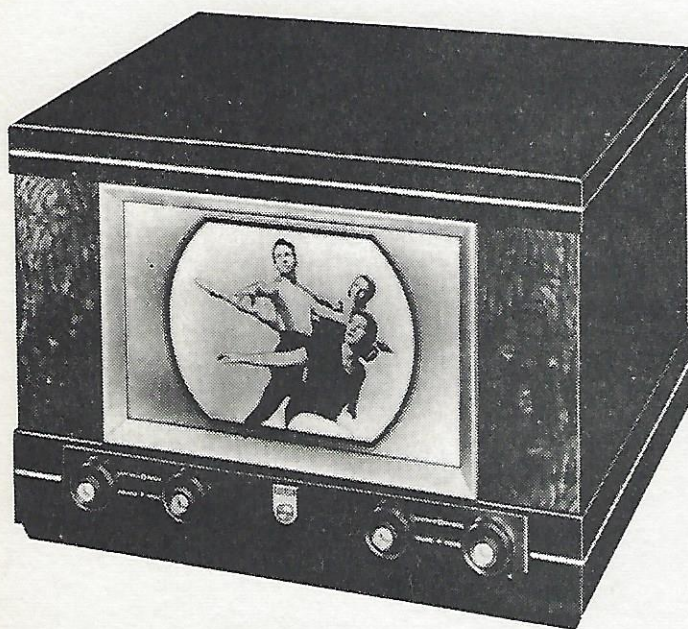


SERVICE DATA

Models DV1050 and VR1039

TABLEVIEWER
TELEVISION RECEIVER



Model DV1050



Model VR1039

TELEVISION RECEIVER

MODELS DV1050 and VR1039

GENERAL INFORMATION

These models have 26 tubes including the picture tube. There are no power transformers in this receiver. The tube filaments are connected in a series-parallel arrangement to the 115 volt line. The B+ voltages are obtained by using selenium rectifiers in both a single and a voltage doubler circuit connected directly to the 115 volt A.C. line.

Features of this receiver include: light weight, high sensitivity, AGC and Automatic Phase Control for horizontal frequency. Electromagnetic focussing and deflection are employed. The horizontal circuit does not require manual linearity control.

A complete F.M. sound channel is provided, the output being taken from the third video I.F. transformer.

ANTENNA AND POWER CONNECTIONS

A two-terminal antenna strip at the rear of the chassis is used for connecting the 300 ohm transmission line from the antenna.

CAUTION: Under no circumstances should any connection be made from the chassis to ground. However, a grounded antenna connected to the antenna terminals will cause no damage.

The line cord should be connected to a 115 volt A.C. source. Try reversing the line plug in the socket for best reception. The frequency may be either 25 or 60 cycles. The receiver will not operate on D.C.

The current consumption of the receiver is approximately 2 amperes at 115 volts.

NOTE

To service this receiver satisfactorily a good antenna installation is needed. Make certain the transmission line is as short as possible, has 300 ohms impedance and is kept clear of all surrounding objects including the antenna mast itself by at least 6 inches. Unless the signal strength in the area of operation is several hundred microvolts, it is advisable to use a transmission line having very low attenuation.

The antenna itself should be designed to afford a good match to the 300 ohm transmission line, either directly or by transformer coupling.

For lightning protection, the antenna mast should be connected to a good ground, and the transmission line connected to an approved type of lightning arrestor, one terminal of which is grounded.

All electrical joints must be carefully made. A coating of glyptal on each joint exposed to the weather will assist in maintaining trouble-free performance over a long period of time.

TUBE COMPLEMENT

1.	6J6	R.F. Amplifier	14.	6BA6	1st Sound I.F. Amplifier
2.	6J6	Converter	15.	6AU6	Sound Limiter
3.	6J6	Oscillator	16.	6AL5	Sound Discriminator
4.	6AG5	1st Video I.F. Amplifier	17.	12SQ7	1st Audio Amplifier
5.	6AG5	2nd Video I.F. Amplifier	18.	25L6	Audio Output
6.	6AG5	3rd Video I.F. Amplifier	19.	12SC7	2nd Clipper
7.	6AG5	4th Video I.F. Amplifier	20.	12SN7	Horizontal Multivibrator
8.	6AL5	Video Detector and AGC Detector	21.	6BG6G	Horizontal Output
9.	6AG5	Video Amplifier	22.	1B3GT	High Voltage Rectifier
10.	6V6	Video Output	23.	6W4GT	Booster-Damper-Diode
11.	6AU6	1st Clipper	24.	12SC7	Vertical Blocking Oscillator
12.	6AT6	AGC Amplifier	25.	25L6GT	Vertical Sweep Output
13.	6AL5	D.C. Restorer and Bias Rectifier	26.	10BP4	Picture Tube, 10 inch

CONTROLS

Function	Location	Description
Vertical Hold	Front Panel	Outer Knob } Dual
Horizontal Hold	" "	Inner Knob }
Focus	" "	Outer Knob } Dual
Brilliance	" "	Inner Knob }
Contrast	" "	Outer Knob } Dual
On-Off and Volume	" "	Inner Knob }
Channel	" "	Outer Knob } Dual
Tuning	" "	Inner Knob }
Vertical Size	Rear of Time Base Chassis	Knurled Knob
Vertical Linearity	" " " " "	Slotted Stud
Horizontal Size	" " " " "	Thumb Nut (Vertical Movement)
Horizontal Hold Adj.	Centre Edge of Time Base Chassis	Slotted Core
Definition Switch	Rear of Tuner Chassis	Knurled Knob

TELEVISION FREQUENCY RANGE

Channel Selector Position No.	Frequency Range Mc.	Picture Carrier Frequency Mc.	Sound Carrier Frequency Mc.	Receiver R.F. Oscillator Freq. Mc.
2	54-60	55.25	59.75	81.35
3	60-66	61.25	65.75	87.35
4	66-72	67.25	71.75	93.35
5	76-82	77.25	81.75	103.35
6	82-88	83.25	87.75	109.35
7	174-180	175.25	179.75	201.35
8	180-186	181.25	185.75	207.35
9	186-192	187.25	191.75	213.35
10	192-198	193.25	197.75	219.35
11	198-204	199.25	203.75	225.35
12	204-210	205.25	209.75	231.35
13	210-216	211.25	215.75	237.35

STAGGER-TUNED AND TRAP FREQUENCIES

Number	Slug Location	Frequency Mc	Function
T1	Bottom	22.65	1st Video I.F. Tuned Circuit
T2	Top	20.1	Adjacent Channel Video Trap
T7	Bottom	25.65	2nd Video I.F. Tuned Circuit
C172	Top	27.6	Adjacent Channel Sound Trap
T9	Bottom	22.15	3rd Video I.F. Tuned Circuit
C175	Top	21.6	Sound Trap and Sound Take-off
T11	Bottom	25.55	4th Video I.F. Tuned Circuit
C178	Top	27.6	Adjacent Channel Sound Trap
T13	Bottom	23.75	5th Video I.F. Tuned Circuit
C181	Top	20.1	Adjacent Channel Video Trap

Intermediate Frequencies: Video 26.1 Mc., Sound 21.6 Mc.

