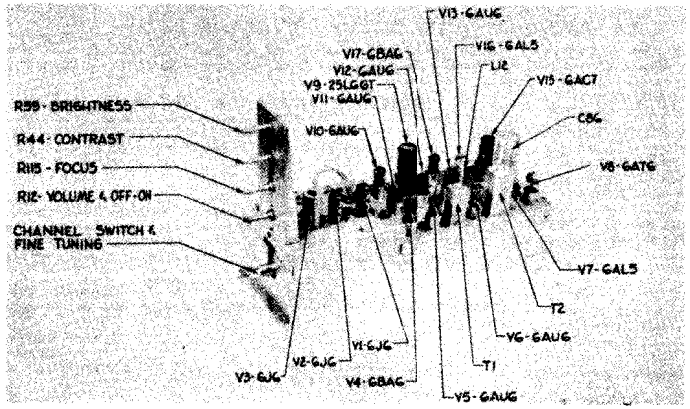

Figure 1 Tube Location - High Frequency Chassis

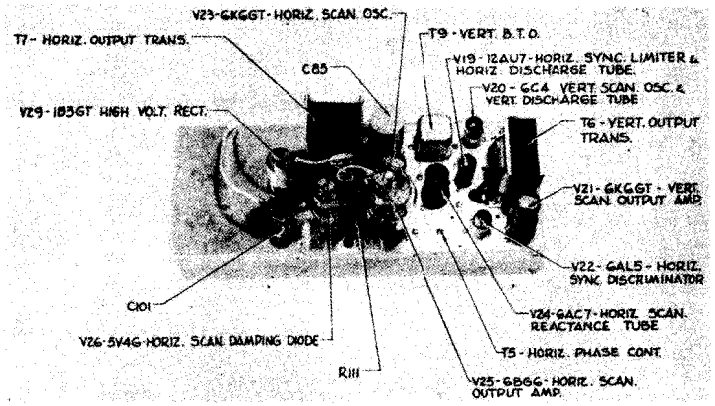

Figure 2 Tube Location - Scanning Chassis

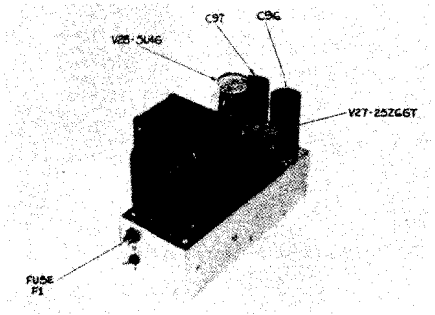

Figure 3 Tube Location - Power Supply

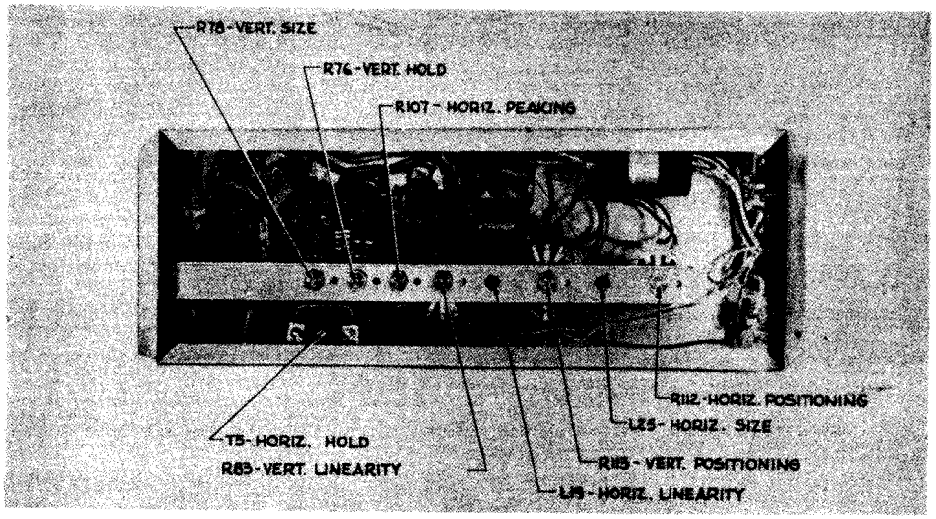

Figure 4 Service Control Location

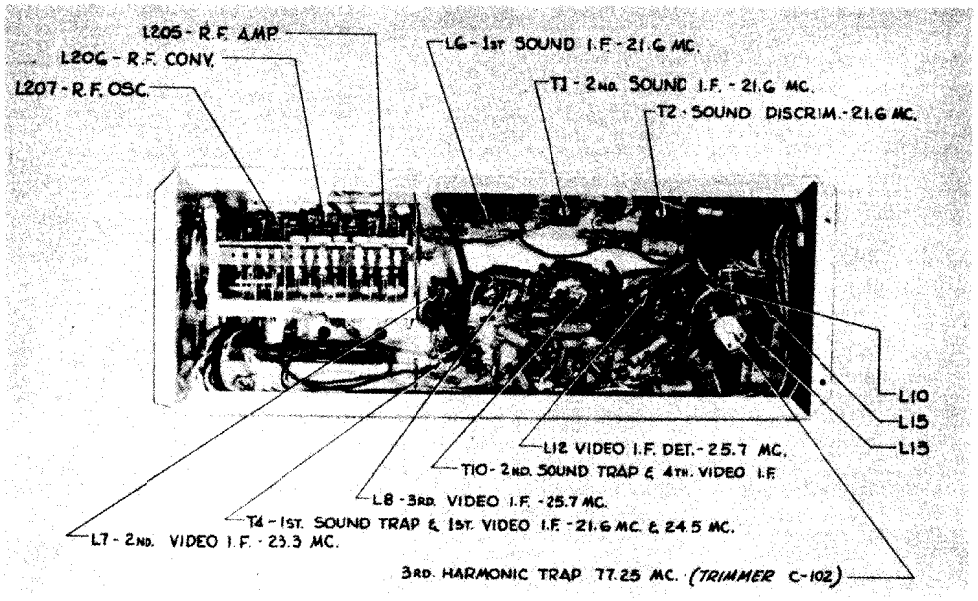

Figure 6 Receiver - Bottom View

Tube Complement

The receiver is equipped with tubes and rectifiers of the following types. Reference is made to Figures 1, 2, and 3 for location.

The high frequency chassis employs the following tubes:

Symbol	Tube	Application
V1	6J6	RF Amplifier
V2	6J6	RF Converter
V3	6J6	RF Oscillator
V4	6BA6	First Sound IF
V5	6AU6	Second Sound IF
V6	6AU6	Limiter
V7	6AL5	Discriminator
V8	6AT6	Audio Amplifier, First
V9	25L6GT	Audio Amplifier, Power
V10	6AU6	First Video IF
V11	6AU6	Second Video IF
V12	6AU6	Third Video IF
V13	6AU6	Fourth Video IF
V14	6AL5	Video IF Detector and AGC Diode
V15	6AC7	Video Amplifier
V16	6AL5	DC Restorer and -50 Volt Rectifier
V17	6BA6	Sync Stabilizer

The scanning chassis employs the following tubes:

V18	6AU6	Sync Clipper
V19	12AU7	Horizontal Sync Discharge and Sync Limiter
V20	6C4	Vertical Scanning Oscillator and Discharge
V21	6K6	Vertical Output
V22	6AL5	Horizontal Sync Discriminator
V23	6K6	Horizontal Oscillator
V24	6AC7	Horizontal Reactance
V25	6BG6G	Horizontal Output
V26	5V4G	Damping, Horizontal
V29	1B3GT	High Voltage Rectifier

The power supply employs the following tubes:

V27	25Z6GT	Rectifier
V28	5U4G	Rectifier

The picture tube:

V30	10BP4	Picture Tube

Dimensions

The following dimensions apply:

Cabinet	39 3/4" H x 24" W x 18" D
High Frequency Chassis	10" H x 6" W x 16 1/2" L
Scanning Chassis	9" H x 6" W x 16 1/2" L
Power Supply Chassis	7 1/2" H x 4" W x 10" D

A 12" diameter permanent magnet speaker is mounted in the bottom section of the cabinet.

INTRODUCTION

The Scott 10 inch direct-view console television receiver is designed to give a clear bright picture when operating within reception range of any of the existing twelve television channels. This receiver is mounted in a modern floor type cabinet which also houses a 12" PM speaker to reproduce the frequency modulated audio portion of the transmitted program.

WARNING: Because of the high internal voltages of the television receiver only authorized Scott service personnel are permitted to break the safety interlock for the purpose of servicing the receiver in the event this becomes necessary.

PROTECTION: The receiver is provided with special protection means which prevent any possibility of injury to the user. The face of the picture tube is protected by a special laminated safety glass plate. The rear of the receiver is not accessible except by removing the back which causes the power interlock switch to open thus removing primary voltage from the receiver. Only a qualified Scott serviceman is authorized to remove the back cover for purpose of working on the equipment.

GENERAL DESCRIPTION

The Scott 10 inch direct-view console television receiver comprises the following units:

1. A high frequency chassis which includes the station tuner, video IF system, sound IF system, video detector and amplifier, audio amplifier, DC restorer, sync amplifier, and the negative 50 V rectifier.

2. The scanning chassis consists of the following systems: The sync clipper and limiter, the vertical scanning oscillator and output amplifier, automatic horizontal frequency control system, horizontal scanning oscillator and output amplifiers, the high voltage rectifier and filter, and the horizontal damping diode.

3. The power supply chassis consists of the 350 V DC source voltage rectifier system, 150 V DC rectifier system, filter units for both systems, and fuse.

These three chassis are interconnected by cables to each other and to the deflection yoke and focus coil which are mounted on the picture tube neck. A PM ion trap also circles the neck of the picture tube.

The user operated controls are mounted in a vertical plane on the high frequency chassis and function as follows from top to bottom: (1) brightness control, (2) contrast control, (3) focus control, (4) volume and off-on control, and (5) station selector with fine tuning.

The service controls are mounted in the scanning chassis by means of a bracket. These controls are accessible from the rear of the cabinet. A large slot is provided in the cabinet chassis mounting panel in order to reach the controls.

ANTENNA INSTALLATION

Only an approved antenna may be used with the receiver. Not too much emphasis can be placed on the care with which the antenna installation should be made, since in nearly all instances a clear and interference-free picture is directly due to a good antenna installation.

