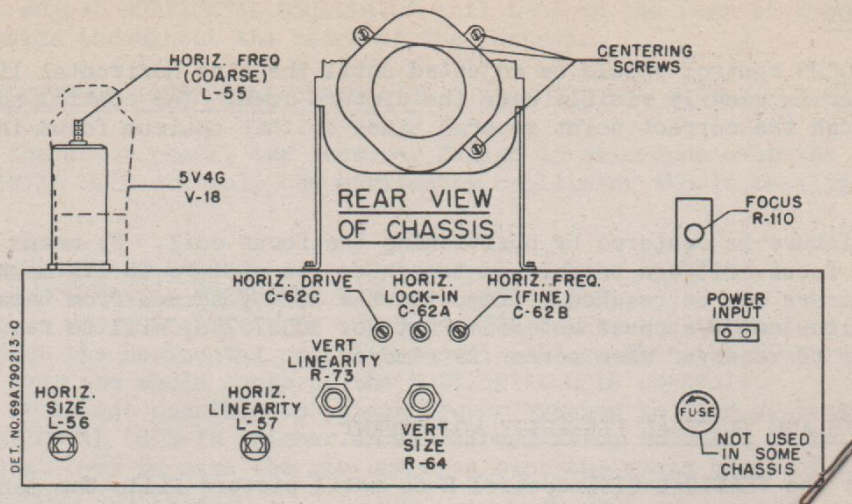


FIGURE 3A. CHASSIS TS-9, A, B & EARLY C SERVICE ADJUSTMENT CONTROL LOCATIONS

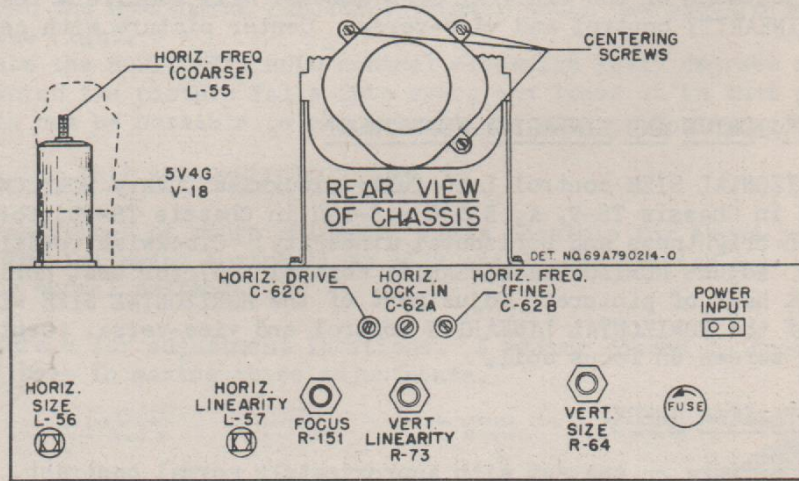


FIGURE 3B. CHASSIS TS-9C (LATE) SERVICE ADJUSTMENT CONTROL LOCATIONS

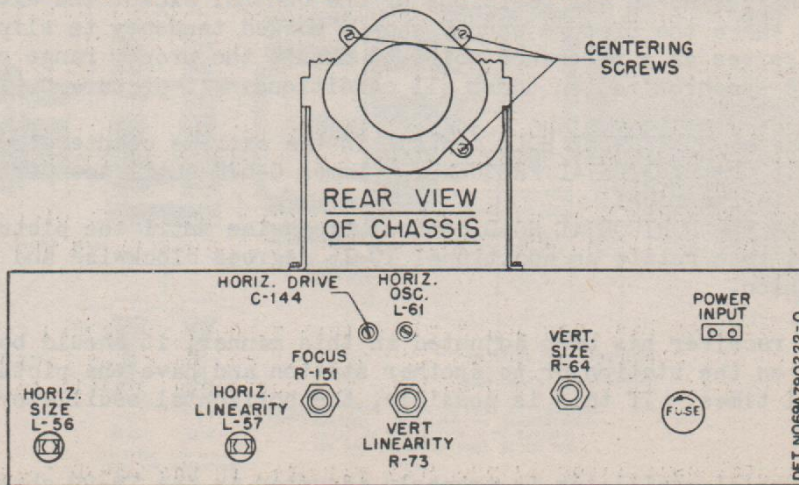


FIGURE 3C. CHASSIS TS-9D SERVICE ADJUSTMENT CONTROL LOCATIONS

### FOCUS CONTROL

The FOCUS control should be adjusted until the fine horizontal line structure of the raster is clearly visible over the picture area. The control should be turned through the correct point several times so that optimum focus is obtained.

### CENTERING

The picture is centered by positioning the focus coil. By means of three screws, the focus coil can be shifted to center the picture in its mask. These centering screws can be reached by removing the safety screen from back of receiver. A separate line cord, such as Motorola Part No. 30B470756, will be required to supply power to receiver when screen is removed.

### VERTICAL SIZE AND VERTICAL LINEARITY ADJUSTMENT

Adjust the VERTICAL SIZE control R-64 until picture fills the mask vertically (6-3/8" minimum). Adjust VERTICAL LINEARITY control R-73 for best overall vertical linearity. Adjustment of the VERTICAL SIZE control will require a readjustment of the VERTICAL LINEARITY control and vice-versa. Center picture with centering screws on focus coil.

### HORIZONTAL SIZE, DRIVE AND LINEARITY ADJUSTMENT

Turn HORIZONTAL SIZE control L-56 fully clockwise. Vary HORIZONTAL DRIVE trimmer (C-62C in Chassis TS-9, A, B & C - C-114 in Chassis TS-9D) for best compromise between brightness and horizontal linearity. Clockwise rotation increases picture width. Adjust HORIZONTAL LINEARITY control L-57 for best horizontal linearity on right half of picture. Adjustment of the HORIZONTAL SIZE will require a readjustment of the HORIZONTAL LINEARITY control and vice-versa. Center picture with centering screws on focus coil.

### HORIZONTAL OSCILLATOR CHECK

Obtain a picture on the set with approximately normal contrast. Vary the HORIZONTAL HOLD control R-69B from one extreme to the other. The picture should remain in horizontal sync in all positions of the control except the extreme counterclockwise, and there the picture should show a marked tendency to slip to the right. This slippage serves as a reference point to insure the proper range of the hold control to give synchronization under all conditions. If picture fails to show this tendency to slip,

1. Leave the HORIZONTAL HOLD control in the extreme counterclockwise position
2. Adjust the HORIZONTAL FREQUENCY trimmer C-62B until the picture tends to slip to the right.
3. Rotate the HORIZONTAL HOLD control clockwise until the picture falls into sync, then rotate an additional 10-15 degrees clockwise and leave in that position.

When the receiver has been adjusted in this manner, it should be possible to switch off and on the station or to another station and have the picture in synchronism at all times. If this is possible, the horizontal oscillator is properly aligned.

The horizontal oscillator is properly adjusted in the TS-9D chassis if the picture remains in sync in all positions of the HORIZONTAL HOLD control. If this is

not the case, adjust HORIZONTAL OSCILLATOR coil L-61 on the rear of the chassis until the picture holds throughout the range of the control.

COMPLETE ALIGNMENT OF HORIZONTAL OSCILLATOR (CHASSIS TS-9, A, B & C ONLY)

If, in the above check, the receiver failed to hold sync over the proper range of the HORIZONTAL HOLD control, the horizontal oscillator should be aligned as follows:

1. Turn CONTRAST CONTROL for about normal picture contrast.
  2. Turn HORIZONTAL FREQUENCY trimmer C-62B tight.
  3. Adjust HORIZONTAL LOCK-IN trimmer C-62A to about 2 turns from tight.
  4. Adjust the horizontal oscillator coil L-55 so that the picture will lock-in over the whole range of the HORIZONTAL HOLD control.
  5. If it is not possible to obtain proper syncing in Step 4, back off on HORIZONTAL LOCK-IN trimmer an additional turn, or until it is possible to adjust L-55 to make the picture sync over the whole range of the HORIZONTAL HOLD control.
  6. Turn the HORIZONTAL HOLD control to its extreme counterclockwise position.
  7. Adjust the HORIZONTAL FREQUENCY trimmer until the picture tends to slip to the right.
  8. Rotate the HORIZONTAL HOLD control clockwise 10-15 degrees past the point at which the picture falls into sync, and leave it in that position.
- It should now be possible to change stations without losing synchronism.

ADJUSTMENT OF ION TRAP AND DEFLECTION YOKE

Under conditions of rough shipment, it is possible for these parts to become misaligned. The following instructions will enable the service man to bring the parts to their normal setting.

See Figure 4 for adjustment locations. A mirror placed in front of the receiver will help in making these adjustments.

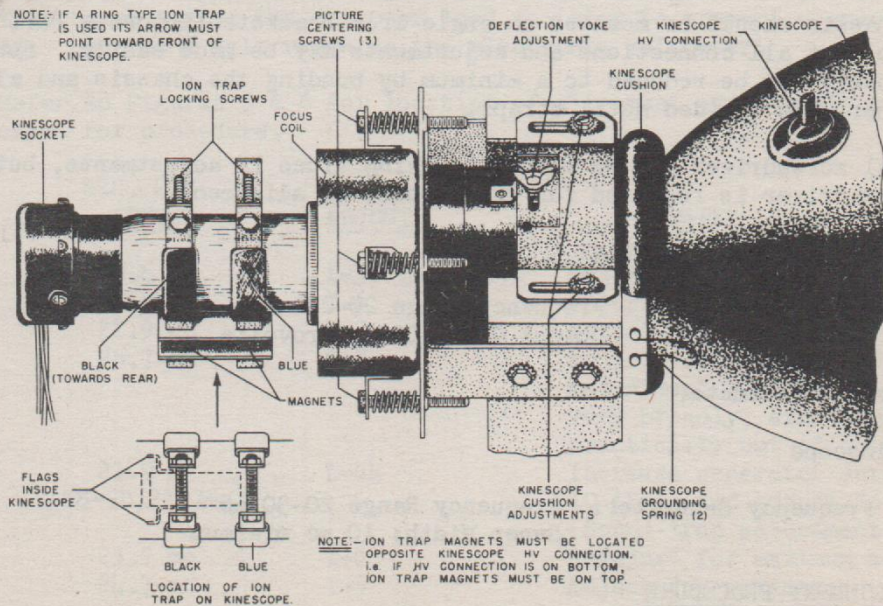


FIGURE 4. KINESCOPE ADJUSTMENT LOCATIONS

### ADJUSTMENT OF THE ION TRAP

Two types of permanent magnet ion traps are used on the TS-9 series chassis. One is held in place with two clamps, colored black and blue; and the other slips over the neck of the tube and consists of a large and a small circular magnet.

Shifting of the ion trap will result in poor brilliancy, or shadowing of the corners. The ion trap should be mounted on the neck of the kinescope so that the black end, or large magnet, is toward the rear of the kinescope and approximately over the "flags" on the kinescope's gun structure. While observing the raster on the screen, move the ion trap slightly backward or forward, simultaneously turning it slightly to and fro until the brightest raster is obtained, and one in which none of the four corners are cut off or shadowed. These adjustments should be made with the brightest picture obtainable, consistent with good line focus and a full, square raster. When adjustment is completed, tighten screws to hold ion trap in position.

### DEFLECTION YOKE ADJUSTMENT

If the deflection yoke shifts, the picture will be tilted. To correct, loosen the wing nut on top of the deflection yoke and rotate yoke till picture is straight. Before tightening wing nut, make certain that the deflection yoke is as far forward as possible.

## ALIGNMENT

NOTE: The alignment procedure covers all chassis, through TS-9D.

### GENERAL

The chassis should be mounted on angle iron brackets (Motorola Part Number 7B484018) so that all connections and adjustments may be made easily. Spurious response trouble may be reduced to a minimum by bonding the chassis and all instruments together with braided metal straps.

A metal screwdriver may be used for making video IF adjustments, but a plastic or fibre screwdriver is required for RF or sound IF alignment.

### EQUIPMENT NECESSARY FOR ALIGNMENT

AM Signal Generator: Frequency Range 20-220 mc  
Output 0-100,000 microvolts

Electronic Voltmeter

Oscilloscope

Sweep Frequency Generator: Frequency Range 20-30 mc  
Sweep Width: 10 mc minimum

### VIDEO IF ALIGNMENT PROCEDURE

It will be necessary to remove the kinescope to expose two video IF tuning

cores. A short screwdriver of 2 to 3 inches in length is convenient for making the adjustments.

1. Turn the channel selector switch to a blank channel, e.g., the position which would correspond to channel 14 or 15 if there were such marking on the switch. This disables the local oscillator and prevents spurious responses in the IF amplifier.

2. Turn the receiver on, and adjust the contrast control R-76B, for -5 volts bias, as measured from the variable tap of the control to chassis.

3. Apply a -3 volt bias to the mixer grid by means of a dry battery. Connect the positive terminal of the battery to ground and the - 3 volt terminal to the point at which the two 470,000 ohm resistors (R-6 & R-7) in the mixer grid are connected.

4. Connect the signal generator output lead, through a blocking capacitor of 100 mmf to .01 mf, to the grid of the mixer tube V-2 (6J6, pin 5). The low side of the signal generator should be connected to the oscillator coil mounting plate near the mixer tube socket. To avoid regeneration, keep the grid and ground leads to the signal generator as short as possible.

5. Connect the electronic voltmeter across the video detector load resistor, R-48 (4700 ohms). With zero output from the generator, the meter should read less than 1 volt negative contact potential. A voltage appreciably greater than this indicates oscillation in the IF strip; and the generator lead connections, groundings, etc., should be checked.

In the TS-9D the video detector load resistor (R-48) is tied to B- instead of ground as in previous versions. Care should be taken to connect the voltmeter directly across the resistor and not to ground.

6. Adjust the output of the signal generator throughout alignment for no more than 1 volt increase across the detector load resistor to prevent overdriving the IF amplifier. Use the 3 volt range on the electronic voltmeter.

7. Refer to Figures 5 & 6 for location of alignment adjustments and to the following chart for procedure.

<u>STEP</u>	<u>SIG. GEN. FREQ.</u>	<u>ADJUST</u>	<u>REMARKS</u>
1	23.6 mc	L-59 (or T-5)	Adjust for maximum.
2	26.4 mc	T-6	Adjust for maximum.
3	22.9 mc	T-7	Adjust for maximum.
4	25.7 mc	T-8	Adjust for maximum. NOTE: This adjustment will normally tune very broadly, since the core is practically out of coil.
5	21.9 mc (TS-9D, 21.7mc)	L-44	Increase generator output about 10 times and adjust for minimum. (Sound trap adjustment).
6	25.7 mc	T-8	Readjust for maximum as in Step 4.
7	24.7 mc	T-9	Adjust for maximum.

