## TUBE COMPLEMENT

BOTTOM CHASSIS

| No. | Tube | Symbol | Function |
|---|---|---|---|
| 1 | 6AU6 | V1 | 4.5 MC Amplifier |
| 2 | 6AL5 | V2 | Ratio Detector |
| 3 | 6AT6 | V3 | First Audio |
| 4 | 25L6GT | V4 | Audio Output |
| 5 | 6AU6 | V5 | First I.F. Amplifier |
| 6 | 6AU6 | V6 | Second I.F. Amplifier |
| 7 | 6AU6 | V7 | Third I.F. Amplifier |
| 8 | 6AL5 | V8 | Second Detector & AGC |
| 9 | 6AU6 | V9 | Video Amplifier |
| 10 | 6AU6 | V10 | Sync. Separator & D. C. Restorer |
| 11 | 25L6GT | V17 | H. V.—R. F. Oscillator |
| 12 | 1B3GT/806 | V18 | H. V. Rectifier |
| 13 | 6J6 | V19 | R. F. Oscillator |
| 14 | 6AG5 | V20 | Mixer |
| 15 | 6J6 | V21 | R. F. Amplifier |

TOP CHASSIS

| | | | |
|---|---|---|---|
| 16 | 12SN7GT | V11 | Horizontal Oscillator |
| 17 | 12SN7GT | V12 | Horizontal Output |
| 18 | 12SN7GT | V13 | Vertical Oscillator |
| 19 | 6SL7GT | V14 | Vertical Deflection Amplifier |
| 20 | 25Z6GT | V15 | Low Voltage Rectifier |
| 21 | 7JP4 | V16 | Picture Tube |

## SPECIFICATIONS

### DETAIL

Power Supply
105 to 125V 60 Cycle AC

Power Consumption
100 Watts

Power Output (Audio) —
.5 Watts undistorted

Input Impedance (Terminals AG)
72 ohms unbalanced

Picture Tube Size
7 inch

Speaker
1 oz. P.M. — 4" — Voice Coil 3 Ohms

Dimensions
Chassis Bottom—
8" wide, 13¼" deep, 6¼" high
Chassis Top —
8¾" wide, 13¼" deep, 7½" high

Shipping Weight
App. 30 lbs.

**SOUND I.F. — 32.8 MEGACYCLES PICTURE I.F. — 37.3 MEGACYCLES**

## FREQUENCY CHART

| CHANNEL | FREQUENCY | PICTURE FREQUENCY | SOUND FREQUENCY | RF OSCILLATOR FREQUENCY |
|---|---|---|---|---|
| 2 | 54-60 | 55.25 | 59.75 | 92.55 |
| 3 | 60-66 | 61.25 | 65.75 | 98.55 |
| 4 | 66-72 | 67.25 | 71.75 | 104.55 |
| 5 | 76-82 | 77.25 | 81.75 | 114.55 |
| 6 | 82-88 | 83.25 | 87.75 | 120.55 |
| 7 | 174-180 | 175.25 | 179.75 | 212.55 |
| 8 | 180-186 | 181.25 | 185.75 | 218.55 |
| 9 | 186-192 | 187.25 | 191.75 | 224.55 |
| 10 | 192-198 | 193.25 | 197.75 | 230.55 |
| 11 | 198-204 | 199.25 | 203.75 | 236.55 |
| 12 | 204-210 | 205.25 | 209.75 | 242.55 |
| 13 | 210-216 | 211.25 | 215.75 | 248.55 |

## INSTALLATION

### WARNING

This receiver is designed for use on 105 to 125 Volt 60 cycle AC only. Do not connect to Direct Current (DC) power supply. If in doubt, check your local power supply company.

### ANTENNA

This Teletone Portable Television Receiver is equipped with an adjustable built-in antenna. Under normal operating conditions, with the antenna properly adjusted, a highly satisfactory picture can be obtained on all of the channels operating in your locality.

The antenna will work best with the antenna tapes pulled out and the antenna rotated by grasping the antenna knob so that the tapes are broadside towards the television transmitting station. In general, the reception of the lower numbered channel stations will be obtained with the tapes pulled out to their full length position, while higher numbered channels will give best reception with shorter tape lengths.

In certain cases improved reception can be obtained by the use of an outdoor television antenna. This will be true when:

1. Improved reception is desired on stations with signals of insufficient power and more than 15 miles distant from your home.
2. Your home is in a particularly bad location for television reception, that is, near heavy automobile traffic, in a valley surrounded by hills or tall buildings, etc.
3. Your receiver is operating inside a building with steel frame construction, which diverts television signals, or in a basement location below street level.

Should you find it desirable to have an outdoor antenna installed, consult your authorized Teletone dealer.

In order to use an outdoor antenna in your receiver, connect the antenna lead to the terminals "A and G" of the three post terminal strip at the rear of the cabinet — see Fig. 2. If a co-axial type lead-in is used, be sure to connect the metallic outer shield to the "G" terminal. Improved performance may be obtained by removing the connecting link between the "T" and "A" terminals.

# CONTROL FUNCTIONS

## RECEIVER FRONT PANEL CONTROLS

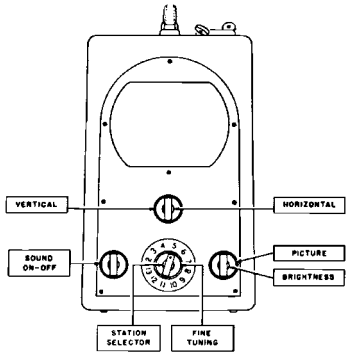



Fig. 1

**VOLUME — ON-OFF**—The Volume Control is an audio control only and has no effect on the picture. It is connected in the grid circuit of the audio amplifier (V-3). The power on and off switch is combined with the volume control.

**HORIZONTAL HOLD**—This receiver uses normal triggered synch in both the vertical and horizontal. The Horizontal Hold control when operated in either extreme position will "tear" the picture. It is a broad control, and slight misadjustment should not effect the picture. It is found in the grid circuit of the second half of the horizontal oscillator 12SN7 (V-11).

**VERTICAL HOLD**—The Vertical Hold control is not a critical control. It requires no fine adjustment to keep the picture properly framed. This control is located in the grid circuit of the 12SN7 vertical oscillator (V-13).