The following rules should be observed:

1. Use a two man crew in installation.

2. Erect the antenna on as high a location as possible, although be prepared to change the location.

3. Run the downlead to the set temporarily.

4. With one man at the antenna and one man at the receiver, and with an interconnecting telephone, adjust the antenna for the best picture. Check this position on all stations serving the area. A small portable television receiver may be used for this purpose.

5. Make the antenna and downlead installation permanent.

It is sometimes necessary to make a compromise in antenna positioning in order to relieve the effect of multiple transmission reflections, or "ghosts". This necessitates selecting a position of the antenna for the minimum "ghost", but not necessarily the maximum signal. Only careful observations will determine this optimum location.

RECEIVER INSTALLATION

The receiver is shipped from the factory with all three of the chassis units, the speaker and output transformer, the picture tube mounting bracket, and the focus and deflection coils bracket all mounted in the cabinet. The picture tube is shipped separately and must be slipped into the mounting strap after the focus and deflection yoke coil bracket has been removed from its mounting in the cabinet.

The picture tube is inserted into the loop of the mounting strap until the face of the tube projects about 1/2 inch beyond the mounting strap and upper wood support. The tube is then rotated until the second anode cap connection is at the top of the tube in the highest position. Before tightening the strap drawscrew to hold the tube in place be sure the tube neck is level with the floor of the cabinet and the focus and deflection coils can be slipped over the neck of the picture tube, and fastened to the cabinet in proper position.

The mount for the focus coil and deflection yoke is then fastened to the cabinet floor at its designated position and the deflection yoke and focus coil cable plug is connected to the scanning chassis. Since the chassis units are received all interconnected to each other it is only necessary to place the PM ion trap on the neck of the tube with the magnets adjacent to the flags on the electron gun of the picture tube. It is necessary to position this magnet while the tube is illuminated to obtain maximum brightness and picture area.

An interlock microswitch is provided on the cabinet to cut off the a.c. power to the receiver in the event the back of the cabinet is removed. A piece of tape over this interlock will permit the serviceman to adjust the service controls while the back of the cabinet is removed.

The picture tube socket is now attached to the picture tube and the 2nd anode lead is inserted in receptacle provided on the picture tube.

Now connect the antenna and plug in the power cord.

OPERATION OF RECEIVER

When the television receiver has been installed as described, it is placed in operation as follows:

1. Turn the knob marked "Off-On Volume" control in a clockwise direction and advance about half way. Allow the set about one minute to warm to operating condition.

2. Set the large lowest knob on the front panel so that the index line on the knob points to the channel number of a television broadcasting station known to be transmitting.

3. Turn up the volume control until the program sound is audible. Then rotate the vernier knob, concentric with the center knob, until the sound is clearest and loudest. This will be accompanied by a minimum of background noise.

4. Turn the knob marked "Brightness" control until a rectangle of illumination appears on the screen. It may be necessary to adjust the position of the ion trap on the picture tube neck to obtain tube illumination. See "Ion Trap Adjustment"

5. Now rotate the knob marked "Focus" control until the scanning lines are sharp and well defined.

6. Then turn the knob marked "Contrast" control until the telecast picture appears on the screen. Balance brightness and contrast for best clarity, contrast and brilliance of the received picture. Readjust the focus control if necessary.

ADJUSTMENT OF SERVICE CONTROLS

When the television receiver leaves the laboratory it has been thoroughly checked for all phases of operation. Service adjustments are checked and centralized. However conditions in the owner's home may require a readjustment of the service controls as described herein.

Vertical Position — Rotating this control moves the picture in a vertical direction across the tube face.

Horizontal Position — Moving this control moves the picture to the right or the left on the screen.

Vertical Hold — This control serves to lock the picture from moving in the vertical direction. When it is not on the correct setting the picture will "roll" vertically.

Horizontal Hold — This control serves to lock the picture from moving in the horizontal direction. When it is not on correct setting the picture will "tear" horizontally; that is, it will form horizontal streaks diagonally across the screen.

Vertical Size — This control, as the name indicates, governs the vertical size of the picture, tending in an incorrect position to compress or to stretch the picture in a vertical direction.

Horizontal Size — This control governs the horizontal size of the picture, tending in an incorrect setting to stretch or compress the picture horizontally.

Vertical Linearity The vertical size control is not strictly linear, that is, it tends to stretch the top of the picture at a more rapid rate than the bottom. Hence the need of a vertical linearity control. Use this control together with the vertical size control to obtain a picture which is not only the required size but is not misshapen or distorted in a vertical direction.

Horizontal Peaking and Horizontal Linearity These controls cooperate with the horizontal size control to obtain a picture not only correct in size but free of horizontal distortion. The horizontal peaking control tends to stretch the picture to the right, while the horizontal linearity control operates on the left of the picture. Note that the horizontal linearity control is limited in its action and therefore should be used only in final touch-up if necessary.

Ion Trap Adjustment The ion trap should be positioned from its initial setting over the picture tube electron gun flags by slowly moving it up or down the neck of the tube while also rotating it for the brightest picture without cutting the picture corners. Reduce the brightness control and focus the picture at intervals to be sure the ion trap is set for maximum brightness without blotting out the picture corners.

ALIGNMENT PROCEDURE FOR VIDEO AND SOUND IF SYSTEMS

General

The alignment of the receiver should be undertaken only after it is definitely certain that the set is in need of alignment, and then only when the proper test equipment is available. The receiver, power supply, speaker, focus coil, and deflection yoke should be removed from the cabinet and properly interconnected on the test bench.

The bottom plates on the receiver chassis should not be removed. The a.c. power cord to the interlock switch from the receiver chassis is unsoldered at the interlock and, on the test bench, this short length of a.c. cord is extended by soldering a length of a.c. cord to this section to supply power to the power supply chassis. The speaker is used to close the circuit of the power supply to the audio power amplifier tube to obtain proper loading of the power supply.

The intermediate frequencies of the receiver are 21.6 megacycles for the audio channel and 26.1 megacycles for the video channel. The alignment of circuits operating at these high frequencies requires accurately calibrated equipment and extreme care in the making of adjustments. The following precautions should be observed:

1. The top of the work bench should be metallic, or a large metal plate should be available. The receiver chassis and signal generator must make good electrical contact with the metallic plate.
2. The signal generator output lead should be shielded and terminated at the end by a resistor equal to the characteristic impedance of the output lead.
3. The ground connection for the generator should be as close as possible to the high side of the generator input on the receiver.
4. The signal generator output must be kept low enough to prevent overloading of the receivers circuits. Limiting action produced by overloaded circuits causes incorrect response curves.
5. All adjustments should be made with low conductivity non-metallic alignment tools.

Test Equipment

In order to do an accurate and complete alignment job on the television receiver it is necessary to have the following items of test equipment:

1. An oscilloscope having a good 60 cycle square-wave response. Terminals for external synchronizing voltages are advantageous.
2. A sweep generator capable of sweeping a bandwidth of a minimum of 1 megacycle to a maximum of 8 to 10 megacycles. The carrier frequency of the generator should be variable from 20 to 30 megacycles. The generator should produce a constant output over these sweep ranges and have an attenuator capable of attenuating to a 250 microvolt minimum output.
3. An amplitude modulated signal generator covering frequencies from 20 megacycles to 220 megacycles and having a wide range of output voltages available through a good attenuator. This generator should be accurately crystal calibrated and especially so at 21.6 and 26.1 megacycles as these frequencies represent the sound and video IF frequencies respectively of the television receiver. The generator will be used for single frequency staggered tuning alignment of the video IF amplifier and also as markers for sound and video frequencies for the sweep generator. It may be used for overall receiver checking by amplitude modulating at 400 cycles and apply the signal through a 150 ohm ½ watt carbon resistor in each side of the antenna terminal.
4. A good high impedance input DC voltohmmeter with an isolating resistor built in the probe, such as the R.C.A. Voltohmyst.
5. A modified 6J6 converter tube is used in place of the regular 6J6 converter in the receiver in order to apply a signal to the video and sound IF systems with the least disturbance to these systems. In order to modify a 6J6 miniature tube for this purpose perform the following operations:
   a. Bend the control grid pins #5 and #6 so that they can be connected to a short flexible lead, and also to prevent their entering the tube socket hole when the tube is inserted in the socket.
   b. Solder a small solder lug to the cathode pin #7 and keep this pin straight so that it will enter the socket hole.
   c. Keeping lead lengths as short as possible, follow the diagram in Figure 5 below for wiring details of this modification.

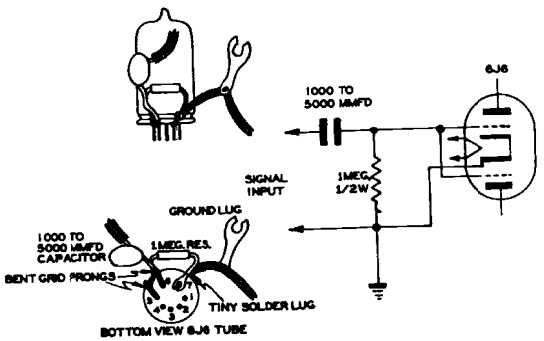

Figure 5 Dummy Converter Tube

Order of Alignment

When a complete receiver alignment is necessary it can be performed in the following order:

1. Picture IF Traps
2. Picture IF Transformers
3. Retouch Picture IF Amplifiers
4. Sensitivity Check of Video IF
5. Video Amplifier Gain Check
6. Sound Discriminator
7. Sound IF Transformers
8. AF Sensitivity Test

1. Picture IF Trap Adjustments

A. Set the voltage on the IF bias bus to approximately minus 3.5 volts.

B. Connect the oscilloscope to the 10 K isolating resistor in the cathode (#1) of the video detector and set scope for high gain. This resistor lead is available from the top of the IF chassis.

C. Remove the 6AC7 video amplifier tube to reduce possibility of regeneration.

D. Connect the signal generator to the modified 6J6 converter tube between the 5000 MMF capacitor and ground, keeping leads short. Set the generator for 400 cycles 30% amplitude modulation and the frequency to 21.6 megacycles. Apply enough voltage to the receiver to observe the 400 cycle modulation sine wave on the scope. (Approximately 2 inches peak to peak.)

E. Adjust the first IF sound trap and take off coil transformer T4 for a minimum output on the scope. This coil is adjustable from the bottom of the receiver through a hole in the bottom plate.

F. Adjust the second IF sound trap located on T10 for a minimum output on the scope. This coil is also adjustable from the bottom of the receiver. It may be necessary to increase the output of the generator to observe the scope sine wave after the first sound trap is set to 21.6 megacycles because of the attenuating action of the traps.