The normal video IF sensitivity is less than 400 microvolts at 24.5 mc for an

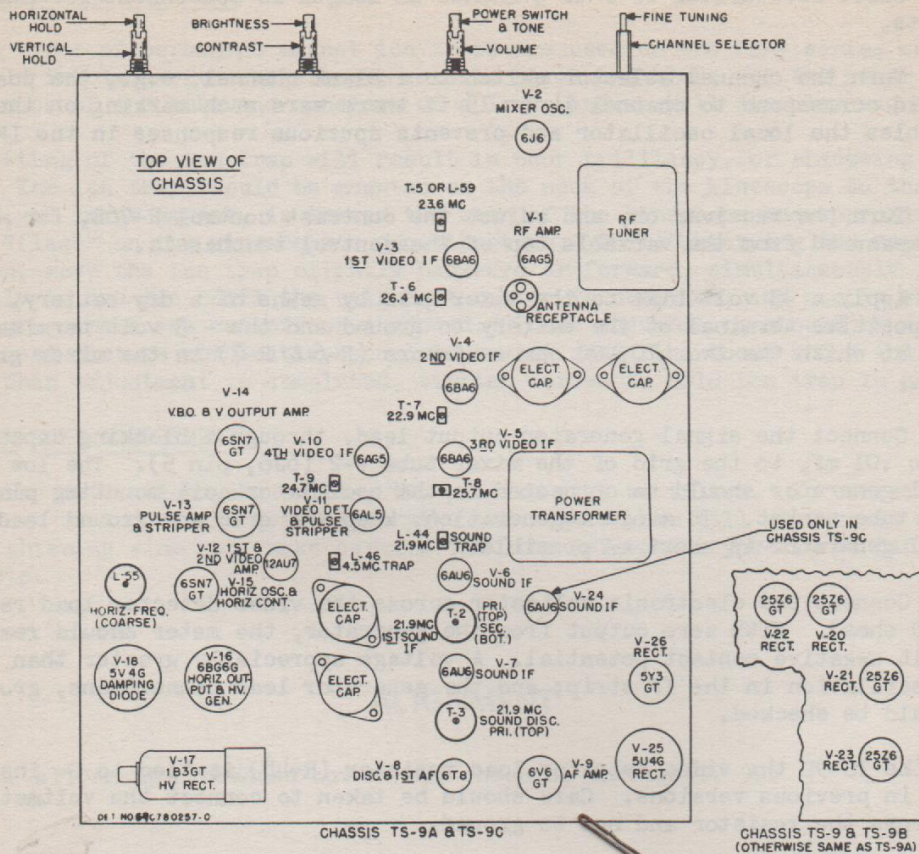


FIGURE 5. CHASSIS TS-9, A, B & C TUBE & IF ADJUSTMENT LOCATIONS

increase of 1 volt above contact potential, across the detector load, R-48, with -3 V. mixer bias and zero contrast bias.

The video IF amplifier response curve is shown in Figure 7. The bandwidth at the 3 db points should be approximately 3.5 mc. To check this with an AM generator, note the signal strength in microvolts necessary to produce an increase of approximately 1 volt above contact potential at 24.5 mc. Increase the generator input by 1.4 times and shift the generator frequency both sides of 24.5 mc until the original detector voltage reading is again obtained. These two new frequencies thus obtained are the 3 db skirt frequencies and should be approximately 22.9 mc and 26.4 mc. This measurement should be made with the -3 volt mixer bias and a -5 volt contrast bias.

As the video IF in the TS-9D is 26.2 mc instead of 26.4 mc, it will appear slightly above the 3 db point at 26.4 mc. If, when checking the response with a sweep generator, the picture carrier appears too high on the curve, adjustment of the 26.4 mc I.F. (T-6) will bring it down to the desired position.

#### 4.5 MC TRAP ADJUSTMENT

1. Connect the signal generator to the plate of the video detector, V-11,



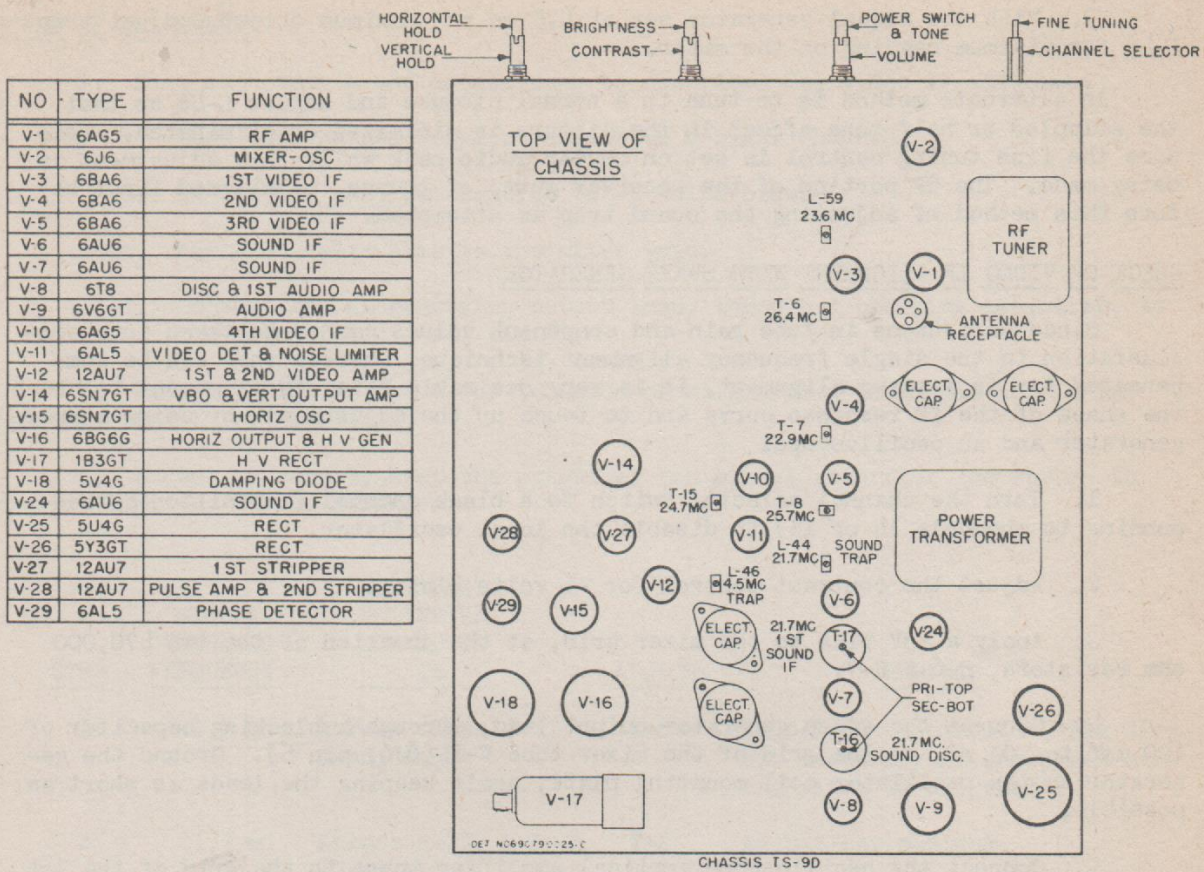


FIGURE 6. CHASSIS TS-9D TUBE & IF ADJUSTMENT LOCATIONS

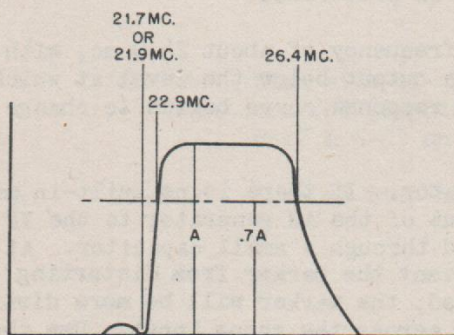


FIGURE 7. VIDEO IF RESPONSE WAVEFORM

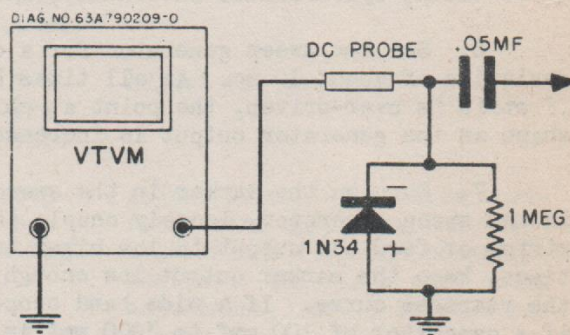


FIGURE 8. ELECTRONIC VOLTMETER CONNECTIONS

(6AL5, pin 7).

2. Connect the electronic voltmeter and germanium crystal rectifier, as shown in Figure 8, to the plate of the 2nd video amplifier, V-12 (12AU7, pin 6). Use the lowest voltage scale on the meter.

3. With the signal generator set at 4.5 mc and maximum output, adjust trap L-46 for minimum reading on the meter.

An alternate method is to tune in a normal picture and adjust L-46 so that the stippled or half-tone effect in the picture is minimized or eliminated. Make sure the fine tuning control is set on center audio peak while this adjustment is being made. The RF portion of the receiver must, of course, be aligned first before this method of adjusting the sound trap is attempted.

#### CHECK OF VIDEO IF ALIGNMENT WITH SWEEP GENERATOR

Since variations in tube gain and component values cannot be taken into consideration in the single frequency alignment technique, whereas they can be compensated for in a sweep alignment, it is very desirable after AM alignment to check the shape of the IF response curve and to touch up the adjustments by using a sweep generator and an oscilloscope.

1. Turn the channel selector switch to a blank channel (a position corresponding to channels 14 or 15) to disable the local oscillator.

2. Adjust the contrast control for -5 volts bias.

3. Apply a -3V bias to the mixer grid, at the junction of the two 470,000 ohm resistors, R-6 & R-7.

4. Connect the sweep generator output lead, through a blocking capacitor of 100 mmf to .01 mf, to the grid of the mixer tube V-2 (6J6, pin 5). Ground the generator to the oscillator coil mounting plate, again keeping the leads as short as possible.

5. Connect the oscilloscope vertical amplifier input to the grid of the 1st video amplifier, V-12 (12AU7, pin 2), or to the grid of the 2nd video amplifier, V-12 (12AU7, pin 7) if more gain is needed. Run a lead from the scope terminal on the sweep generator to the horizontal input on the oscilloscope; or use the built-in sawtooth, synchronized internally, whichever is preferred.

6. Set the sweep generator for a center frequency of about 24.0 mc, with a deviation of about 10 mc. At all times keep the output below the level at which the IF strip is over-driven, the point at which the response curve begins to change shape as the generator output is increased.

7. Turn on the marker in the sweep generator. If there is no built-in marker in the sweep generator, loosely couple the output of the AM generator to the IF strip, or feed the output to the mixer tube grid through a small capacitor. At all times, keep the marker output low enough to prevent the marker from distorting the response curve. If a wide band scope is used, the marker will be more distinct if a capacitor of 100 mmf to 1000 mmf is placed across the scope input. Use the smallest size possible, since too large a value will affect the shape of the curve.

8. Adjust the sweep and scope until one complete response curve appears on the screen.

9. Compare the curve with the ideal curve in Figure 7, using the marker to locate specific frequencies on the wave. If it is necessary to alter the shape of the curve, readjust the core closest in frequency to the point requiring correction.

### SOUND IF ALIGNMENT

1. Make adjustments and connections as described for video IF alignment.
  - a. Turn the channel selector switch to a blank channel.
  - b. Adjust the contrast control to -5 volts bias.
  - c. Apply -3 volts bias to the mixer grid.
  - d. Connect the AM generator output lead, through a blocking capacitor, to the grid of V-2 (6J6, pin 5).
2. Refer to Figures 5 & 6 for location of alignment adjustments and to the following chart for procedure.
3. Except in step 1, keep the output of the signal generator low enough to prevent limiting during alignment.

<u>STEP</u>	<u>SIGNAL GENERATOR FREQUENCY</u>	<u>ELECTRONIC VOLTMETER CONNECTED TO</u>	<u>ADJUST</u>	<u>REMARKS</u>
1	21.9 mc	Across video det. load, R-48	L-44	Adjust for minimum. (This step not necessary if performed during video IF alignment).
2	21.9 mc	Across R-122 & R-114 (Junction of R-12 & R-13 on TS-9)	T-2 pri & sec.	Adjust for maximum.
3	-	-	T-3 sec (bottom)	Detune 2 turns counterclockwise.
4.	21.9 mc	High side of volume control (Junction of R-17 & R-23 on TS-9B)(top)	T-3 Pri	Adjust for maximum.
5	21.9 mc	Same as Step 4.	T-3 sec (bottom)	Adjust so that the meter indicates zero output as the voltage swings from one polarity to another. This is a very sharp adjustment. Use a fibre screwdriver.

NOTE: On chassis TS-9D, T-2 is T-17 and T-3 is T-16. The signal generator is set at 21.7 mc instead of 21.9 mc.

With -3 V. mixer bias and zero contrast bias, the normal audio sensitivity is as follows:

Chassis TS-9: 400 microvolts for 1/2 V. from junction of R-12 & R-13 (47K) to ground.

Chassis TS-9A: 400 microvolts for 1 V. across R-122 & R-14 (terminal #1 of T-2 to ground).

Chassis TS-9B: 400 microvolts for 1 V. across R-122 & R-14 (terminal #1 of T-2 to ground).

Chassis TS-9C: 100 microvolts for 1 V. across R-122 & R-14 (terminal #1 of T-2 to ground).

Chassis TS-9D: 100 microvolts for 1 V. across R-122 & R-14 (terminal #1 of T-17 to ground).

RF ALIGNMENT PROCEDURE

The locations of the various adjustments are given in Figure 9. It will be noted that the oscillator adjustments are arranged in a counterclockwise sequence on the front side of the chassis, starting with the #2 channel as the first adjustment at the top.

