

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 & 5UJG). 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 Look-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.

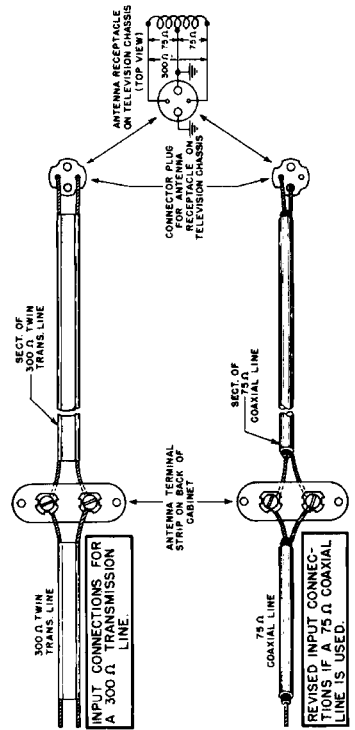


FIGURE 1. ANTENNA CONNECTIONS FOR 300 OR 75 OHM LINES

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.

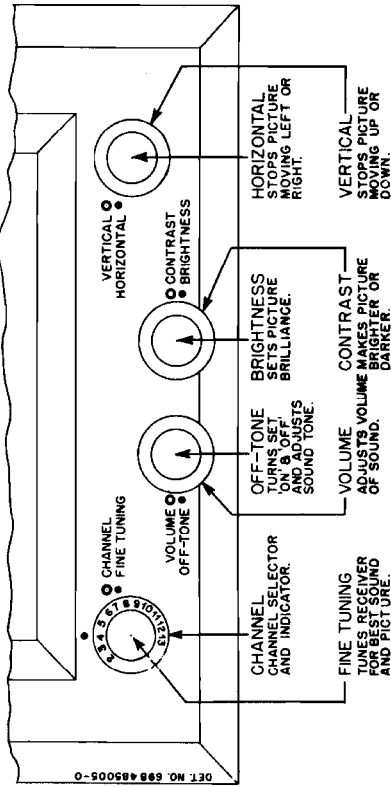


FIGURE 2. OPERATING CONTROLS

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.

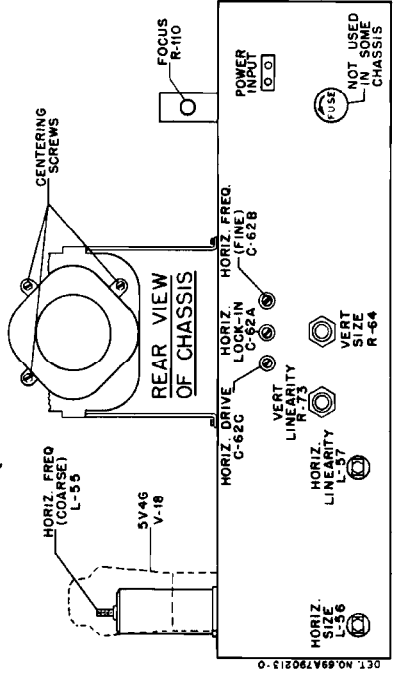


FIGURE 3A. CHASSIS TS-9, A, B & EARLY C SERVICE ADJUSTMENT CONTROL LOCATIONS

MODELS VK106, VK106B, VK106M, VT105, VT105M, VT107, VT107M; Ch. TS-9, TS-9A, TS-9B, TS-9C, TS-9D

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-144 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.

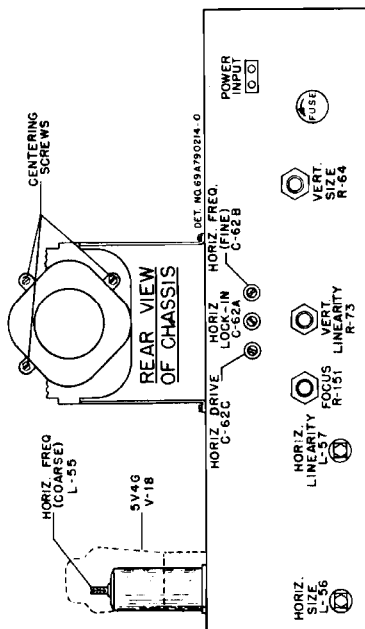


FIGURE 3B. CHASSIS TS-9C (LATE) SERVICE ADJUSTMENT CONTROL LOCATIONS

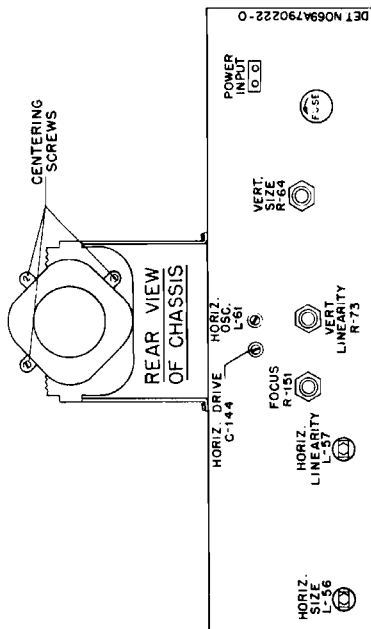


FIGURE 3C. CHASSIS TS-9D SERVICE ADJUSTMENT CONTROL LOCATIONS

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.

MODELS VK106, VK106B, VK106M, VT105, VT105M, VT107, VT107M; Ch. TS-9, TS-9A, TS-9B, TS-9C, TS-9D

ALIGNMENT

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

GENERAL

The chassis should be mounted on angle iron brackets (Motorola Part Number 7B181018) 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 11 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 (646, 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.

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.

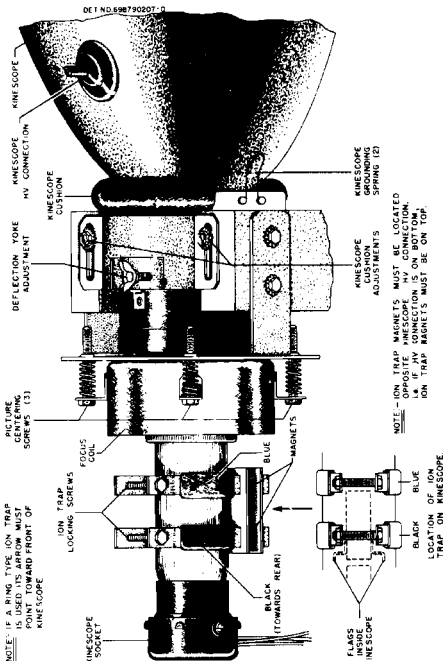


FIGURE 4. KINESCOPE ADJUSTMENT LOCATIONS

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.

MODELS VK106, VK106B, VK106M, VT105, VT105M, VT107, VT107M; Ch. TS-9, TS-9A, TS-9B, TS-9C, TS-9D

increase of 1 volt above contact potential, across the detector load, R-18, 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, (6A15, pin 7).

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.

STEP	SIG. GEN. FREQ.	ADJUST	REMARKS
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	Adjustment will normally tune very broadly, since the core is practically out of coil.
5	21.9 mc (TS-9D, 21.7mc)	L-14	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	Readjust for maximum.