Video Response: to 4 Mc.

Scanning: 525 lines, interlaced.

Horizontal Scanning Frequency: 15,750 c.p.s.

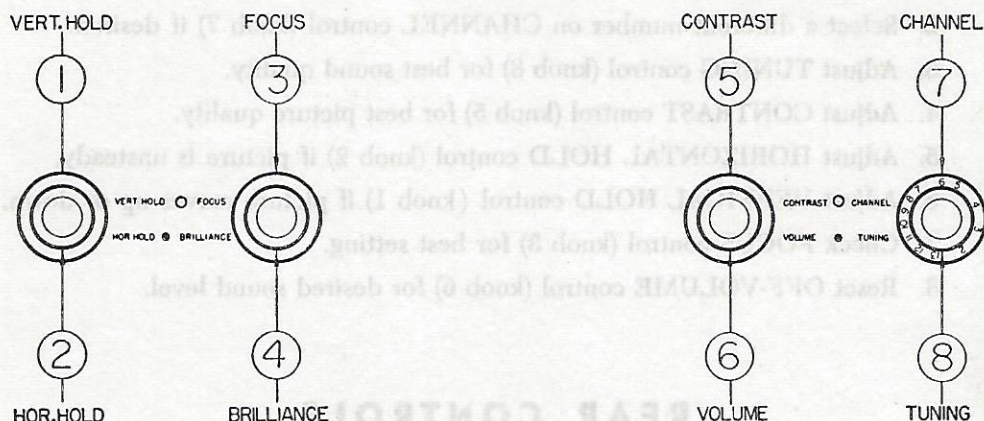
Vertical Scanning Frequency: 60 c.p.s.

Frame Frequency: 30 c.p.s. (picture repetition rate).

Sweep Deflection: Electromagnetic.

Focus: Electromagnetic.

HOW TO OPERATE THE TELEVISION RECEIVER



1. Turn the BRILLIANCE control (knob 4) to the full counterclockwise position.
2. Turn the CONTRAST control (knob 5) to the full counterclockwise position.
3. Turn the OFF-VOLUME control (knob 6) from its "OFF" position to the right. After the click of the switch is heard, continue to turn the control to approximately the middle range. Allow about a minute for the tubes of the receiver to warm up.
4. Turn the CHANNEL selector (knob 7) to the channel number of the desired station.
5. Adjust the TUNING control (knob 8) for the best sound. If the sound becomes too loud during tuning, turn the OFF-VOLUME control counterclockwise until the sound is at a low level, then adjust the TUNING control for best sound and minimum noise. The best picture quality will coincide with this setting of the TUNING control, with freedom from moving shadow bars (sound bars) in the picture.
6. Turn the BRILLIANCE control (knob 4) clockwise until light becomes just visible on the screen.
7. Advance the CONTRAST control (knob 5) clockwise until a picture or activity is seen on the screen.
8. Adjust the HORIZONTAL HOLD control (knob 2) until a picture appears that is free of diagonal dark lines and horizontal movement.
9. Adjust the VERTICAL HOLD control (knob 1) until the picture is stationary. The most satisfactory position of the VERTICAL HOLD control is obtained by turning the control slowly counterclockwise until the picture moves slowly downwards. Then turn the control clockwise to a point slightly beyond the position at which picture becomes stationary.
10. If the picture appears to be unsteady after correctly adjusting the VERTICAL HOLD control, it will be necessary to readjust carefully the HORIZONTAL HOLD control to remedy this horizontal movement.
11. Adjust the FOCUS control (knob 3) for sharpest detail. Either side of the correct setting will result in a blurring of the picture. The fine horizontal lines of the "raster" should be clearly visible over the picture area.

As the BRILLIANCE control and CONTRAST control both function for the best picture quality, it may be possible to improve the picture by a slight readjustment of them. In general, the best setting for the BRILLIANCE control is slightly to the counterclockwise of the position at which the white diagonal "retrace" lines appear. The best setting for the CONTRAST control is the position giving the correct shade graduations from white to light gray, medium gray, and black. Too low a setting may permit the picture to be unsteady; too high a setting may cause the picture to twist out of shape, and also have a black and fuzzy appearance.

After the receiver has been in operation for some time it may be necessary to readjust the TUNING control for best sound quality.

To turn the receiver "OFF," rotate the OFF-VOLUME control to the extreme counterclockwise position until the switch clicks "OFF." No other controls need be touched.

TO RESUME OPERATION ON THE SAME OR A DIFFERENT CHANNEL

1. Turn the OFF-VOLUME (knob 6) clockwise to the middle of its range.
2. Select a different number on CHANNEL control (knob 7) if desired.
3. Adjust TUNING control (knob 8) for best sound quality.
4. Adjust CONTRAST control (knob 5) for best picture quality.
5. Adjust HORIZONTAL HOLD control (knob 2) if picture is unsteady.
6. Adjust VERTICAL HOLD control (knob 1) if picture moves up or down.
7. Check FOCUS control (knob 3) for best setting.
8. Reset OFF-VOLUME control (knob 6) for desired sound level.

REAR CONTROLS

A DEFINITION SWITCH is located on the rear of the receiver and is provided for the purpose of improving reception from distant stations.

The quality of the picture from a distant station is usually marred by white flecks (snow) in the background. Through the use of this definition switch the picture can be improved by reducing the "snow" effect. The three positions of the switch should be used as follows:

Position 1: Should always be used for normal reception. This position provides the best picture definition.

Position 2: Should be used for weak stations. This position increases the picture sensitivity with some rejection of the "snow" effect.

Position 3: Should be used for very weak stations. This position greatly increases the picture sensitivity with a larger reduction in the "snow" effect.

Position 3 should not be used for normal reception, or the quality of the picture will be impaired.

The HORIZONTAL SIZE CONTROL is used to control the size of the picture in a horizontal direction. This control knob is a thumb nut which, when loosened, can be moved up or down. An upward movement of the knob increases the picture width. After the correct adjustment has been made the knob must be tightened in position.

The VERTICAL SIZE CONTROL is used to control the size of the picture in a vertical direction. Clockwise rotation of the knob increases the vertical size of the picture.

The VERTICAL LINEARITY CONTROL is used to adjust the linearity of the picture. Adjustments should be made when receiving a test pattern from a Television station. Counterclockwise rotation of the knob compresses the bottom and stretches the top of the picture. Clockwise rotation of the knob compresses the top and stretches the bottom. Extreme clockwise rotation exaggerates the bottom expansion for a convenient check of horizontal line interlace.