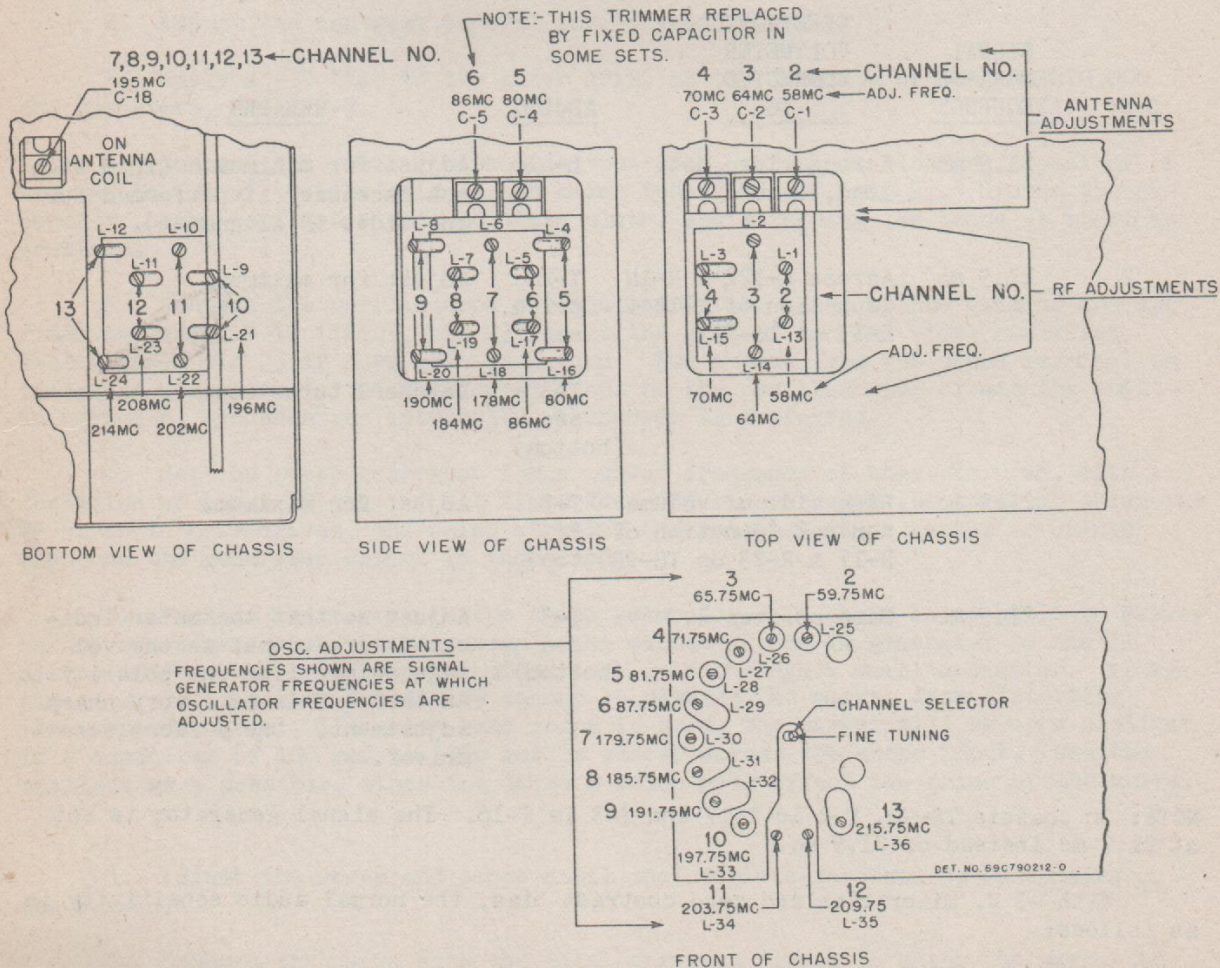


FIGURE 9. OSCILLATOR, RF & ANTENNA ADJUSTMENT LOCATIONS

The RF amplifier adjustments are located in a similar manner, starting at the top of the chassis and going around to the bottom. Both coils for each channel are placed together and then apart, alternately, in the channel sequence.

The antenna trimmers are also located in a counterclockwise manner, starting at the top of the chassis with #2 channel and going around to below the chassis.

TELEVISION FREQUENCY CHANNELS

<u>CHANNEL</u>	<u>FREQ. BAND MC</u>	<u>PICTURE CARRIER</u>	<u>SOUND CARRIER</u>	<u>RECEIVER OSCILLATOR *</u>
2	54-60	55.25	59.75	81.65
3	60-66	61.25	65.75	87.65
4	66-72	67.25	71.75	93.65
5	76-82	77.25	81.75	103.65
6	82-88	83.25	87.75	109.65
7	174-180	175.25	179.75	201.65
8	180-186	181.25	185.75	207.65
9	186-192	187.25	191.75	213.65
10	192-198	193.25	197.75	219.65
11	198-204	199.25	203.75	225.65
12	204-210	205.25	209.75	231.65
13	210-216	211.25	215.75	237.65

\* In TS-9D chassis, reduce osc frequencies by 0.2 mc.

Procedure:

1. Connect the AM signal generator output cable to the antenna terminals of the receiver. Match the generator to the 300 ohm input impedance of the receiver by using a 100 ohm resistor in series with the output terminal of the generator cable and a 150 ohm resistor in series with the ground terminal. This arrangement is for a 50 ohm generator. If the generator impedance is 30 ohms, use a 120 ohm resistor on the output terminal and 150 ohms in series with the ground terminal.
2. Set the contrast control for -5 volts bias. (Measured from arm of contrast control to chassis).
3. When aligning the oscillator, connect the electronic voltmeter across the volume control (junction of R-17 (100K) & R-23 (47K) on chassis TS-9B).
4. Turn the channel switch to the channel to be aligned.
5. Set the fine tuning capacitor C-13 to half-capacity position.
6. Set the signal generator at the sound carrier frequency of the channel (see above chart) and adjust the signal generator output until a voltage reading is obtained on the electronic voltmeter, connected as in step 3.
7. Locate the oscillator tuning adjustment belonging to the channel being aligned. See Figure 9. With a non-metallic screwdriver, adjust the oscillator frequency until the reading on the meter is zero. The meter reading will change rapidly from one polarity, through zero, to the opposite polarity as the oscillator frequency is adjusted to produce the correct sound IF of 21.9 mc.

8. Proceed as above for each channel; and, if the fine frequency trimmer is left in the same position for each channel when the oscillator adjustments are made, very little retuning of the fine tuning control will be required in changing from one television station to the next.

9. With the oscillator correctly set, the next step is the alignment of the RF amplifier. The RF coils for all channels and the antenna trimmers for the first five channels are aligned at a frequency 1 mc higher than the center frequency of the channel under test; that is, 4 mc above the lower channel limit, or 2 mc below the upper limit. See chart above for channels and Figure 9 for alignment locations and frequencies.

10. Connect electronic voltmeter across the video detector load resistor R-48. In the TS-9D the video detector load resistor(R-48) is tied to B- instead of ground as in previous versions. Care should be taken to connect the voltmeter directly across the resistor and not to ground.

11. Set the signal generator to the RF alignment frequency and adjust the output for a reading on the voltmeter.

12. There are two coils for each RF channel. Using a non-metallic screwdriver, detune one core considerably in a counter-clockwise direction. Then tune the other for maximum output on the meter. Now, retune the first coil for maximum output, and the RF amplifier is aligned. Do not retune the other coil again for maximum, as this will not give a proper bandpass characteristic. Always keep the generator output low enough to prevent saturation.

13. Antenna coil trimmers are provided for channels 2 through 6. See Figure 9 for locations. They are peaked for maximum output on the meter at the same frequencies used for aligning the RF coils.

14. Capacitor C-18 is tuned at 195 mc and has enough bandwidth to work effectively over the high frequency channels.

15. Proceed as above for all channels.

#### RF ALIGNMENT CHECK

The signal generator is connected to the antenna terminals of the receiver and tuned to the center frequency of each channel. With the contrast control set for maximum gain, the sensitivity should be as follows:

<u>CHASSIS</u>	<u>VOLTMETER CONNECTED TO</u>	<u>VOLTAGE READING</u>	<u>MICROVOLTS CHANNELS 2-6</u>	<u>SENSITIVITY CHANNELS 7-13</u>
<u>Video Sensitivity</u>				
All TS-9 series	Video Det. Load (R-48)	1.0 V Increase	100	300
<u>Sound Sensitivity</u>				
TS-9	Junction of R-12 & R-13	.5 V	100	300

(Continued)

<u>CHASSIS</u>	<u>VOLTMETER CONNECTED TO</u>	<u>VOLTAGE READING</u>	<u>MICROVOLTS CHANNELS 2-6</u>	<u>SENSITIVITY CHANNELS 7-13</u>
TS-9A	Across R-122 & R-14	1.0 V	100	300
TS-9B	Across R-122 & R-14	1.0 V	100	300
TS-9C	Across R-122 & R-14	1.0 V	25	75
TS-9D	Across R-122 & R-14	1.0 V	25	75

The peak value of discriminator audio output voltage should be 1 volt or greater for a  $\pm 25$  kc shift, with 1 volt of signal at the limiter grid. One volt exists at the limiter grid when 1 volt is measured across resistors R-122 and R-14 (chassis TS-9A, TS-9B, TS-9C, TS-9D) or 1/2 volt at junction of resistors R-12 and R-13 (chassis TS-9). The electronic voltmeter is connected across the volume control (chassis TS-9, TS-9A, TS-9C, TS-9D), or at the junction of resistors R-17 and R-23 (chassis TS-9B). The signal generator frequency is adjusted until a zero voltage reading is obtained and then is shifted  $\pm 25$  kc from zero frequency.

## REPLACEMENT PARTS LIST

### TELEVISION CHASSIS TS-9, A, B, C & D, AND TUNER TT-3 ELECTRICAL PARTS

<u>Ref. No.</u>	<u>Part Number</u>	<u>Description</u>	<u>List Price</u>
<u>CHASSIS PARTS - ELECTRICAL</u>			
<u>Capacitors</u>			
C-1	20K470384	Trimmer, mica: 35-55 mmf .....	.25
C-2	20A470148	Trimmer, mica: 6-30 mmf .....	.25
C-3	20A470148	Trimmer, mica: 6-30 mmf .....	.25
C-4	20A18355	Trimmer, mica: 1.25-15 mmf .....	.25
C-5	20A18355	Trimmer, mica: 1.25-15 mmf .....	.25
C-6	21R2736	Mica: 15 mmf 10% 500V .....	.20
C-7	21R2736	Mica: 15 mmf 10% 500V .....	.20
C-8	21K471216	Ceramic: 2 mmf .....	.20
C-9	21K471216	Ceramic: 2 mmf .....	.20
C-10	21K470736	Ceramic: 100 mmf .....	.20
C-11	21A470738	Ceramic: 25 mmf .....	.25
C-12	21K482296	Ceramic: 1.5 mmf .....	.25
C-13	1X485422	Fine tuning trimmer: consists of bushing with bakelite washer .....	.45
C-14	21A470738	Ceramic: 25 mmf .....	.25
C-15	21K482296	Ceramic: 1.5 mmf .....	.25
C-16	21A470738	Ceramic: 25 mmf .....	.25

<u>Ref. No.</u>	<u>Part Number</u>	<u>Description</u>	<u>List Price</u>
C-17	21K470736	Ceramic: 100 mmf .....	.20
C-18	20A470148	Trimmer, mica: 6-30 mmf .....	.25
C-19	21C470735	Ceramic: 7.5 mmf .....	.25
C-20	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-21	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-22	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-23	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-24	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-25	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-26	21B485463	Silver mica: 50 mmf .....	.20
C-27		Silver mica: 50 mmf; part of T-2 base .....	-
C-28	21K28816	Ceramic: 25 mmf .....	.20
C-29	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-30	21B471338	Silver mica: 20 mmf .....	.30
C-31	21K28816	Ceramic: 25 mmf .....	.20
C-32	21K471339	Ceramic: 20 mmf .....	.30
C-33	21K28816	Ceramic: 25 mmf .....	.20
C-34	21R6662	Mica: 250 mmf 10% 500V .....	.25
C-35	21A470789	Ceramic: 5000 mmf 450V .....	.30
C-36	21A470789	Ceramic: 5000 mmf 450V .....	.30
C-37	8K471163	Paper: .01 mf 100V .....	.20
C-38	21A470789	Ceramic: 5000 mmf 450V .....	.30
C-39	8K471162	Paper: .005 mf 600V .....	.20
C-40A, B&C	23A484195	Electrolytic: "A" 25 mf 25V (triangle); "B" 10 mf 450V (square); "C" 40 mf 450V (half-circle).....	1.85
C-41	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-42	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-43	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-44	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-45	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-46	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-47	21R6662	Mica: 250 mmf 10% 500V .....	.25
C-48	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-49	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-50	21K28816	Ceramic: 25 mmf .....	.20
C-51	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-52	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-53	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-54	21K28816	Ceramic: 25 mmf .....	.20
C-55	8K471166	Paper: .05 mf 100V .....	.20
C-56	8K471167	Paper: .05 mf 400V .....	.20
C-57	23A485454	Electrolytic: 40 mf 150V .....	.85
C-58	8K471167	Paper: .05 mf 400V .....	.20
C-59	21R6662	Mica: 250 mmf 10% 500V .....	.25
C-60	21K484150	Ceramic: 120 mmf .....	.20
C-61	21R6664	Mica: 400 mmf 10% 500V .....	.25
C-62A, B&C	20A484112	Trimmer & Bracket Assembly: 40-245 mmf each section .....	1.00
C-63	21K484150	Ceramic: 120 mmf .....	.20
C-64	21A470789	Ceramic: 5000 mmf 450V .....	.30
C-65	21A470789	Ceramic: 5000 mmf 450V .....	.30



<u>Ref. No.</u>	<u>Part Number</u>	<u>Description</u>	<u>List Price</u>
C-66	21R6567	Mica: 5000 mmf 10% 500V .....	.65
C-67	23K489031	Electrolytic: 10 mf 450V .....	.75
C-68	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-69	8K471169	Paper: .1 mf 400V .....	.25
C-70	8K484148	Paper: .25 mf 400V .....	.45
C-71A, B,C&D	23A484196	Electrolytic: "A" 250 mf 25V (blank); "B" 10 mf 450V (square); "C" 40 mf 450V (half-circle) "D" 10 mf 450V (triangle) .....	2.30
C-72	8A471356	Paper: .25 mf 200V .....	.35
C-73	21R2740	Mica: 68 mmf 10% 800V .....	.25
C-74A, B & C	23A484197	Electrolytic: "A" 40 mf 450V (square); "B" 40 mf 450V (half-circle); "C" 40 mf 150V (triangle)...	2.25
C-75A, B,C&D	23A484194	Electrolytic: "A" 40 mf 300V (square); "B" 40 mf 300V (half-circle); "C" 40 mf 300V (triangle); "D" 20 mf 150V (blank) .....	2.30
C-76	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-77	8K471166	Paper: .05 mf 100V .....	.20
C-78	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-79	8K471164	Paper: .02 mf 100V .....	.20
C-80	8A471356	Paper: .25 mf 200V .....	.35
C-81	21R6662	Mica: 250 mmf 10% 500V .....	.25
C-82	21R6568	Mica: 2000 mmf 10% 500V .....	.45
C-83	8K471169	Paper: .1 mf 400V .....	.25
C-84	21R6664	Mica: 400 mmf 10% 500V .....	.25
C-85	21K484150	Ceramic: 120 mmf .....	.20
C-86	21C470735	Ceramic: 7.5 mmf .....	.25
C-87	8K471167	Paper: .05 mf 400V .....	.20
C-88	8A471356	Paper: .25 mf 200V .....	.35
C-89	8A482184	Paper: .03 mf 600V .....	.25
C-90	8A471149	Paper: .1 mf 600V .....	.35
C-91	23A485456	Electrolytic: .5 ohm $\bar{z}$ at 15750 cycles .....	1.30
C-92	21A90013	High-Voltage: 500 mmf 10,000V .....	1.55
C-93	21A101778	Ceramic: 10 mmf .....	.25
C-94	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-95	8K471168	Paper: .1 mf 100V .....	.20
C-96	8K780005	Paper: .002 mf 400V .....	.20
C-97	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-98	21R2740	Mica: 68 mmf 10% 800V .....	.25
C-99	21R6664	Mica: 400 mmf 10% 500V .....	.25
C-100	21A470789	Ceramic: 5000 mmf 450V .....	.30
C-101, A,B, C,D	23A484196	Electrolytic: "A" 25 mf 25V (blank); "B" 10 mf 450V (triangle); "C" 40 mf 450V (half-circle) "D" 15 mf 450V (square) .....	2.30
C-102	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-103	8A471356	Paper: .25 mf 200V .....	.35
C-104	8K780005	Paper: .002 mf 400V .....	.20
C-105	8K780006	Paper: .005 mf 200V .....	.20
C-106	8K780006	Paper: .005 mf 200V .....	.20
C-107	21A470789	Ceramic: 5000 mmf 450V .....	.30
C-108	21A470789	Ceramic: 5000 mmf 450V .....	.30
C-109	21K478410	Ceramic: 1000 mmf 500V .....	.25