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

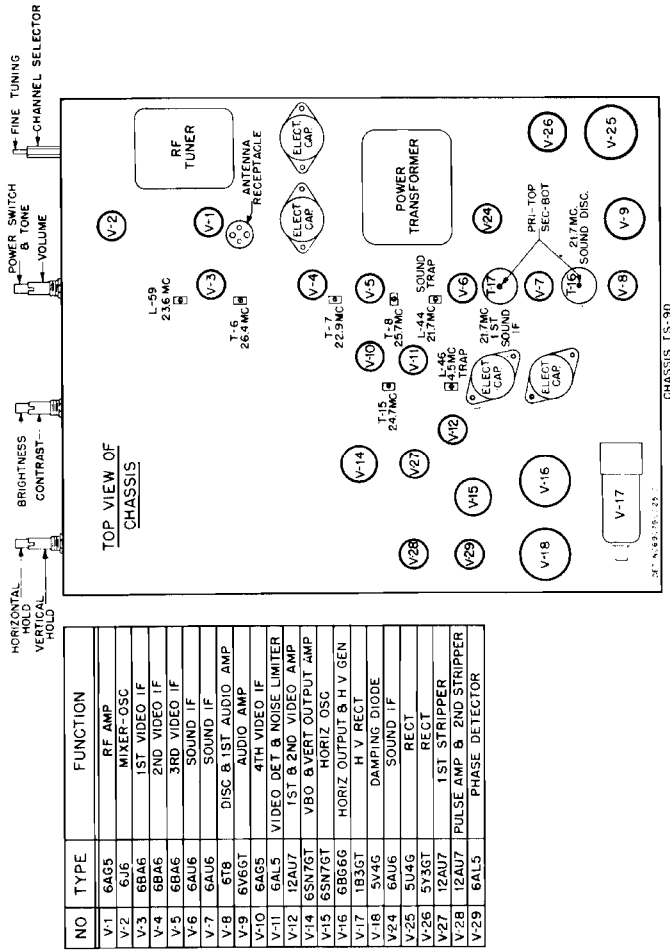


FIGURE 5. CHASSIS TS-9, A, B & C TUBE & IF ADJUSTMENT LOCATIONS

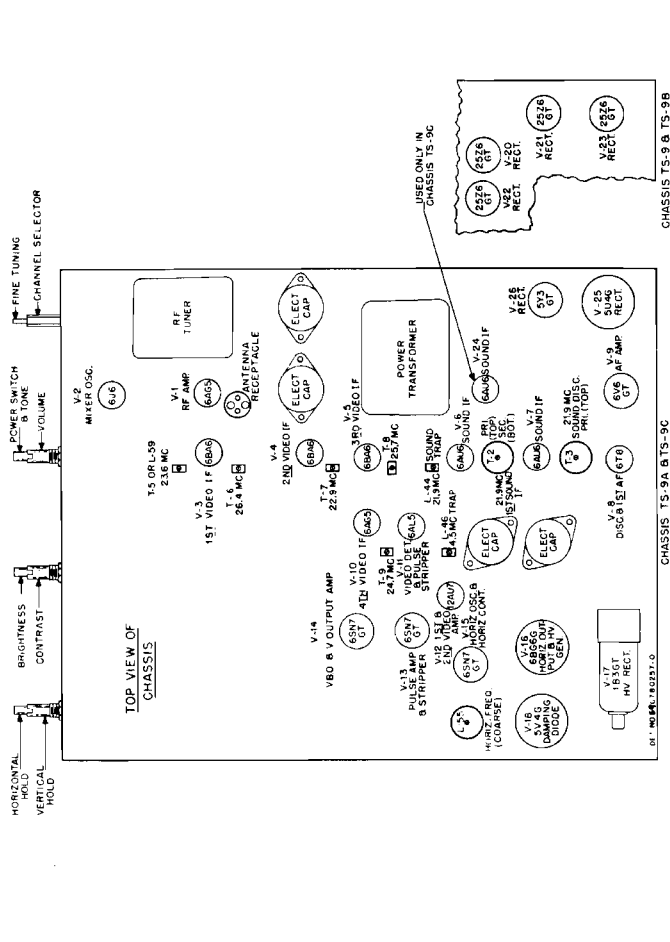


FIGURE 6. CHASSIS TS-9D TUBE & IF ADJUSTMENT LOCATIONS

MODELS VK106, VK106B, VK106M, VT105, VT105M, VT107, VT107M; Ch. TS-9, TS-9A, TS-9B, TS-9C, TS-9D

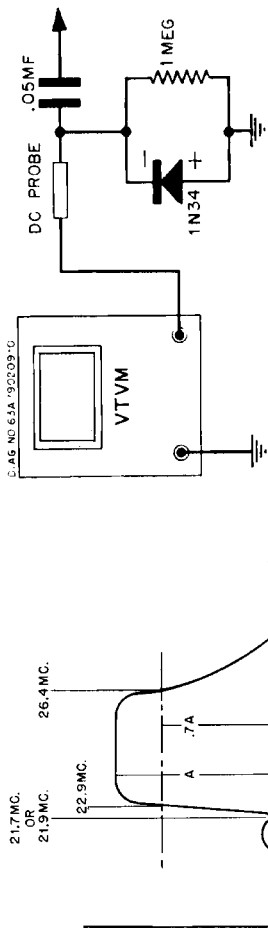


FIGURE 7. VIDEO IF RESPONSE WAVEFORM

FIGURE 8. ELECTRONIC VOLTMETER CONNECTIONS

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 strippled 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 (6X6, 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 (6X6, 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.

MODELS VK106, VK106B, VK106M, VT105, VT105M, VT107, VT107M; Ch. TS-9, TS-9A, TS-9B, TS-9C, TS-9D

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.

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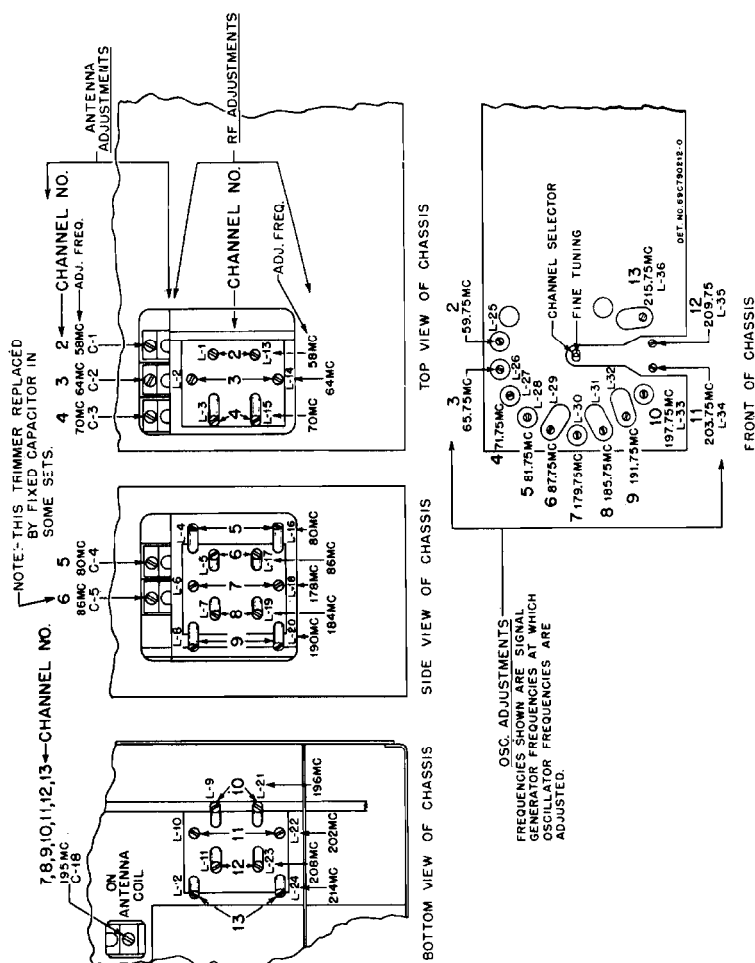


FIGURE 9. OSCILLATOR, RF & ANTENNA ADJUSTMENT LOCATIONS

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.

REMARKS

Adjust for minimum. (This step not necessary if performed during video IF alignment).
Adjust for maximum.
Detune 2 turns counterclockwise.
Adjust for maximum.

ADJUST

L-14
T-2 pri & sec.
T-3 (bottom)
T-3 (bottom)

ADJUST

L-14
T-2 pri & sec.
T-3 (bottom)
T-3 (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.

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TELEVISION FREQUENCY CHANNELS

CHANNEL	FREQ. BAND MC	PICTURE CARRIER	SOUND CARRIER	RECEIVER OSCILLATOR *
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.

MODELS VK106, VK106B, VK106M, VT105, VT105M, VT107, VT107M; Ch. TS-9, TS-9A, TS-9B, TS-9C, TS-9D

10. Connect electronic voltmeter across the video detector load resistor R-18. In the TS-9D the video detector load resistor (R-18) 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, return the first coil for maximum output, and the RF amplifier is aligned. Do not return 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:

CHASSIS	VOLTAGE READING	MICROVOLTS CHANNELS 2-6	SENSITIVITY CHANNELS 7-13
All TS-9 series	1.0 V Increase	100	300
TS-9	Junction of R-12 & R-13	100	300
TS-9A	Across R-122 & R-14	100	300
TS-9B	Across R-122 & R-14	100	300
TS-9C	Across R-122 & R-14	25	75
TS-9D	Across R-122 & R-14	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.