ADDITIONAL SERVICE ADJUSTMENT CONTROLS

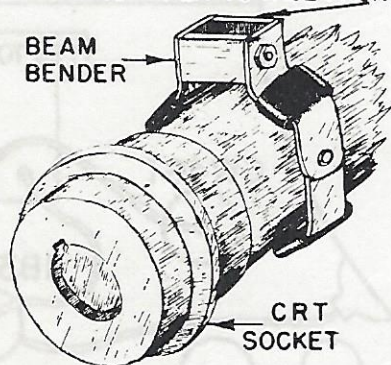
There are four additional service adjustments which are made at the factory and normally require no attention. These adjustments should be made only to correct any misadjustments due to handling or to correct any difficulties that cannot be remedied by the controls already described.

In order to make these adjustments the cover at the rear of the cabinet must be removed. Since the line cord is attached to this cover at the interlock, it will be necessary to use a separate A.C. line cord to operate the receiver.

CAUTION: This separate line cord must not be plugged into the ordinary A.C. outlet. An isolating transformer must be used, the separate line cord being plugged into the transformer output and the transformer input connected to the A.C. outlet. This precaution is necessary since it is possible for the chassis

of the set to have a 115 volt potential with respect to ground, when connected to an ordinary A.C. outlet. Neglecting to observe the precaution of using an isolating transformer can lead to serious injury.

MARKING TV 2A TO FACE FRONT



POSITION OF BEAM BENDER

screen picture can be observed while making the adjustment by using a mirror in front of the receiver. This adjustment should be started with the focus coil as far back as possible, since this back position provides best focussing. After adjustment, tighten the three thumb screws securely.

BEAM BENDER ADJUSTMENT—See Fig 3

Misadjustment of the beam bender ion trap will cause one or more corners of the raster to be blanked out or possible poor focussing and reduced brilliance. To adjust the beam bender, first adjust the brilliance control for a dimly lighted raster. Then rotate the beam bender through 45° around the neck of the tube and at the same time slide it backward and forward along the neck of the tube until the brightest raster, with all corners complete, is obtained. If for any reason the beam bender is removed, be sure to replace it, since no raster can be obtained with the beam bender removed.

HORIZONTAL AND VERTICAL CENTERING

The whole picture can be shifted vertically or horizontally by this adjustment. Loosen the three thumb-nuts holding the focus coil. The coil can now be rotated about a vertical or horizontal axis causing a similar movement of the picture on the screen. The adjustment should be started with the focus coil as far back as possible, since this back position provides best focussing. After adjustment, tighten the three thumb screws securely.

DEFLECTION YOKE

If through careless handling or other reasons the deflection yoke is moved from its normal position, the raster of the picture tube will move out of position.

If the edges of the raster are inclined at an angle to the vertical and horizontal, then the deflection yoke should be rotated until the top and bottom edges of the raster are horizontal.

The deflection yoke is rotated after first loosening the wing nut on its under surface. After adjustment, make certain that deflection yoke is as far forward as possible against the bulb of the Cathode Ray tube. This wing nut must be securely tightened after adjustment.

HORIZONTAL HOLD ADJUSTMENT

Looking at the chassis from the rear, a small black screw-driver adjustment will be found located mid-way between the front and back of the right-hand chassis and along its left-hand edge. This adjustment determines the frequency of the horizontal oscillator and no attempt should be made to change the factory adjustment until it has been definitely established that this particular part of the circuit is at fault. If it is necessary to make an adjustment, proceed as follows:

1. With the set switched off remove V20, the horizontal multivibrator tube.
2. Connect an ohmmeter between pin No. 1 of V20 and ground.
3. Set the horizontal hold control for an ohmmeter reading of 120,000 ohms. Do not disturb this setting for the remainder of the horizontal hold adjustment procedure.
4. Remove the ohmmeter and replace V20. Switch on the set and allow it to warm up for three minutes.
5. Tune in a television signal and adjust the brilliance and contrast controls.
6. Short the sync input lead J2 to ground.
7. Adjust the horizontal oscillator tank coil slug for correct frequency. This will be indicated by a more or less normal appearing picture which will slide back and forth slowly across the picture tube.
8. Return the sync input (J2) to normal.

HORIZONTAL DRIVE CONTROL ADJUSTMENT

This adjustment affects the shape of the horizontal driving pulse of the 6BG6 tube, and no attempt should be made to change the factory adjustment until it has been definitely established that this particular

part of the circuit is at fault, or the 6BG6 tube has been replaced. If it is necessary to make an adjustment, proceed as follows:

1. Switch on the set and allow it to warm up for approximately three minutes.
2. Tune in a television signal and adjust the contrast, brightness, and horizontal and vertical hold controls.
3. Adjust the horizontal drive control trimmer located near the 6BG6 tube for maximum picture size.
4. Repeat the Horizontal hold adjustment.
5. Set the contrast control to maximum and examine the raster on all channels for signs of Barkhausen lines. These may appear on the left side of the picture. If any lines are observed, change the drive control trimmer slightly to one side or the other until the Barkhausen disappears.
6. If Barkhausen lines cannot be removed, replace the 6BG6 tube and repeat the entire procedure.

SERVICING THE CHASSIS

Before attempting to perform any service work on this receiver, the following precautions must be taken:

1. Whenever the back cover is removed, always use an isolating transformer to supply power to the receiver.
2. Never remove a tube from the chassis, or remove the socket from the picture tube while the power is on. Since the filaments are in series-parallel, the removal of one tube will cause abnormally high voltage in other parts of the filament circuit causing tube filaments to burn out. Ordinarily, the chassis cannot be operated with the picture tube removed unless provision is made for bridging the filament leads to the picture tube with the proper resistor.
3. If the chassis is to be removed from the cabinet, the following rules for handling the picture tube must be followed.

PRECAUTIONS TO BE OBSERVED BY SERVICE TECHNICIANS HANDLING TELEVISION RECEIVERS

Servicemen who install or service television receivers have a great responsibility, both to the public and to the industry, as well as a personal interest in ensuring that no accident, due to carelessness or negligence, will occur to arouse fear of this new instrument of home entertainment.

The television receiver, largely because of the presence of the picture tube, contains certain potential hazards which are not found in radio receivers. These hazards need not cause anyone apprehension, providing a few simple precautionary rules are observed by the servicemen. The picture tube is not dangerous if properly handled.

There are two ways in which injury can occur if a picture tube is carelessly handled either in the service shop or at a set owner's home. One is the breakage of the picture tube resulting in flying glass, and the other is the high voltage shock. Most trained Service Technicians know how to guard against shocks, but the breakage of picture tubes can result from carelessness regardless of the Technician's experience.