<u>Ref. No.</u>	<u>Part Number</u>	<u>Description</u>	<u>List Price</u>
C-110	23K489031	Electrolytic: 10 mf 450V .....	.75
C-111	21A470789	Ceramic: 5000 mmf 450V .....	.30
C-112	8K471168	Paper: .1 mf 100V .....	.20
C-113	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-114	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-115	8K471162	Paper: .005 mf 600V .....	.20
C-116	8A471149	Paper: .1 mf 600V .....	.35
C-117	8K780430	Paper: .03 mf 1000V .....	.25
C-118	8K780158	Paper: .5 mf 100V .....	.45
C-119	8A471151	Paper: .05 mf 600V .....	.25
C-120	21A489052	Ceramic: 3.3 mmf .....	.15
C-121	21K28816	Ceramic: 25 mmf .....	.20
C-122	21K478410	Ceramic: 1000 mmf 500V .....	.25
C-123	21A470789	Ceramic: 5000 mmf 450V .....	.30
C-124	21A101778	Ceramic: 10 mmf .....	.25
C-125	21A101778	Ceramic: 10 mmf .....	.25
C-126	8K471166	Paper: .05 mf 100V .....	.20
C-127	21A470789	Ceramic: 5000 mmf 450V .....	.30
C-128	8K471166	Paper: .05 mf 100V .....	.20
C-129	8K471167	Paper: .05 mf 400V .....	.20
C-130	8A471356	Paper: .25 mf 200V .....	.35
C-131	21R6630	Mica: 1000 mmf .....	.40
C-132	8A471149	Paper: .1 mf 600V .....	.35
C-133	21K38224	Ceramic: 100 mmf .....	.25
C-134	21R6630	Mica: 1000 mmf .....	.40
C-135	8K471163	Paper: .01 mf 100V .....	.20
C-136	8K471163	Paper: .01 mf 100V .....	.20
C-137	21R6630	Mica: 1000 mmf .....	.40
C-138	8K471167	Paper: .05 mf 400V .....	.20
C-139	21R6662	Mica: 250 mmf .....	.25
C-140	21R6567	Mica: 5000 mmf .....	.65
C-141	23K489031	Electrolytic: 10 mf 450V .....	.75
C-142	21R6664	Mica: 400 mmf .....	.25
C-143	21R6662	Mica: 250 mmf .....	.25
C-144	20A780615	Trimmer, mica: 47 to 246 mmf; includes mtg brkt...	.40
C-145	21A101778	Ceramic: 10 mmf .....	.25
C-146	21K470323	Ceramic: 15 mmf .....	.25
C-147	-	Silver mica: 100 mmf (part of T-17 base) .....	-

#### Rectifier

E-1	48A90173	Crystal, 1N34 Germanium .....	1.75
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#### Fuse

F-1	65K474899	Fuse: 1/8 amp .....	.20
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#### Coils

L-1	24K485428	RF coil: channel #2; includes winding, form & core	.60
L-2	24K485429	RF coil: channel #3; includes winding, form & core	.60
L-3	24K485430	RF coil: channel #4; includes winding, form & core	.60
L-4	24K485431	RF coil: channel #5; includes winding, form & core	.60
L-5	24K485432	RF coil: channel #6; includes winding, form & core	.60

<u>Ref. No.</u>	<u>Part Number</u>	<u>Description</u>	<u>List Price</u>
L-6	24A470764	RF coil: channel #7; winding only .....	.05
L-7	24A470764	RF coil: channel #8; winding only .....	.05
L-8	24K485426	RF coil: channel #9; winding only .....	.05
L-9	24A470763	RF coil: channel #10; winding only .....	.05
L-10	24A470763	RF coil: channel #11; winding only .....	.05
L-11	24A470763	RF coil: channel #12; winding only .....	.05
L-12	24A470763	RF coil: channel #13; winding only .....	.05
L-13	24K485428	RF coil: channel #2; includes winding, form & core	.60
L-14	24K485429	RF coil: channel #3; includes winding, form & core	.60
L-15	24K485430	RF coil: channel #4; includes winding, form & core	.60
L-16	24K485431	RF coil: channel #5; includes winding, form & core	.60
L-17	24K485432	RF coil: channel #6; includes winding, form & core	.60
L-18	24K470763	RF coil: channel #7; winding only .....	.05
L-19	24K471335	RF coil: channel #8; winding only .....	.05
L-20	24K471335	RF coil: channel #9; winding only .....	.05
L-21	24K471335	RF coil: channel #10; winding only .....	.05
L-22	24A470765	RF coil: channel #11; winding only .....	.05
L-23	24K485427	RF coil: channel #12; winding only .....	.05
L-24	24K485427	RF coil: channel #13; winding only .....	.05
L-25	24K485433	Oscillator coil: channel #2; includes winding, form & core .....	.60
L-26	24K485434	Oscillator coil: channel #3; includes winding, form & core .....	.60
L-27	24K485434	Oscillator coil: channel #4; includes winding, form & core .....	.60
L-28	24K485435	Oscillator coil: channel #5; includes winding, form & core .....	.60
L-29	24K485435	Oscillator coil: channel #6; includes winding, form & core .....	.60
L-30	24A485436	Oscillator coil: channel #7; winding only .....	.05
L-31	24A485437	Oscillator coil: channel #8; winding only .....	.05
L-32	24A485437	Oscillator coil: channel #9; winding only .....	.05
L-33	24K485438	Oscillator coil: channel #10; winding only .....	.05
L-34	24K485440	Oscillator coil: channel #11; winding only .....	.05
L-35	24K485440	Oscillator coil: channel #12; winding only .....	.05
L-36	24K485440	Oscillator coil: channel #13; winding only .....	.05
L-37	24A90064	RF Choke filament .....	.15
L-38	24A780127	RF Choke, B+: insulated and coded, 1 microhenry...	.20
L-39	24A90064	RF Choke filament .....	.15
L-40	24A780127	RF Choke, B+: insulated and coded, 1 microhenry ...	.20
L-41	24A90064	RF Choke filament .....	.15
L-42	24A780127	RF Choke, B+: insulated and coded, 1 microhenry ..	.20
L-43	24A780127	RF Choke, B+: insulated and coded, 1 microhenry ..	.20
L-44	24K484082	Sound trap coil: complete with iron core .....	.45
L-45	24K484137	Compensating coil: gray dot .....	.30
L-46	24B484077	Trap coil: 4.5 Mc; complete with iron core .....	.50
L-47	24K484136	Compensating coil: black dot .....	.30
L-48	24K484136	Compensating coil: black dot .....	.30
L-49	24K484137	Compensating coil: gray dot .....	.30
L-50A, B, C&D or	24K485475 24K485474		
	or 24K485476	Deflection coil: complete .....	9.00
L-51	24K780019	Sound IF coil .....	.60
L-52	24A90064	RF Choke, filament .....	.15

<u>Ref. No.</u>	<u>Part Number</u>	<u>Description</u>	<u>List Price</u>
L-54	24B484159	Focus coil: 345 ohms .....	9.00
L-55	24B780356	Horizontal oscillator coil: complete with iron core; less shield can .....	1.50
L-56	24B90119	Horizontal size coil: complete with iron core ....	.95
L-57	24B470796	Horizontal linearity coil: complete with iron core .....	.95
L-58	24B485467	Focus coil: 540 ohms .....	9.00
L-59	24B780394	Video IF coil: complete with iron core .....	.80
L-60	24A780127	RF choke, B+: insulated and coded, 1 microhenry...	.20
L-61	24B790055	Horizontal oscillator coil: complete with iron core.....	1.45

Speakers

LS-1	50B489002	Speaker: 6" electrodynamic; 3.2 ohm VC; 100 ohm (hot) field (VT-105) .....	5.10
		Exch.	3.80
LS-2	50C780326	Speaker: 8" electrodynamic; 3.2 ohm VC; 100 ohm (hot) field (VT-107) .....	6.00
		Exch.	4.50
	50C780122	Speaker: 8" electrodynamic; 3.2 ohm VC; 100 ohm (hot) field (VK-106) .....	6.10
		Exch.	4.60

Resistor

Note: All resistors are insulated carbon type unless otherwise specified.

R-1	6R5554	390 10% 1/2W .....	doz.	1.00
R-2	6R6270	220 10% 1/2W .....	doz.	1.00
R-3	6R6377	470,000 10% 1/2W .....	doz.	1.00
R-4	6R5575	82,000 10% 1W .....	each	.15
			doz.	1.45
R-5	6R476014	18,000 10% 2W .....		.20
R-6	6R6377	470,000 10% 1/2W .....	doz.	1.00
R-7	6R6377	470,000 10% 1/2W .....	doz.	1.00
R-8	6R6301	1000 20% 1/2W .....	doz.	1.00
R-9	6R5610	8,200 10% 1W .....	each	.15
			doz.	1.45
R-10	6R2119	15,000 20% 1/2W .....	doz.	1.00
R-11	6R6018	100 20% 1/2W .....	doz.	1.00
R-12	6R6056	47,000 20% 1/2W .....	doz.	1.00
R-13	6R6056	47,000 20% 1/2W .....	doz.	1.00
R-14	6R6018	100 20% 1/2W .....	doz.	1.00
R-15	6R2119	15,000 20% 1/2W .....	doz.	1.00
R-16	6R476060	10,000 20% 2W .....		.20
R-17	6R6031	100,000 10% 1/2W .....	doz.	1.00
R-18	6R6031	100,000 10% 1/2W .....	doz.	1.00
R-19	6R6031	100,000 10% 1/2W .....	doz.	1.00
R-20	6R2109	10 meg 20% 1/2W .....	doz.	1.00
R-21				
A&B	18A489005	Volume control, tone control & power switch; 1 meg, 1 meg & SPST switch .....		2.25
R-22	6R6410	33,000 10% 1/2W .....	doz.	1.00
R-23	6R6048	47,000 10% 1/2W .....	doz.	1.00
R-24	6R6004	1 meg 20% 1/2W .....	doz.	1.00

<u>Ref. No.</u>	<u>Part Number</u>	<u>Description</u>	<u>List Price</u>
R-25	6R2122	4.7 meg 20% 1/2W .....doz.	1.00
R-26	6R6407	220,000 10% 1/2W .....doz.	1.00
R-27	6R476116	270 10% 2W .....doz.	.20
R-28	6R5656	12,000 10% 1W .....each	.15
		doz.	1.45
R-29	6R488036	560 10% 2W .....doz.	.20
R-30	6R2004	8200 10% 1/2W .....doz.	1.00
R-31	6R2119	15,000 20% 1/2W .....doz.	1.00
R-32	6R6301	1000 20% 1/2W .....doz.	1.00
R-33	6R6007	68 20% 1/2W .....doz.	1.00
R-34	6R6397	22,000 10% 1/2W .....doz.	1.00
R-35	6R6301	1000 20% 1/2W .....doz.	1.00
R-36	6R6007	68 20% 1/2W .....doz.	1.00
R-37	6R6398	150,000 10% 1/2W .....doz.	1.00
R-38	6R2109	10 meg 20% 1/2W .....doz.	1.00
R-39	6R6410	33,000 10% 1/2W .....doz.	1.00
R-40	6R6007	68 20% 1/2W .....doz.	1.00
R-41	6R6080	4700 10% 1/2W .....doz.	1.00
R-42	6R3933	220 20% 1/2W .....doz.	1.00
R-43	6R6320	10,000 10% 1/2W .....doz.	1.00
R-44	6R6080	4700 10% 1/2W .....doz.	1.00
R-45	6R6397	22,000 10% 1/2W .....doz.	1.00
R-46		27,000 10% 1/2W (part of L-45) .....	-
R-47		1 meg 10% 1/2W (part of L-47) .....	-
R-48	6R6080	4700 10% 1/2W .....doz.	1.00
R-49	6R3966	1.5 meg 20% 1/2W .....doz.	1.00
R-50	6R6377	470,000 10% 1/2W .....doz.	1.00
R-51	6R6407	220,000 10% 1/2W .....doz.	1.00
R-52	6R2108	47 20% 1/2W .....doz.	1.00
R-53	6R6004	1 meg 20% 1/2W .....doz.	1.00
R-54	6R5581	3300 10% 1/2W .....doz.	1.00
R-55		1 meg 10% 1/2W (part of L-48) .....	-
R-56	6R2029	3300 10% 2W .....each	.20
R-57	6R6327	1000 10% 1W .....each	.15
		doz.	1.45
R-58		27,000 10% 1/2W (part of L-49) .....	-
R-59	6R6031	100,000 10% 1/2W .....doz.	1.00
R-60	6R6428	6800 10% 1/2W .....doz.	1.00
R-61	6R6400	33,000 10% 1W .....each	.15
		doz.	1.45
R-62	6R2004	8200 10% 1/2W .....doz.	1.00
R-63	6R6428	6800 10% 1/2W .....doz.	1.00
R-64	18A484199	Vertical size control: 2 meg .....	.80
R-65	6R6377	470,000 10% 1/2W .....doz.	1.00
R-66	6R6407	220,000 10% 1/2W .....doz.	1.00
R-67	6R6377	470,000 10% 1/2W .....doz.	1.00
R-68	6R6429	820,000 10% 1/2W .....doz.	1.00
R-69	18A484073	Vertical & Horizontal Hold Control, dual: 1 meg & 30,000 .....	1.75
R-70	6R5581	3300 10% 1/2W .....doz.	1.00
R-71	6R6291	560 10% 1/2W .....doz.	1.00
R-72	6R2118	3.3 meg 20% 1/2W .....doz.	1.00
R-73	18A484800	Vertical Linearity Control: 5000 .....	.80
R-74	6R476004	1000 20% 2W .....doz.	.20