**PICTURE**—Controls video gain through the video amplifier 6AU6 (V-9). This receiver uses AGC and therefore will operate without overloading the video stage despite setting of the contrast control.

**BRILLIANCE**—This control operates by varying the DC potential on the cathode of the picture tube 7JP4 (V-16).

**STATION SELECTOR**—The (inner) bar knob of this control will operate the station selector. The (outer) circular knob actuates the "Fine Tuning Control" trimmer C114 of the oscillator V19 providing maximum I. F. sensitivity as required for each channel.

## RECEIVER REAR CHASSIS CONTROLS

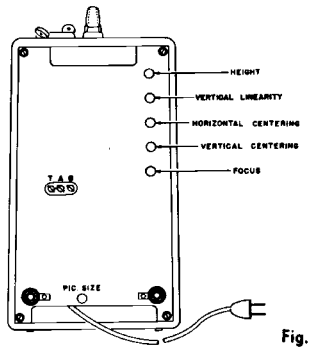



Fig. 2

**PIC SIZE**—This control varies trimmer C162 of the R. F. Oscillator high voltage supply system tank circuit in the plate of the 25L6GT (V-17). The screw (J) Fig. 7 is at ground potential. It will increase or decrease the voltage delivered to the high voltage rectifier 1B3GT/8016 (V-18) and thus control the voltage applied to the second anode of the picture tube. An increase of this voltage will make the picture smaller by accelerating the electrons in the beam and thereby making it harder to deflect the beam. When the adjustment is rotated in a clockwise direction, it will decrease the anode voltage. The control serves as a width adjustment and should be varied to obtain the desired width. Since this control affects the height, this adjustment should be made in conjunction with the height control.

**Note: A trimmer C36, (K) Fig. 7 is set at the factory to provide correct horizontal sweep voltage.**

**HEIGHT**—Operates rheostat P4 (N) Fig. 7 in the plate circuit of the vertical sweep oscillator 12SN7GT (V-13) which varies the voltage delivered to the grid circuit of the vertical output amplifier 6SL7GT (V-14). (This control affected by Pic Size adjustment.)

**VERTICAL LINEARITY CONTROL**—Vertical Linearity is corrected by potentiometer P8 (P) Fig. 7 which provides a positive feedback voltage from plate to grid circuits of Vertical Output Amplifier (V-14). Should be adjusted in conjunction with Height Control P4, (N) Fig. 7.

**FOCUS**—This control P7 (R) Fig. 7 varies the voltage of the first anode of the picture tube and determines the beam or spot size.

**HORIZONTAL AND VERTICAL CENTERING**—These controls vary the potential on the deflection plates of the picture tube thereby altering the position of the raster on the face of the picture tube.

# BRIEF CIRCUIT ANALYSIS

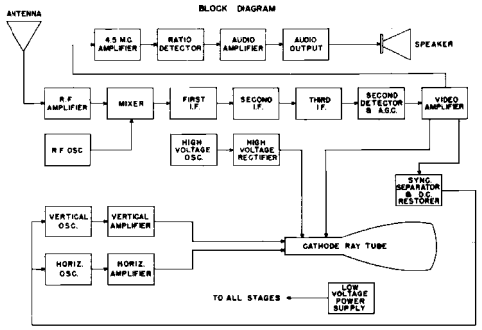



Fig. 3

**TUNER**—The tuner in this model covers 12 channels (2 to 13 inclusive). The local oscillator is tuned to the high side on all channels and is adjusted to provide a picture I.F. of 37.3 Mc and a sound I.F. of 32.8 Mc.

The tuning inductance for channel 2 is across the oscillator at all times. The tuning inductances for channels 3 to 13 respectively are shunted across the channel 2 inductance as these channels are selected.

In aligning the receiver channel 2 must be adjusted first. Channels 3 to 13 can then be adjusted. Misalignment of channel 2 will detune the other channels. Appreciable readjustment of channel 2 may require retuning of several low frequency channels. This effect is of less importance on channels 7 to 13. Alignment should be attempted only after the receiver has been operating for 5 minutes.

**R. F. AMPLIFIER** — The antenna voltage is fed between cathode and grid of the grounded grid RF amplifier (V21). The input circuit of which is untuned. Double tuned interstage coupling is used between the plate of the RF Amplifier (V21) and the grid of the mixer (V20). Mechanically, the series inductances used take the form of several individual coils which are cut in or out of their respective circuits by means of the band switch. These coils will rarely need readjustment.

**MIXER**—The output of the RF Amplifier (V21) and the Local Oscillator (V19) are condenser fed into the Control Grid of the Mixer Stage (V20). The circuit is tuned in much the same manner as the output of the RF Amplifier, previously described.

**OSCILLATOR**—The RF Oscillator (V19) is fairly straightforward in operation. Its main peculiarity is that the coil for Channel 2 is permanently parallel to all other Oscillator coils from 3 to 13. It is therefore necessary, when aligning the oscillators to ALIGN CHANNEL 2 FIRST and the rest of the coils in any order thereafter. They are tuned by brass slugs accessible through two slots in the front of the receiver chassis. Channel 2 is found at the top of the right hand slot and the others follow in regular order in a clockwise direction finishing with channel 13 at the top of the left hand slot.

**NOTE: THE CHANNEL NUMBERS ON THE ESCUTCHEON DO NOT CORRESPOND TO THE LOCATION OF THE OSCILLATOR COILS.**

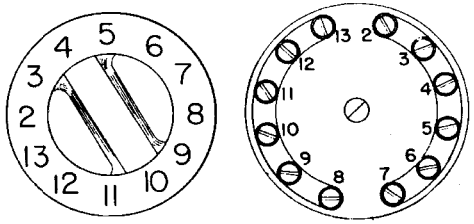


Fig. 4

**VIDEO IF**—Each Video IF transformer has only one adjustment, which controls the position of a powdered iron slug accessible from the top of the chassis. The Video IF String is stagger tuned to two frequencies. The first and third IF transformers are tuned to 34.8 Megacycles and the second and fourth are tuned to 36.9 Megacycles. The response curve is fairly flat topped and should produce a picture with good definition.