Any Service Technician can be sure that he will neither injure himself nor cause injury to someone else by following a few simple safety rules. These are:

1. Don't expose the picture tube until you are ready to use it.
2. Always wear goggles when handling a naked picture tube.
3. Keep people at a safe distance when a picture tube is being exposed.
4. Place the used tube in the carton which contained the new tube and take it away.
5. Always keep the picture tube in the protective container whenever possible. Always place an exposed tube on clean soft padding when necessary to set it down.
6. Do not leave any picture tubes laying around. There are two safe ways of disposing of used tubes. (1) Place the old tube in the shipping carton properly sealed and then drive a crowbar or similar instrument through the closed top of the container. (2) An alternative method when disposing of more than one tube is to use a metal ash can with a plunger operated through the closed top.
7. Do not use regular picture tubes for display purposes. Contact your supplier for special display tubes.
8. When removing a tube from a set, disconnect the high voltage lead, and discharge the anode connection of the tube to the outside coating using a piece of well-insulated wire. This will avoid accidental electric shock from this point when handling the tube later.

CIRCUIT FEATURES

Certain of the circuits used in this set are sufficiently new or novel to warrant some additional explanation. Unless specifically mentioned below, all other circuits are conventional as far as service and adjustment is concerned.

PHASE DISCRIMINATOR

Two rectifiers, type 1N34, are connected in a conventional phase comparison circuit to supply correction information to the horizontal oscillator to keep it in synchronism. The horizontal sync pulse is differentiated by C62 and T17, the primary of the discriminator transformer, to provide further noise immunity. This is compared in phase with a sample of the horizontal deflection current saw-tooth and the resultant D.C. correction voltage is applied through the two time constant networks composed of C66, R181 and C186 to the horizontal oscillator frequency control grid.

Note: The 1N34 rectifiers are a matched pair, which are connected in a specific manner as indicated on the sweep chassis schematic. In the event that replacement is necessary, both rectifiers must be replaced together by a matched pair secured from the factory.

HORIZONTAL DEFLECTION OUTPUT STAGE

The 6BG6 tube operates as a current amplifier, amplifying the waveform delivered from the wave-forming network composed of C72, C73 and R97. The special output transformer matches the deflection yoke properly to the 6BG6 and by means of separate windings, matches the efficiency diode-booster-damper tube. By this means, the 6BG6 tube is called upon to produce only part of the scan and the remainder is supplied by the 6W4 diode. Finally, in addition to damping out any "ringing" or transient oscillation, the 6W4 develops a voltage across the "Booster" condenser C78 of about 250 volts. This potential is connected in series with the plate supply to the 6BG6, giving it an effective supply voltage of about 500 volts. Since the scanning current is, by this system, a pure saw-tooth, no horizontal linearity control is needed or provided. Bias for the 6BG6 is taken from the fixed 110 volt circuit to protect the tube in the event of drive failure occurring in the horizontal oscillator.

D.C. RESTORER

This circuit is conventional, operating on the peak of sync pulses. The brightness control is included in the D.C. restorer circuit in such a manner that the brightness is automatically controlled by any variation in video signal level.

DEFINITION SWITCH

This switch is arranged to adjust the operation of the set for the strength of signal being received. In Position No. 1 the receiver operates normally with full band width and automatic gain control.

Position No. 2 is used on medium strength and weak signals only. In this position an AGC voltage is not applied to the tuner, allowing it to operate at maximum efficiency. The result is an appreciable reduction in the amount of random noise appearing in the picture.

Position No. 3 is used only to reduce the effect of noise in the fringe areas by spreading out the high frequency noise pulses and exaggerating the apparent contrast in the solid color areas of the picture. This position has a degrading effect on a normal picture of good strength and should be used only on noisy fringe area signals.

CIRCUIT ALIGNMENT

SEQUENCE: Complete alignment of the receiver tuned circuits, or alignment of one or more sections, can be performed as required. The following sequence is suggested for complete alignment:

1. Video I.F. and Trap Alignment.
2. Sound I.F. Alignment.
3. Sound Discriminator Alignment.
4. Overall Video I.F. Response.
5. Sensitivity Check.

Detailed description of the alignment procedure should be followed carefully and the alignment table used only as a guide, or after becoming thoroughly familiar with the various operations through practice.

TEST EQUIPMENT: The following test equipment is recommended for proper alignment and testing of the receiver:

1. R.F. Sweep Generator capable of constant output with dependable attenuator covering the ranges of:
 - (a) Video I.F. Sweep, 20-30 Mc.
 - (b) Sound I.F. Sweep, 21-22 Mc.
 - (c) R.F. Sweep Signals for all the television channels No. 2 to No. 13 inclusive with 300 ohm output impedance.
2. R.F. Signal Generator having good frequency stability and accurate dial calibration for the following frequencies:
 - (a) Picture and Sound Carrier Frequencies for all channels — No. 2 to No. 13 inclusive.
 - (b) Picture and Sound Intermediate Frequencies and Trap Frequencies ranging from 20.1 Mc. to 27.6 Mc.
3. Heterodyne Frequency Meter or Crystal Calibrator with which to check calibration points on the R.F. Signal Generator.
4. Cathode-Ray Oscilloscope with a wide band frequency response on vertical deflection. (This feature is required when analyzing the waveform patterns shown on pages 17 and 18.)
5. A.C. Voltmeter with 0-10 volt scale, capable of accurate readings at 400 cycles.

ALIGNMENT SET-UP

Use of these recommended accessories and observance of the outlined precautions preparatory to and throughout alignment of the tuner chassis will assure satisfactory and trouble-free results.

An isolating transformer must be used in the following operations. Failure to follow this precaution will cause damage to personnel and equipment.

It is highly recommended that whenever possible, the picture tube should be removed while performing operations on the chassis where the picture tube is of no assistance.