<u>Ref. No.</u>	<u>Part Number</u>	<u>Description</u>	<u>List Price</u>
R-75	6R6012	33,000 20% 1/2W .....doz.	1.00
R-76			
A & B	1A484072	Contrast & Brightness Controls, dual; 10,000 & 100,000 .....	1.80
R-77	6R6444	180,000 10% 1/2W .....doz.	1.00
R-78	6R6291	560 10% 1/2W .....doz.	1.00
R-79	6R488144	10 20% 2W .....	.20
R-80	6R488144	10 20% 2W .....	.20
R-81	6R488144	10 20% 2W .....	.20
R-82	6R488144	10 20% 2W .....	.20
R-83	6R488144	10 20% 2W .....	.20
R-84	6R488144	10 20% 2W.....	.20
R-85	17A485413	Wire wound: 9500; 25W; tapped .....	1.35
R-86	6R3963	100 10% 2W .....	.20
R-87	6R3963	100 10% 2W .....	.20
R-88	6R488036	560 10% 2W .....	.20
R-89	6R6378	56,000 10% 1/2W .....doz.	1.00
R-90	6R488036	560 10% 2W .....	.20
R-91	6A489166	Special: negative temperature compensating resistor; 33,000 ohms at 25°C .....	.35
R-92	6R2118	3.3 meg 20% 1/2W .....doz.	1.00
R-93	6R5697	560,000 10% 1/2W .....doz.	1.00
R-94	6R2004	8200 10% 1/2W .....doz.	1.00
R-95	6R6444	180,000 10% 1/2W .....doz.	1.00
R-96	6R6031	100,000 10% 1/2W .....doz.	1.00
R-97	6R6031	100,000 10% 1/2W .....doz.	1.00
R-98	6R6054	10,000 20% 1/2W .....doz.	1.00
R-99	6R5698	120,000 10% 1W .....each doz.	.15 1.45
R-100	6R6320	10,000 10% 1/2W .....doz.	1.00
R-101	6R6398	150,000 10% 1/2W .....doz.	1.00
R-102	6R5697	560,000 10% 1/2W .....doz.	1.00
R-103	6R2108	47 20% 1/2W .....doz.	1.00
R-104	6R6004	1 meg 20% 1/2W .....doz.	1.00
R-105	6R488222	82 20% 2W .....	.20
R-106	6R476060	10,000 20% 2W .....	.20
R-107	17A485412	Wire wound: 3.3 10% 1/2W .....	.10
R-108	6R2053	820,000 10% 1W .....each doz.	.15 1.45
R-109	6R6291	560 10% 1/2W .....doz.	1.00
R-110	17A780113	Focus control: wire wound; adjustable; 1000 25W (replaces 10W, 17A484075) .....	1.80
R-111	17A484168	Wire wound: 2600 13W .....	.60
R-112	6R5581	3300 10% 1/2W .....doz.	1.00
R-113	6R3964	1800 10% 2W .....	.20
R-114	6R3968	180 10% 2W .....	.20
R-115	17A484810	Wire wound: 57 10W .....	.80
R-116	6R6004	1 meg 20% 1/2W .....doz.	1.00
R-117	6R6433	2.2 meg 10% 1/2W .....doz.	1.00
R-118	6R6004	1 meg 20% 1/2W .....doz.	1.00
R-119	6R6377	470,000 10% 1/2W .....doz.	1.00
R-120	6R6432	270 10% 1/2W .....doz.	1.00
R-121	6R5687	2,200 10% 2W .....	.20
R-122	6R6031	100,000 10% 1/2W .....doz.	1.00

<u>Ref. No.</u>	<u>Part Number</u>	<u>Description</u>	<u>List Price</u>
R-123	6R6004	1 meg 20% 1/2W .....doz.	1.00
R-124	6R6031	100,000 10% 1/2W .....doz.	1.00
R-125	6R6048	47,000 10% 1/2W .....doz.	1.00
R-126	6R6377	470,000 10% 1/2W .....doz.	1.00
R-127	6R476004	1000 20% 2W .....doz.	.20
R-128	6R6080	4,700 10% 1/2W .....doz.	1.00
R-129	6R6320	10,000 10% 1/2W .....doz.	1.00
R-130	6R6031	100,000 10% 1/2W .....doz.	1.00
R-131	6R6397	22,000 10% 1/2W .....doz.	1.00
R-132	6R6004	1 meg 20% 1/2W .....doz.	1.00
R-133	6R2118	3.3 meg 20% 1/2W .....doz.	1.00
R-134	6R488036	560 10% 2W .....doz.	.20
R-135	6R5764	2,700 10% 2W .....doz.	.20
R-136	6R5764	2,700 10% 2W .....doz.	.20
R-137	6R6069	2,200 10% 1/2W .....doz.	1.00
R-138	6R476116	270 10% 2W .....doz.	.20
R-139	6R5659	3,900 10% 1/2W .....doz.	1.00
R-140	6R6328	100,000 10% 1W .....each	.15
		doz.	1.45
R-141	6R6117	5,600 10% 1/2W .....doz.	1.00
R-142	6R6080	4,700 10% 1/2W .....doz.	1.00
R-143	6R6377	470,000 10% 1/2W .....doz.	1.00
R-144	6R488222	75 ohms in some sets. Replace with 82 ohms (part number 6R488222) .....doz.	.20
R-145	6R6018	100 20% 1/2W .....doz.	1.00
R-146	6R6397	22,000 10% 1/2W (part of L-51) .....doz.	1.00
R-147	6R6229	1000 10% 1/2W .....doz.	1.00
R-148	6R6320	10,000 10% 1/2W .....doz.	1.00
R-149	6R3966	1.5 meg 20% 1/2W .....doz.	1.00
R-150	17K780343	Wire wound: 1000 13W .....doz.	.55
R-151	18K780354	Focus control: 1000 .....doz.	1.95
R-152	6R6229	1000 10% 1/2W .....doz.	1.00
R-153	6R6428	6800 10% 1/2W .....doz.	1.00
R-154	6R6397	22,000 10% 1/2W .....doz.	1.00
R-155	6R6407	220,000 10% 1/2W .....doz.	1.00
R-156	6R2029	3300 10% 2W .....doz.	.20
R-157	6R6336	270 10% 1W .....each	.15
		doz.	1.45
R-158	6R6018	100 20% 1/2W .....doz.	1.00
R-159	6R3966	1.5 meg 20% 1/2W .....doz.	1.00
R-160	6R3966	1.5 meg 20% 1/2W .....doz.	1.00
R-161	6R476014	18,000 10% 2W .....doz.	.20
R-162	6R6080	4700 10% 1/2W .....doz.	1.00
R-163	6R6336	270 10% 1W .....each	.15
		doz.	1.45
R-164	6R5768	33,000 10% 2W .....doz.	.20
R-165	6R2118	3.3 meg 20% 1/2W .....doz.	1.00
R-166	6R6080	4700 10% 1/2W .....doz.	1.00
R-167	6R6080	4700 10% 1/2W .....doz.	1.00
R-168	6R2109	10 meg 20% 1/2W .....doz.	1.00
R-169	6R6161	1500 20% 1/2W .....doz.	1.00
R-170	6R6031	100,000 10% 1/2W .....doz.	1.00
R-171	6R6048	47,000 10% 1/2W .....doz.	1.00
R-172	6R6048	47,000 10% 1/2W .....doz.	1.00

<u>Ref. No.</u>	<u>Part Number</u>	<u>Description</u>	<u>List Price</u>
R-173	6R6031	100,000 10% 1/2W .....doz.	1.00
R-174	6R6031	100,000 10% 1/2W .....doz.	1.00
R-175	6R6048	47,000 10% 1/2W .....doz.	1.00
R-176	6R6446	4.7 meg 10% 1/2W .....doz.	1.00
R-177	6R6446	4.7 meg 10% 1/2W .....doz.	1.00
R-178	6R6161	1500 20% 1/2W .....doz.	1.00
R-179	6R5644	82,000 10% 1/2W .....doz.	1.00
R-180	6R6117	5600 10% 1/2W .....doz.	1.00
R-181	6R5686	2700 10% 1W .....each	.15
		doz.	1.45
R-182	6R5734	18,000 10% 1W .....each	.15
		doz.	1.45
R-183	6R6414	270,000 10% 1/2W .....doz.	1.00
R-184	6R5732	15,000 10% 2W .....doz.	.20

Transformers

T-1	1X470353	Antenna transformer; complete with antenna receptacle & trimmer .....	2.65
T-2	24B484086	IF transformer, 21.9 Mc; complete but less shield can .....	1.50
T-3	24B471340	Discriminator transformer, 21.9 Mc; complete, but less shield can .....	2.10
T-4	25B489030	Audio output transformer .....	1.60
T-5	24B489071	Video IF transformer: complete with iron core .....	.60
T-6	24B489071	Video IF transformer: complete with iron core .....	.60
T-7	24B489071	Video IF transformer: complete with iron core .....	.60
T-8	24B489073	Video IF & sound take-off transformer: complete with iron core .....	.70
T-9	24B489075	Video IF transformer: complete with iron core .....	.45
T-10	24B485416	Vertical blocking oscillator transformer ....	2.35
T-11	25K489134	Vertical output transformer .....	5.05
T-12	25C484843	Power transformer .....	14.90
T-13	25C90052	Horizontal output transformer .....	10.30
T-14	25C484095	Power transformer .....	17.65
T-15	24K780390	Video IF transformer: complete with iron core .....	.60
T-16	24B471340	Discriminator transformer, 21.7 Mc; complete but less shield can .....	2.10
T-17	24B780319	IF transformer, 21.7 Mc; complete but less shield can .....	2.00

Tubes

V-1	6AG5	RF Amplifier .....	-
V-2	6J6	Mixer & HF oscillator .....	-
V-3	6BA6	1st Video IF Amplifier .....	-
V-4	6BA6	2nd Video IF Amplifier .....	-
V-5	6BA6	3rd Video IF Amplifier .....	-
V-6	6AU6	Sound IF Amplifier .....	-
V-7	6AU6	Sound IF Amplifier .....	-
V-8	6T8	Discriminator & 1st AF Amplifier .....	-
V-9	6V6GT	Audio Amplifier .....	-
V-10	6AG5	4th Video IF Amplifier .....	-
V-11	6AL5	Video Detector & Pulse Stripper Diode .....	-



<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>List Price</u>
V-12	12AU7	1st & 2nd Video Amplifier.....	-
V-13	6SN7GT	Pulse Amplifier & Pulse Stripper .....	-
V-14	6SN7GT	Vertical Blocking Oscillator & Vertical Output Amplifier .....	-
V-15	6SN7GT	Horizontal Oscillator & Horizontal Oscillator Control .....	-
V-16	6BG6G	Horizontal Output Amplifier & HV Generator...	-
V-17	1B3GT/8016	HV Rectifier .....	-
V-18	5V4G	Damping Diode .....	-
V-19	10BP4	Kinescope .....	-
V-20	25Z6GT	LV Rectifier .....	-
V-21	25Z6GT	LV Rectifier .....	-
V-22	25Z6GT	LV Rectifier .....	-
V-23	25Z6GT	LV Rectifier .....	-
V-24	6AU6	Sound IF Amplifier .....	-
V-25	5U4G	LV Rectifier .....	-
V-26	5Y3GT	LV Rectifier .....	-
V-27	12AU7	1st Pulse Stripper .....	-
V-28	12AU7	2nd Pulse Stripper & Pulse Amplifier .....	-
V-29	6AL5	Phase Detector .....	-

CHASSIS PARTS - MECHANICAL

7K485464	Bracket, chassis mounting .....	.10
7B489064	Bracket, coil mounting (horizontal linearity & size coil mtg).....	.35
7A780613	Bracket, coil mtg (for L-61) .....	.10
1X780039	Bracket & Cushions Assembly: front kinescope support ring; complete .....	3.25
7B470376	Bracket, deflection yoke mounting .....	2.00
7K484165	Bracket, focus coil mounting .....	.65
7K780115	Bracket, focus control resistor mtg (for 25W resistor)...	.05
7K484808	Bracket, kinescope support .....	.40
1X470706	Bracket & Socket Assembly: hi-voltage rectifier tube mtg.	.85
7B485423	Bracket, support (between kinescope support brackets)....	.20
7K485411	Bracket, tuner chassis mounting .....	.05
43A485469	Bushing, focus control (contact insulator) .....	.30
1X484841	Cable Assembly, speaker: includes receptacle .....	1.35
42B70721	Clip, coil (T-3 & T-16 sec. core retainer) .....	doz. .25
42K470074	Clip, coil retainer (horizontal size and linearity, video IF & trap mtg) .....	doz. .30
42A72609	Clip, shield (V-2 shield grounding) .....	.05
42A780014	Clip, spring: phosphor bronze (focus control contactor) (for 25W resistor) .....	.10
42A780419	Clip, spring: black (V-2 shield grounding) .....	doz. .25
30A482192	Conductor, shielded: single; black .....	ft. .10
30K489040	Conductor, shielded: single; blue .....	ft. .10
30K489041	Conductor, shielded: single; green .....	ft. .10
42K484844	Connector, kinescope HV .....	1.00
39K17396	Contact, pin terminal (in speaker receptacle) .....	per/c .50
46K471143	Core, iron & screw (for L-57, L-55, L-61) .....	.15
46A780344	Core, iron-ceramic & screw (for L-56) .....	.45