2. Picture IF Transformer Adjustments

A. The signal generator and scope remain attached to the same points as for the trap adjustments. The signal level of the generator is reduced and the frequency is adjusted for 23.5 megacycles. Coil L7 and transformer T10 are adjusted for a maximum output of the sine wave modulation on the scope. Both of these tuning cores are available from the top of the chassis. Always hold the scope gain high enough and the generator output low enough to prevent any overloading effects which will appear as distortion of the 400 cycle sine wave. Do not readjust traps from the proper alignment accomplished in the previous operation.

B. Shift the generator frequency to 25.7 megacycles and keeping the output level of the generator as low as possible for a sizeable sine wave on the scope, adjust the coils L8 and L12 for a maximum 400 cycle sine wave on the scope. It will be necessary to constantly reduce the level of the input signal rather than decrease the sensitivity of the scope as the receiver is approaching proper alignment. The contrast control setting to provide minus 3.5 volts on the bias bus is necessary to align the receiver at an average television signal level and to prevent any regeneration that may occur due to the application of test equipment to the receiver.

C. The signal generator is now set for 24.5 megacycles and the transformer T4 is tuned for a maximum 400 cycle sine wave on the scope. The video IF system is now in complete alignment except for checking on a sweep generator and resetting of the sound traps. Reset the signal generator to 21.6 megacycles and increase the output until the 400 cycle sine wave is apparent on the scope. Now recheck the sound traps on T10 and on T4 for a minimum output on the scope. In order to check the overall passband of the video IF system without a sweep generator, the tester may cover the video IF passband with a single frequency generator, noting how constant the output of the 400 cycle sine wave on the scope remains when the input frequency is varied through the video passband. The generator output must be held constant for this range of frequencies. The video IF passband should have a flat response (within 10% of maximum response) when the signal generator frequency is varied from 23.5 megacycles to 25.6 megacycles while the video carrier of 26.1 megacycles should be at 40% of maximum video response. The sound IF frequency at 21.6 megacycles should be attenuated from 100x to 150x down from maximum mid-passband response of 24.5 megacycles. The input signal should be low enough not to affect the AGC circuits when the passband characteristic is observed with minus 3.5 volts on the bias bus.

3. Retouch Picture IF Amplifiers. Check of the Video IF Alignment With A Sweep Generator

Variations in tube and wiring capacities will cause some variation in response and it is possible to align the video IF coils for an optimum passband curve with the aid of a sweep generator.

A. The sweep generator should be set for a mid-center frequency of about 25 megacycles and a sweep range of 8 to 10 megacycles.

IMPORTANT: Keep the generator output low enough to prevent overloading of the IF amplifier. If the generator output is excessive it will result in an erroneous appearance of a very flat curve due to overloading. The proper input level is indicated when adjusting the input level of the generator will cause the scope curve to vary in amplitude but not affect the shape of the curve. As low a sweep output as will produce a scope pattern is desirable.

B. Connect the sweep generator to the dummy converter tube grid and ground and an oscilloscope on the output of the 10,000 ohm isolating resistor and ground. Now adjust the horizontal sweep of the scope until one complete response curve is visible on the scope. Always hold the bias bus voltage at minus 3.5 volts. If the sweep generator has sufficiently high output, it will not be necessary to construct a dummy converter tube, as the sweep generator at IF frequency can be applied to the antenna terminals, and if the oscillator tube is removed a normal IF check may be performed in this manner.

C. The signal generator may now be used as a marker by lightly coupling the generator by means of a few turns of wire placed near the dummy converter tube. The output of the generator is increased until a marker is visible on the scope pattern of the video IF response curve. The curve should appear as shown in Figure 7 below.

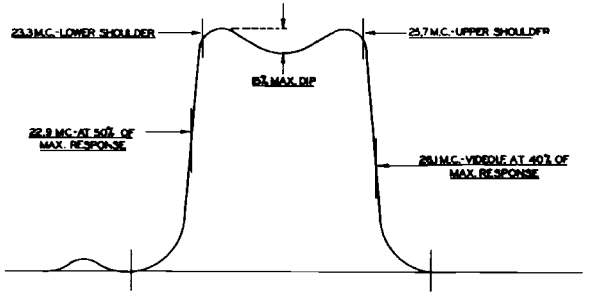

Figure 7 IF Response Curve

It will be found that adjusting the coil nearest in frequency to a particular frequency point on the curve will cause a major change in the passband at that point, although any of the coils will affect the entire curve to some extent. For example if the overall passband curve is low on the low frequency side it may require adjusting either or both of the 23.3 megacycle coils to bring the lower shoulder up in amplitude and the marker frequency of 23.3 megacycle at its proper position on the passband.

It should not require any drastic change in tuning to arrive at a proper passband curve as the receiver has been properly aligned with a single frequency generator before the sweep generator is used. The important factor in the alignment is to be sure the 26.1 megacycle point is at 40% of maximum video response.

NOTE: Do not adjust the sound traps to alter the curve shape, as to do so will impair their operation.

4. Sensitivity Check of Video IF

A. A sensitivity check of the video IF system may be accomplished by substituting the voltohmyst for the scope between the 10,000 ohm isolating resistor and ground. The signal generator remains connected as in the passband check. With minus 3.5 volts on the bias bus, the voltohmyst should read from a minus 3.0 to minus 4.0 volts due to the static bias voltage in the 6AC7 video output amplifier grid when the signal generator output is turned off.

B. The signal generator frequency is set at 24.5 megacycles unmodulated and the output voltage of the generator is increased from zero until the voltohmyst on the output of the receiver reads one volt in a positive direction from its initial 3 to 4 negative volts. The generator output voltage for this one volt change in the voltohmyst reading should be not less than 600 microvolts.

5. Video Amplifier Gain Check

A. A check of the 6AC7 video amplifier gain may be accomplished by connecting the single frequency generator to grid of dummy modulator tube input, and applying a 400 cycle 30% modulated signal to the receiver at 24.5 megacycles.

B. A scope or high impedance input audio voltmeter should be connected to the 10,000 ohm isolating resistor and ground. Sufficient input should be used to provide an output of approximately one volt peak to peak on the scope or on the audio voltmeter.

C. The scope or audio voltmeter is then moved to the 6AC7 video amplifier plate.

D. Now replace the 6AC7 tube which has been removed for the video IF alignment procedure. The difference in voltage between the grid and plate connections of the scope or voltmeter is the gain of the 6AC7 video amplifier and should be between 25 to 35 times.

6. Sound Discriminator

A. Set the signal generator between one and two volts output at 21.6 megacycles and connect it to the grid of the limiter tube 6AU6. Connect the voltohmyst across the 1000 MMF capacitor on the output of the discriminator.

B. Detune the secondary (bottom core) of the discriminator transformer T2 in order to insure an output voltage when the signal is applied. Then tune primary for maximum output which is outside adjustment of discriminator transformer T2.

C. Now tune secondary of discriminator transformer, which is inside adjustment of discriminator transformer T2, so that voltohmyst reads zero.

7. Sound IF Transformers

A. Use a 47 K resistor to the screen of the sound limiter as an isolating resistor between this point and the oscilloscope for sweep generator measurements as shown in Figure 8 below. For single frequency alignment the use of a dummy load is needed as shown in Figure 8A.

Make dummy load leads short as possible. Also drape voltohmyst leads clear of tuned circuits to reduce possibilities of causing regeneration as a result of test conditions.

NOTE: In all of the sound IF alignment tests the RF signal alone is used from the generator without audio frequency modulation. In addition, generator should be checked with crystal calibrator to assure accuracy in alignment procedure.

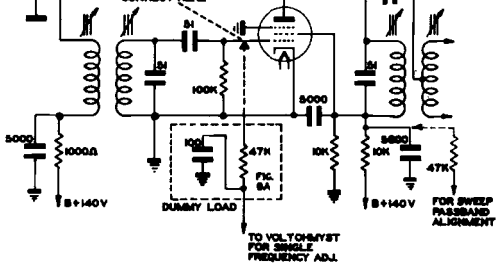

Figure 8 Dummy Load Connections To Limiter Tube For Scope Or Voltohmyst

B. Modified 6J6 dummy tube remains in converter stage as in the case of video IF alignment. With signal generator attached to dummy tube input connect 100 ohm carbon resistor across the primary of T2, that is; solder one end of resistor to B+ and one end to plate directly across primary. With generator set to 21.6 mc peak coil L6 and primary and secondary of transformer T1 for maximum output on voltohmyst connected to set through resistor as shown in sketch, Figure 8. Now adjust signal generator level so that minus 3 volts reading is obtained on limiter grid. Now detune signal generator from 21.6 mc to a slightly higher frequency until voltmeter drops down to one half developed signal bias and note the frequency. Then tune generator to a lower frequency than 21.6 mc until meter drops down to one half developed signal bias and note the generator frequency. Minimum bandpass should be 200 kc two times down.

NOTE: Do not peak sound take off coil in transformer T4 which has previously been adjusted for maximum attenuation of sound in video.

C. Sound IF gain check. Reduce signal generator output to zero. The no signal bias voltage present on limiter grid should be between minus .25 V and minus .7 V. Now feed in enough signal at 21.6 mc for an increase of 1 volt negative. 500 microvolts or less should produce a negative 1 volt signal bias above the initial or no signal bias point.

D. In the event the tester does not have a signal generator capable of delivering 1 to 2 volts as outlined in "Sound Discriminator Alignment" proceed as follows: After completion of step 4C, feed enough signal in at 21.6 mc to give a reading of minus 3 volts through resistor load on limiter grid. Connect voltohmyst across volume control. With discriminator secondary detuned off zero to give .25 V to .5 V, tune discriminator primary which is outside adjustment of transformer T2 to maximum output. Then tune discriminator secondary to zero on lowest range voltage scale of voltohmyst. The secondary adjustment is the inside adjustment of transformer T2.

E. Discriminator bandwidth. Set generator to 21.6 mc after completion of step 4D. Meter should read zero. Now tune signal generator to a higher frequency and keep raising the frequency until maximum or peak voltage is obtained on voltohmyst and note the frequency. Then tune generator to a lower frequency than 21.6 mc and repeat the operation. Minimum bandwidth should be 300 kc peak to peak.