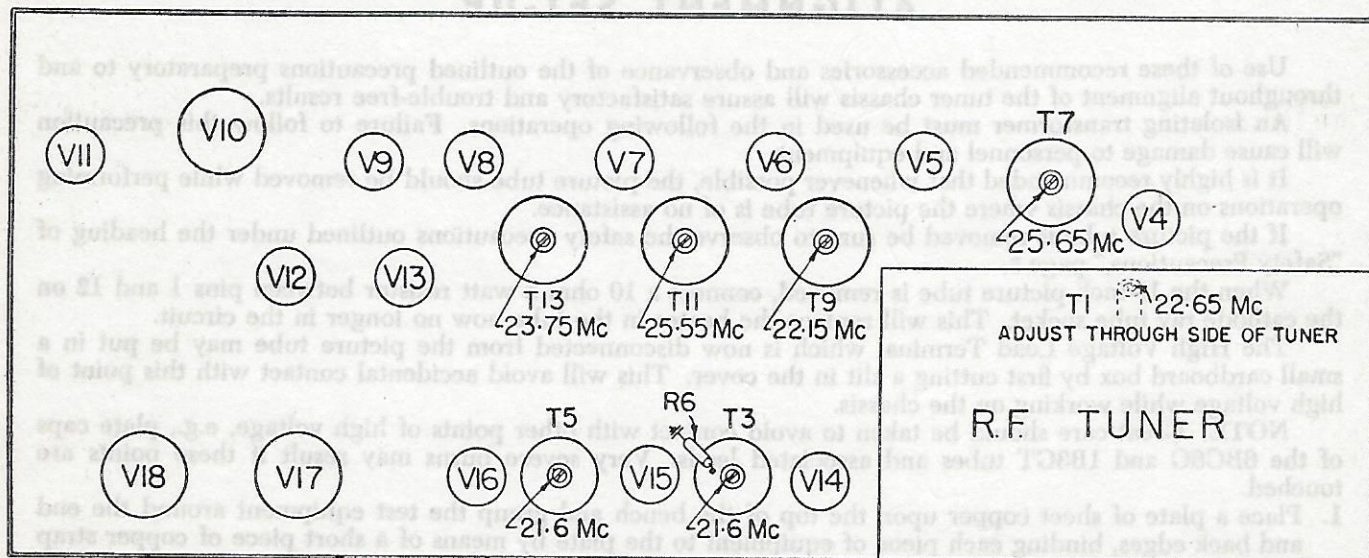
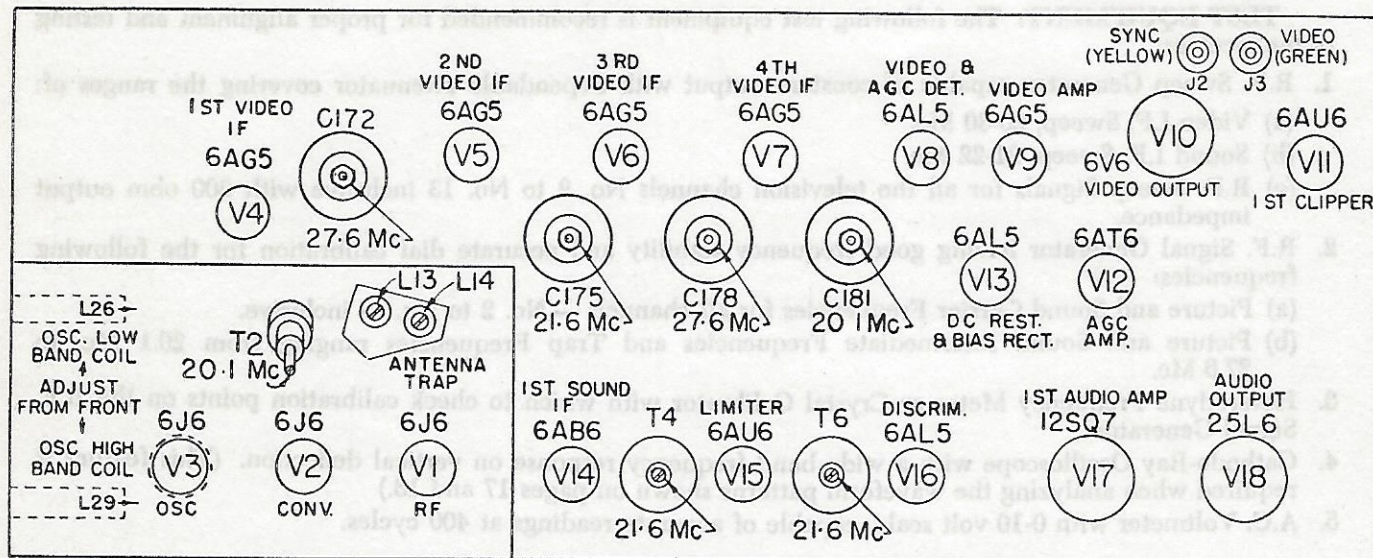
If the picture tube is removed be sure to observe the safety precautions outlined under the heading of "Safety Precautions," page 8.

When the 10-inch picture tube is removed, connect a 10 ohm 5 watt resistor between pins 1 and 12 on the cathode ray tube socket. This will replace the heater in the tube now no longer in the circuit.

The High Voltage Lead Terminal which is now disconnected from the picture tube may be put in a small cardboard box by first cutting a slit in the cover. This will avoid accidental contact with this point of high voltage while working on the chassis.

NOTE: Great care should be taken to avoid contact with other points of high voltage, e.g., plate caps of the 6BG6G and 1B3GT tubes and associated leads. Very severe burns may result if these points are touched.

1. Place a plate of sheet copper upon the top of the bench and group the test equipment around the end and back edges, binding each piece of equipment to the plate by means of a short piece of copper strap or braid. Group signal generating equipment at one side and indicating equipment at the opposite side to reduce the possibility of coupling due to input and output lead crossings, etc.
2. Stand the chassis on edge with the bottom facing the operator. A convenient position is with the chassis edge making contact with the plate, and the R.F. tuner at the bottom. If the chassis is supported in any other way, be certain to bind the chassis to the metal plate.
3. A convenient method of feeding in the signal for I.F. alignment is by the use of an adaptor converter tube. This is easily made by bending out the cathode pin (Pin No. 7) of a 6J6 tube and soldering one end of a 75 ohm resistor to it. The converter tube may be removed and the adaptor tube substituted for it during I.F. alignment. The free end of the 75 ohm resistor should be connected to the chassis with a touch of solder or a small clip, as close to the tube as possible. Connect the inner conductor of the output cable of the signal generator to one terminal of a condenser of about 750 mmf and the other terminal of the condenser to the junction of the 75 ohm resistor and pin 7 of the 6J6. Connect the outer conductor of the cable from the generator to the tuner chassis close to the converter tube socket.
4. Use a simple de-coupling network between the desired output point and the oscilloscope probe, or the meter lead, to reduce the possibility of undesired R.F. coupling. Connect a 10,000 ohm composition type resistor and a 1,000 mmf mica or ceramic capacitor in series and connect the resistor lead to the desired output point and the capacitor lead to the chassis. The scope or meter may now be connected from the junction of the resistor and capacitor to chassis.
5. Three alignment tools are required, a screwdriver consisting of an insulated rod with a small metal blade, preferably with a sleeve around the tip, to adjust the Video I.F. slugs, and a small fibre or plastic screwdriver to adjust the Sound I.F. slugs. Insulated hex socket wrench for video traps.