<u>Part Number</u>	<u>Description</u>	<u>List Price</u>
46A70023	Core, iron & screw (for T-5, T-6, T-7, T-8, T-9, T-15, L-44)	.15
46K471337	Core, iron & screw (T-3 & T-16 pri. & sec., L-46) .....	.15
46A484198	Core, iron; threaded (T-2 & T-17 pri. & sec.) .....	.15
35K484817	Cushion, kinescope: felt; 32-1/2" long .....	.55
35A90057	Cushion, kinescope retainer: felt (on top retainer brkts)doz.	.25
5S7845	Eyelet (V-15 socket mtg) .....	.30
5S3135	Eyelet: .324 x .593; brass;(focus coil adj screws) .....	.30
1X780118	Focus Control Assembly: complete (for 25W resistor) .....	2.90
37A12691	Grommet, rubber (cushions for V-15 socket) .....	.35
14K87179	Insulator, coil: 2-1/8 x 3-1/8 (T-3 & T-16) .....	.25
14A780088	Insulator, coil (T-2 & T-17) .....	.20
14A780371	Insulator, hi-voltage capacitor .....	.20
4S7686	Lockwasher, external: #5; cad pl (tuner mtg) .....	.50
4S7666	Lockwasher, external: #6 (hi-volt. cap. insulator) .....	.50
4S7657	Lockwasher, external: #8; cad pl (pwr trans mtg) .....	.50
4S7650	Lockwasher, internal: #6; cad pl .....	.50
4S7651	Lockwasher, internal: #8; cad pl (on focus control assembly) .....	.50
4S9751	Lockwasher, internal-external: #8; cad pl (kinescope support bracket mtg, etc.) .....	.50
29R3013	Lug, soldering: double .....	.15
29R5388	Lug, soldering: #6; hot-tinned .....	.50
29R5248	Lug, soldering: #6; hot-tinned (hi-volt. cap.insulator)doz.	.15
2S7019	Nut, hex: 4-40 x 1/4; cad pl (soldered on horizontal lin. & size core screws) .....	.50
2A780157	Nut, hex: 4-40 x 1/4 x 3/16 thick; brass (tuner mtg)....doz.	.40
2S7050	Nut, hex: 6-32 x 5/16; Palnut; cad pl (HV cap. mtg)....per/c	.50
2S7003	Nut, hex: 8-32 x 5/16; cad pl (pwr trans mtg & on focus control) .....	.50
2S7051	Nut, hex: 3/8-32 x 9/16; Palnut; cad pl (control mtg)....doz.	.15
35A780085	Pad, felt (focus coil) .....	.10
2B70703	Palnut, special (L-55, T-3 & T-16 pri. core retainer)....doz.	.30
28K471323	Plug, line cord (interlock on chassis) .....	.20
9A22367	Receptacle, 5-prong (on speaker cable) .....	.15
65A780351	Receptacle, fuse: includes nut and washer .....	.60
5S7771	Rivet: .088 x 3/16; steel; nkl pl (min. socket mtg) ...per/c	.50
5S7707	Rivet: .122 x 5/32; steel; nkl pl (octal socket mtg)....per/c	.50
5S7701	Rivet: .122 x 3/16; steel; nkl pl (electrolytic wafer mtg) .....	.50
5S7700	Rivet: .122 x 1/4; steel; nkl pl (chassis mtg brkt)....per/c	.50
5S7728	Rivet: .122 x 5/16; steel; nkl pl (V-17 socket mtg)....per/c	.50
5S2841	Rivet: .143 x 7/16; steel; nkl pl (V-15 socket mtg)....doz.	.15
3S7152	Screw, machine: #6 x 1/4 plain hex head; cad pl .....	.50
3S7163	Screw, machine: 8-32 x 1/4 plain hex head; cad pl (kinescope support brkt mtg, etc.) .....	.50
3S488240	Screw, machine: 8-32 x 1-1/4 slotted filister head; cad pl (picture centering screw) .....	.15
3S488101	Screw, machine: 8-32 x 2-1/4 slotted round head; cad pl (focus control resistor mtg) .....	.25
3S8140	Screw, sheet metal: #8 x 3/16 PKZ plain hex head; cad pl (tuner shield mtg) .....	.50
3S7454	Screw, sheet metal: #8 x 1/4 PKZ plain hex head; cad pl (focus control mtg, etc.) .....	.50

<u>Part Number</u>	<u>Description</u>	<u>List Price</u>
3S7467	Screw, sheet metal: #8 x 3/8 PKZ plain hex head; cad pl (vertical output trans mtg) .....doz.	.15
3S7530	Screw, sheet metal: #8 x 1-1/2 PKZ plain hex head; cad pl (on kinescope tube support bracket) .....doz.	.15
3A470369	Screw, thumb: 8-32 thread (deflection yoke mtg) .....doz.	.50
47A485468	Shaft, focus control .....	.10
26K485410	Shield, coil (for T-2 & T-17) .....	.20
26K485936	Shield, coil (for T-3, T-16, L-55) .....	.20
1X478504	Shield, corona (on V-17 socket) .....	.15
26B484041	Shield, tuner .....	.20
26A780515	Shield, tuner tubes .....	.15
14A489155	Sleeve, paper (focus control shaft insulator) .....doz.	.40
9B90116	Socket, kinescope: 12 pin; with leads .....	2.10
9K484167	Socket, tube: 7 prong miniature .....	.20
9A780011	Socket, tube: 7 prong miniature (for V-29) .....	.20
9A484835	Socket, tube: octal: steatite (for V-15) .....	.50
9K471270	Socket, tube: octal (for all octal tubes but V-17) ....	.20
9A480274	Socket, tube: octal (for V-17) .....	.20
9A485495	Socket, tube: 9 prong; noval (for V-8 & V-12) .....	.25
9K780353	Socket, tube & adapter: noval (for V-12, V-27, V-28)...	.35
2A470365	Speednut: #8A (vertical output trans mtg & on kinescope support bracket) .....	.25
41A70705	Spring, coil (for T-3, T-16, L-55) .....	.15
41A484166	Spring, compression (on picture centering screws) .....doz.	.25
41A471379	Spring, kinescope support: 11" long .....	.25
31K90046	Strip, terminal: 5 insulated lugs, #4 ground, 3/8 spacing	.10
31A780523	Strip, terminal: 5 large insulated lugs, #4 ground, 1/2 spacing .....	.10
31A780374	Strip, terminal: 5 insulated lugs (#3 large), #4 ground, 3/8 spacing .....	.10
31K26658	Strip, terminal: 5 insulated lugs, #3 ground, 3/8 spacing	.10
31A780304	Strip, terminal: 5 insulated lugs, #2 ground, 3/8 spacing	.10
31K37494	Strip, terminal: 4 insulated lugs, #3 ground, 3/8 spacing	.10
31K471568	Strip, terminal: 4 insulated lugs, #2 ground, 3/8 spacing	.10
31K471565	Strip, terminal: 3 insulated lugs, #4 ground, 3/8 spacing	.05
31K51511	Strip, terminal: 3 insulated lugs, #3 ground, 3/8 spacing	.05
31K34326	Strip, terminal: 2 insulated lugs, #3 ground, 3/8 spacing	.05
31K90044	Strip, terminal: 2 insulated lugs, #2 ground, 3/8 spacing	.05
31K31217	Strip, terminal: 1 insulated lug, #2 ground, 3/8 spacing	.05
31K51251	Strip, terminal: 1 insulated lug, #1 ground, 3/8 spacing	.05
46A484807	Stud, socket mounting (V-3 socket) .....doz.	.35
24A489077 or		
24B484822	Trap, ion: permanent magnet type .....	2.35
9K471267	Wafer, electrolytic mounting: bakelite; for 4 lug capacitors .....	.35
4K61642	Washer, "C" spring (on focus control) .....per/c	.50
4A470785	Washer, fibre: 3/8 x 3/16 x 1/16 thick (part of focus control) .....	.15
4S1720	Washer, flat: 3/8 x .156 x .030; cad pl (tuner mtg)....per/c	.50
4A74936	Washer, spring (on focus control)(for 25W resistor)....doz.	.15

<u>Part Number</u>	<u>Description</u>	<u>List Price</u>
TUNING UNIT TT-3		
1X484850	Tuner TT-3 (complete) .....	55.00

NOTE: Replaceable electrical parts are included in Television Chassis TS-9 Replacement Parts List. It is recommended that entire tuner be returned for exchange if trouble develops in any of its major components.

Replaceable Mechanical Parts

43A4326	Ball, steel: 1/8" (fine tuning assembly) .....	doz.	.15
7B482263	Bracket, tuner support (rear end of tuner) .....		.25
43A489175	Bushing, knob; brass (channel selector) .....		.10
42A470100	Clip, coil mounting .....	doz.	.25
42A790007	Clip, fine tuning shaft retainer .....	doz.	.30
42A484849	Clip, spring: ball retainer (fine tuning assembly) ....		.10
3A470109	Core, coil adjusting screw: brass .....		.05
14A470146	Form, coil .....		.10
4S9754	Lockwasher, split: #5; blk nkl pl (front of switch assembly) .....	per/c	.50
4S7655	Lockwasher, internal: 3/8; cad pl (end of tuner switch)per/c		.50
2S7010	Nut, hex: 5-40 x 1/4; cad pl (front of switch assembly)per/c		.50
2S7004	Nut, hex: 3/8-32 x 9/16; cad pl (end of tuner switch) .doz.		.20
64K484855	Plate, shaft support (on front end) .....		.05
1X478290	Receptacle and Bracket Assembly (ant. receptacle) .....		.30
5S8497	Rivet: .088 x 1/8; steel; nkl pl (socket mtg) .....	per/c	.50
5S7707	Rivet: .122 x 5/32; steel; nkl pl (terminal strip mtg).per/c		.50
5S7701	Rivet: .122 x 3/16 steel; nkl pl (ant. receptacle) ....per/c		.50
3S7247	Screw, machine: 6-32 x 3/16 slotted lock hex head; cad pl (ant. receptacle) .....	per/c	1.00
3S7454	Screw, sheet metal: #8 x 1/4 PKZ plain hex head; cad pl)per/c		.50
3S7103	Setscrew: 8-32 x 1/8 Allen head (for knob bushing).....		.10
47K484851	Shaft, fine tuning .....		.35
26A471317	Shield, tube: with lead sleeve (for V-2) .....		.60
9A470781	Socket, tube: 7 prong miniature; ceramic .....		.60
41A485466	Spring, coil compression (fine tuning shaft assembly)..doz.		.25
41A482255	Spring, switch grounding (on front end of shaft) .....		.05
31K90046	Strip, terminal: 5 insulated lugs, #4 gnd, 3/8 spacing.		.10
31A76184	Strip, terminal: 2 insulated lugs, #1 gnd, 3/8 spacing.		.05

CABINET PARTS - MODELS VT-105, VK-106 & VT-107

1X484899	Back Cover(metal) & Line Cord Assembly (VT-105).....		4.25
1X780154	Back Cover (fibre) & Line Cord Assembly (VT-105) .....		4.95
1X489122	Back Cover (metal) Line Cord & Shield Assembly (VK-106)		5.05
1X489121	Back Cover (fibre) Line Cord & Shield Assembly (VK-106)		3.40
1X780013	Back Cover (metal) Line Cord & Shield Assembly (VT-107)		5.05
1X780012	Back Cover (fibre) Line Cord & Shield Assembly (VT-107)		5.15
37K471416	Band, rubber (on window retaining brackets) .....	per/c	.50
13K780037	Bezel, kinescope (VT-105, VK-106) .....		2.60
13K790012	Bezel, kinescope (VK-106B) .....		2.60

<u>Part Number</u>	<u>Description</u>	<u>List Price</u>
7A780026	Bracket, window retainer .....doz.	.30
35A780318	Bumper, rubber (cabinet foot) (VT-105, VT-107) .....	.15
43A489006	Bushing, molded step: rubber (speaker cushions) .....doz.	.30
16E484880	Cabinet, table model: brown mahogany (VT-105) .....	-
16K484881	Cabinet, table model: red mahogany (VT-105M) .....	-
16F489027	Cabinet, console: brown mahogany (VK-106) .....	-
16K489028	Cabinet, console: red mahogany (VK-106M) .....	-
16K489029	Cabinet, console: limed oak (VK-106B).....	-
16E780062	Cabinet, table model: brown mahogany (VT-107) .....	-
16K780063	Cabinet, table model: red mahogany (VT-107M) .....	-
LX484869	Cable Assembly, antenna: 300 ohm antenna cable with 4 pin plug and 2 screw terminal strip .....	.85
13K780004	Cloth, grille (VK-106) .....	1.30
13K489060	Cloth, grille (VK-106M) .....	1.30
13K780603	Cloth, grille (VK-106B) .....	1.30
13B780047	Cloth, grille (VT-107) .....	.35
13K780048	Cloth, grille (VT-107M) .....	.35
30B470756	Cord, line, with plug & receptacle: 9 ft lg .....	1.50
LX780002	Cover Assembly, chassis bottom; with insulator (VT-105, VT-107) .....	4.75
15D489110	Cover Assembly, chassis bottom; with insulator (VK-106)	4.75
5S3127	Eyelet: .204 x .750; brass (spkr board mtg) (VK-106)..doz.	.20
5S7831	Eyelet: .812 x .238; brass (spkr board mtg) (VT-105, VT-107) .....doz.	.30
32C90053	Gasket, kinescope seal: felt (on window) (VT-105, VK-106) .....	1.75
14A780124	Insulator, electrolytic (chassis bottom) .....	.10
36K489177	Knob, control: walnut plastic (Channel Selector) (VT-105, VK-106, VT-107) .....	.60
36B489176	Knob, control: mahogany plastic (Channel Selector) (VT-105M, VK-106M, VT-107M) .....	.60
36K489178	Knob, control: tan plastic (Channel Selector)(VK-106B)	.60
36K489180	Knob, control: walnut plastic: large (Vertical Hold) (VT-105, VK-106, VT-107) .....	.20
36B489179	Knob, control: mahogany plastic; large (Vertical Hold) (VT-105M, VK-106M, VT-107M) .....	.20
36K489181	Knob, control: tan plastic; large; (Vertical Hold) (VK-106B) .....	.20
36K485490	Knob, control: walnut plastic; medium (Contrast & Volume) (VT-105, VK-106, VT-107) .....	.15
36B485489	Knob, control: mahogany plastic; medium (Contrast & Volume) (VT-105M, VK-106M, VT-107M).....	.15
36K485491	Knob, control: tan plastic; medium (Contrast & Volume) (VK-106B) .....	.15
36K485478	Knob, control: walnut plastic; small (Brightness, Horizontal Hold & Off-tone) (VT-105, VK-106, VT-107)..	.10
36A485477	Knob, control: mahogany plastic; small (Brightness, Horizontal Hold & Off-tone)(VT-105M, VK-106M,VT-107M).	.10
36K485479	Knob, control: tan plastic; small (Brightness, Horizontal Hold & Off-tone) (VK-106B) .....	.10
36K485481	Knob, control: walnut plastic; small (Fine Tuning) (VT-105, VK-106, VT-107) .....	.10
36A485480	Knob, control: mahogany plastic; small (Fine Tuning) (VT-105M, VK-106M, VT-107M) .....	.10