**VIDEO AMPLIFIER**—The output of the Video amplifier is fed to three separate circuits. It is here that the separation of picture and sound takes place. It supplies (1) The cathode ray tube with picture intelligence and blanking (2) the grid of the synch separator with the incoming synch pulses and (3) the 4.5 MC Trap with the sound carrier.

**SYNCH SEPARATOR AND DC RESTORER**—The synch pulses fed from the Plate of Video Amplifier (V9) to the grid of the synch Separator (V10) are taken off the plate of the Synch Separator at which point they are of negative polarity. There is a sufficient amount of limiting action to remove whatever static interference may ride in on the pulses. DC restoration voltage is developed across the Cathode resistor (R24) and fed to the Control grid of the Cathode Ray Tube.

**SWEEP AMPLIFIERS AND OSCILLATORS**—Both the horizontal and vertical sweep oscillators and amplifiers are very much alike in general operation. 12SN7GT (twin triodes) (V11) (V13), are used as oscillators of the multivibrator type. A12SN7GT (V12) is used as a push-pull horizontal amplifier. The plate circuits of this amplifier feed auto transformer T4 providing a voltage step-up and adequate sweep voltage. The vertical amplifier is a 6SL7GT twin high mu triode amplifier (V14) which provides adequate sweep voltage. Vertical and Horizontal centering is accomplished by varying the DC voltage on one of the deflection plates and maintaining a constant DC potential on the opposing plate.

**SOUND SYSTEM**—The sound Carrier is taken off the plate of the Video Amplifier (V-9) by a 4.5 Megacycle trap and fed through a 4.5 MC Amplifier (V-1) to the Ratio Detector (V-2) and then to the audio amplifier (V-3) audio output (V- 4) and speaker.

**HIGH VOLTAGE POWER SUPPLY**—The High Voltage Power Supply is of the RF type. The Oscillator is free running and independent of other circuits in the set. It is NOT a fly-back power supply. The Oscillator is essentially a tuned plate circuit fed through a typical rectification and filter network. The oscillator is a 25L6GT (V-17) and the rectifier is a 1B3/8016 (V-18). (V-16) filament voltage is supplied by transformer (T-7).

**A G C**—The receiver uses an automatic gain control circuit operating on the first two IF stages, which is effective in maintaining the signal level at the video and second detector (V-8) reasonably constant. The manual picture control provides a means of further contrast variation by controlling the gain of the video amplifier (V-9).

## GENERAL

### FILAMENTS

The filaments are hooked up in three banks arranged in series parallel. The interlock line plug leg subdivides in string one containing V-12, V-11, V-17, V-4, V-3, V-2, V-1 to junction V-20 — V-19. String two contains Ballast Resistor R67 and V-15, V-14, V-13, V-10, V-9, V-8, V-7, V-6, V-5, V-20. String three in series with both banks contains V-19, V-21 (bridged by R110) and Picture Tube V-16.

The B power is supplied by three half-wave rectifiers.

The positive voltage is derived from a selenium rectifier and the negative voltage from one section of a 25Z6GT rectifier.

The second section of this rectifier is used to increase the B+ voltage of the H. V. oscillator (V-17).

The sum of the voltages, approximately 230V, is used as the B supply for the Video amplifier (V-9), Horizontal and Vertical deflection circuits V-11, V-12, V-13 and V-14.

# ALIGNMENT PROCEDURE

**PRECAUTIONS**—Do not remove any tube before first disconnecting the receiver from the power line as damage to other tubes may result. On this model the chassis is returned to one side of line. Care should be taken to avoid grounding receiver. As the antenna terminals are isolated from chassis no damage will result if the antenna is accidentally grounded. Where severe line noise is encountered reversing the AC plug may be advantageous.

The alignment of this Receiver can be broken down into three basic parts.

1 — Video IF Alignment 2 — RF Alignment
3 — Sound Alignment

## TEST EQUIPMENT REQUIRED

**CATHODE RAY OSCILLOSCOPE**—The tube size is relatively unimportant, however, anything under 5" usually makes fine adjustment quite difficult.

**SWEEP GENERATOR**—The sweep generator used should have linear coverage of a center range from 30 to 220 megacycles. The output should be fairly flat over wide frequency variation of the sweep. It should be capable of an output of about 0.1 volt with attenuation. It is preferable that the generator have a deflection output for the test oscilloscope.

**AM SIGNAL GENERATOR**—This generator should have a frequency range of from 4.5 to 220 megacycles. As this generator is used occasionally as a marker generator, accuracy is an important factor. It should be capable of 0.1 volt output with attenuation and should be linear through the range.

**VACUUM TUBE VOLTMETER** — Almost any standard make VTVM will do. It should preferably have a reversible polarity switch.

## 1. VIDEO IF ALIGNMENT

An adequate signal can be fed through the video IF string by feeding the output of the sweep generator into a tube shield placed over the mixer tube (V-20). Care should be taken that this shield is NOT grounded. The ground side of the output can be connected to the grounded shield of the adjacent oscillator tube (V-19). This method will be found to be convenient and practicable, especially where a simple jig has been prepared.

The "hot" or "high" side of the Oscilloscope input should be connected to the junction point of the 8.2K detector load resistor (R19) and the peaking coil (L4). The "low" or ground side should be connected to the return side of R19. Care should be taken that the generator and the scope leads are well separated to avoid regeneration.

Adjust the first and third video IF transformers (A), (B) Fig. 7 for the proper response on the lower or sound end of the curve and the second and fourth IF transformers (C), (D) Fig. 7 for high frequency or picture response.

By substituting an AM generator for the sweep generator and a vacuum tube voltmeter for the oscilloscope, the receiver can be aligned by the spot frequency method. In this case, the signal is applied as above and the generator output is adjusted so that the response is about minus one volt D.C. as measured across the video detector load resistor (R19). With a 34.8 megacycle signal unmodulated fed in this manner the first and third video IF transformers (A), (B) Fig. 7 should be aligned, and with a 36.9 megacycle signal the second and fourth video IF transformers (C), (D) Fig. 7 should be adjusted for maximum deflection of the VT voltmeter. Adjust generator output so as not to exceed 5 volts across video detector load at anytime.