SOUND I.F. AND DISCRIMINATOR ALIGNMENT

Step No.	SIGNAL GENERATOR (1 Mc. SWEEP)		SIGNAL GENERATOR (MARKER)		OSCILLOSCOPE Connect Across	Adjust	Remarks
	Connect Across	Freq.	Connect Across	Freq.			
1	75 ohm resistor of converter adaptor tube	21.6 Mc.	75 ohm resistor of converter adaptor tube	21.6 Mc.	Limiter grid resistor R6	T4-T3	Maximum amplitude symmetrical to marker
2	75 ohm resistor of converter adaptor tube	21.6 Mc.	75 ohm resistor of converter adaptor tube	21.6 Mc.	Limiter grid resistor R6	T6-T5	Maximum amplitude symmetrical to marker
3	75 ohm resistor of converter adaptor tube	21.6 Mc.	75 ohm resistor of converter adaptor tube	21.6 Mc.	Volume Control R13-R14	T5-T6	For symmetrical "S" curve

Conditions: A. A.C. Line Voltage: 117 volts
B. Select Channel No. 12

C. Remove 6J6 Tube V2
D. Install Converter Adaptor Tube

VIDEO I.F. AND TRAPS ALIGNMENT

Step No.	SIGNAL GENERATOR		CATHODE RAY OSCILLOSCOPE		Remarks
	Connect To	Freq.	Connect To	Adjust	
1	Across 75 ohm resistor of converter adaptor tube	20.1 Mc.	Video detector output pin 5 of 6AL5 (V8A)	T2-C181	Tune for minimum amplitude (first dip)
2	Across 75 ohm resistor of converter adaptor tube	27.6 Mc.	Video detector output pin 5 of 6AL5 (V8A)	C172-C178	Tune for minimum amplitude (first dip)
3	Across 75 ohm resistor of converter adaptor tube	21.6 Mc.	Video detector output pin 5 of 6AL5 (V8A)	C175	Tune for minimum amplitude (first dip)
4	Across 75 ohm resistor of converter adaptor tube	22.65 Mc.	Video detector output pin 5 of 6AL5 (V8A)	T1	Tune for maximum amplitude (first peak)
5	Across 75 ohm resistor of converter adaptor tube	25.65 Mc.	Video detector output pin 5 of 6AL5 (V8A)	T7	Tune for maximum amplitude (first peak)
6	Across 75 ohm resistor of converter adaptor tube	22.15 Mc.	Video detector output pin 5 of 6AL5 (V8A)	T9	Tune for maximum amplitude (first peak)
7	Across 75 ohm resistor of converter adaptor tube	25.55 Mc.	Video detector output pin 5 of 6AL5 (V8A)	T11	Tune for maximum amplitude (first peak)
8	Across 75 ohm resistor of converter adaptor tube	23.75 Mc.	Video detector output pin 5 of 6AL5 (V8A)	T13	Tune for maximum amplitude (first peak)

Upon completion of Operation 8, repeat Operations 1, 2 and 3.

Conditions: A. A.C. Line Voltage: 117 volts
 B. Select channel No. 12
 C. Remove 6J6 tube V2.
 D. Install converter adaptor tube

E. Apply —3 volts bias to the I.F., A.G.C. bias (+ Red side of X6 rectifier)
 F. Adjust contrast control to maximum
 G. Turn all coil slugs and trimmers full out.

ALIGNMENT PROCEDURE

1. Set Channel Selector to Channel No. 12.
2. Apply 3-volts fixed battery bias to the I.F., A.G.C. bias, at the red (+) side of the A.G.C. limiting rectifier, or the junction of R74 and R75 or the ungrounded side of C33. Set contrast control to maximum.
3. Remove the 6J6 converter tube on the G.I. tuner and replace with special test adapter, consisting of a 6J6 with a 75 ohm resistor connected in series with the cathode, to ground. The I.F. fixed frequency or swept frequency signal is applied across this 75 ohm resistor.
4. Video I.F. and trap alignment. Note: (See chassis sketch for location of adjustments.) Use minimum strength of signal throughout this alignment. Adjust oscilloscope gain and R.F. signals so that pattern observed is just clear of noise level. Connect oscilloscope to 6V6 video output at J3 (green).
5. Using R.F. signal generator, with 50-100%, 400 cycle modulation, applied at converter test adapter, align trap condensers and stagger tuning slugs, as indicated:
 - (a) — at 20.1 Mc. adjust T2 and C181 traps for minimum.
 - (b) — at 27.6 Mc. “ C172 and C178 traps for minimum.
 - (c) — at 21.6 Mc. “ C175 trap for minimum.
 - (d) — at 22.65 Mc. “ T1 I.F. for maximum.
 - (e) — at 25.65 Mc. “ T7 I.F. for maximum.
 - (f) — at 22.15 Mc. “ T9 I.F. for maximum.
 - (g) — at 25.55 Mc. “ T11 I.F. for maximum.
 - (h) — at 23.75 Mc. “ T13 I.F. for maximum.
6. Recheck all trap adjustments. Since trap rejection ratio is very high, and traps tune very sharply, care must be exercised to avoid false dips due to overloading.

7. Apply the sound I.F. sweep signal (21.6 Mc. centre) to the test adapter and align the sound I.F. transformers in succession starting at T3, for maximum response at 21.6 Mc. with symmetry, at 21.6 Mc. and 21.7 Mc. markers. For this alignment, the oscilloscope is connected across the limiter grid resistor R6. Use a signal **just large enough** to give a clean trace on the oscilloscope, free of background set noise.
8. Remove the oscilloscope and reconnect it to the upper or "hot" end of volume control. At this point, observe the discriminator "S" curve. Align the primary and secondary of the discriminator transformer for maximum response with the zero crossover at 21.6 Mcs. The "S" curve should be symmetrical. Recheck (8) if necessary to correct lack of symmetry. Check "S" curve for horizontal vibration due to filament hum; if present, change 6AL5 discriminator tube and repeat 8.
9. Apply the video I.F. Sweep Signal (20-30 Mc.) to test adapter and connect oscilloscope to 6V6 video output at J3. Examine the overall I.F. selectivity curve. If the curve varies from the selectivity limits curve, corrections may be made by adjusting the 5th I.F. tuning and, if necessary, the 3rd and 4th as well, in order stated. If more than two turns are needed on any coil, recheck and readjust, if necessary, the associated trap tuning.
The selectivity curve must conform to the following specifications:
 - (a) Video carrier must be within the range of 50% to 60% of the average response at the top of the curve.
 - (b) The dip in the middle of the top of the response curve must not be less than 66% of the top of the curve for the I.F. response curve.
 - (c) The response at 22.4 Mc. must not be less than 90% of the average of the top of the curve.
10. Remove the converter adapter, replace the 6J6 converter tube. Apply the R.F. sweep signal to the antenna terminal on the tuner assembly and observe the overall selectivity curves. Check the tuner vernier on each channel to see that the vernier will tune the "own sound" rejection dip through the sound marker. If it does not, adjust the tuner oscillator slug for the band concerned (high or low band).
11. Check selectivity curves on R.F. on each channel on each band, removing the converter test adapter and replacing the 6J6 converter tube, and applying the R.F. sweep signal to the antenna terminals.
The selectivity curve must conform to the following specifications:
 - (a) Same as in Section No. 9.
 - (b) Same as in Section No. 9.
 - (c) The video passband as measured between the video carrier and the 90% response point on the 90% end must be greater than 3.8 Mc.
12. Antenna trap coils have been aligned in factory for maximum image rejection. These should not require realignment excepting in localities where interference from an FM station exists. In these cases, the traps are tuned to reject the interfering FM station.
13. Seal all iron cores with soft wax.