MODELS VK106, VK106B, VK106M, VT105, VT105M, VT105M, VT107, VT107M; Ch. Ts-9, TS-9A, TS-9B, TS-9C, TS-9D

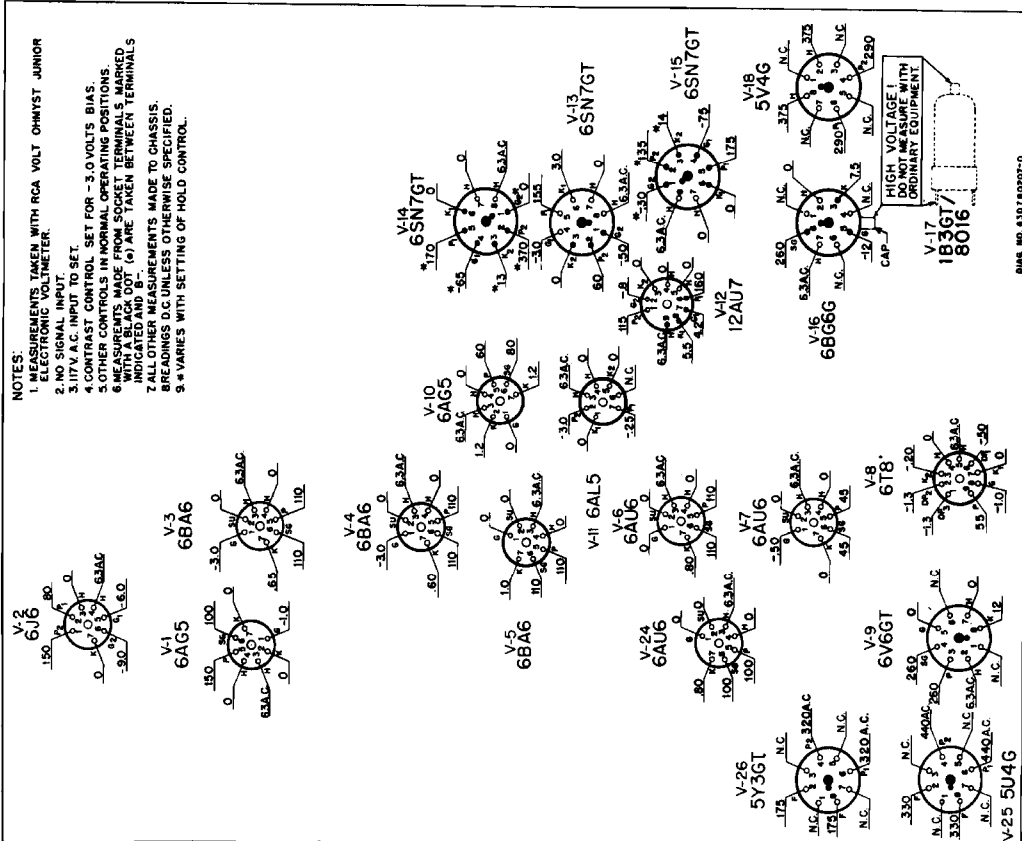


FIGURE 10. CHASSIS TS-9C VOLTAGE DIAGRAM

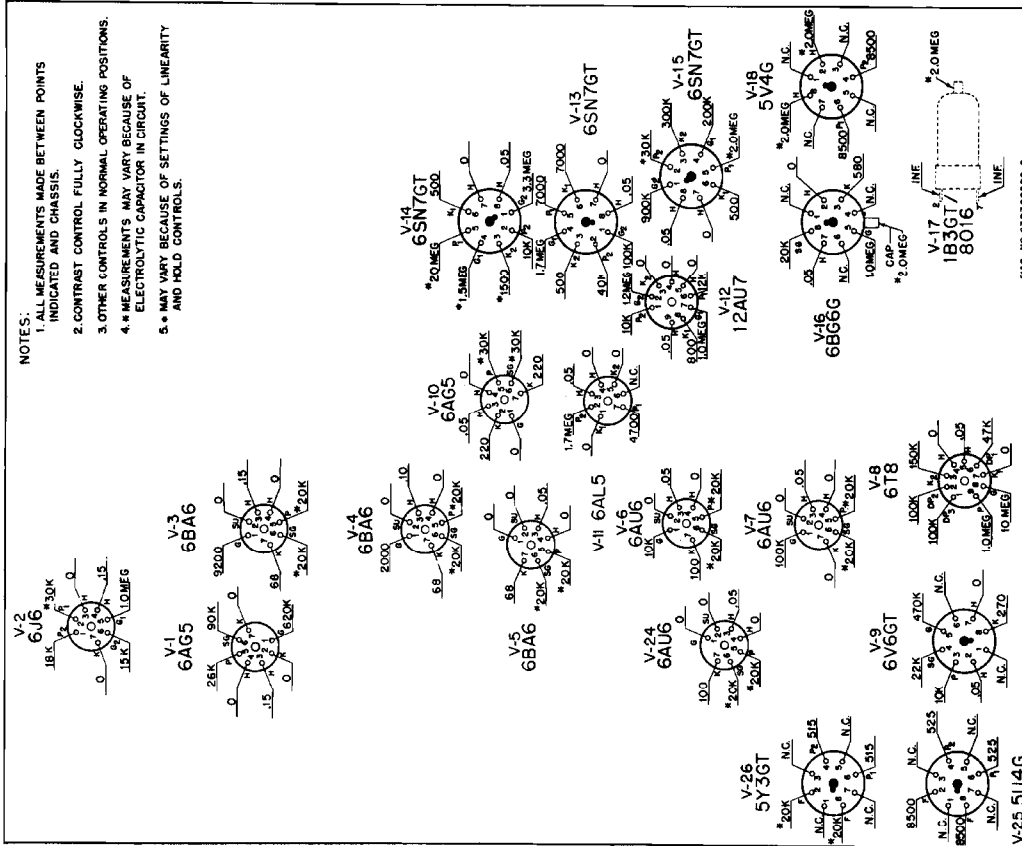
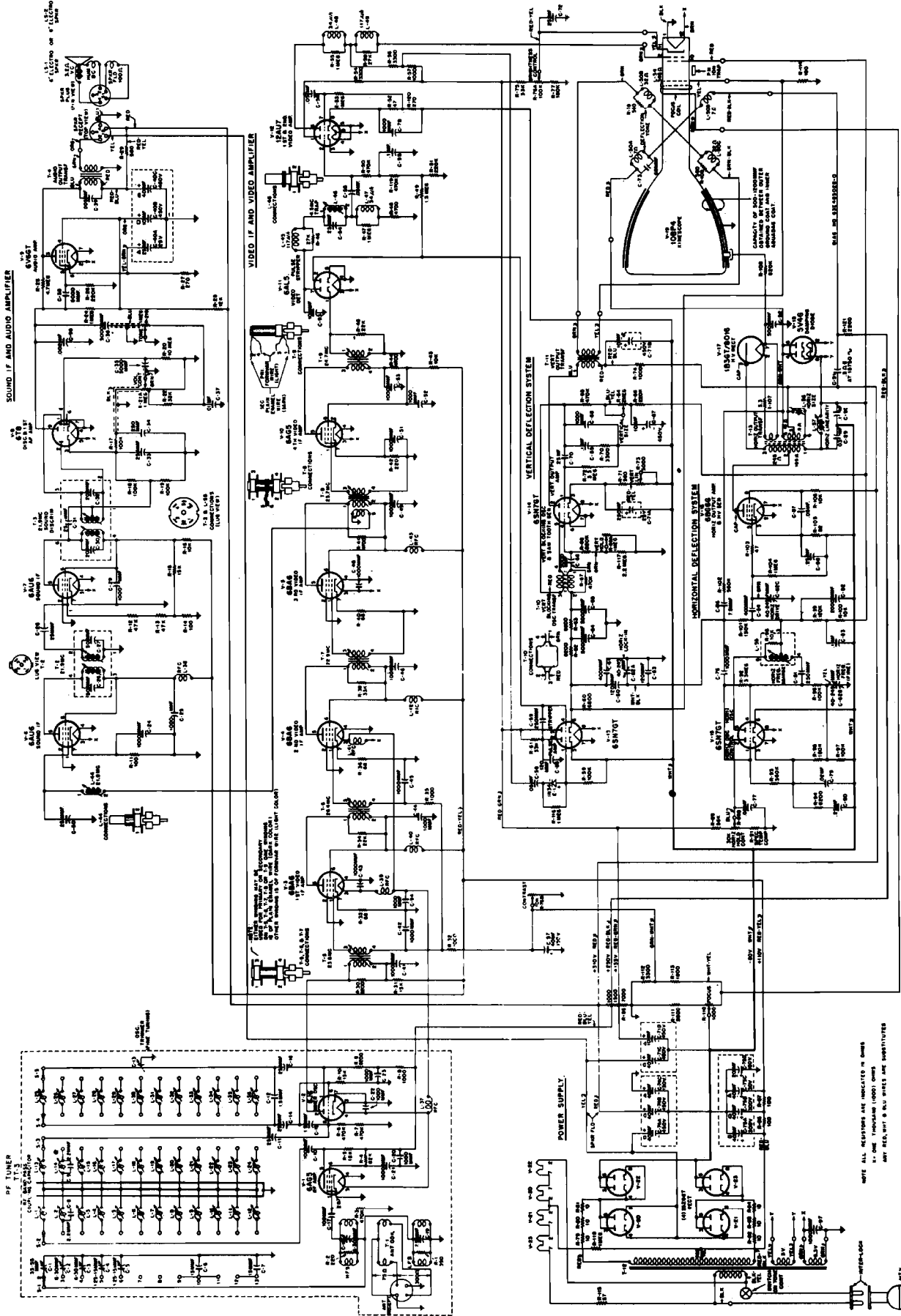


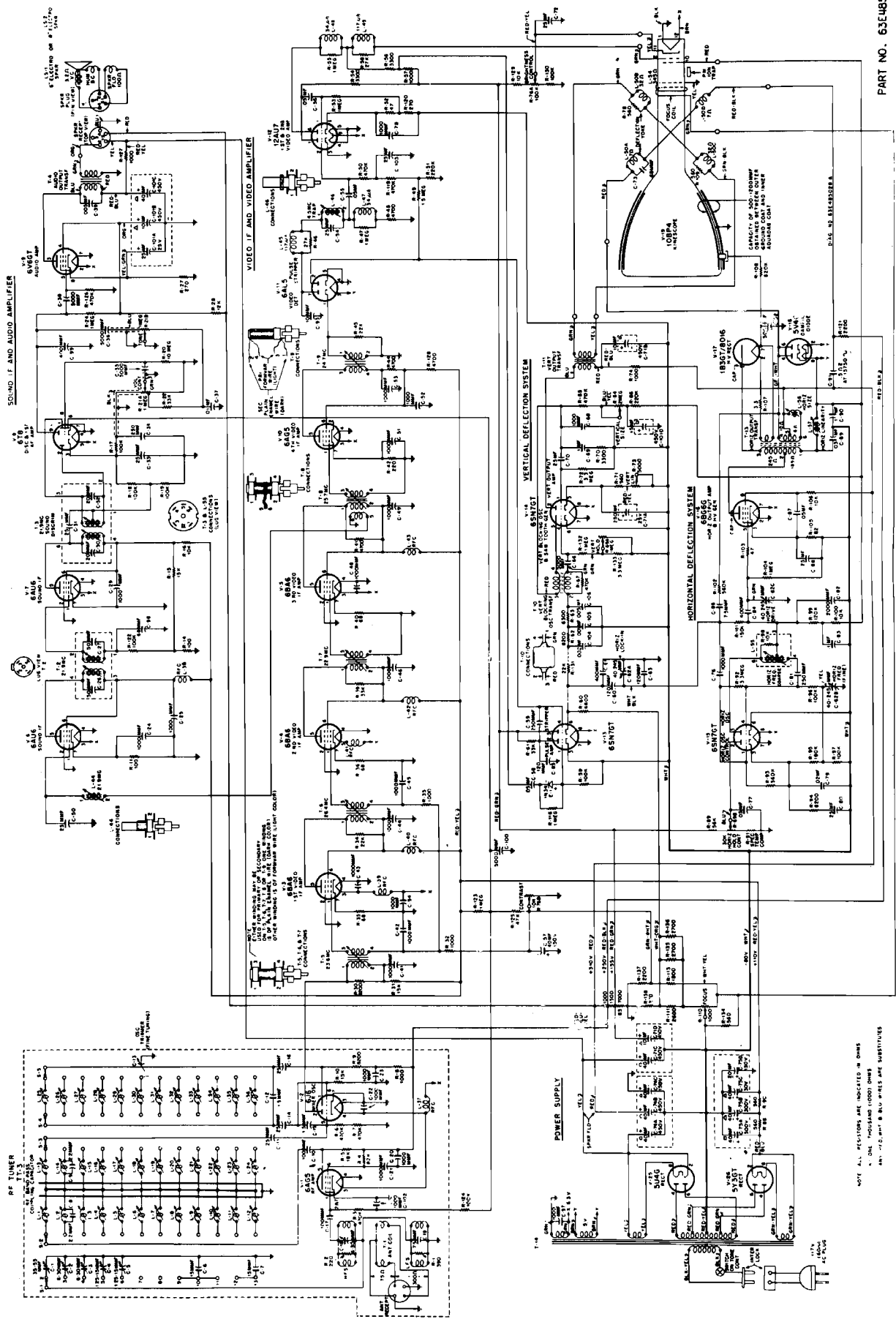
FIGURE 11. CHASSIS TS-9C RESISTANCE DIAGRAM