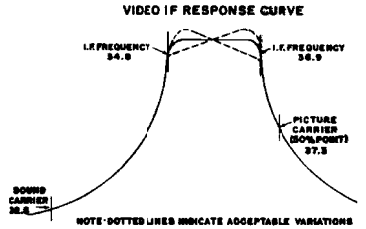



Fig. 5A

## 2 RF ALIGNMENT

In the alignment of the RF section three pieces of test equipment are necessary. A sweep generator, a signal generator and a cathode Ray Oscilloscope. For specifications see "Test Equipment" above.

The output of the Sweep Generator should be fed into the antenna circuit. The signal generator (C.W.) should be loosely coupled to the antenna terminals. The AM signal generator is used as a marker as described below. Some Sweep generators made today contain their own marker oscillator. In cases where a generator of this type is used the AM Signal Generator may be eliminated. The Oscilloscope is connected across R19 as described above.

The R.F. section of the receiver is tuned channel by channel. The proper frequency settings for any given channel can be determined by consulting the Frequency Chart on Page 3 . For example, in aligning channel 2 the sweep generator should be set to some mid frequency between 54 and 60 megacycles. This adjustment is not a fine one. After setting the sweeper in the general vicinity of the desired frequency it should be tuned to center the response curve on the Oscilloscope face. For picture and sound markers the signal generator should be carefully adjusted to the frequencies indicated in the Frequency Chart. For example in the case of channel 2 the picture marker frequency is 55.25 Mc. and the Sound 59.75 Mc.

It is important to note at this point that the oscillator coil for channel 2 is in parallel with every other oscillator coil from 3 to 13. It is therefore imperative that channel 2 be aligned first and the others in any desired order thereafter.

Starting with channel 2 and applying the proper frequencies as indicated above, the output of the sweep generator should be attenuated to the point where further attenuation will not affect the wave shape.

The Oscillator should then be adjusted to bring the sound carrier to a point approximately 20 db down on the response curve (see Fig.5A). With the oscillator so adjusted the picture carrier should fall at a point approximately 50% up on the slope of the opposite side of the band pass curve. Certain variations in the waveshape and the location of the picture carrier are acceptable.

The picture carrier may vary in position from a point between 45% and 60% of the slope and the overall waveshape may differ from the ideal, flat-topped response by being either slightly dipped or peaked in the center. See figure (5B).

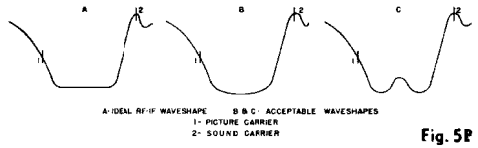



Fig. 5B

If the position of the picture carrier varies beyond the 45% to 60% points **on all channels** correction may be made by turning to channel 6, applying the proper input signals and slightly realigning the I.F. transformers.

**NOTE:** 1 — Care should be taken that the alignment tool used on the oscillator coil adjustments should be no larger than 3/16" diameter and be of the insulated type. Serious damage to the oscillator coils may result if this precaution is not observed.

2 — In order to avoid circuit overload, it is recommended, that the sweep amplitude be reduced to a point where the selectivity curve does not change appreciably with further reduction of the input voltage.

## 3. SOUND ALIGNMENT

The sound clignment of this receiver is best done with an AM generator and a vacuum tube voltmeter. By feeding a 4.5 megacycle signal into the grid (pin 1) of the video amplifier (V-9) Fig. 7 and placing the vacuum tube voltmeter at (pin 7) of the ratio detector (V-2) Fig. 7 also (D) Fig. 6A the 4.5 megacycle trap and the primary of the ratio detector can be adjusted. In both cases the generator should be attenuated so that the reading on the voltmeter is between minus 3 and minus 4 volts, and both adjustments are for maximum deflection of the meter. The meter should then be connected to point (C) Fig. 6A. The secondary should then be adjusted for a zero reading, Fig. 6B. The primary of the ratio detector transformer is (F) Fig. 7, found on the underside of the chassis, the secondary is (H) Fig. 7 on top.