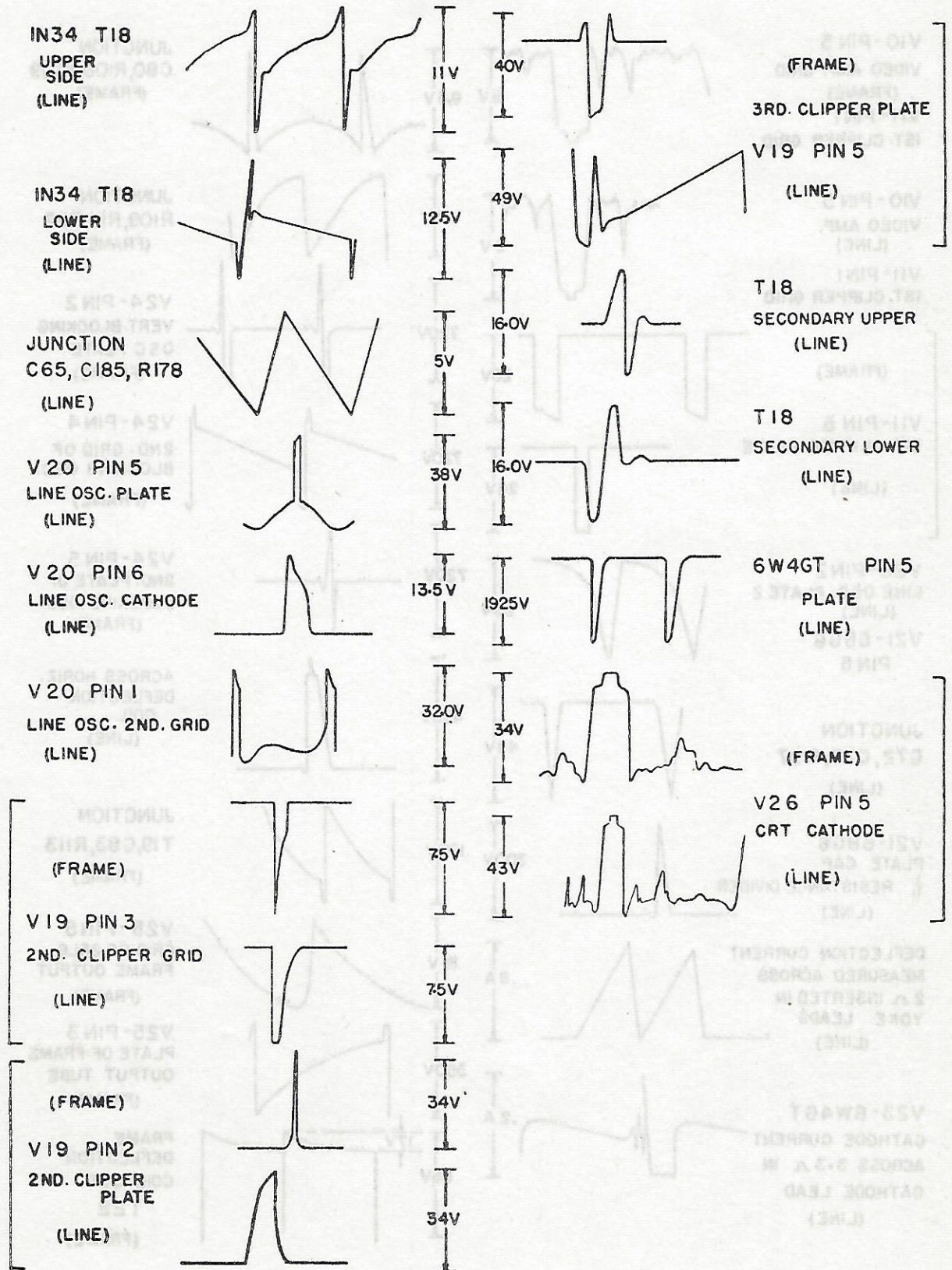
SENSITIVITY CHECK (Remove fixed bias)

- (a) **Video Channel** — Connect the AC voltmeter through a decoupling filter (as in Step 4 or alignment set-up, page 12), to the video output at the pin jack J3 and ground. Set contrast control to maximum. Apply the R.F. signal 30% 400 cycle modulation to the antenna terminals and tune for maximum AC voltmeter reading, using a signal of about 50-100 microvolts. Adjust signal microvolts for 3.0 volts R.M.S. output.