MODELS VK106, VK106B, VK106M, VK107, VK107M, Ch. TS-9



NOTE: ALL RESISTORS ARE INDICATED IN OHMS
 * 1/2 WATT (1000 OHMS)
 ** 1/4 WATT (500 OHMS)

MODELS VK106, VK106B, VK106M, VK107, VK107M, Ch. TS-9A

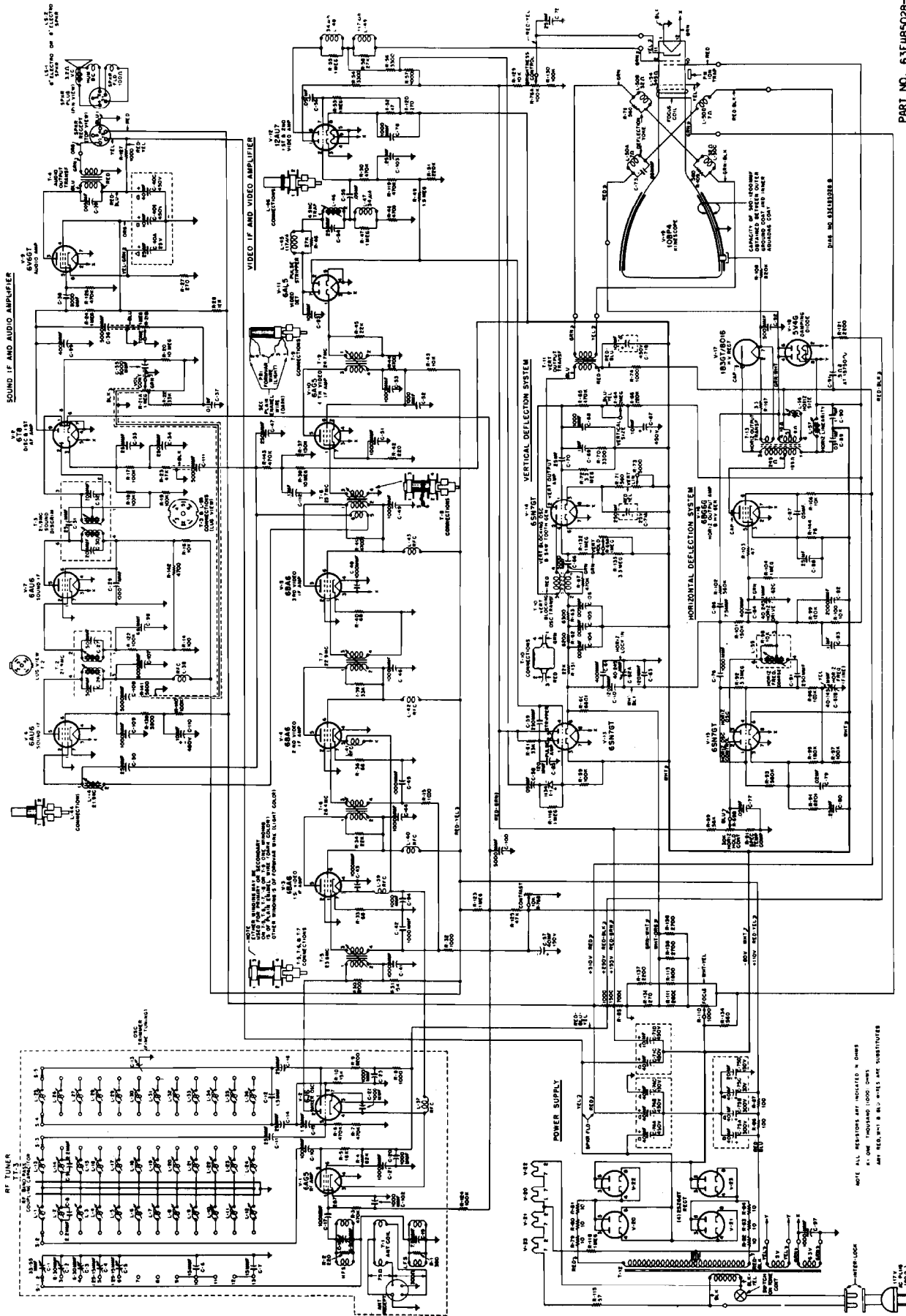


PART NO. 65E485028-A

MODELS VK106, VK106B, VK106M, VK107, VK107M, Ch. TS-9B

www.keogk.com

PART NO. 63E485028-8

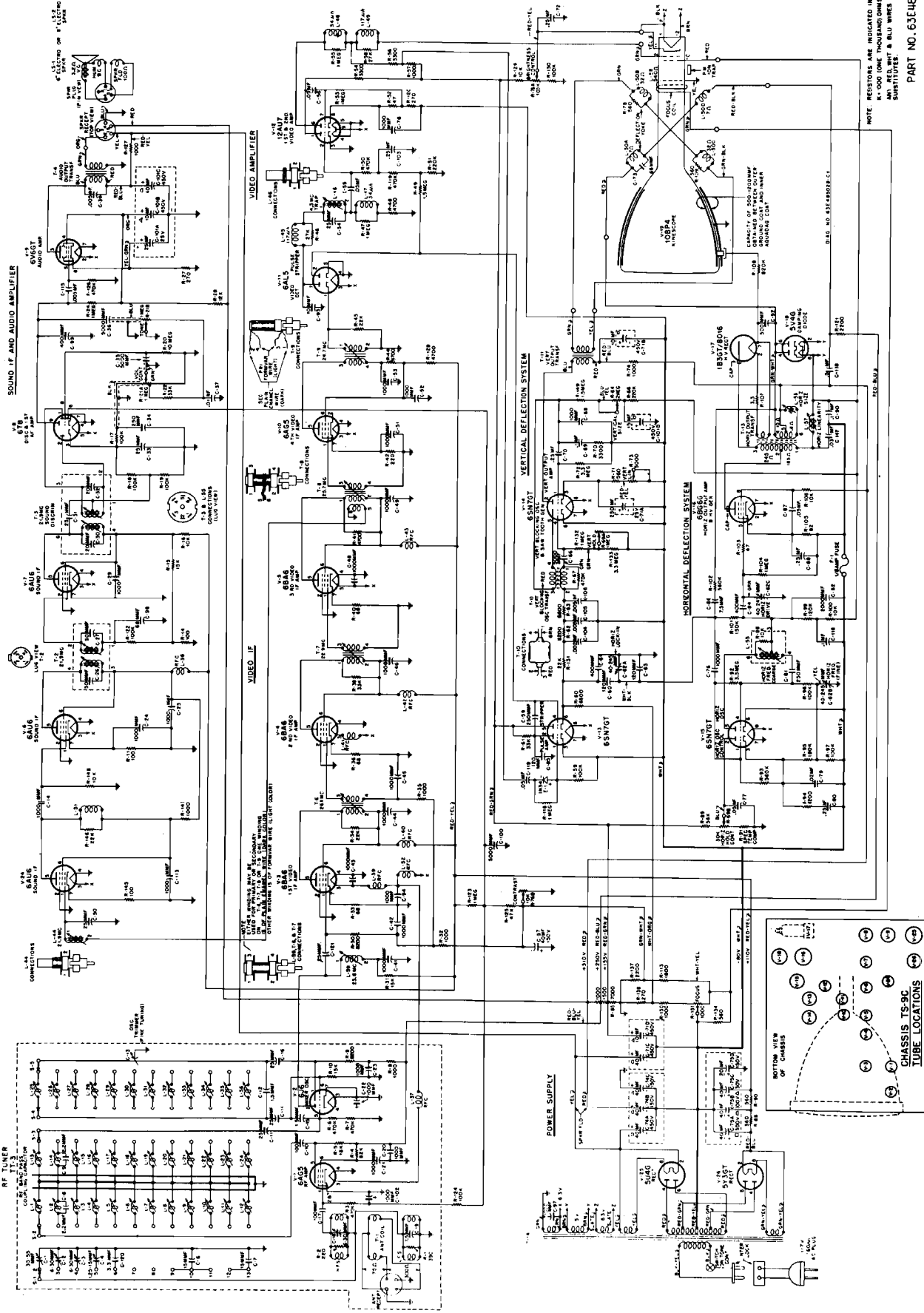


NOTE: ALL RESISTORS ARE ISOLATED IN OHMS
EXCEPT WHERE SHOWN OTHERWISE
RESISTOR VALUES IN OHMS ARE SUBSTITUTES

MODELS VK106, VK106B, VK106M, VK107, VT107M; Ch. TS-9C

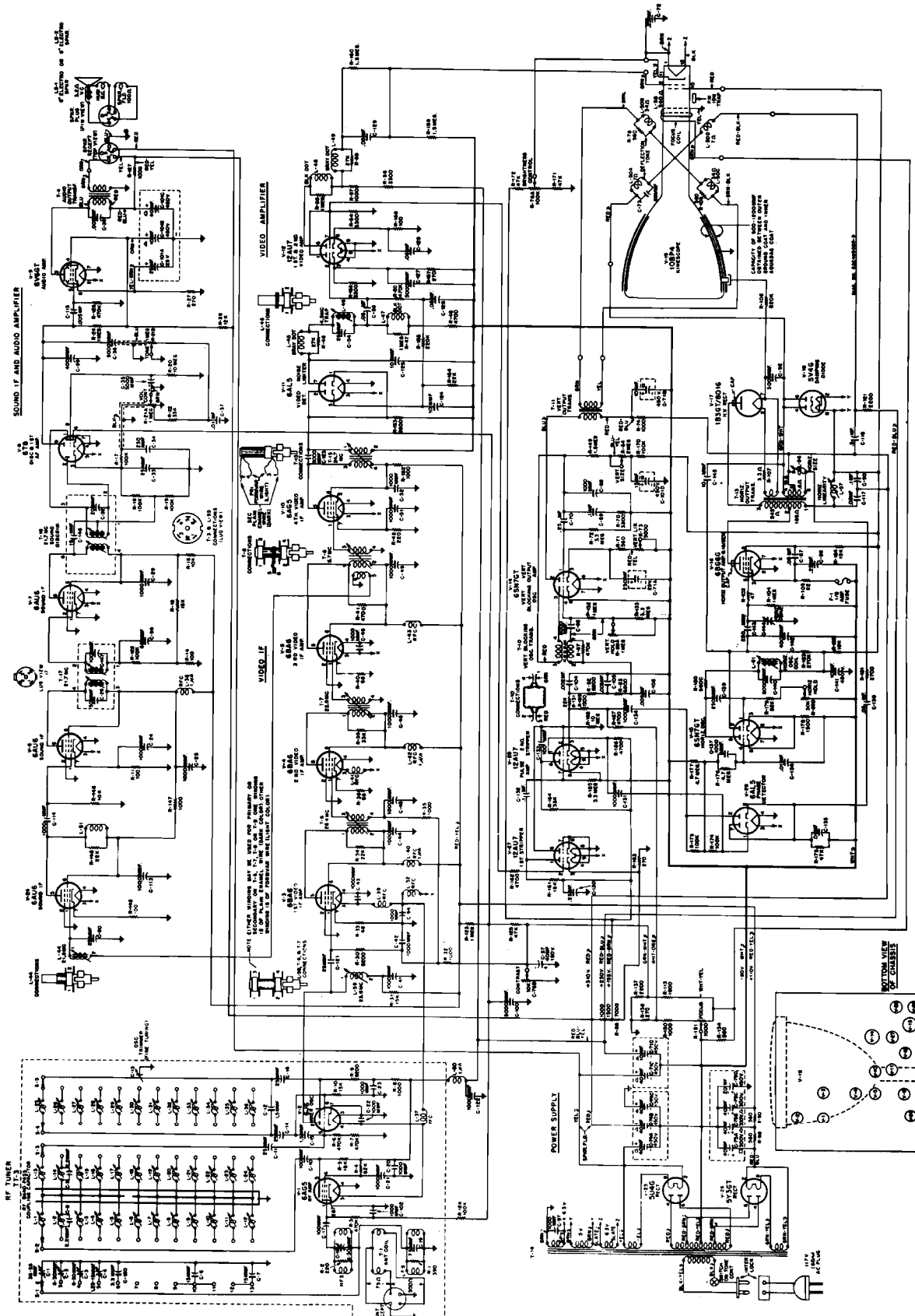
PART NO. 63E485028-C1

NOTE: RESISTORS ARE INDICATED IN OHMS UNLESS OTHERWISE SPECIFIED. CAPACITORS ARE INDICATED IN MICROFARADS UNLESS OTHERWISE SPECIFIED.



MODELS VK106, VK106B, VK106M, VK107, VK107M; Ch. TS-9D

www.ke3gk.com



LAST USED BY: 6/19/54
REVISED BY: 6/19/54

PART NO. 63E48502B-D

MODELS VK106, VK106B, VK106M, VT105, VT105M, VT107, VT107M; Ch. TS-9, TS-9A, TS-9B, TS-9C, TS-9D

Ref. No.	Part Number	Description	Ref. No.	Part Number	Description
C-1	20K470184	Trimmer, mica: 35-55 mf	C-53	21K484150	Ceramic: 120 mf
C-2	20M470184	Trimmer, mica: 6-30 mf	C-54	21M470789	Ceramic: 5000 mf 450V
C-3	20M470184	Trimmer, mica: 6-30 mf	C-55	21M470789	Ceramic: 5000 mf 450V
C-4	20M470184	Trimmer, mica: 1.25-15 mf	C-56	21R567	Mica: 5000 mf 104 500V
C-5	20M470184	Trimmer, mica: 1.25-15 mf	C-57	21R56931	Electrolytic: 10 mf 450V
C-6	21R2736	Mica: 15 mf 104 500V	C-58	21K478410	Ceramic: 1000 mf 500V
C-7	21R2736	Mica: 15 mf 104 500V	C-59	8K471169	Paper: .15 mf 400V
C-8	21K471216	Ceramic: 2 mf	C-71A	8K471167	Paper: .25 mf 200V
C-9	21K471216	Ceramic: 2 mf	B, C & D	21M484196	Electrolytic: "A" 250 mf 25V (blank); "B" 10 mf 450V (square); "C" 40 mf 450V (half-circle) "D" 10 mf 450V (triangle)
C-10	21K470736	Ceramic: 100 mf	C-72	8M471356	Paper: .25 mf 200V
C-11	21M470736	Ceramic: 100 mf	C-73	21R5740	Mica: 68 mf 104 800V
C-12	21M482296	Ceramic: 1.5 mf	C-74A	21M484197	Electrolytic: "A" 40 mf 450V (square); "B" 40 mf 450V (half-circle); "C" 40 mf 150V (triangle); "D" 40 mf 150V (square)
C-13	1K485422	Pin tube heater	B, C & D	21M484194	Electrolytic: "A" 40 mf 300V (square); "B" 40 mf 300V (half-circle); "C" 40 mf 300V (triangle); "D" 20 mf 150V (blank)
C-14	21M470738	Ceramic: 25 mf	C-75A	21M484194	Electrolytic: "A" 40 mf 300V (square); "B" 40 mf 300V (half-circle); "C" 40 mf 300V (triangle); "D" 20 mf 150V (blank)
C-15	21R482296	Ceramic: 1.5 mf	C-81	21R6662	Mica: 250 mf 104 500V
C-16	21M470738	Ceramic: 100 mf	C-82	21R6568	Mica: 2000 mf 104 500V
C-17	21K470736	Ceramic: 100 mf	C-83	8K471169	Paper: .1 mf 400V
C-18	20M470184	Trimmer, mica: 6-30 mf	C-84	21R6664	Mica: 400 mf 104 500V
C-19	21K470735	Ceramic: 7.5 mf	C-85	21R484150	Ceramic: 120 mf
C-20	21K478410	Ceramic: 1000 mf 500V	C-86	21K470735	Ceramic: 1.5 mf
C-21	21K478410	Ceramic: 1000 mf 500V	C-87	8K471167	Paper: .05 mf 100V