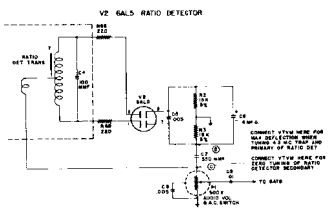



Fig. 6A

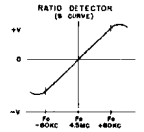



Fig. 6B

PARTS LOCATION—UNDERSIDE VIEW

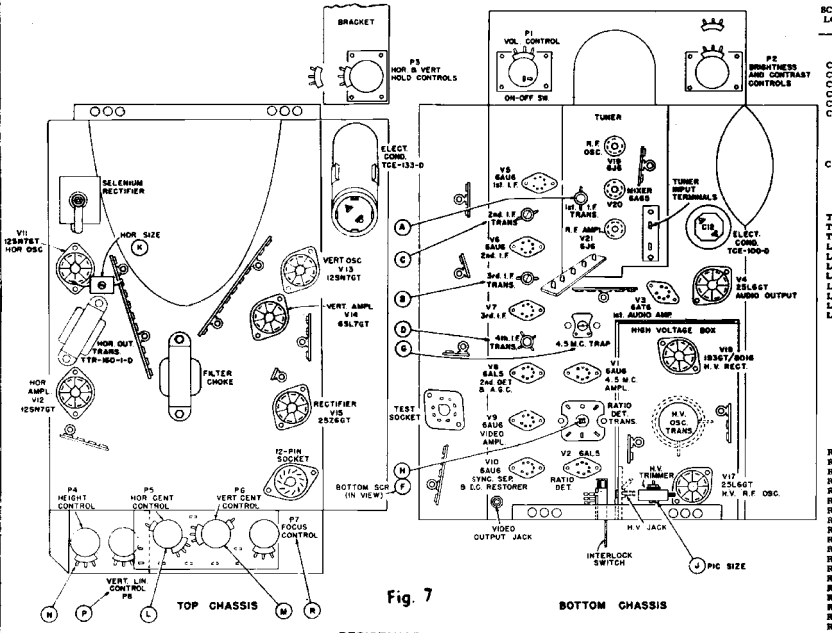
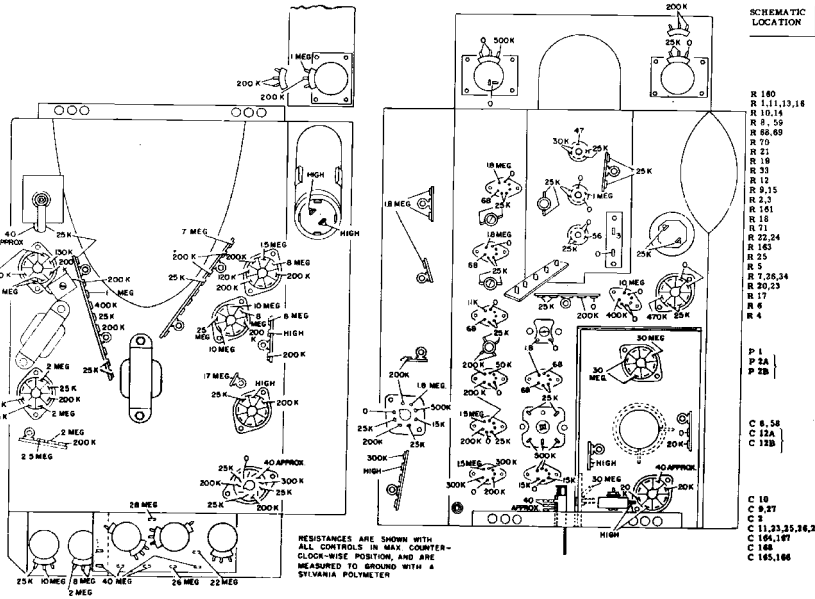



Fig. 7

TOP CHASSIS

BOTTOM CHASSIS

RESISTANCE CHECK CHART




TOP CHASSIS

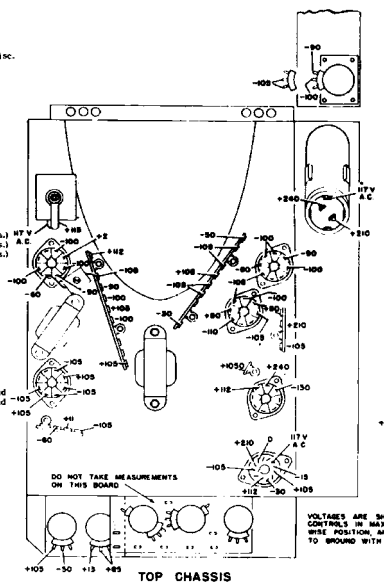
Fig. 8

BOTTOM CHASSIS

# PARTS LIST

| SCHEMATIC LOCATION | PART NO. | DESCRIPTION |
|---|---|---|
| | | **MICA & CERAMIC CONDENSERS (continued)** |
| C 7 | TCM-331-5 | 330 MMF. 10% 300 Volts, Mica |
| C 160 | TCM-361-6 | 360 MMF. 5% Mica |
| C 161 | TCC-361-10 | 360 MMF. 600 Volts, Ceramic |
| C 163 | TCM-751-8 | 750 MMF. 10% 500 Volts, Mica |
| C 21 | TCC-152-10 | 1,500 MMF. 20% Ceramic |
| C 5,8,13,14,16,17,19, 20,29,30,31,32,34, 58. | TCC-502-SP | 5,000 MMF. 600 Volts, Ceramic Disc. |
| | | **TRIMMER CONDENSERS** |
| C 162 | TCM-122-VAR. | 350-1200 MMF. Padder, Mica. |
| | | **INDUCTANCES & TRANSFORMERS** |
| T 1 | TLP-142-D | Ratio Detector Transformer |
| T 2 | TLP-151-D | Fourth I. F. Peaking Coil |
| T 7 | TLP-137-D | 6 KV. Transformer |
| L 1 | TLP-114-D | 4.5 MC Trap |
| L 2 | TLP-147-D | Second I. F. Peaking Coil |
| L 3 | TLP-148-D | Third I. F. Peaking Coil |
| L 4 | TLP-134-D | Video Peaking Coil (Wound on Form) |
| L 5,6 | TLP-144-D | Filament Choke |
| LR-1 | TLP-133-D | Video Peaking Coil (Wound on 33K Res.) |
| LR-2 | TLP-135-D | Video Peaking Coil (Wound on 22K Res.) |
| LR-3 | TLP-136-D | Video Peaking Coil (Wound on 15K Res.) |
| | | **MISCELLANEOUS PARTS** |
| | TPL-254 | Insulated Pin Jack |
| | TSP-41-8 | Speaker, 1 oz., with output trans. |
| | TSO-176 | 12 Pin Plug (Male) |
| | TSW-102 | Interlock switch |
| | | **TOP CHASSIS** |
| | | **RESISTORS, 20% CARBON UNLESS OTHERWISE SPECIFIED** |
| R 65,67 | TRW-180-11 | 18 Ohms 5 W. 10% Wire Wound |
| R 64 | TRW-681-8 | 680 Ohms 2 W. 10% Wire Wound |
| R 42,43, 72 | TRC-102-1 | 1,000 Ohms 1/2 W. |
| R 66 | TRW-122-4 | 1,200 Ohms 1 W. Wire Wound |
| R 31 | TRC-392-2 | 3,900 Ohms 1/2 W. 10% |
| R 40,41 | TRC-472-1 | 4,700 Ohms 1/2 W. |
| R 30 | TRC-273-1 | 27,000 Ohms 1/2 W. |
| R 28,44 | TRC-104-1 | 100,000 Ohms 1/2 W. |
| R 32 | TRC-154-1 | 150,000 Ohms 1/2 W. |
| R 49 | TRC-184-1 | 180,000 Ohms 1/2 W. |
| R 45 | TRC-504-1 | 390,000 Ohms 1/2 W. |
| R 35,37,56,68 | TRC-105-1 | 1 Megohm 1/2 W. |
| R 51,46,53 | TRC-225-1 | 2.2 Megohms 1/2 W. |
| R 58,59,60,61 | TRC-255-4 | 2.2 Megohms 1 W. |
| R 47,57 | TRC-335-1 | 3.3 Megohms 1/2 W. |
| R 36,38,40,48 | TRC-475-1 | 4.7 Megohms 1/2 W. |
| R 33,55 | TRC-565-1 | 5.6 Megohms 1/2 W. |
| R 39 | TRC-685-1 | 6.8 Megohms 1/2 W. |
| R 52,54 | TRC-685-5 | 6.8 Megohms 1 W. 10% |