<u>Part Number</u>	<u>Description</u>	<u>List Price</u>
13K485482	Knob, control: tan plastic; small (Fine Tuning)(VK-106B)	.10
4S9751	Lockwasher, internal-external: #8; cad pl (spkr mtg)...per/c	.50
7S7003	Nut, hex: 8-32 x 5/16; cad pl (spkr mtg) .....per/c	.50
2A484897	Nut, special: square; 1/4-20 (for chassis mtg screws) (VT-105, VT-107) .....	.05
2A489116	Nut, speed (chassis mtg, VK-106) .....	.50
22S1633	Pin, escutcheon: brass (channel indicator) .....	.50
22S1635	Pin, escutcheon: dark brown (VK-106B) .....	.50
28A470122	Plug, 4 pin (for antenna receptacle) .....	.10
5S7706	Rivet: .122 x 1/8; steel; nkl pl (insulator on bottom cover) .....	.50
5S2846	Rivet: .140 x 1/4; steel; statuary bronze finish (high voltage shield) .....	.15
5A470755	Rivet, shoulder (mounts line cord to metal cabinet back)	.05
5K780302	Rivet, shoulder (mounts line cord to fibre cabinet back)doz.	.25
64B484886	Screen, speaker: flocked; brown mahogany (VT-105, VT-105M)	.70
3A489007	Screw, decorative head; statuary bronze finish (spkr board mtg) (VT-105) .....	.30
3S2226	Screw, machine: 1/4-20 x 1-1/4; plain hex head; cad pl (chassis mtg, VK-106) .....	.50
3S488134	Screw, machine: 1/4-20 x 1-1/2; plain hex head; cad pl (chassis mtg, VT-105, VT-107) .....	.50
3S7536	Screw, sheet metal: #6 x 3/8 PKA slotted acorn head; antique copper finish (ant. terminal strip mtg) .....	.50
3S7455	Screw, sheet metal: #8 x 3/8 PKA slotted acorn head; antique copper finish (bottom & back cover mtg) .....	.15
3S8153	Screw, sheet metal: #8 x 3/4 PKA plain hex head; cad pl (bottom cover mtg) (VT-105, VT-107) .....	.15
3S7457	Screw, sheet metal: #8 x 7/8" PKA plain hex head; cad pl (cabinet feet) (VT-105, VT-107) .....	.15
3K27913	Screw, speaker mtg (mounts speaker to cushioned board)doz.	.20
3S1328	Screw, wood: #2 x 3/8 Phillips oval head (kinescope bezel) .....	.20
3S1321	Screw, wood: #6 x 3/8 slotted round head; statuary bronze finish (cabinet back mtg) (VK-106) .....	.50
3S8302	Screw, wood: #6 x 5/8 slotted acorn head; antique cop- per finish (bottom & back cover mtg) .....	.15
3S1332	Screw, wood: #6 x 1-1/4 round head; cad pl (speaker board mtg) .....	.20
29C780550	Shield, high voltage (on cabinet back) (VK-106,VT-107).	1.95
31A21990	Strip, terminal: 2 screw (ant. connection) .....	.10
4A484894	Washer, cut (on chassis mtg screws)(VT-105, VT-107) ...doz.	.25
4K485418	Washer, felt (under knobs) .....	.15
4S1722	Washer, flat: 7/16 x .187 x .048 stl; cad pl (cabinet feet) (VT-105, VT-107) .....	.15
4S7629	Washer, flat: 1/2 x 3/16 x .048 steel; cad pl (chassis bottom cover mtg)(VT-105, VT-107) .....	.50
4S7611	Washer, flat: 1/2 x 7/32 x .048; steel (speaker board mtg) (VK-106) .....	.15
4S7614	Washer, flat: 11/16 x 11/64 x .036 steel; cad pl (spea- ker board mtg) (VT-105, VT-107) .....	.15
4S8224	Washer, flat: 1" x 17/64 x .067; cad pl (chassis mtg, VK-106) .....	.20

Part Number

Description

List Price

LX471310	Window & Gasket Assembly: safety glass window with felt gasket (VT-105, VK-106) .....	4.15
LX780009	Window & Gasket Assembly: safety glass window with rubber gasket) (VT-107) .....	10.90

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

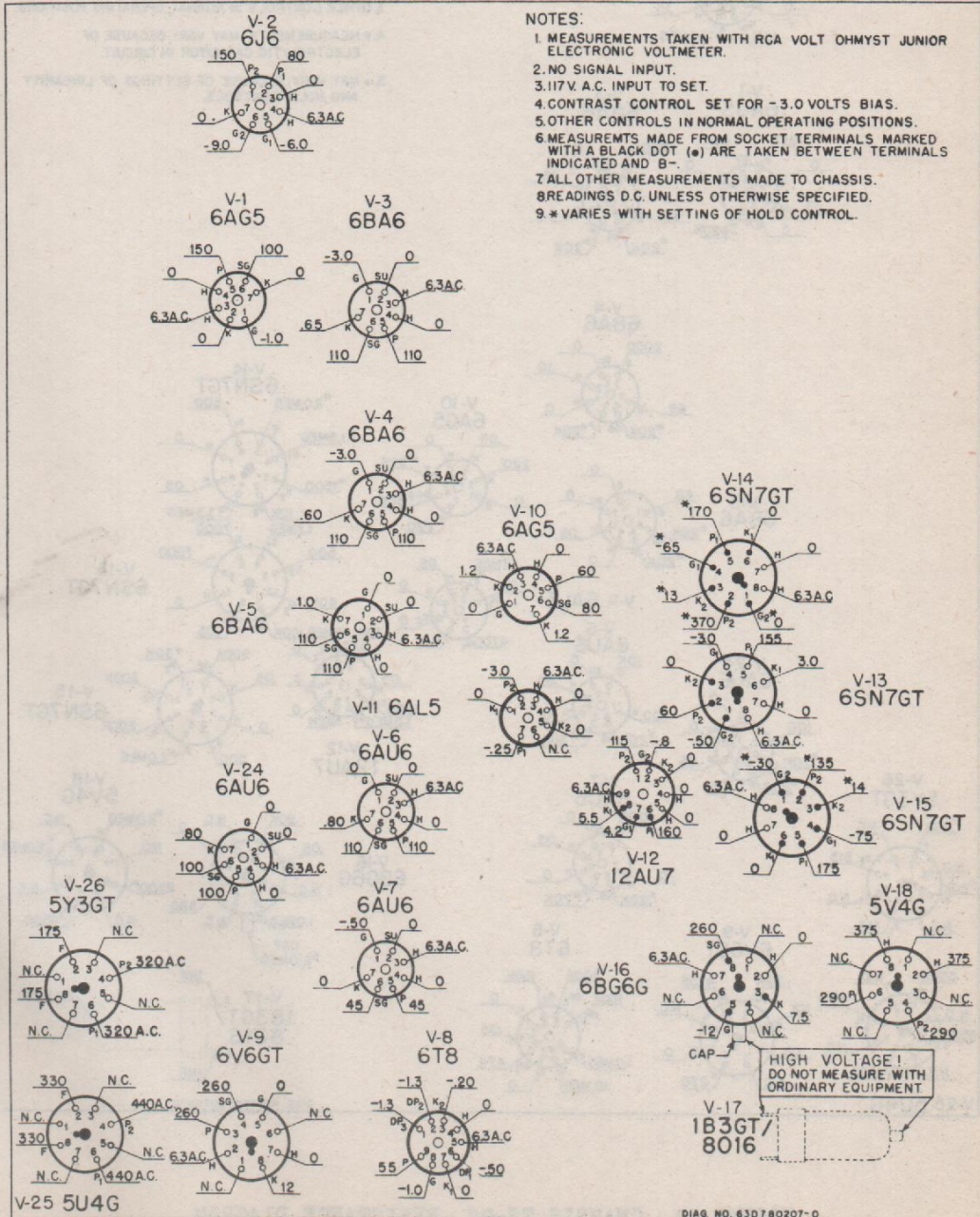


FIGURE 10. CHASSIS TS-9C VOLTAGE DIAGRAM

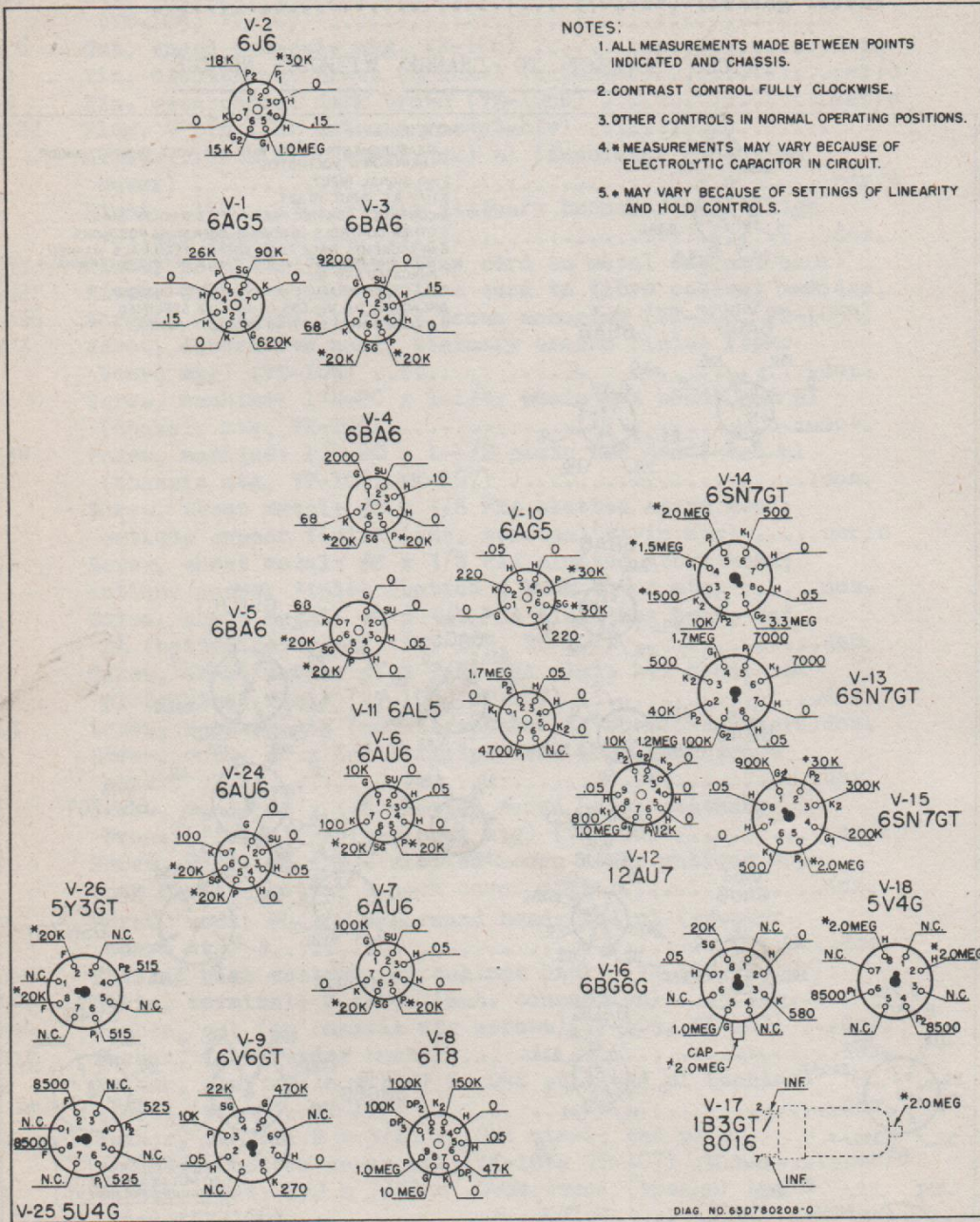
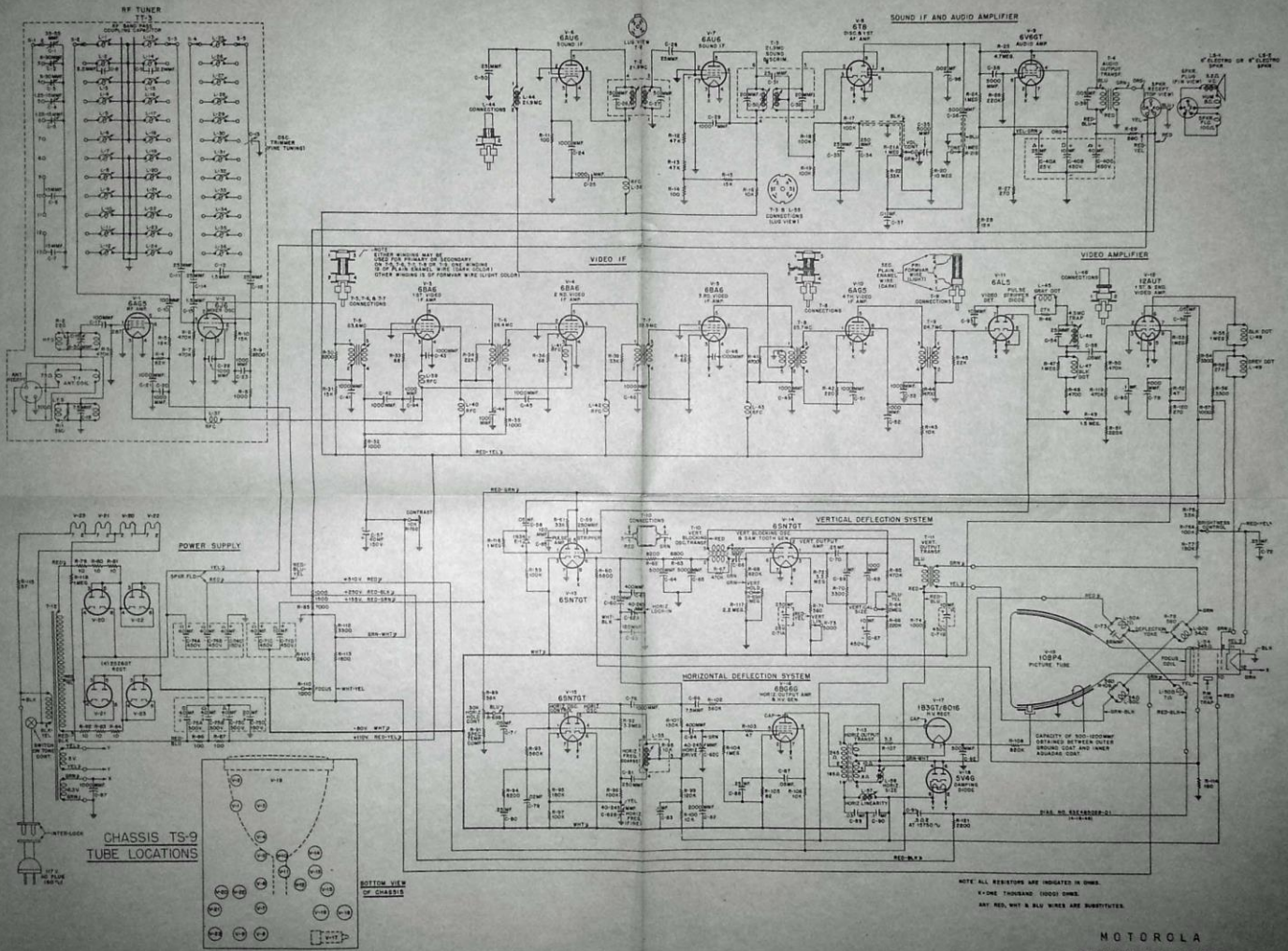