C-22	21K478410	Ceramic: 1000 mf 500V	C-88	8M471356	Paper: .25 mf 200V
C-23	21K478410	Ceramic: 1000 mf 500V	C-89	8M482294	Paper: .03 mf 600V
C-24	21K478410	Ceramic: 1000 mf 500V	C-90	8M471149	Paper: .1 mf 600V
C-25	21K478410	Ceramic: 1000 mf 500V	C-91	21M484956	Electrolytic: 5 ohm @ 15750 cycles
C-26	21R485463	Silver mica: 90 mf; part of T-2 base	C-92	21R60013	High-voltage: 500 mf 10,000V
C-27	21R28616	Ceramic: 25 mf	C-93	21M401778	Ceramic: 10 mf
C-28	21K478410	Ceramic: 1000 mf 500V	C-94	21M478410	Ceramic: 1000 mf 500V
C-29	21K471338	Silver mica: 20 mf	C-95	8K471168	Paper: .1 mf 100V
C-30	21R28616	Ceramic: 25 mf	C-96	8K471168	Paper: .02 mf 400V
C-31	21K471339	Ceramic: 20 mf	C-97	21K478410	Ceramic: 1000 mf 500V
C-32	21R28616	Ceramic: 25 mf	C-98	21R2740	Mica: 68 mf 104 800V
C-33	21R6662	Mica: 250 mf 104 500V	C-99	21M470789	Mica: 400 mf 104 500V
C-34	21M470789	Ceramic: 5000 mf 450V	C-100	21M470789	Ceramic: 5000 mf 450V
C-35	8K471165	Paper: .01 mf 100V	C-101	21M484196	Electrolytic: "A" 25 mf 25V (blank); "B" 10 mf 450V (square); "C" 40 mf 450V (half-circle)
C-36	21M470789	Ceramic: 5000 mf 450V	A, B, C, D	21K478410	Ceramic: 1000 mf 500V
C-37	8K471162	Paper: .005 mf 600V	C-102	8M471356	Paper: .25 mf 200V
C-38	21M470789	Ceramic: 5000 mf 450V	C-103	8K780005	Paper: .02 mf 400V
C-39	8K471162	Paper: .005 mf 600V	C-104	8K780006	Paper: .005 mf 200V
C-40A	21M484195	Electrolytic: "A" 25 mf 25V (triangle); "B" 10 mf 450V (square); "C" 40 mf 450V (half-circle)	C-105	8K780006	Paper: .005 mf 200V
C-41	21K478410	Ceramic: 1000 mf 500V	C-106	21M470789	Ceramic: 5000 mf 450V
C-42	21K478410	Ceramic: 1000 mf 500V	C-107	21M470789	Ceramic: 5000 mf 450V
C-43	21K478410	Ceramic: 1000 mf 500V	C-108	21M470789	Ceramic: 5000 mf 450V
C-44	21K478410	Ceramic: 1000 mf 500V	C-109	21M470789	Ceramic: 5000 mf 450V
C-45	21K478410	Ceramic: 1000 mf 500V	C-110	21M470789	Ceramic: 5000 mf 450V
C-46	21R6662	Mica: 250 mf 104 500V	C-111	21M470789	Ceramic: 5000 mf 450V
C-47	21K478410	Ceramic: 1000 mf 500V	C-112	8K471168	Paper: .1 mf 100V
C-48	21K478410	Ceramic: 1000 mf 500V	C-113	21K478410	Ceramic: 1000 mf 500V
C-49	21R28616	Ceramic: 25 mf	C-114	21K478410	Ceramic: 1000 mf 500V
C-50	21K478410	Ceramic: 1000 mf 500V	C-115	8K471162	Paper: .005 mf 600V
C-51	21K478410	Ceramic: 1000 mf 500V	C-116	8M471149	Paper: .1 mf 600V
C-52	21K478410	Ceramic: 1000 mf 500V	C-117	8K780040	Paper: .03 mf 1000V
C-53	21K478410	Ceramic: 1000 mf 500V	C-118	8K780158	Paper: .5 mf 100V
C-54	8K471166	Paper: .05 mf 400V	C-119	8M471151	Paper: .05 mf 600V
C-55	8K471167	Paper: .05 mf 400V	C-120	21M480052	Ceramic: 3.1 mf
C-56	21M485494	Electrolytic: 40 mf 150V	C-121	21R28616	Ceramic: 25 mf
C-57	8K471167	Paper: .05 mf 400V			
C-58	8K471167	Paper: .05 mf 400V			
C-59	21R6662	Mica: 250 mf 104 500V			
C-60	21K484150	Ceramic: 120 mf			
C-61	21R6664	Mica: 400 mf 104 500V			
C-62A	20M484112	Trimmer & Bracket Assembly: 40-245 mf each action			
C-62B					