VOLTAGE CHECK CHART




TOP CHASSIS

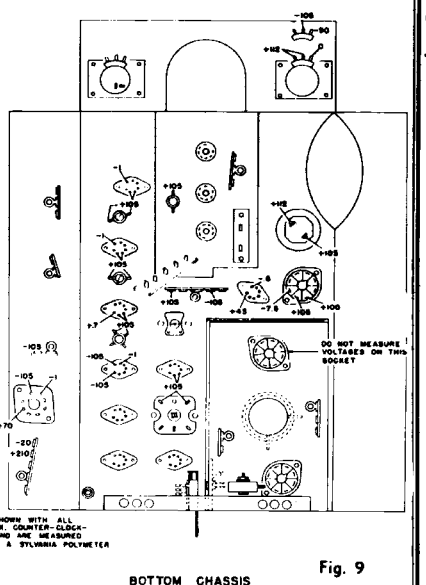


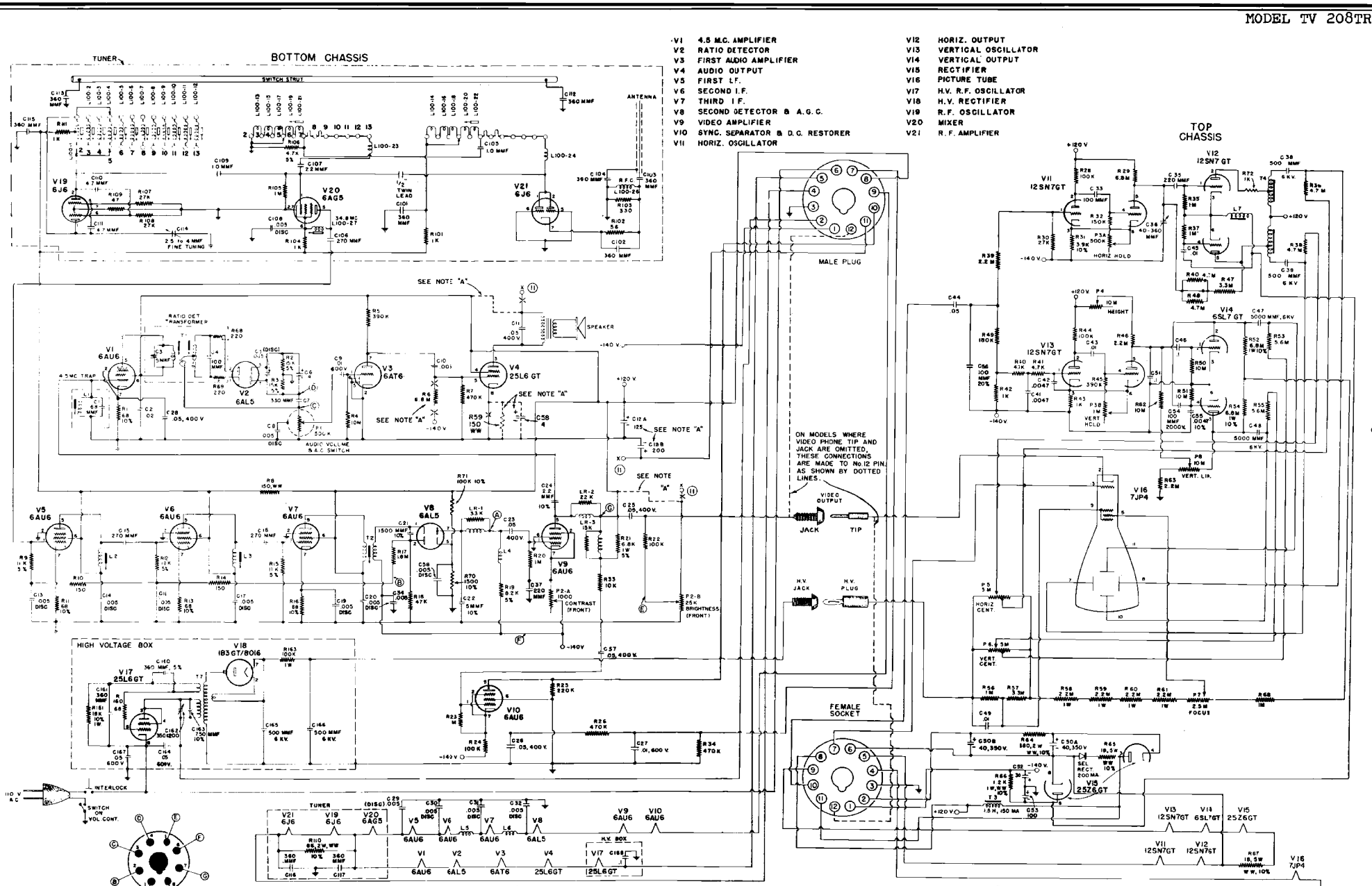

Fig. 9

BOTTOM CHASSIS

| SCHEMATIC LOCATION | PART NO. | DESCRIPTION |
|---|---|---|
| | | **BOTTOM CHASSIS** |
| | | **RESISTORS, 20% CARBON UNLESS OTHERWISE SPECIFIED** |
| R 180 | TRC-680-1 | 68 Ohms 1/2 W. |
| R 1,11,13,16 | TRC-680-2 | 68 Ohms 1/2 W. 10% |
| R 10,14 | TRC-151-1 | 150 Ohms 1/2 W. |
| R 8, 59 | TRW-151-1 | 150 Ohms 1/2 W. Wire Wound |
| R 66,69 | TRC-221-2 | 220 Ohms 1/2 W. 10% |
| R 70 | TRC-152-2 | 1,500 Ohms 1/2 W. 10% |
| R 21 | TRC-682-6 | 6,800 Ohms 1 W. 5% |
| R 19 | TRC-822-2 | 8,200 Ohms 1/2 W. 5% |
| R 33 | TRC-103-1 | 10,000 Ohms 1/2 W. 10% |
| R 12 | TRC-103-3 | 10,000 Ohms 1/2 W. 5% |
| R 9,15 | TRC-113-3 | 11,000 Ohms 1/2 W. 5% |
| R 2,3 | TRC-153-3 | 15,000 Ohms 1/2 W. 5% |
| R 161 | TRC-183-5 | 18,000 Ohms 1 W. 10% |
| R 18 | TRC-473-1 | 47,000 Ohms 1/2 W. |
| R 71 | TRC-104-2 | 100,000 Ohms 1/2 W. 10% |
| R 22,24 | TRC-104-1 | 100,000 Ohms 1/2 W. |
| R 163 | TRC-104-4 | 100,000 Ohms 1 W. |
| R 25 | TRC-224-1 | 220,000 Ohms 1/2 W. |
| R 5 | TRC-394-1 | 390,000 Ohms 1/2 W. |
| R 7,26,34 | TRC-474-1 | 470,000 Ohms 1/2 W. |
| R 20,23 | TRC-105-1 | 1 Megohm 1/2 W. |
| R 17 | TRC-185-1 | 1.8 Megohms 1/2 W. |
| R 6 | TRC-685-1 | 6.8 Megohms 1/2 W. |
| R 4 | TRC-106-1 | 10 Megohms 1/2 W. |
| | | **VARIABLE RESISTORS** |
| P 1 | TVC-100-D | Volume Control & Switch (500,000 Ohms) |
| P 2A, P 2B | TVC-101-D | Contrast Control (1000 Ohms) Dual Brightness Control (25,000 Ohms) Control |
| | | **ELECTROLYTIC CONDENSERS** |
| C 6,58 | TCE-104-D | 4 MFD. 25 W. V. |
| C 12A, C 12B | TCE-100-D | 125 MFD. 150 W. V. 200 MFD. 150 W. V. 2 Section |
| C 18 | TCP-502-10 | .005 MFD. 600 Volts |
| C 9,27 | TCP-103-10 | .01 MFD. 600 Volts |
| C 2 | TCP-203-10 | .02 MFD. 600 Volts |
| C 11,23,25,26,28,57 | TCP-503-6 | .05 MFD. 600 Volts |
| C 164,167 | TCP-503-10 | .05 MFD. 600 Volts |
| C 168 | TCP-104-10 | 0.1 MFD. 600 Volts |
| C 165,166 | TCP-501-6K | 500 MMF. 6000 Volts |
| | | **MICA & CERAMIC CONDENSERS** |
| C 24 | TCC-2.2-11 | 2.2 MMF. 10% Ceramic |
| C 22 | TCC-050-11 | 5 MMF. 10% Ceramic |
| C 37 | TCM-221-7 | 220 MMF. 20% 500 Volts, Mica |
| C 15,18 | TCM-271-13 | 270 MMF. 20% 1000 Volts, Mica |
| R 50,51,62 | | |
| C 52 | | |
| C 50A, C 50B | | |
| C 53 | | |
| C 36 | | |
| P 3-A, P 3-B | | |
| P 4 | | |
| P 5 | | |
| P 6 | | |
| P 7 | | |
| P 8 | | |
| C 47,48 | | |