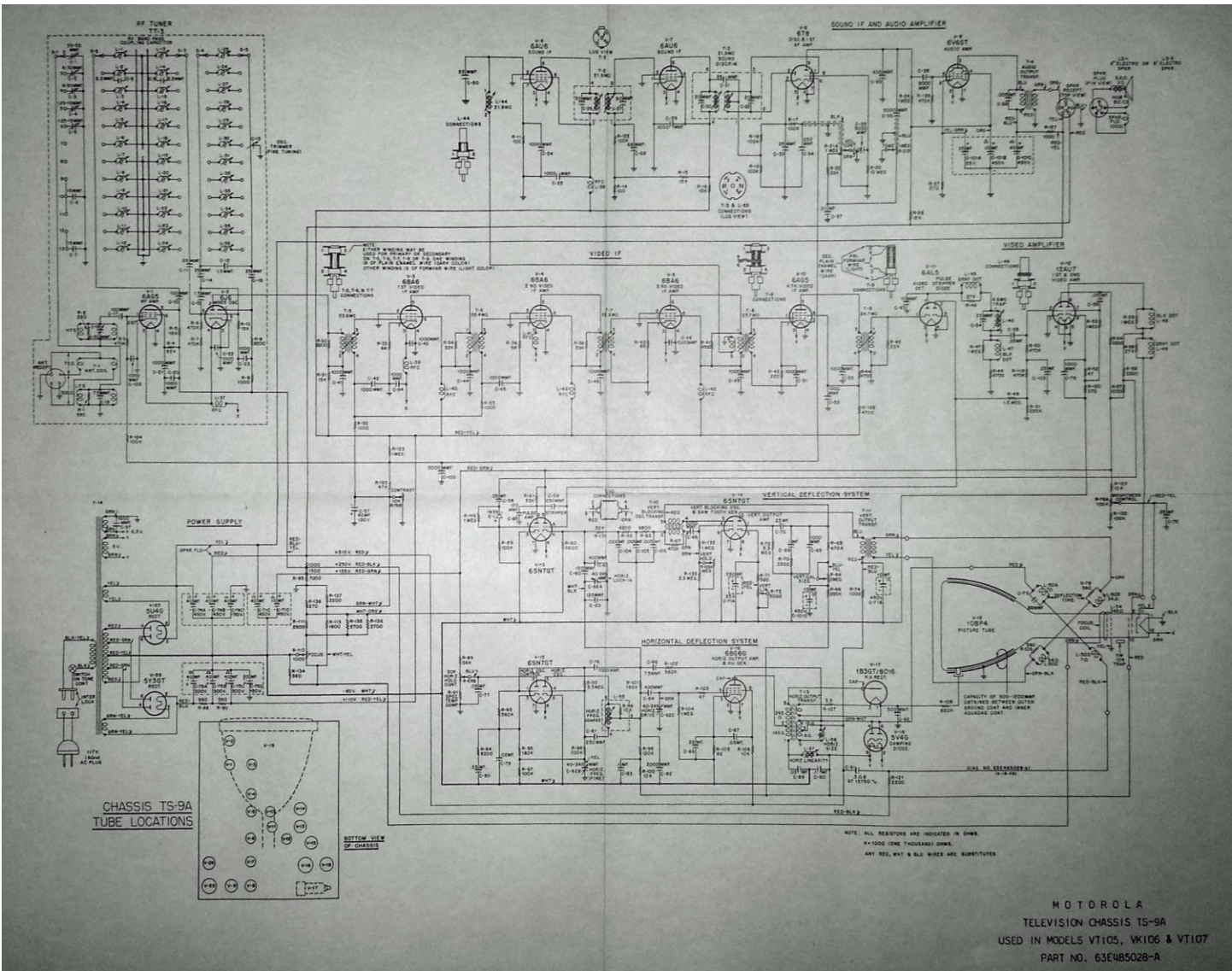
FIGURE 11. CHASSIS TS-9C RESISTANCE DIAGRAM



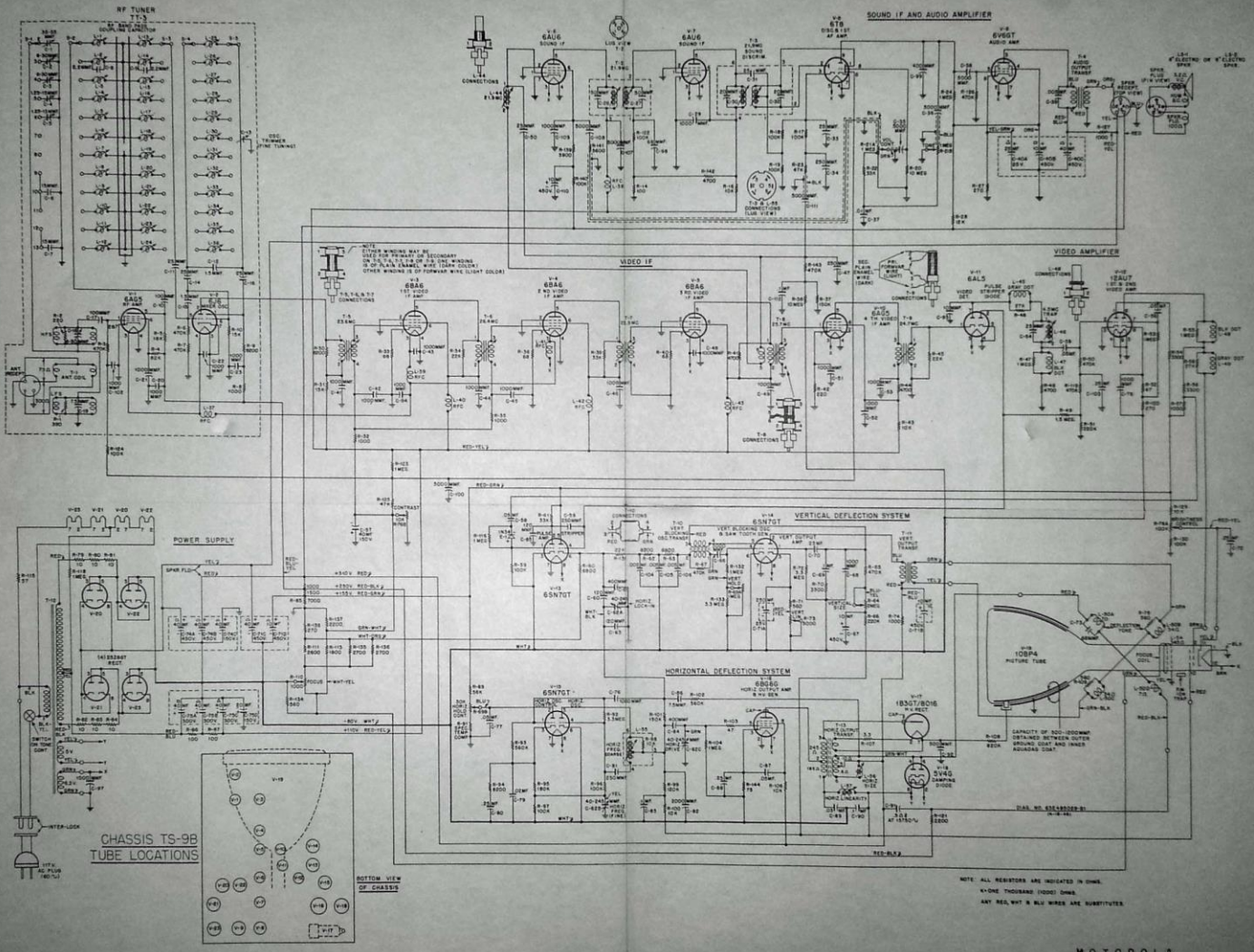


NOTE: ALL RESISTORS ARE INDICATED IN OHMS.  
K=ONE THOUSAND; 0.000=OHMS.  
ANY RED, WHT & BLU VALUES ARE SUBSTITUTES.

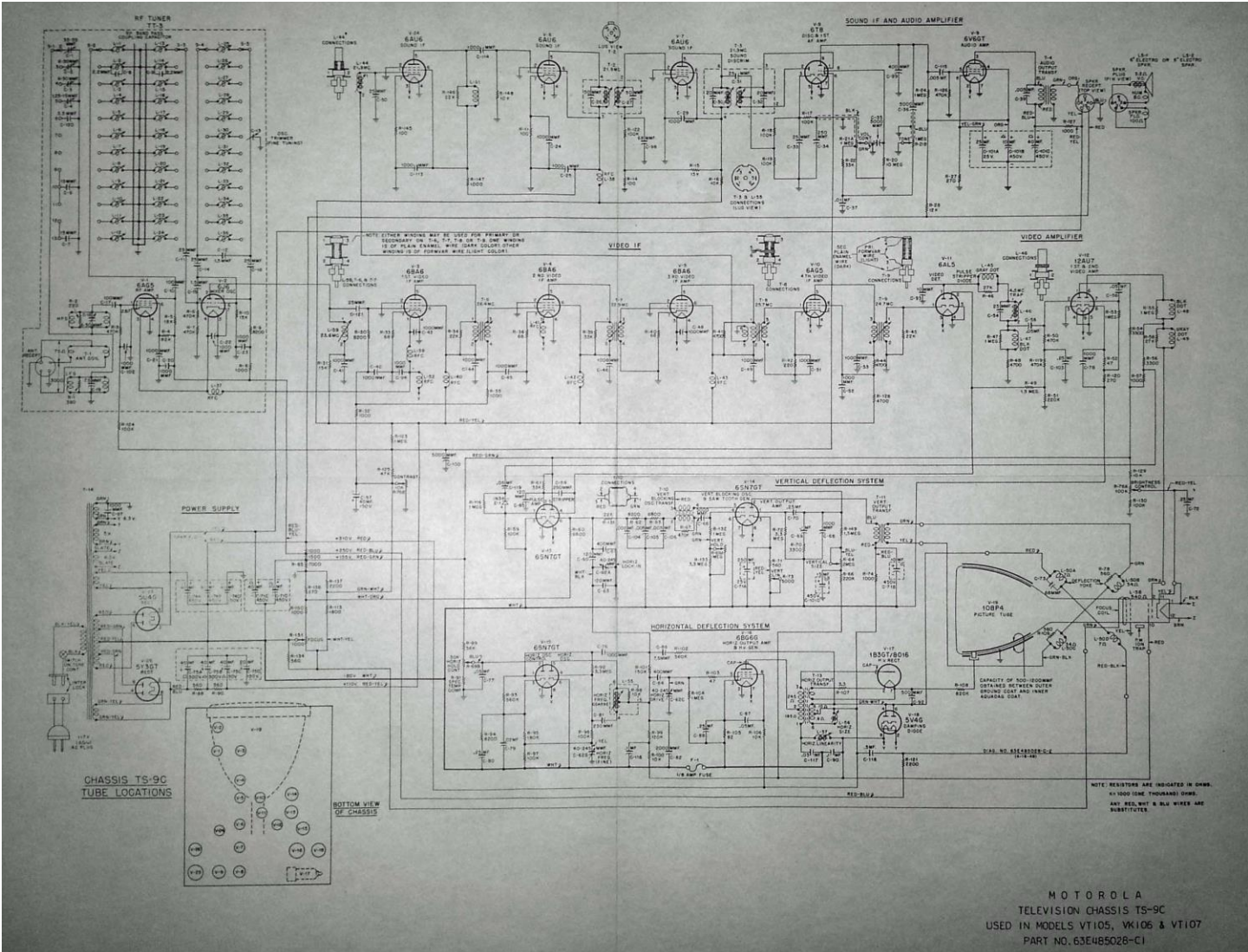
MOTOROLA  
TELEVISION CHASSIS TS-9  
USED IN MODELS VT105, WK106 & VT107  
PART NO. 63C48502B-0



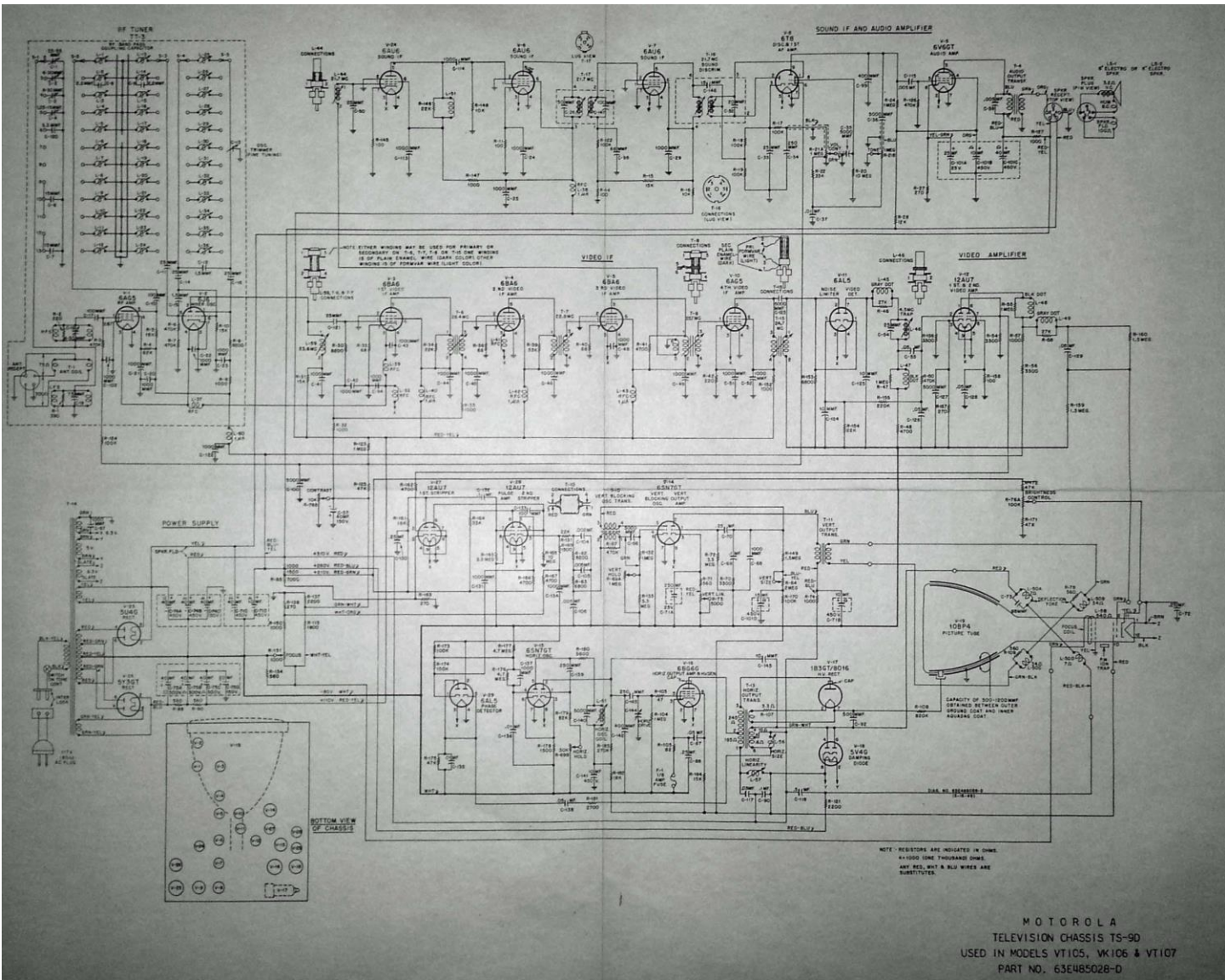
MOTOROLA  
 TELEVISION CHASSIS TS-9A  
 USED IN MODELS VT105, WK106 & VT107  
 PART NO. 63E4B502B-A



MOTOROLA  
 TELEVISION CHASSIS TS-9B  
 USED IN MODELS VT105, VK106 & VT107  
 PART NO. 63E485028-6



MOTOROLA  
 TELEVISION CHASSIS TS-9C  
 USED IN MODELS VT105, VK106 & VT107  
 PART NO. 63E4B502B-C1



MOTOROLA  
 TELEVISION CHASSIS TS-90  
 USED IN MODELS VT105, WK106 & VT107  
 PART NO. 63E4R5028-D