F. Sweep frequency check on sound IF and discriminator alignment. Connect sweep frequency generator to converter stage using modified 6J6 dummy tube and connect scope to limiter screen through resistor load as shown in Figure 5. Connect 100 ohm carbon resistor across primary of T2. Set the output level of the sweep frequency generator to approximately 500 microvolts or to a level below visible overload on scope. Set scope vertical deflection to approximately 2 inches peak to peak. A curve as shown in Figure 9 should appear. A loop of wire draped near the modified 6J6 dummy tube and connected to the output of the single frequency generator should be used as a marker. Be careful not to feed too much marker voltage otherwise distortion of the bandpass curve may result. With the marker generator set to 21.6 mc the marker should appear as shown in the illustration. If the marker appears off to one side make slight adjustment of coil L6 and transformer T1 primary and secondary. Then detune marker generator plus and minus to half way down point and note frequencies. Minimum bandpass at 6 db down should be 200 kc.

G. Now disconnect 100 ohm carbon resistor from across transformer T2 primary and connect scope across volume control. A curve as shown in Figure 10 should appear. Any deviation can be corrected by slight adjustments of primary and secondary adjustment of discriminator transformer T2. Set marker generator to 21.6 mc. It should appear at the zero reference line as shown in illustration. Then change marker generator frequency plus and minus to peaks as shown in illustration and note frequency. A minimum of 300 kc peak to peak should be noted.

8. AF Sensitivity Test

A. Connect audio frequency generator across volume control. Disconnect one side of voice coil and connect 3.2 ohm 10 watt resistor across secondary of audio output transformer. Use a Ballantine or equivalent AC voltmeter for measuring the AC voltage.

B. With the volume control full on, feed in .05 RMS volts at 400 cycles. One volt should appear across secondary of output transformer with dummy load connected.

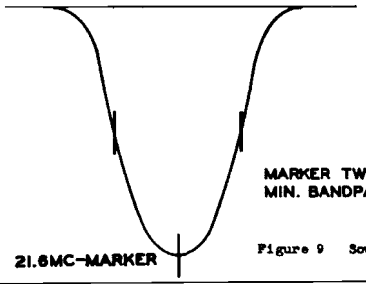

Figure 9 Sound IF Response Curve

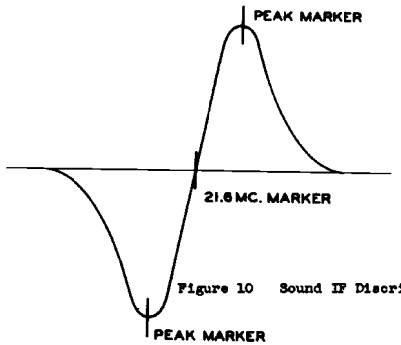

Figure 10 Sound IF Discriminator Curve

Table I VOLTAGE TABLE

Picture Chassis

Symbol Desig.	Type	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	6J6	DC 130	DC 130	AC 5.7	0	DC -3.8	DC -3.8	0	-
V2	6J6	DC 135	DC 135	AC 5.7	0	DC -3.0	DC -3.0	0	-
V3	6J6	DC 115	DC 115	AC 5.7	0	-	-	-	-
V4	6BA6	0	0	0	AC 5.9	DC 135	DC 120	DC 1.5	-
V5	6AU6	0	0	AC 5.9	0	DC 140	DC 125	DC .90	-
V6	6AU6	DC -.30	0	AC 5.9	0	DC 54	DC 54	0	-
V7	6AL5	0	DC -.70	AC 6.0	0	0	0	DC -.70	-
V8	6AT6	DC -.70	0	0	AC 6.0	0	0	DC 67	-
V9	25L6GT	0	0	DC 210	DC 110	DC -6.0	0	AC 24.0	DC 2.2
V10	6AU6	DC -8.0	0	AC 5.5	0	DC 135	DC 135	0	-
V11	6AU6	DC -8.0	0	AC 5.5	0	DC 135	DC 135	0	-
V12	6AU6	DC -8.0	0	AC 5.6	0	DC 135	DC 135	0	-
V13	6AU6	0	0	AC 5.7	0	DC 135	DC 135	DC 1.0	-
V14	6AL5	DC -4.0	DC -4.0	AC 5.8	0	DC 1.0	0	DC -4.0	-
V15	6AC7	0	0	0	DC -4.0	-	DC 150	AC 5.9	DC 320
V16	6AL5	DC .50	14 AC 110 DC	AC 6.0	0	100 AC 0 DC	0	0	-
V17	6BA6	DC -3.8	0	AC 6.0	0	DC 260	DC 125	0	-

Voltage readings made with Voltohmyst at 117 V AC line voltage with contrast control at minimum gain position on Channel #9 without antenna. All other control settings are for a normal picture.

Contrast control variable tap minimum position = 0 DC
maximum position = -38 DC
Brightness control variable tap minimum position = 125 DC
maximum position = 0 DC

Low voltage B+ = 150 DC
High voltage B+ = 350 DC
Bias bus variation with contrast control minus 1/2 volt to minus 8 volts.

COIL RESISTANCES

Deflection yoke: Horizontal winding - 15 ohms
Vertical winding - 68 ohms
Vertical output transformer: Primary - 600 ohms
Secondary - 7 ohms
Horizontal discriminator transformer: Primary - 36 ohms total, from 1-2, 9 ohms
Secondary - 41 ohms
Vertical Blocking Oscillator: Primary - 165 ohms
Secondary - 1310 ohms

Table I VOLTAGE TABLE

Sync Chassis

Symbol Desig.	Type	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V18	6AU6	DC -6.0	0	AC 6.0	0	DC 150	DC 150	0	-	-
V19	12AU7	DC 88	DC -.70	0	0	0	DC 85	DC -47.0	0	AC 6.0
V20	6C4	DC 190	0	AC 6.0	0	DC 190	DC -50	0	-	-
V21	6K6	0	AC 6.0	DC 310	DC 310	0	0	0	DC 38	-
V22	6AL5	DC -1.4	DC -5.8	0	AC 5.2	DC -2.0	0	DC -5.8	-	-
V23	6K6	0	AC 6.0	DC 255	DC 235	DC -36.0	0	0	DC .30	-
V24	6AC7	0	0	0	DC -1.4	DC .10	DC 110	AC 6.0	DC 175	-
V25	6BG6G	0	0	DC 9.2	DC 9.2	DC -9.4	DC -9.4	AC 6.0	DC 215	-
V26	5V4G	0	DC 425	0	DC 350	0	DC 350	0	DC 425	-
V29	1B3GT	0	DC 9 K	0	0	0	0	DC 9 K	0	-

Power Chassis

V27	25Z6GT	0	0	AC 160	DC 160	AC 160	0	AC 24.0	DC 160	-
V28	5U4G	0	DC 375	0	AC 360	0	AC 360	0	DC 375	-

Picture Tube

Symbol Desig.	Type	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9	Pin 10	Pin 11*	Pin 12
V30	10BP4	0	-	0	0	0	0	0	0	-	DC 350	DC 0 to .25	AC 6.0

* Depending on setting of brightness control.

Resistance readings taken with voltohmyst. Values given are in ohms except where K indicates times 1000 and M indicates times 1 megohm.
RF tuner B+ to ground - 5500 ohms
150 V B+ to ground - 4000 ohms
350 V B+ to ground - 80,000 ohms

Table II RESISTANCE TABLE

Picture Chassis

Symbol Desig.	Type	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	6J6	6500	6500	0	0	1.2 M	1.2 M	0	-
V2	6J6	4000	4000	0	0	1.0 M	1.0 M	0	-
V3	6J6	6500	6500	0	0	100 K	100 K	47	-
V4	6BA6	.1	0	0	0	5 K	11 K	100	-
V5	6AU6	220 K	0	0	0	5 K	11 K	82	-
V6	6AU6	100 K	0	0	0	6.5 K	6.5 K	0	-
V7	6AL5	0	160 K	0	0	200 K	0	160 K	-
V8	6AT6	10 M	0	0	0	0	0	700 K	-
V9	25L6GT	0	0	85 K	26 K	650 K	0	12	47
V10	6AU6	750 K	0	0	0	4000	11,000	68	-
V11	6AU6	700 K	0	0	0	4000	4000	68	-
V12	6AU6	720 K	0	0	0	4000	4000	68	-
V13	6AU6	.25	0	0	0	4000	4000	82	-
V14	6AL5	14 K	470 K	0	0	1500	0	10 K	-
V15	6AC7	0	0	0	14 K	0	4000	0	90 K
V16	6AL5	1.0 M	130 K	0	0	15 K	0	33 K	-
V17	6BA6	1.0 M	0	0	0	90 K	6.2 K	0	-

Table II RESISTANCE TABLE

Sync Chassis

Symbol Desig.	Type	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V18	6AU6	1.1 M	0	0	0	10 K	4 K	0	-	-
V19	12AU7	11 K	1 meg	0	0	0	800 K	220 K	0	0
V20	6C4	1.5 M	inf.	0	0	1.5 M	2 M	0	-	-
V21	6K6	0	0	80 K	80 K	2.2 M	inf.	0	5000	-
V22	6AL5	1 M	1.5 M	0	3	3900	0	1.5 M	-	-
V23	6K6	0	0	85 K	90 K	47 K	inf.	0	10	-
V24	6AC7	0	0	0	15 M	10	27 K	0	100 K	-
V25	6BG6G	inf.	0	100	100	470 K	470 K	0	90 K	-
V26	5V4G	inf.	90 K	inf.	80 K	inf.	80 K	inf.	90 K	-
V29	1B3GT	inf.	inf.	inf.	inf.	inf.	inf.	inf.	inf.	-

Power Chassis

V27	25Z6GT	inf.	0	15	4 K	15	inf.	1	inf.	-
V28	5U4G	inf.	80 K	inf.	35	inf.	35	inf.	80 K	-