| C 45,49 | | |
| C 44 | | |
| C 46,51 | | |
| C 38,39 | | |
| C 41,42 | | |
| C 55 | | |
| C 33 | | |
| C 54 | | |
| C 35 | | |
| C 56 | | |
| T 3 | | |
| T 4 | | |
| L 7 | | |

| SCHEMATIC LOCATION | PART NO. | DESCRIPTION |
|---|---|---|
| | | **TOP CHASSIS RESISTORS (continued)** |
| | TRC-106-1 | 10 Megohms 1/2 W. |
| | | **ELECTROLYTIC CONDENSERS** |
| | TCE-103-D | 30 MFD. 200 Volts |
| | TCE-101-D | 40 MFD. 350 Volts 2 Section |
| | TCE-107D | 100 MFD. 150 Volts |
| | | **TRIMMER CONDENSERS** |
| | TCC-13-VAR. | 40-360 MMF. Mica Trimmer |
| | | **VARIABLE RESISTORS** |
| | TVC-516-D | Horiz. Hold Control (500 K Ohms) Dual |
| | TVC-104-D | Vert. Hold Control (1 Megohm) Control |
| | TVC-514-D | Height Control (10 Megohms) |
| | TVC-514-D | Horiz. Cent. Control (5 Megohms) |
| | TVC-513-D | Vert. Cent. Control (5 Megohms) |
| | TVC-104-D | Focus Control (2.5 Megohms) |
| | | Vert. Linearity Control (10 Megohms) |
| | | **PAPER CONDENSERS** |
| | TCP-502-6K | .005 MFD. 6000 Volts |
| | TCP-103-10 | .01 MFD. 600 Volts |
| | TCP-503-10 | .05 MFD. 600 Volts |
| | TCP-104-10 | 0.1 MFD. 600 Volts |
| | TCP-501-6K | 500 MMF. 6000 Volts |
| | | **MICA & CERAMIC CONDENSERS** |
| | TCM-472-7 | .0047 MFD. 20% 500 Volts, Mica. |
| | TCM-472-8 | .0047 MFD. 10% 500 Volts, Mica. |
| | TCM-101-11 | 100 MMF. 10% 600 Volts, Mica. |
| | TCM-101-32 | 100 MMF. 10% 3000 Volts, Mica. |
| | TCM-221-7 | 220 MMF. 20% 500 Volts, Mica. |
| | TCM-101-11 | 100 MMF 10% 600 Volts, Mica. |
| | | **INDUCTANCES & TRANSFORMERS** |
| | TTR-178-1D | Filter Choke |
| | TTR-180-1D | Horiz. Output Choke |
| | TLF-528-D | Horiz. Coupling Choke |
| | | **MISCELLANEOUS PARTS** |
| | TSO-174-D | 12 Pin Socket (Female) |
| | TMS-130-A | Kinescope Clamp (Rear) |
| | TMS-569-D | Kinescope Clamp (Front) |
| | TPL-252 | Insulated Banana Plug |
| | TPL-255 | Phone Tip (Diheptal Socket) |
| R 109 | | |
| R 102 | | |
| R 110 | | |
| R 103 | | |
| R 101,104,111 | | |
| R 106 | | |
| R 107,108 | | |
| R 105 | | |
| C 108 | | |
| C 105,109 | | |
| C 110,111 | | |
| C 107 | | |
| C 106 | | |
| C 101,102,103,104, 112,113,115,116,117 | | |
| C 114 | | |
| L 100-1 | | |
| L 100-2 | | |
| L 100-3 | | |
| L 100-4 | | |
| L 100-5 | | |
| L 100-6 | | |
| L 100-7 | | |
| L 100-8 | | |
| L 100-9 | | |
| L 100-10 | | |
| L 100-11 | | |
| L 100-12 | | |
| L 100-26 | | |
| L 100-27 | | |
| L 100-21,22 | | |
| L 100-13,14 | | |
| L 100-15,16,17,18 | | |
| L 100-19,20 | | |