MODELS VKL06, VKL06B, VKL06M, VTL05, VTL05M, VTL07, VTL07M; Ch. TS-9, TS-9A, TS-9B, TS-9C, TS-9D

Ref. No.	Part Number	Description	Ref. No.	Part Number	Description
L-29	24W485435	form & core	R-51	6R486144	10 20% 2W
L-30	24W485436	Oscillator coil; channel #6; includes winding, form & core	R-52	6R486144	10 20% 2W
L-31	24W485437	Oscillator coil; channel #7; winding only	R-53	6R486144	10 20% 2W
L-32	24W485438	Oscillator coil; channel #8; winding only	R-54	6R486144	10 20% 2W
L-33	24W485439	Oscillator coil; channel #9; winding only	R-55	17A485913	Wire wound; 9500; 25W; tapped
L-34	24W485440	Oscillator coil; channel #10; winding only	R-56	6R3953	100 10% 2W
L-35	24W485441	Oscillator coil; channel #11; winding only	R-57	6R3953	100 10% 2W
L-36	24W485442	Oscillator coil; channel #12; winding only	R-58	6R486016	560 10% 2W
L-37	24W485443	Oscillator coil; channel #13; winding only	R-59	6R486016	560 10% 2W
L-38	24W485444	RF choke filament	R-60	6R486016	Special; negative temperature compensating
L-39	24W485445	RF choke filament	R-61	6A4859166	Resistor; 33,000 ohms at 25°C
L-40	24W485446	RF choke filament	R-62	6A2118	3.3 meg 20% 1/2W
L-41	24W485447	RF choke filament	R-63	6R5597	560,000 10% 1/2W
L-42	24W485448	RF choke filament	R-64	6R2004	8200 10% 1/2W
L-43	24W485449	RF choke, B; insulated and coded, 1 microhenry	R-65	6R6444	180,000 10% 1/2W
L-44	24W485450	RF choke, B; insulated and coded, 1 microhenry	R-66	6R6444	180,000 10% 1/2W
L-45	24W485451	Sound trap coil; complete with iron core	R-67	6R6011	100,000 10% 1/2W
L-46	24W485452	Compensating coil; gray dot	R-68	6R6011	100,000 10% 1/2W
L-47	24W485453	Trep coil; 4.5 Mc; complete with iron core	R-69	6R6054	10,000 20% 1/2W
L-48	24W485454	Compensating coil; black dot	R-70	6R5658	120,000 10% 1W
L-49	24W485455	Compensating coil; black dot	R-71	6R5658	120,000 10% 1W
L-50A	24W485475	Compensating coil; gray dot	R-72	6R5398	150,000 10% 1/2W
L-50B	24W485476	Compensating coil; gray dot	R-73	6R5697	560,000 10% 1/2W
L-51	24W485477	Deflection coil; complete	R-74	6R2108	47 20% 1/2W
L-52	24W485478	Sound IF coil	R-75	6R6004	1 meg 20% 1/2W
L-53	24W485479	RF choke filament	R-76	6R6004	1 meg 20% 1/2W
L-54	24W485480	Focus coil; 245 ohms	R-77	6R486222	82 20% 2W
L-55	24W485481	Horizontal oscillator coil; complete with iron core; less shield can	R-78	6R486142	Wire wound; 3.3 10% 1/2W
L-56	24W485482	Horizontal size coil; complete with iron core	R-79	6R2053	820,000 10% 1W
L-57	24W485483	Horizontal linearity coil; complete with iron core	R-109	6R6291	560 10% 1/2W
L-58	24W485484	Focus coil; 540 ohms	R-110	17A780113	Focus control; wire wound; adjustable; 1000 25W (replace 10W 17A486475)
L-59	24W485485	Video IF coil; complete with iron core	R-111	17A486168	Wire wound; 2000 13W
L-60	24W485486	RF choke, B; insulated and coded, 1 microhenry	R-112	6R5951	3300 10% 1/2W
L-61	24W485487	Horizontal oscillator coil; complete with iron core	R-113	6R3964	1800 10% 2W
Speakers			R-114	6R3968	180 10% 2W
L5-1	50C4859002	Speaker; 6" electrodynamic; 3.2 ohm VC; 100 ohm (hot) field (VW-105)	R-115	17A486410	Wire wound; 57 10W
L5-2	50C780126	Speaker; 6" electrodynamic; 3.2 ohm VC; 100 ohm (hot) field (VW-107)	R-116	6R6004	1 meg 20% 1/2W
			R-117	6R6433	2.2 meg 10% 1/2W
			R-118	6R6004	1 meg 20% 1/2W
			R-119	6R6377	470,000 10% 1/2W
			R-120	6R6432	270 10% 1/2W
			R-121	6R5657	2,200 10% 2W
			R-122	6R6031	100,000 10% 1/2W
			R-123	6R6031	1 meg 20% 1/2W
			R-124	6R6031	100,000 10% 1/2W
			R-125	6R6048	47,000 10% 1/2W
			R-126	6R6377	470,000 10% 1/2W
			R-127	6R476004	1000 20% 2W
			R-128	6R6080	4,700 10% 1/2W
			R-129	6R6320	10,000 10% 1/2W
			R-130	6R6031	100,000 10% 1/2W
			R-131	6R6397	22,000 10% 1/2W
			R-132	6R6004	1 meg 20% 1/2W
			R-133	6R2118	3.3 meg 20% 1/2W
			R-134	6R486036	560 10% 2W
			R-135	6R5764	2,700 10% 2W
			R-136	6R5764	2,700 10% 2W
			R-137	6R6069	2,200 10% 1/2W
			R-138	6R476116	270 10% 2W
			R-139	6R5659	3,900 10% 1/2W
			R-140	6R5658	100,000 10% 1W
					Contrast & Brightness Controls, dual; 10,000 & 100,000
			R-141	6R6117	5,600 10% 1/2W
			R-142	6R6080	4,700 10% 1/2W
			R-143	6R5377	470,000 10% 1/2W
			R-144	6R486222	75 ohms in some sets. Replace with 82 ohms (part number 6R486222)