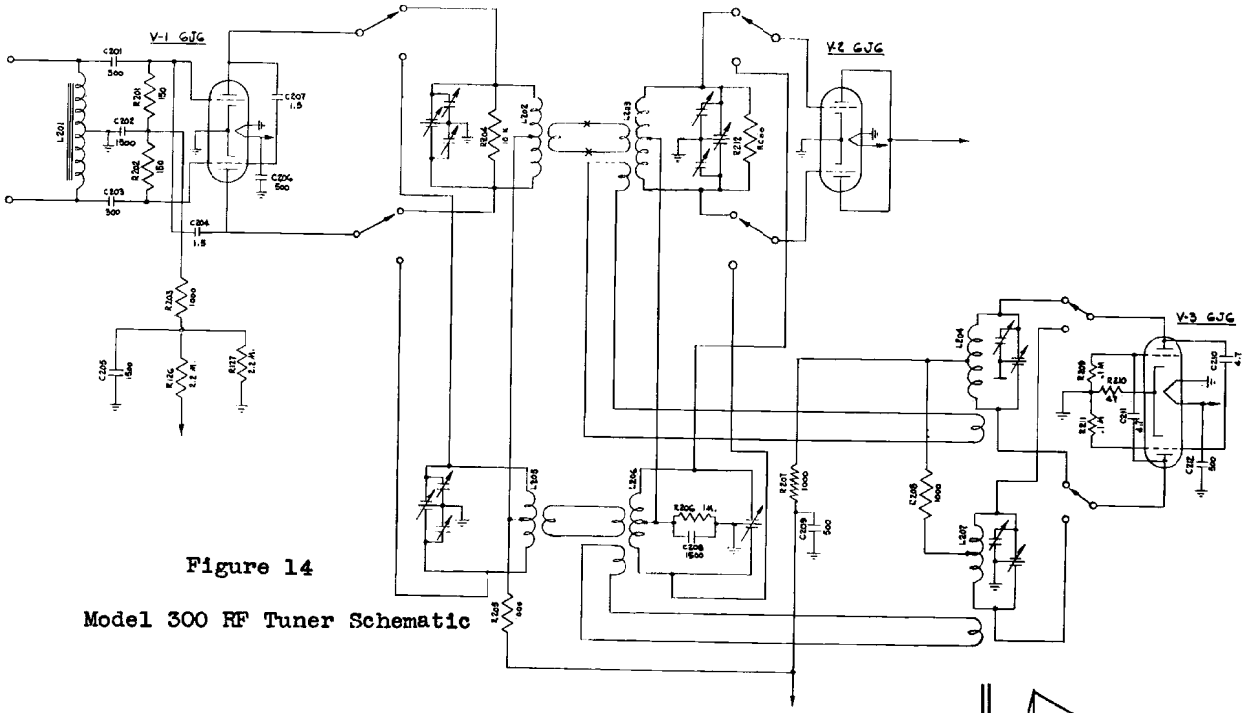

Figure 14

Model 300 RF Tuner Schematic

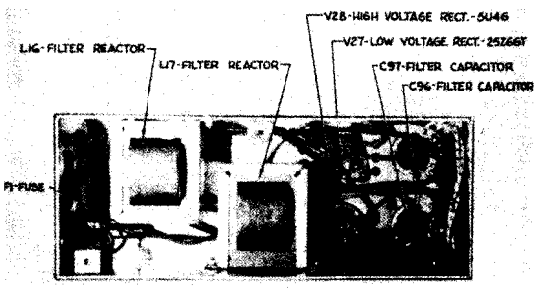

Figure 11 Power Supply - Bottom View

FUSE REPLACEMENT

A fuse is provided as a means of protecting the receiver against line surges, or short circuits which may develop in the receiver over a period of time. This fuse is located in the low voltage power unit (see Figure 11) and is accessible for replacement through a hole in the cabinet back at the lower center of the back.