| SCHEMATIC LOCATION | PART NO. | DESCRIPTION |
|---|---|---|
| | | **TUNER** |
| | | **RESISTORS, 20% CARBON UNLESS OTHERWISE SPECIFIED** |
| | TRC-470-1 | 47 Ohms 1/2 W. |
| | TRC-560-2 | 56 Ohms 1/2 W. 10% |
| | TRW-860-8 | 86 Ohms 2 W. 10% Wire Wound |
| | TRC-331-2 | 330 Ohms 1/2 W. 10% |
| | TRC-105-1 | 1,000 Ohms 1/2 W. |
| | TRC-472-3 | 4,700 Ohms 1/2 W. 5% |
| | TRC-273-1 | 27,000 Ohms 1/2 W. |
| | TRC-105-1 | 1 Megohm 1/2 W. |
| | | **CONDENSERS** |
| | TCC-502-SP | .005 MFD. 600 Volts, -10% + 100%, Disc. |
| | TCC-010-11 | 1.0 MMF. 10% Tubular Ceramic |
| | TCC-4.7-11 | 4.7 MMF. 10% Tubular Ceramic |
| | TCC-22-12 | 22 MMF. 5% Ceramic |
| | TCM-271-13 | 270 MMF. 20% 1000 Volts, Mica. |
| | TCC-361-10 | 360 MMF. 600 Volts. |
| | | **FINE TUNING ASSEMBLY** |
| | TAS-502-D | Condenser Shaft and Pulley |
| | TAS-503-D | Condenser and Bushing |
| | SG-1 | Spring |
| | CR-2 | Drive Cord |
| | | **INDUCTANCES** |
| | TLF-120-1D | Channel 2 Osc. Coil |
| | TLF-120-2D | Channel 3 Osc. Coil |
| | TLF-120-3D | Channel 4 Osc. Coil |
| | TLF-120-4D | Channel 5 Osc. Coil |
| | TLF-120-5D | Channel 6 Osc. Coil |
| | TLF-120-6D | Channel 7 Osc. Coil |
| | TLF-120-7D | Channel 8 Osc. Coil |
| | TLF-120-8D | Channel 9 Osc. Coil |
| | TLF-120-9D | Channel 10 Osc. Coil |
| | TLF-120-10D | Channel 11 Osc. Coil |
| | TLF-120-10D | Channel 12 Osc. Coil |
| | TLF-120-10D | Channel 13 Osc. Coil |
| | TLF-140-D | R. F. Choke |
| | TLF-147-D | First I. F. Coil |
| | TLF-143-D | R. F. End Inductance |
| | TLF-128-D | R. F. Coil |
| | TLF-129-D | R. F. Coil |
| | TLF-130-D | R. F. Coil |
| | | **CABINET HARDWARE** |
| | TMS-121-D | Escutcheon |
| | TSG-106 | Escutcheon Mounting Spring |
| | TCB-256-1D | Cabinet and Back |
| | TMS-838-D | Etched Front Panel |
| | TGL-104-D | Safety Glass |
| | TKN-100 | Outside Knob (4 - reqd.) |
| | TKN-101 | Inside Knob (Small Shaft) (2-reqd.) |
| | TKN-103 | Inside Knob (Large Shaft) (1- reqd.) |
| | TKN-108 | Inside Knob (Engraved) (1 - reqd.) |
| | TGR-151-D | Speaker Grille |
| | THA-100 | Handle |
| | RE-8 | Handle Retainer |
| | TKN-111-D | Antenna Assembly Knob |
| | TBP-519-D | Bearing Plate |
| | TAS-527 | Complete Roto "V" Antenna Assembly |
| | TFA | Vent Plugs |




V1 4.5 M.C. AMPLIFIER
V2 RATIO DETECTOR
V3 FIRST AUDIO AMPLIFIER
V4 AUDIO OUTPUT
V5 FIRST I.F.
V6 SECOND I.F.
V7 THIRD I.F.
V8 SECOND DETECTOR & A.G.C.
V9 VIDEO AMPLIFIER
V10 SYNC. SEPARATOR & D.C. RESTORER
V11 HORIZ. OSCILLATOR
V12 HORIZ. OUTPUT
V13 VERTICAL OSCILLATOR
V14 VERTICAL OUTPUT
V15 RECTIFIER
V16 PICTURE TUBE
V17 H.V. R.F. OSCILLATOR
V18 H.V. RECTIFIER
V19 R.F. OSCILLATOR
V20 MIXER
V21 R. F. AMPLIFIER

NOTE:
ALL RESISTANCE VALUES IN OHMS
K=1,000
M=1,000,000
ALL CAPACITANCE VALUES IN MICROFARADS UNLESS OTHERWISE NOTED.

NOTE "A" — SOME SETS HAVE WIRING CHANGES AS INDICATED BY DOTTED LINES. ALSO C12a AND C12b ARE INTERCHANGED AND R6 IS REMOVED.

7" PORTABLE TELEVISION RECEIVER
CHASSIS SERIES "TR"