MODELS VK106, VK106B, VK106M, VT105, VT105M, VT107, VT107M; Ch. TS-9, TS-9A, TS-9B, TS-9C, TS-9D

Ref.	Part No.	Description	Part Number	Description	Part Number	Description
R-115	686018	100 20% 1/2W	V-1	RF Amplifier	35A484817	Cushion, kinescope: felt; 3/2-1/2" long
R-116	686197	22,000 10% 1/2W (part of L-51)	V-2	Mixer & IF Oscillator	35A90057	Cushion, kinescope retainers: felt (on top retainer brkts)
R-117	686229	1000 10% 1/2W	V-3	1st Video IF Amplifier	587845	Eyeball (V-15 socket mtg)
R-118	686320	10,000 10% 1/2W	V-4	2nd Video IF Amplifier	553135	Eyeball (V-15 socket mtg)
R-119	686356	1.5 meg 20% 1/2W	V-5	3rd Video IF Amplifier	17X80118	Focus Control Assembly: complete (for 25W resistor)
R-120	686356	1.5 meg 20% 1/2W	V-6	Sound IF Amplifier	37A12691	Grassmat, rubber (cushions for V-15 socket)
R-121	18K780343	Focus wound: 1000 1W	V-7	Sound IF Amplifier	14K87179	Insulator, coil: 2-1/8 x 3-1/8 (T-5 & T-16)
R-122	686232	Focus control: 1000	V-8	Sound IF Amplifier	14A780088	Insulator, coil (T-2 & T-17)
R-123	686128	8000 10% 1/2W	V-9	Discriminator & 1st AF Amplifier	14A780371	Insulator, hi-voltage capacitor
R-124	686197	22,000 10% 1/2W	V-10	Audio Amplifier	427686	Lockwasher, external: #6; cad pl (tuner mtg)
R-125	686087	220,000 10% 1/2W	V-11	1st Video IF Amplifier	427686	Lockwasher, external: #6; cad pl (tuner mtg)
R-126	686029	3300 10% 2W	V-12	Video Detector & Pulse Stripper Diode	427686	Lockwasher, external: #6; cad pl (per trans mtg)
R-127	686336	270 10% 1W	V-13	1st & 2nd Video Amplifier	427686	Lockwasher, internal: #6; cad pl (on focus control assembly)
R-128	686018	100 20% 1/2W	V-14	Vertical Blocking Oscillator & Vertical Output Amplifier	489751	Lockwasher, internal-external: #6; cad pl (kinescope support bracket mtg, etc.)
R-129	683966	1.5 meg 20% 1/2W	V-15	Horizontal Oscillator & Horizontal Oscillator Control	2983013	Lag, soldering: double
R-130	683966	1.5 meg 20% 1/2W	V-16	Horizontal Output Amplifier & HV Generator	2985388	Lug, soldering: #6; hot-tinned
R-131	68476014	18,000 10% 2W	V-17	HV Rectifier	2985248	Lug, soldering: #6; hot-tinned (hi-volt, cap, insulator)
R-132	686080	4700 10% 1/2W	V-18	Damping Diode	287019	Nut, hex: 4-40 x 1/4; cad pl (soldered on horizontal lin. & size core screws)
R-133	685736	270 10% 1W	V-19	Kinescope	24780137	Nut, hex: 4-40 x 1/4 x 3/16 thick; brass (tuner mtg)
R-134	685718	33,000 10% 2W	V-20	IV Rectifier	24780137	Nut, hex: 4-40 x 1/4; cad pl (HV cap. mtg)
R-135	682118	3.5 meg 20% 1/2W	V-21	IV Rectifier	287050	Nut, hex: 6-32 x 5/16; cad pl (per trans mtg)
R-136	686080	4700 10% 1/2W	V-22	IV Rectifier	287050	Nut, hex: 6-32 x 5/16; cad pl (per trans mtg & on focus control)
R-137	682109	10 meg 20% 1/2W	V-23	IV Rectifier	287051	Nut, hex: 3/8-32 x 9/16; Palmat; cad pl (control mtg)
R-138	686161	1500 20% 1/2W	V-24	Sound IF Amplifier	35A780085	Palm, felt (focus coil)
R-139	686048	100,000 10% 1/2W	V-25	IV Rectifier	2870703	Palm, special (L-55, T-3 & T-16 pri. core retainer)
R-140	686048	100,000 10% 1/2W	V-26	IV Rectifier	28K471323	Plug, line cord (interlock on chassis)
R-141	686048	100,000 10% 1/2W	V-27	1st Pulse Stripper	9A22367	Receptacle, 5-prong (on speaker cable)
R-142	686048	100,000 10% 1/2W	V-28	2nd Pulse Stripper & Pulse Amplifier	65A780351	Receptacle, fuse: includes nut and washer
R-143	686048	100,000 10% 1/2W	V-29	Phase Detector	587771	Rivet: .088 x 3/16; steel; nkl pl (min. socket mtg)
R-144	686048	100,000 10% 1/2W			587707	Rivet: .122 x 5/32; steel; nkl pl (octal socket mtg)
R-145	686048	100,000 10% 1/2W			587701	Rivet: .122 x 3/16; steel; nkl pl (electrolytic washer mtg)
R-146	686118	1500 20% 1/2W			587790	Rivet: .122 x 1/4; steel; nkl pl (chassis mtg brkt)
R-147	686048	82,000 10% 1/2W			587728	Rivet: .122 x 5/16; steel; nkl pl (V-17 socket mtg)
R-148	685732	5600 10% 1/2W			582841	Rivet: .115 x 7/16; steel; nkl pl (V-15 socket mtg)
R-149	685686	2700 10% 1W			387152	Screw, machine: #6 x 1/4 plain hex head; cad pl
R-150					387163	Screw, machine: 6-32 x 1/4 plain hex head; cad pl (kinescope support brkt mtg, etc.)
R-151					35A88240	Screw, machine: 6-32 x 1-1/4 slotted filler head; cad pl (picture centering screw)
R-152					38488101	Screw, machine: 6-32 x 2-1/4 slotted round head; cad pl (focus control resistor mtg)
R-153					388140	Screw, sheet metal: #6 x 5/16 PKZ plain hex head; cad pl (tuner shield mtg)
R-154					387454	Screw, sheet metal: #6 x 1/4 PKZ plain hex head; cad pl (focus control mtg, etc.)
R-155					387467	Screw, sheet metal: #6 x 3/8 PKZ plain hex head; cad pl (vertical output trans mtg)
R-156					387530	Screw, sheet metal: #6 x 1-1/2 PKZ plain hex head; cad pl (on kinescope tube support bracket)
R-157					1A470369	Screw, thumb: 6-32 thread (deflection yoke mtg)
R-158					47A85465	Shaft, focus control
R-159					28A485410	Shield, coil (for T-2 & T-17)
R-160					28A485410	Shield, coil (for T-2 & T-17)
R-161					28A485410	Shield, coil (for T-2 & T-17)
R-162					28A485410	Shield, coil (for T-2 & T-17)
R-163					28A485410	Shield, coil (for T-2 & T-17)
R-164					28A485410	Shield, coil (for T-2 & T-17)
R-165					28A485410	Shield, coil (for T-2 & T-17)
R-166					28A485410	Shield, coil (for T-2 & T-17)
R-167					28A485410	Shield, coil (for T-2 & T-17)
R-168					28A485410	Shield, coil (for T-2 & T-17)
R-169					28A485410	Shield, coil (for T-2 & T-17)
R-170					28A485410	Shield, coil (for T-2 & T-17)
R-171					28A485410	Shield, coil (for T-2 & T-17)
R-172					28A485410	Shield, coil (for T-2 & T-17)
R-173					28A485410	Shield, coil (for T-2 & T-17)
R-174					28A485410	Shield, coil (for T-2 & T-17)
R-175					28A485410	Shield, coil (for T-2 & T-17)
R-176					28A485410	Shield, coil (for T-2 & T-17)
R-177					28A485410	Shield, coil (for T-2 & T-17)
R-178					28A485410	Shield, coil (for T-2 & T-17)
R-179					28A485410	Shield, coil (for T-2 & T-17)
R-180					28A485410	Shield, coil (for T-2 & T-17)
R-181					28A485410	Shield, coil (for T-2 & T-17)
R-182					28A485410	Shield, coil (for T-2 & T-17)
R-183					28A485410	Shield, coil (for T-2 & T-17)
R-184					28A485410	Shield, coil (for T-2 & T-17)
T-1	1K470753	Antenna transformer: complete with antenna receptacle & trimmer	74485464	Bracket, chassis mounting	587790	Rivet: .122 x 1/4; steel; nkl pl (chassis mtg brkt)
T-2	248484086	IF transformer, 21.9 Mc; complete but less shield can	74485464	Bracket, coil mounting (horizontal linearity & size coil mtg)	587728	Rivet: .122 x 5/16; steel; nkl pl (V-17 socket mtg)
T-3	248471340	Discriminator transformer, 21.9 Mc; complete, but less shield can	74485464	Bracket & Socket Assembly: hi-voltage rectifier tube mtg	582841	Rivet: .115 x 7/16; steel; nkl pl (V-15 socket mtg)
T-4	254485030	Audio output transformer	74485464	Bracket, tuner chassis mounting	387152	Screw, machine: #6 x 1/4 plain hex head; cad pl
T-5	248485071	Video IF transformer: complete with iron core	74485464	Cable Assembly, speaker: includes receptacle	387163	Screw, machine: 6-32 x 1/4 plain hex head; cad pl (kinescope support brkt mtg, etc.)
T-6	248485071	Video IF transformer: complete with iron core	74485464	Clip, coil retainer (horizontal size and linearity, video IF & trap mtg)	35A88240	Screw, machine: 6-32 x 1-1/4 slotted filler head; cad pl (picture centering screw)
T-7	248485073	Video IF transformer: complete with iron core	74485464	Clip, shield (V-2 shield grounding)	38488101	Screw, sheet metal: #6 x 5/16 PKZ plain hex head; cad pl (tuner shield mtg)
T-8	248485073	Video IF transformer: complete with iron core	74485464	Clip, spring: phosphor bronze (focus control contactor)	388140	Screw, sheet metal: #6 x 1/4 PKZ plain hex head; cad pl (focus control mtg, etc.)
T-9	248485075	Video IF transformer: complete with iron core	74485464	Clip, spring: black (V-2 shield grounding)	387454	Screw, sheet metal: #6 x 3/8 PKZ plain hex head; cad pl (vertical output trans mtg)
T-10	254485016	Vertical blocking oscillator transformer	74485464	Conductor, shielded: single; black	387530	Screw, thumb: 6-32 thread (deflection yoke mtg)
T-11	254485016	Vertical output transformer	74485464	Conductor, shielded: single; blue	1A470369	Screw, thumb: 6-32 thread (deflection yoke mtg)
T-12	254485016	Power transformer	74485464	Conductor, shielded: single; green	47A85465	Shaft, focus control
T-13	254485016	Horizontal output transformer	74485464	Connector, kinescope HV	28A485410	Shield, coil (for T-2 & T-17)
T-14	254485050	Power transformer	74485464	Contact, pin terminal (in speaker receptacle)	28A485410	Shield, coil (for T-2 & T-17)
T-15	254485050	Video IF transformer: complete with iron core	74485464	Core, iron & ceramic (for L-57, L-55, L-61)	28A485410	Shield, coil (for T-2 & T-17)
T-16	248471340	Discriminator transformer, 21.7 Mc; complete but less shield can	74485464	Core, iron & ceramic & screw (for L-56)	28A485410	Shield, coil (for T-2 & T-17)
T-17	248470319	IF transformer, 21.7 Mc; complete but less shield can	74485464	Core, iron & screw (for T-5, T-6, T-7, T-8, T-9, T-15, L-44)	28A485410	Shield, coil (for T-2 & T-17)