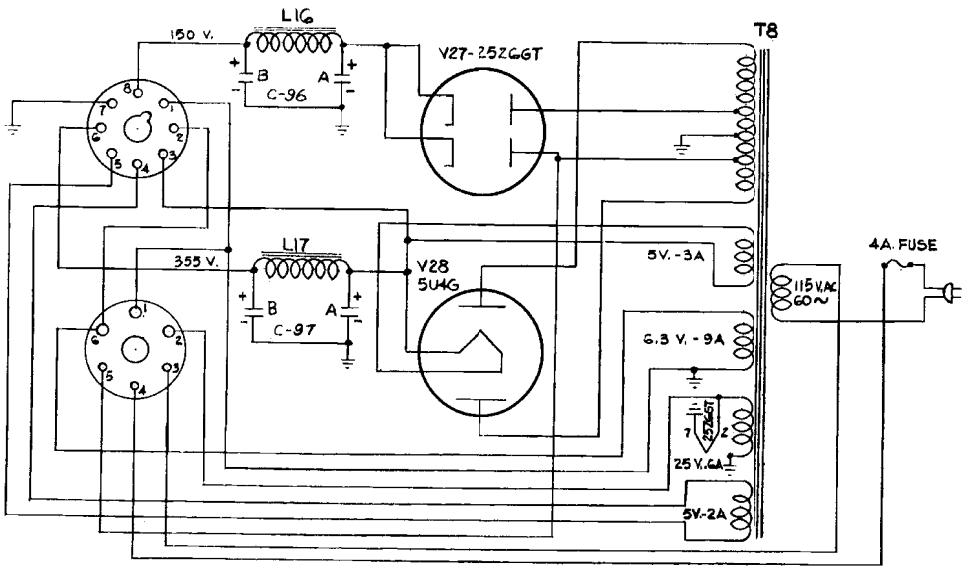

Figure 13 Model 300 Direct View Power Supply Schematic

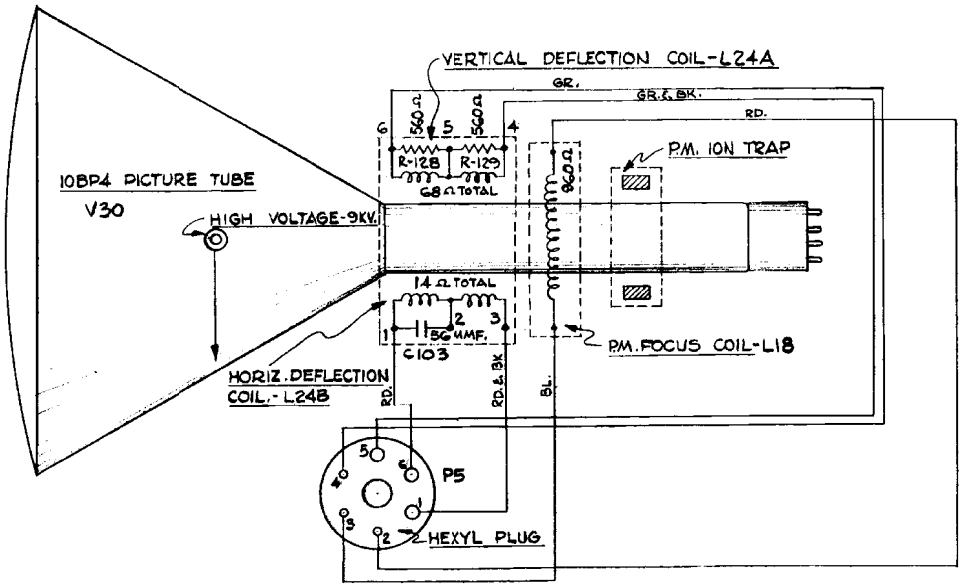

Figure 12 Deflection and Focus Coil Assembly Schematic

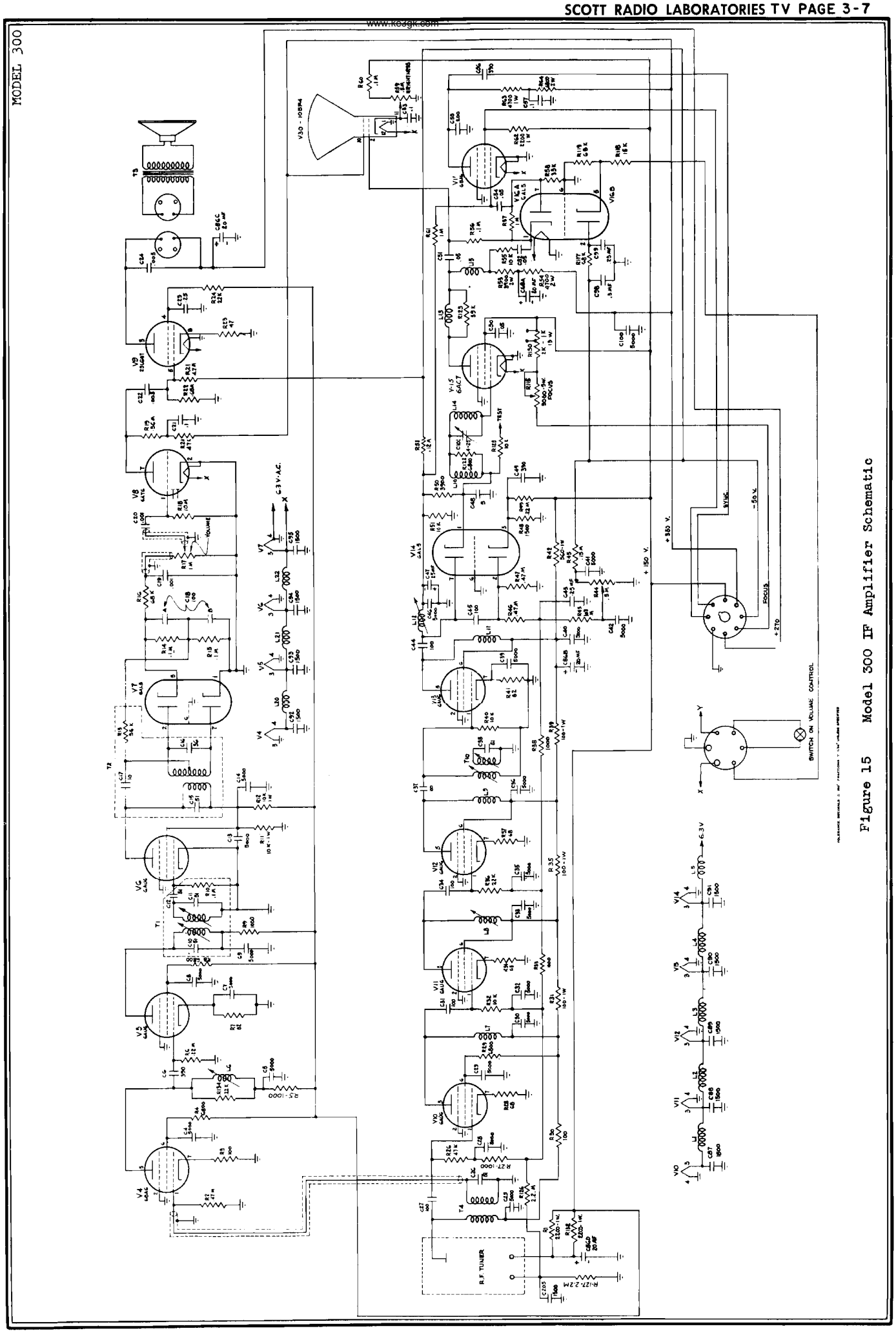

Figure 15 Model 300 IF Amplifier Schematic

MODEL 300

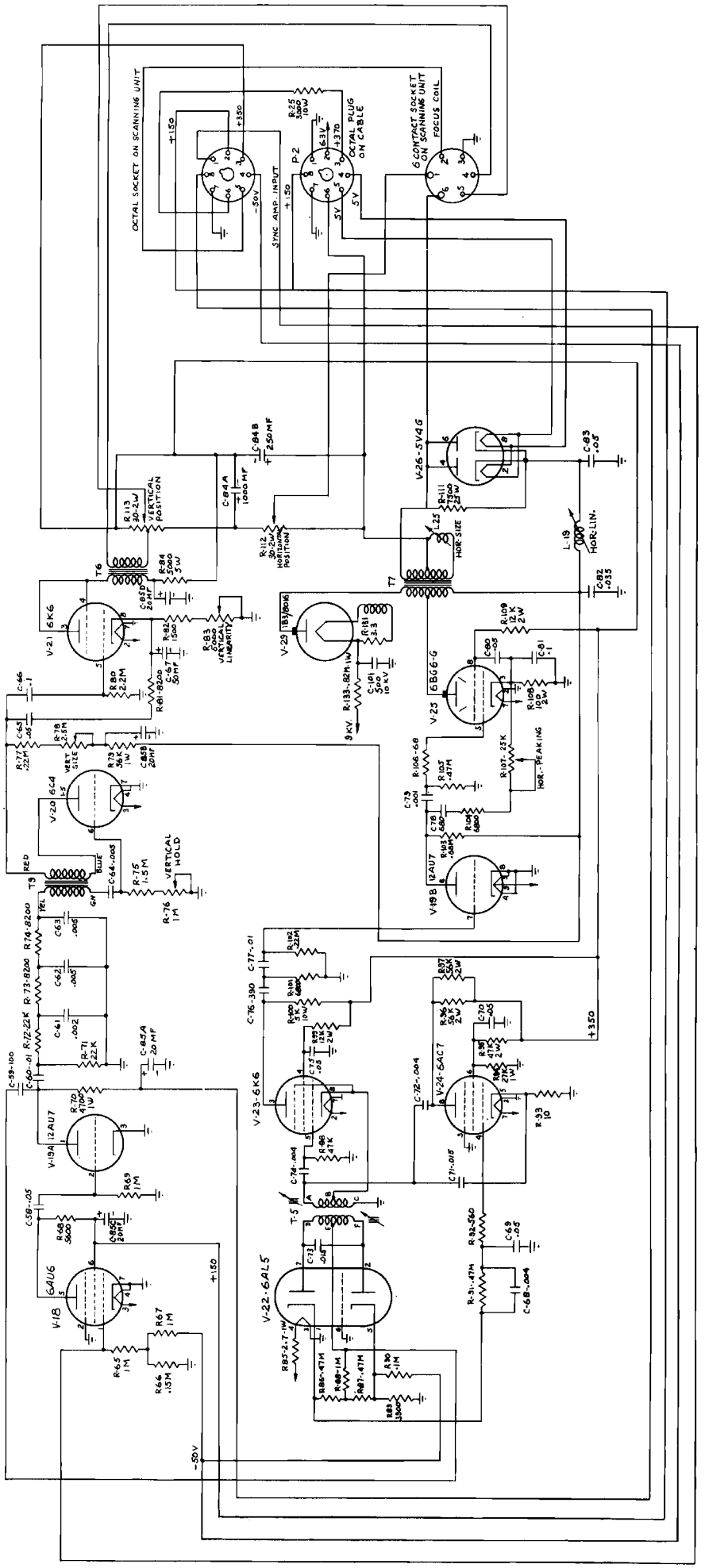

Figure 16 Model 300 Scanning and Hi-Voltage Schematic

Table III Parts List By Symbol Designations

Symbol Desig.	Function	Description	Part No.
R129	Deflection coil shunt	Resistor, 560 ohm 10% ½ W	70L3527
R130	Focus control series	Resistor, 3000 ohm 10% 15 W tap at 2000 ohm	70Q3851
R131	V29 filament series	Resistor, 3.3 ohm 10% ½ W	70L3251
R132	RF tuner +B filter	Resistor, 2200 ohm 10% 1 W	70L3519
R133	10 K V filter	Resistor, .82 meg 10% 1 W	70Q3852
R134	1st sound IF coil shunt	Resistor, 22 K ohm 10% ½ W	70L3397
R201	RF amplifier grid return	Resistor, 150 ohm 10% ½ W	70A44
R202	RF amplifier grid return	Resistor, 150 ohm 10% ½ W	70A44
R203	RF amplifier AVC filter	Resistor, 1000 ohm 10% ½ W	70L3393
R204	RF amplifier low band coil shunt	Resistor, 10 K ohm 10% ½ W	70L3396
R205	RF amplifier plate filter	Resistor, 1000 ohm 10% ½ W	70L3393
R206	RF mixer grid return	Resistor, 1 meg 20% ½ W	70L3406
R207	RF oscillator low band +B filter	Resistor, 1000 ohm 10% ½ W	70L3393
R208	RF oscillator high band +B filter	Resistor, 1000 ohm 10% ½ W	70L3393
R209	RF oscillator grid return	Resistor, .1 meg 10% ½ W	70L3401
R210	RF oscillator cathode return	Resistor, 47 ohm 10% ½ W	70L3429
R211	RF oscillator grid return	Resistor, .1 meg 10% ½ W	70L3401
R212	RF mixer low band coil shunt	Resistor, 5600 ohm 10% ½ W	70L3522
T1	2nd sound IF transformer	IF transformer	20L3349
T2	Sound discriminator transformer	IF transformer	20L3350
T3	Speaker output transformer	Output transformer	91Q3820
T4	1st video IF transformer	IF transformer	20L3345
T5	Horizontal discriminator transformer	15.75 KC transformer	91L3264
T6	Vertical output transformer	Vertical scanning	91L3318
T7	Horizontal output transformer	Horizontal scanning	91L3265
T8	Power transformer	Power transformer	91L3319
T9	Vertical oscillator transformer	Audio transformer	91L3317
T10	4th video IF transformer	IF transformer	20L3348
V1	RF amplifier	Tube, 6J6	92G3199
V2	RF mixer	Tube, 6J6	92G3199
V3	RF oscillator	Tube, 6J6	92G3199
V4	1st sound IF amplifier	Tube, 6BA6	92G2871
V5	2nd sound IF amplifier	Tube, 6AU6	92C2659
V6	3rd sound IF amplifier	Tube, 6AU6	92C2659
V7	Sound discriminator	Tube, 6AL5	92G2870
V8	1st audio amplifier	Tube, 6AT6	92G2874
V9	Audio power amplifier	Tube, 25L6GT	92E1418
V10	1st video IF amplifier	Tube, 6AU6	92C2659
V11	2nd video IF amplifier	Tube, 6AU6	92C2659
V12	3rd video IF amplifier	Tube, 6AU6	92C2659
V13	4th video IF amplifier	Tube, 6AU6	92C2659
V14	Video detector - AGC	Tube, 6AL5	92G2870
V15	Video amplifier	Tube, 6AC7	92A235
V16	DC restorer and -50 V rectifier	Tube, 6AL5	92G2870
V17	Sync stabalizer	Tube, 6BA6	92G2871
V18	Sync clipper	Tube, 6AU6	92C2659
V19	Sync limiter and horizontal discharge	Tube, 12AU7	92L3501
V20	Vertical oscillator	Tube, 6C4	92B597
V21	Vertical output amplifier	Tube, 6K6GT	92E1789
V22	Horizontal discriminator	Tube, 6AL5	92G2870
V23	Horizontal oscillator	Tube, 6K6GT	92E1789
V24	Horizontal reactance control	Tube, 6AC7	92A235
V25	Horizontal output	Tube, 6BG6-G	92L3266
V26	Horizontal damping	Tube, 5V4-G	92E2019
V27	+150 volt rectifier	Tube, 25Z6GT	92E1419
V28	+350 volt rectifier	Tube, 5U4G	92A234
V29	10 K V rectifier	Tube, 1B3/8016	92G2875
V30	Picture tube	Tube, 10BP4	92Q3802