MODELS VK106, VK106B, VK106M, VT105, VT105M, VT107, TS-9A, TS-9B, TS-9C, TS-9D

2281633	Pin, escutcheon; brass (channel indicator)
2281635	Pin, escutcheon; cast brown (VT-105B)
28A70122	Plug, 1 pin (for antenna receptacle)
597706	Rivet; .122 x 1/16; steel; nkl pl (insulator on bottom cover)
592646	Rivet; .140 x 1/4; steel; stator; bronze finish (high voltage shield)
5A470755	Rivet, shoulder (amounts line cord to metal cabinet back)
5K760302	Rivet, shoulder (amounts line cord to fibre cabinet back)
6A484866	Screen, speaker; floored; brown mabogany (VT-105, VT-107M)
3A489007	Screw, decorative head; stator; bronze finish (spkr board mtg) (VT-105)
382226	Screw, machine; 1/4-20 x 1-1/4; plain hex head; cad pl (chassis mtg, VT-106)
38488134	Screw, machine; 1/4-20 x 1-1/2; plain hex head; cad pl (chassis mtg, VT-105, VT-107)
387536	Screw, sheet metal; #6 x 3/8 PMA slotted acorn head; antique copper finish (ant. terminal strip mtg)
387455	Screw, sheet metal; #6 x 3/8 PMA slotted acorn head; antique copper finish (bottom & back cover mtg)
388153	Screw, sheet metal; #6 x 3/4 PMA plain hex head; cad pl (bottom cover mtg) (VT-105, VT-107)
387457	Screw, sheet metal; #6 x 7/8 PMA plain hex head; cad pl (cabinet feet) (VT-105, VT-107)
3827913	Screw, speaker mtg (amounts speaker to cushioned board)
381328	Screw, wood; #2 x 3/8 Phillips oval head (microscope base)
381321	Screw, wood; #6 x 3/8 slotted round head; stator; bronze finish (cabinet back mtg, VT-106)
388102	Screw, wood; #6 x 5/8 slotted acorn head; antique copper finish (bottom & back cover mtg)
381332	Screw, wood; #6 x 1-1/4 round head; cad pl (speaker board mtg)
290780950	Shield, high voltage (on cabinet back) (VT-106, VT-107)
31A21990	Strip, terminal; 2 screw (ant. connection)
4A485464	Washer, cut (on chassis mtg screws) (VT-105, VT-107)
4A51722	Washer, flat; 7/16 x .187 x .048 stl; cad pl (cabinet feet) (VT-105, VT-107)
487629	Washer, flat; 1/2 x 3/16 x .048 steel; cad pl (chassis bottom cover mtg) (VT-105, VT-107)
487611	Washer, flat; 1/2 x 7/32 x .048; steel (speaker board mtg) (VT-106)
487614	Washer, flat; 11/16 x 11/64 x .056 steel; cad pl (speaker board mtg) (VT-105, VT-107)
488224	Washer, flat; 1" x 17/64 x .067; cad pl (chassis mtg, VT-106)
1X471310	Window & Gasket Assembly; safety glass window with felt gasket (VT-105, VT-106)
1X780009	Window & Gasket Assembly; safety glass window with rubber gasket (VT-107)

1X484699	Back Cover (metal) & Line Cord Assembly (VT-105)
1X780154	Back Cover (fibre) & Line Cord Assembly (VT-105)
1X489122	Back Cover (metal) Line Cord & Shield Assembly (VT-106)
1X489121	Back Cover (fibre) Line Cord & Shield Assembly (VT-106)
1X780013	Back Cover (metal) Line Cord & Shield Assembly (VT-107)
1X780012	Back Cover (fibre) Line Cord & Shield Assembly (VT-107)
37K747416	Band, rubber (on window retaining brackets)
1X780017	Band, Microscope (VT-105, VT-106)
1X780012	Base, Microscope (VT-105B)
37A780028	Bracket, window retainer
35A780318	Bumper, rubber (cabinet foot) (VT-105, VT-107)
37A489006	Building, molded step; rubber (speaker cushions)
16A484860	Cabinet, table model; brown mabogany (VT-105)
16A484861	Cabinet, table model; red mabogany (VT-109A)
16A489027	Cabinet, console; brown mabogany (VT-106B)
16A489028	Cabinet, console; red mabogany (VT-106B)
16A489029	Cabinet, console; lined oak (VT-106B)
16A780062	Cabinet, table model; brown mabogany (VT-107)
16A780063	Cabinet, table model; red mabogany (VT-107M)
1X484869	Cable Assembly, antenna; 300 ohm antenna cable with 4 pin plug and 2 screw terminal strip
1X780004	Cloth, grille (VT-106)
1X489060	Cloth, grille (VK-106A)
1X780603	Cloth, grille (VK-106B)
1X780604	Cloth, grille (VT-107)
308470756	Cord, line, with plug & receptacle; 9 ft lg.
1X780002	Cover Assembly, chassis bottom; with insulator (VT-105, VT-107)
150489110	Cover Assembly, chassis bottom; with insulator (VT-106)
553127	Eyebolt; .204 x .750; brass (spkr board mtg) (VT-106)
557831	Eyebolt; .812 x .238; brass (spkr board mtg) (VT-105, VT-107)
33090053	Gasket, Microscope seal; felt (on window) (VT-105, VT-106)
1A4780124	Insulator, electrolytic (chassis bottom)
36A489177	Knob, control; walnut plastic (Channel Selector) (VT-105, VT-106, VT-107)
36A489176	Knob, control; mabogany plastic (Channel Selector) (VT-105M, VT-106M, VT-107M)
36A489175	Knob, control; tan plastic (Channel Selector) (VT-106B)
36A489180	Knob, control; walnut plastic; large (Vertical Hold) (VT-105, VT-106, VT-107)
36A489179	Knob, control; mabogany plastic; large (Vertical Hold) (VT-105M, VK-106M, VT-107M)
36A489181	Knob, control; tan plastic; large; (Vertical Hold) (VT-106B)
36A489490	Knob, control; walnut plastic; medium (Contrast & Volume) (VT-105, VT-106, VT-107)
36A489489	Knob, control; mabogany plastic; medium (Contrast & Volume) (VT-105M, VK-106M, VT-107M)
36A489491	Knob, control; tan plastic; medium (Contrast & Volume) (VT-106B)
36A489478	Knob, control; walnut plastic; small (Brightness, Horizontal Hold & Off-tone) (VT-105, VT-106, VT-107)
36A489477	Knob, control; mabogany plastic; small (Brightness, Horizontal Hold & Off-tone) (VT-105M, VK-106M, VT-107M)
36A489479	Knob, control; tan plastic; small (Brightness, Horizontal Hold & Off-tone) (VT-106B)
36A489481	Knob, control; walnut plastic; small (Fine Tuning) (VT-105, VT-106, VT-107)
36A489480	Knob, control; mabogany plastic; small (Fine Tuning) (VT-105M, VK-106M, VT-107M)
1X489482	Knob, control; tan plastic; small (Fine Tuning) (VT-106B)
489751	Lockwasher, internal-external; #6; cad pl (spkr mtg)
7S7003	Nut, hex; 6-32 x 5/16; cad pl (spkr mtg)
2A484697	Nut, special; square; 1/4-20 (for chassis mtg screws) (VT-105, VT-107)
2A489116	Nut, speed (chassis mtg, VT-106)

9A780353	Socket, tube & adapter; oval (for V-12, V-27, V-28)
2A470365	Speednut; #6A (vertical output trans mtg & on microscope support bracket)
4A470705	Spring, coil (for V-3, V-16, L-5)
4A484166	Spring, compression (on picture centering screws)
4A471379	Strip, kineoscope support; 1 1/2" long
31A790086	Strip, terminal; 5 insulated lugs, #4 ground, 3/8 spacing
31A780283	Strip, terminal; 5 large insulated lugs, #4 ground, 1/2 spacing
31A780374	Strip, terminal; 5 insulated lugs (#3 large), #4 ground, 3/8 spacing
31A26658	Strip, terminal; 5 insulated lugs, #3 ground, 3/8 spacing
31A780304	Strip, terminal; 5 insulated lugs, #2 ground, 3/8 spacing
31A77494	Strip, terminal; 4 insulated lugs, #3 ground, 3/8 spacing
31A771965	Strip, terminal; 3 insulated lugs, #4 ground, 3/8 spacing
31A51511	Strip, terminal; 3 insulated lugs, #3 ground, 3/8 spacing
31A51526	Strip, terminal; 2 insulated lugs, #3 ground, 3/8 spacing
31A515004	Strip, terminal; 2 insulated lugs, #2 ground, 3/8 spacing
31A51217	Strip, terminal; 1 insulated lug, #2 ground, 3/8 spacing
31A51251	Strip, terminal; 1 insulated lug, #1 ground, 3/8 spacing
4A489077	Stand, socket mounting (V-3 socket)
2A484822	Trap, ion; permanent magnet type
9A71267	Water, electrolytic mounting; bakelite; for 4 lug capacitors
4A51642	Washer, "C" spring (on focus control)
4A470785	Washer, fibre; 3/8 x 3/16 x 1/16 thick (part of focus control)
4A51720	Washer, flat; 3/8 x .156 x .039; cad pl (tuner mtg)
4A470936	Washer, spring (on focus control) (for 25M resistor)
Part Number	Description
1X484690	Tuner VT-3 (complete)

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

4A4326	Ball, steel; 1/8" (fine tuning assembly)
7B482253	Bracket, tuner support (rear end of tuner)
4A489175	Brushing, knob; brass (channel selector)
4A471000	Clip, coil mounting
4A4790007	Clip, fine tuning shaft's retainer
4A484849	Clip, spring; ball retainer (fine tuning assembly)
4A470109	Core, coil adjusting screw; brass
1A4470146	Lockwasher, split; #5; blk nkl pl (front of switch assembly)
489754	Lockwasher, internal; 3/8; cad pl (end of tuner switch)
487655	Nut, hex; 5-40 x 1/4; cad pl (front of switch assembly)
287010	Nut, hex; 3/8-32 x 9/16; cad pl (end of tuner switch)
6A484855	Plate, shaft's support (on front end)
1X478290	Receptacle and Bracket Assembly (ant. receptacle)
58A897	Rivet; .088 x 1/8; steel; nkl pl (socket mtg)
597707	Rivet; .122 x 5/32; steel; nkl pl (terminal strip mtg)
597701	Rivet; .122 x 3/16; steel; nkl pl (ant. receptacle)
387247	Screw, machine; 6-32 x 3/16 slotted lock hex head; cad pl (ant. receptacle)
387494	Screw, sheet metal; #8 x 1/4 PHZ plain hex head; cad pl
387103	Set-screw; 6-32 x 1/8 Allen head (for knob bushing)
4A484851	Shaft, fine tuning
26A471317	Shield, tube; with lead sleeve (for V-2)
4A470748	Socket, tube; 7 long miniature; ceramic
4A489466	Spring, coil compression (fine tuning shaft's assembly)
4A482255	Spring, switch grounding (on front end of shaft)
31A90046	Strip, terminal; 5 insulated lugs, #4 end, 3/8 spacing
31A76184	Strip, terminal; 6 insulated lugs, #1 end, 3/8 spacing