Table III Parts List By Symbol Designations

Symbol Desig.	Function	Description	Part No.
R36	V12 grid return	Resistor, 22 K ohm 5% ½ W	70L3420
R37	V12 cathode bias	Resistor, 68 ohm 10% ½ W	70L3453
R38	V12 grid filter	Resistor, 1000 ohm 10% ½ W	70L3393
R39	V12 plate filter	Resistor, 100 ohm 10% 1 W	70L3392
R40	V13 grid return	Resistor, 10 K ohm 5% ½ W	70L3419
R41	V13 cathode bias	Resistor, 82 ohm 10% ½ W	70L3391
R42	V13 plate filter	Resistor, 560 ohm 10% 1 W	70L3547
R43	Contrast control series	Resistor, 3.3 meg 20% ½ W	70L3422
R44	Contrast control	Potentiometer, .5 meg	70L3379
R45	Contrast control series	Resistor, .15 meg 10% ½ W	70L3402
R46	AVC diode filter	Resistor, .47 meg 10% ½ W	70L3404
R47	AVC diode plate load	Resistor, .47 meg 10% ½ W	70L3404
R48	AVC diode cathode load	Resistor, 1500 ohm 10% ½ W	70L3525
R49	AVC diode cathode filter	Resistor, .22 meg 10% ½ W	70L3403
R50	Video detector plate to cathode	Resistor, 3900 ohm 5% ½ W	70L3566
R51	Video detector plate load	Resistor, 10 K ohm 10% ½ W	70L3396
R52	Video detector plate filter	Resistor, .12 meg 10% ½ W	70E1213
R53	V15 plate load	Resistor, 3900 ohm 5% 2 W	70L3425
R54	V15 plate filter	Resistor, 4700 ohm 10% 2 W	70L3517
R55	V15 plate to V16A cathode	Resistor, 10 K ohm 10% ½ W	70L3396
R56	Picture tube grid return	Resistor, .1 meg 10% ½ W	70L3401
R57	V16A cathode to plate	Resistor, 1 meg 20% ½ W	70L3406
R58	V16A plate load	Resistor, 33 K ohm 10% ½ W	70L3398
R59	Brightness control	Potentiometer, .5 meg	70L3379
R60	Brightness control series	Resistor, .1 meg 10% ½ W	70L3401
R61	V17 grid return	Resistor, 1 meg 20% ½ W	70L3406
R62	V17 screen filter	Resistor, 2200 ohm 10% 1 W	70L3519
R63	V17 plate load	Resistor, 4700 ohm 10% 1 W	70L3520
R64	V17 plate filter	Resistor, 6800 ohm 10% 2 W	70L3521
R65	V18 grid series	Resistor, 1 meg 20% ½ W	70L3406
R66	V18 grid return	Resistor, .15 meg 10% ½ W	70L3402
R67	V18 grid filter	Resistor, 1 meg 20% ½ W	70L3406
R68	V18 plate load	Resistor, 5600 ohm 10% ½ W	70L3522
R69	V19A grid return	Resistor, 1 meg 20% ½ W	70L3406
R70	V19A plate load	Resistor, 4700 ohm 10% 1 W	70L3520
R71	Vertical sync filter	Resistor, 22 K ohm 10% ½ W	70L3397
R72	Vertical sync filter	Resistor, 22 K ohm 10% ½ W	70L3397
R73	Vertical sync filter	Resistor, 8200 ohm 10% ½ W	70L3523
R74	Vertical sync filter	Resistor, 8200 ohm 10% ½ W	70L3523
R75	V20 grid return	Resistor, 1.5 meg 20% ½ W	70L3407
R76	Vertical hold control	Potentiometer, 1 meg	70L3386
R77	V20 plate load	Resistor, .22 meg 10% ½ W	70L3403
R78	Vertical size control	Potentiometer, 2.5 meg	70L3504
R79	Vertical size control series	Resistor, 56 K ohm 10% 1 W	70L3524
R80	V21 grid return	Resistor, 2.2 meg 20% ½ W	70L3408
R81	V21 cathode feedback	Resistor, 8200 ohm 10% ½ W	70L3523
R82	V21 cathode series	Resistor, 1500 ohm 10% ½ W	70L3525
R83	Vertical linearity control	Potentiometer, 5000 ohm	70L3502
R84	V21 plate filter	Resistor, 5000 ohm 10% 5 W	70A69
R85	V22 heater series	Resistor, 2.7 ohm 10% 1 W	70L3250
R86	V22 cathode load	Resistor, .47 meg 10% ½ W	70L3404
R87	V22 cathode load	Resistor, .47 meg 10% ½ W	70L3404
R88	V22 cathode decoupling	Resistor, 1 meg 20% ½ W	70L3406
R89	V22 cathode return	Resistor, 3900 ohm 10% ½ W	70L3526
R90	V22 cathode filter	Resistor, .1 meg 10% ½ W	70L3401
R91	V24 grid series	Resistor, .47 meg 10% ½ W	70L3404
R92	V24 grid series	Resistor, 560 ohm 10% ½ W	70L3527
R93	V24 cathode bias	Resistor, 10 ohm 10% ½ W	70L3528
R94	V24 screen bleeder	Resistor, 27 K ohm 10% 1 W	70L3255
R95	V24 screen filter	Resistor, 47 K ohm 10% 2 W	70L3531
R96	V24 plate load	Resistor, 56 K ohm 10% 2 W	70L3532
R97	V24 plate load	Resistor, 56 K ohm 10% 2 W	70L3532
R98	V23 grid return	Resistor, 47 K ohm 10% ½ W	70L3399
R99	V23 screen filter	Resistor, 12 K ohm 10% 2 W	70L3533
R100	V23 plate load	Resistor, 5000 ohm 10% 10 W	70D2919
R101	V23 plate filter	Resistor, 6800 ohm 10% ½ W	70L3534
R102	V19B grid return	Resistor, .22 meg 10% ½ W	70L3403
R103	V19B plate load	Resistor, .68 meg 10% ½ W	70L3256
R104	V25 cathode feedback	Resistor, 6800 ohm 10% ½ W	70L3534
R105	V25 grid return	Resistor, .47 meg 10% ½ W	70L3404
R106	V25 grid series	Resistor, 68 ohm 10% ½ W	70L3453
R107	Horizontal peaking control	Potentiometer, 25 K	70L3505
R108	V25 cathode bias	Resistor, 100 ohm 10% 2 W	70L3535
R109	V25 screen filter	Resistor, 12 K ohm 10% 2 W	70L3573
R110	Not used		
R111	Horizontal damping	Resistor, 7500 ohm 10% 25 W	70L3410
R112	Horizontal position control	Potentiometer, 30 ohm 2 W	70L3381
R113	Vertical position control	Potentiometer, 30 ohm, center tap 2 W	70L3503

Table III Parts List By Symbol Designations

Symbol Desig.	Function	Description	Part No.
R114	Not used		
R115	Focus control	Potentiometer, 5000 ohm 5 W	70L3380
R116	Not used		
R117	-50 volt bias filter	Resistor, 68 ohm 10% ½ W	70L3515
R118	-50 V bias diode voltage divider	Resistor, 15 K ohm 10% ½ W	70L3529
R119	-50 V bias diode voltage divider	Resistor, 68 K ohm 10% ½ W	70L3515
R120	3rd video IF plate choke form	Resistor, 10 meg 20% ½ W	70L3409
R121	4th video IF plate choke form	Resistor, 10 meg 20% ½ W	70L3409
R122	V15 grid choke form	Resistor, 6800 ohm 10% ½ W	70L3534
R123	V15 plate series choke form	Resistor, 39 K ohm 10% ½ W	70L3423
R124	V15 plate shunt choke form	Resistor, 10 meg 20% ½ W	70L3409
R125	Video detector test point	Resistor, 10 K ohm 10% ½ W	70L3396
R126	RF tuner AVC filter	Resistor, 2.2 meg 20% ½ W	70L3408
R127	RF tuner AVC filter	Resistor, 2.2 meg 20% ½ W	70L3408
R128	Deflection coil shunt	Resistor, 560 ohm 10% ½ W	70L3527
C1	Not used		
C2	Not used		
C3	Not used		
C4	1st sound IF screen bypass	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C5	1st sound IF plate filter	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C6	2nd sound IF grid coupling	Capacitor, mica, 390 MMF 500 V	15B799
C7	2nd sound IF cathode bypass	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C8	2nd sound IF screen bypass	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C9	2nd sound IF plate filter	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C10	3rd sound IF primary tuning	Capacitor, ceramic, 51 MMF 500 V	15L3458
C11	3rd sound IF secondary tuning	Capacitor, ceramic, 51 MMF 500 V	15L3458
C12	V6 grid coupling	Capacitor, ceramic, 51 MMF 500 V	15L3458
C13	V6 screen bypass	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C14	V6 plate filter	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C15	Sound discriminator primary tuning	Capacitor, ceramic, 51 MMF 500 V	15L3458
C16	Sound discriminator secondary tuning	Capacitor, ceramic, 36 MMF 500 V	15D3101
C17	Sound discriminator coupling	Capacitor, ceramic, 10 MMF 500 V	15A22
C18	Sound detector diode load bypass	Capacitor, ceramic, 2 x 100 MMF 450 V	15D2923
C19	Audio input shunt	Capacitor, paper, .001 MF 600 V	15L3545
C20	1st audio amplifier grid coupling	Capacitor, paper, .001 MF 600 V	15L3545
C21	1st audio amplifier plate filter	Capacitor, paper, .1 MF 600 V	15L3468
C22	V9 grid coupling	Capacitor, paper, .005 MF 600 V	15L3473
C23	V9 screen bypass	Capacitor, paper, .25 MF 200 V	15L3469
C24	V9 plate shunt	Capacitor, paper, .005 MF 600 V	15L3473
C25	Converter plate return filter	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C26	1st video IF coil secondary shunt	Capacitor, ceramic, 51 MMF 500 V	15L3458
C27	1st video IF coil grid coupling	Capacitor, ceramic, 100 MMF 500 V	15L3460
C28	1st video IF grid filter	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C29	1st video IF screen filter	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C30	1st video IF plate filter	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C31	2nd video IF grid coupling	Capacitor, ceramic, 100 MMF 500 V	15L3460

Table III Parts List By Symbol Designations

Symbol Desig.	Function	Description	Part No.
C32	2nd video IF grid filter	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C33	2nd video IF plate and screen filter	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C34	3rd video IF grid coupling	Capacitor, ceramic, 100 MMF 500 V	15L3460
C35	3rd video IF grid filter	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C36	3rd video IF plate and screen filter	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C37	4th video IF grid coupling	Capacitor, ceramic, 100 MMF 500 V	15L3460
C38	4th video IF trap shunt	Capacitor, ceramic, 51 MMF 500 V	15L3458
C39	4th video IF cathode bypass	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C40	4th video IF plate and screen filter	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C41	Contrast control bypass	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C42	Contrast control bypass	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C43	AVC line bypass	Capacitor, paper, .25 MF 200 V	15L3469
C44	Video detector coupling	Capacitor, ceramic, 100 MMF 500 V	15L3460
C45	AVC diode plate coupling	Capacitor, ceramic, 100 MMF 500 V	15L3460
C46	Video detector diode return bypass	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C47	Video detector diode return bypass	Capacitor, electrolytic, 25 MF 25 V	15B795
C48	Video detector cathode bypass	Capacitor, ceramic, 5 MMF 500 V	15A364
C49	AVC diode cathode bypass	Capacitor, mica, 390 MMF 500 V	15B799
C50	Video amplifier screen bypass	Capacitor, paper, .05 MF 600 V	15L3467
C51	Picture tube grid coupling	Capacitor, paper, .05 MF 600 V	15L3467
C52	DC restorer cathode coupling	Capacitor, paper, .05 MF 600 V	15L3467
C53	Picture tube cathode bypass	Capacitor, paper, .1 MF 600 V	15L3468
C54	V17 grid coupling	Capacitor, paper, .05 MF 600 V	15L3467
C55	V17 plate bypass	Capacitor, mica, 200 MMF 500 V	15E1896
C56	V18 grid coupling	Capacitor, mica, 390 MMF 500 V	15B799
C57	V17 plate filter	Capacitor, paper, .1 MF 600 V	15L3468
C58	V19A grid coupling	Capacitor, paper, .05 MF 600 V	15L3467
C59	V19A plate coupling to horizontal sync	Capacitor, ceramic, 100 MMF 500 V	15L3460
C60	V19A plate coupling	Capacitor, paper, .01 MF 600 V	15L3541
C61	Vertical oscillator input filter	Capacitor, mica, .002 MF 500 V	15L3461
C62	Vertical oscillator input filter	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C63	Vertical oscillator input filter	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C64	V20 grid coupling	Capacitor, mica, .005 MF 500 V	15L3542
C65	V21 cathode coupling	Capacitor, paper, .05 MF 600 V	15L3467
C66	V21 grid coupling	Capacitor, paper, .1 MF 600 V	15L3468
C67	V21 cathode bypass	Capacitor, electrolytic, 50 MF 50 V	15L3543
C68	V24 grid filter	Capacitor, paper, .004 MF 400 V	15L3544
C69	V24 grid filter	Capacitor, paper, .05 MF 600 V	15L3467
C70	V24 screen bypass	Capacitor, paper, .05 MF 600 V	15L3467
C71	V24 cathode coupling	Capacitor, paper, .015 MF 400 V	15L3464
C72	V24 plate coupling	Capacitor, paper, .004 MF 400 V	15L3544
C73	Horizontal discriminator primary tuning	Capacitor, paper, .015 MF 400 V	15L3464

Table III Parts List By Symbol Designations

Symbol Desig.	Function	Description	Part No.
C74	V23 grid coupling	Capacitor, paper, .004 MF 400 V	15L3544
C75	V23 screen bypass	Capacitor, paper, .05 MF 600 V	15L3467
C76	V23 plate coupling	Capacitor, mica, 390 MMF 500 V	15B799
C77	V19B grid coupling	Capacitor, paper, .01 MF 600 V	15L3541
C78	V25 cathode feedback	Capacitor, mica, 680 MMF 500 V	15L3245
C79	V25 grid coupling	Capacitor, mica, .001 MF 500 V	15A35
C80	V25 screen bypass	Capacitor, paper, .05 MF 600 V	15L3467
C81	V25 cathode bypass	Capacitor, paper, .1 MF 600 V	15L3468
C82	Horizontal linearity coil bypass	Capacitor, paper, .035 MF 600 V	15L3643
C83	Horizontal linearity coil bypass	Capacitor, paper, .05 MF 600 V	15L3644
C84A	Vertical position control bypass	Capacitor, electrolytic, 1000 MF 6 V	15L3439
B	Horizontal position control bypass	250 MF 10 V	
C85A	V17 screen bypass	Capacitor, electrolytic,	15L3588
B	V20 plate filter	4 x 20 MF 450 V	
C	+140 volt bypass		
D	V21 plate filter		
C86A	Video amplifier plate filter	Capacitor, electrolytic, 4 x 20 MF 450 V	15L3588
B	Video IF + B bypass		
C	25L6 plate filter		
D	RF tuner + B filter		
C87	V10 heater bypass	Capacitor, ceramic, 1500 MMF 350 V	15L3459
C88	V11 heater bypass	Capacitor, ceramic, 1500 MMF 350 V	15L3459
C89	V12 heater bypass	Capacitor, ceramic, 1500 MMF 350 V	15L3459
C90	V13 heater bypass	Capacitor, ceramic, 1500 MMF 350 V	15L3459
C91	V14 heater bypass	Capacitor, ceramic, 1500 MMF 350 V	15L3459
C92	V4 heater bypass	Capacitor, ceramic, 1500 MMF 350 V	15L3459
C93	V5 heater bypass	Capacitor, ceramic, 1500 MMF 350 V	15L3459
C94	V6 heater bypass	Capacitor, ceramic, 1500 MMF 350 V	15L3459
C95	V7 heater bypass	Capacitor, ceramic, 1500 MMF 350 V	15L3459
C96A	+140 volt filter	Capacitor, electrolytic,	15L3438
B	+140 volt filter	2 x 60 MF 200 V	
C97A	+350 V supply filter	Capacitor, electrolytic,	15A17
B	+350 V supply filter	2 x 30 MF 450 V	
C98	-50 volt bias filter	Capacitor, paper, .5 MF 200 V	15E1135
C99	-50 volt bias filter	Capacitor, paper, .25 MF 200 V	15L3469
C100	+B bypass at 2nd detector socket	Capacitor, ceramic, 5000 MMF 450 V	15L3462
C101	9 K V filter	Capacitor, ceramic, 500 MMF 10,000 V	15L3273
C102	Video RF choke shunt	Capacitor, ceramic, 4-25 MMF 500 V	15A21
C103	Horizontal scanning coil shunt	Capacitor, mica, 56 MMF 800 V	15Q3809
C201	Antenna input coupling	Capacitor, ceramic, 300 MMF 350 V	15Q3980
C202	RF amplifier grid return filter	Capacitor, ceramic, 1500 MMF 350 V	15L3459
C203	Antenna input coupling	Capacitor, ceramic, 300 MMF 350 V	15Q3980
C204	RF amplifier plate to grid coupling	Capacitor, ceramic, 1.5 MMF 350 V	15Q3981
C205	RF amplifier AVC bypass	Capacitor, ceramic, 1500 MMF 350 V	15L3459
C206	RF amplifier heater bypass	Capacitor, ceramic, 500 MMF 350 V	15Q3982
C207	RF amplifier plate to grid coupling	Capacitor, ceramic, 1.5 MMF 350 V	15Q3981
C208	RF mixer grid return filter	Capacitor, ceramic, 1500 MMF 350 V	15L3459
C209	RF tuner + B bypass	Capacitor, ceramic, 500 MMF 350 V	15Q3982

Table III Parts List By Symbol Designations

Symbol Desig.	Function	Description	Part No.
C210	RF oscillator plate to grid coupling	Capacitor, ceramic, 4.7 MMF 350 V	15Q3983
C211	RF oscillator grid to plate coupling	Capacitor, ceramic, 4.7 MMF 350 V	15Q3983
C212	RF oscillator heater bypass	Capacitor, ceramic, 500 MMF 350 V	15Q3982
L1	V10 heater choke	RF choke	17L3378
L2	V11 heater choke	RF choke	17L3378
L3	V12 heater choke	RF choke	17L3378
L4	V13 heater choke	RF choke	17L3378
L5	V14 heater choke	RF choke	17L3378
L6	1st sound IF coil	IF coil	20L3384
L7	2nd video IF coil	IF coil	20L3346
L8	3rd video IF coil	IF coil	20L3347
L9	3rd video IF plate choke	RF choke	17L3484
L10	Video amplifier grid peaking choke	RF choke	17L3482
L11	4th video IF plate choke	RF choke	17L3484
L12	5th video IF coil	IF coil	20L3487
L13	Video amplifier plate series choke	RF choke	17L3481
L14	Video amplifier grid trap	RF coil	17L3645
L15	Video amplifier plate shunt choke	RF choke	17L3483
L16	+150 volt filter reactor	Choke - 3 H @ 200 ma	17L3312
L17	+350 volt filter reactor	Choke - 3 H @ 200 ma	17L3312
L18	Focus coil	PM focus coil	20Q3810
L19	Horizontal linearity coil	RF coil	20L3344
L20	V4 heater choke	RF choke	17L3378
L21	V5 heater choke	RF choke	17L3378
L22	V6 heater choke	RF choke	17L3378
L23	RF tuner heater choke	RF choke	17L3378
L24A	Vertical deflection coil	Deflection yoke	20Q3811
B	Horizontal deflection coil		
L25	Horizontal size coil	RF coil	20Q3853
L201	RF tuner input coil	RF coil	20Q3984
L202	RF amplifier low band coil	RF coil	20Q3985
L203	RF mixer low band coil	RF coil	20Q3986
L204	RF oscillator low band coil	RF coil	20Q3987
L205	RF amplifier high band coil	RF coil	20Q3988
L206	RF mixer high band coil	RF coil	20Q3989
L207	RF oscillator high band coil	RF coil	20Q3990
R1	RF tuner + B filter	Resistor, 2200 ohm 10% 1 W	70L3519
R2	V4 grid return	Resistor, .47 meg 10% ½ W	70L3404
R3	V4 cathode bias	Resistor, 100 ohm 10% ½ W	70L3430
R4	V4 screen filter	Resistor, 6800 ohm 10% ½ W	70L3534
R5	V4 plate filter	Resistor, 1000 ohm 10% ½ W	70L3393
R6	V5 grid return	Resistor, .22 meg 10% ½ W	70L3403
R7	V5 cathode bias	Resistor, 82 ohm 10% ½ W	70L3391
R8	V5 screen filter	Resistor, 6800 ohm 10% ½ W	70L3534
R9	V5 plate filter	Resistor, 1000 ohm 10% ½ W	70L3393
R10	V6 grid return	Resistor, .1 meg 10% ½ W	70L3401
R11	V6 screen bleeder	Resistor, 10 K ohm 10% 1 W	70L3427
R12	V6 screen filter	Resistor, 10 K ohm 10% 1 W	70L3427
R13	Sound detector diode decoupling	Resistor, 56 K ohm 10% ½ W	70L3400
R14	Sound detector diode load	Resistor, .1 meg 10% ½ W	70L3401
R15	Sound detector diode load	Resistor, .1 meg 10% ½ W	70L3401
R16	Audio deemphasis	Resistor, 68 K ohm 10% ½ W	70L3515
R17	Volume control	Potentiometer, 1 meg	70L3387
R18	V8 grid return	Resistor, 10 meg 20% ½ W	70L3409
R19	V8 plate load	Resistor, .56 meg 10% ½ W	70L3405
R20	V8 plate filter	Resistor, 47 K ohm 10% ½ W	70L3399
R21	V9 grid return	Resistor, 4.7 meg 20% ½ W	70L3530
R22	V9 grid bias filter	Resistor, .68 meg 10% ½ W	70L3256
R23	V9 cathode bias	Resistor, 47 ohm 10% ½ W	70L3429
R24	V9 screen filter	Resistor, 22 K ohm 10% ½ W	70L3397
R25	V9 plate filter	Resistor, 3000 ohm 10% 10 W	70B681
R26	V10 grid return	Resistor, 47 K ohm 10% ½ W	70L3399
R27	V10 grid filter	Resistor, 1000 ohm 10% ½ W	70L3393
R28	V10 cathode bias	Resistor, 68 ohm 10% ½ W	70L3453
R29	V10 screen filter	Resistor, 6800 ohm 10% ½ W	70L3534
R30	V2 mixer plate filter	Resistor, 100 ohm 10% ½ W	70L3430
R31	V10 plate filter	Resistor, 100 ohm 10% 1 W	70L3392
R32	V11 grid return	Resistor, 10 K ohm 5% ½ W	70L3419
R33	V11 grid return filter	Resistor, 1000 ohm 10% ½ W	70L3393
R34	V11 cathode bias	Resistor, 68 ohm 10% ½ W	70L3453
R35	V11 plate filter	Resistor, 100 ohm 10% 1 W	70L3392