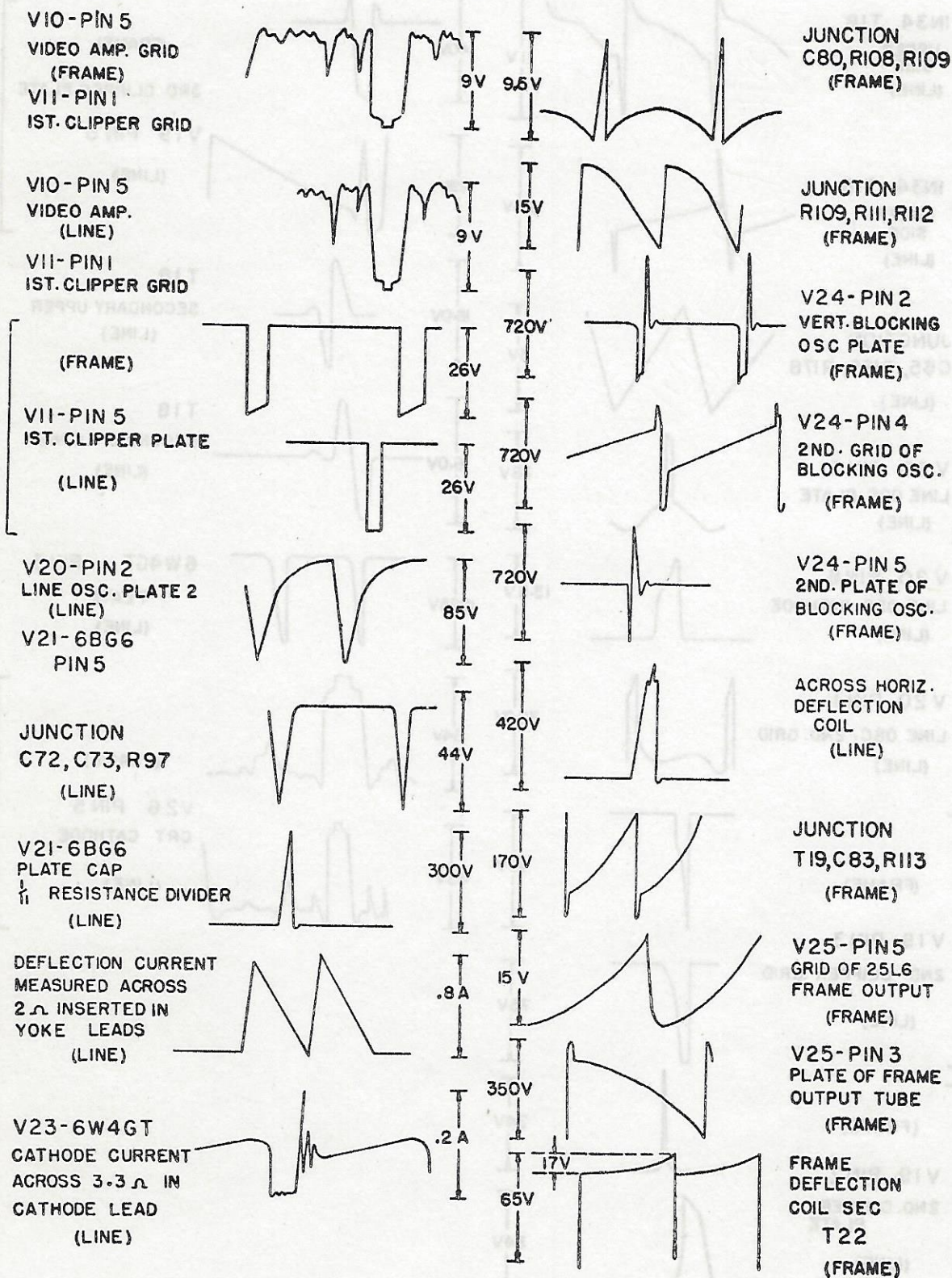
Limits: 100 uv maximum on all channels.

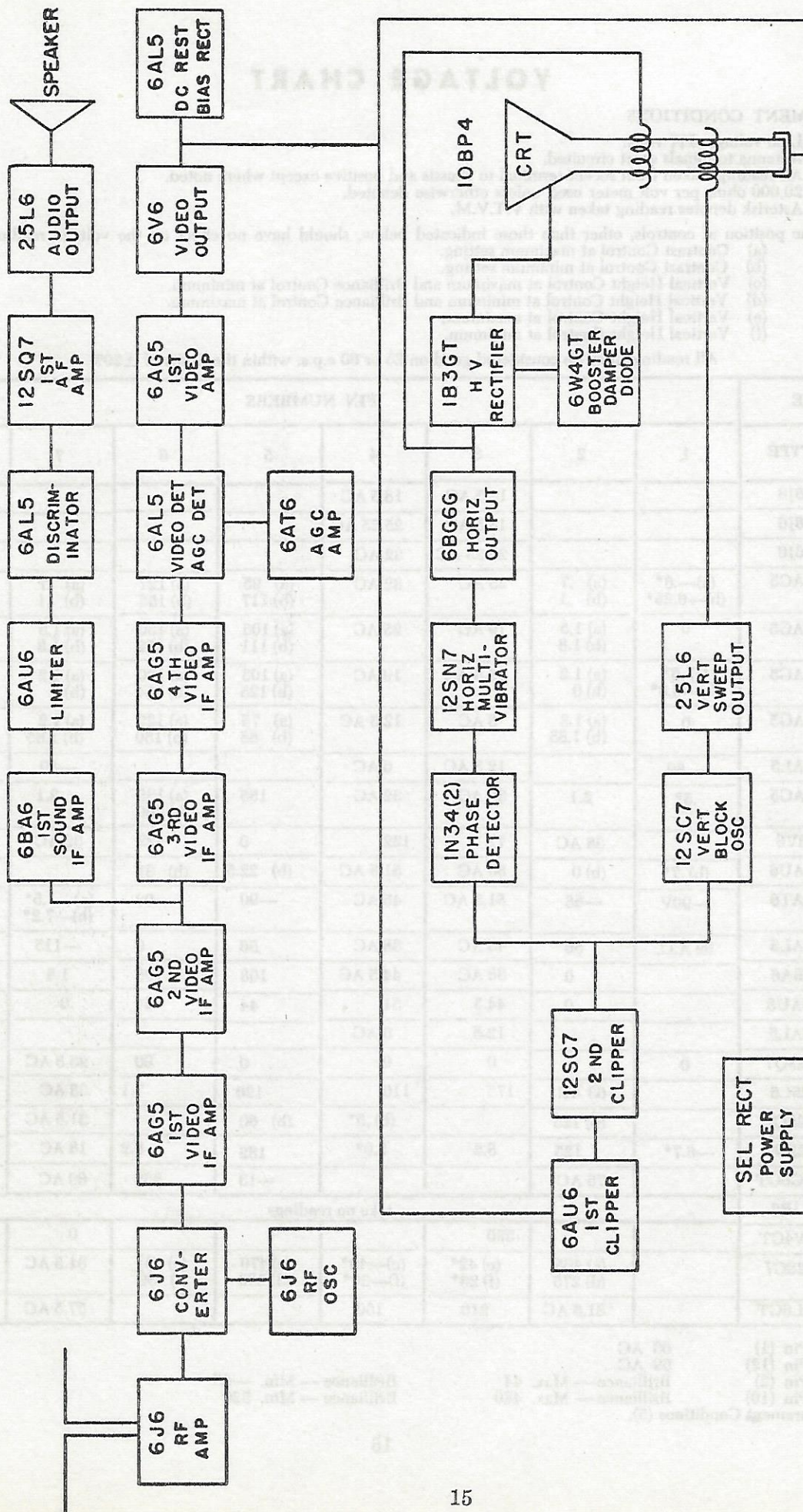
- (b) **Video Output** — Connect an oscilloscope to the video output in addition to the AC voltmeter. Adjust R.F. signal for 100,000 uv, 50% 400 cycle modulation on any one channel. The video output must not be less than 75 volts peak to peak, or 17.5 volts R.M.S. with no distortion as viewed on the oscilloscope when the receiver is tuned to receive the R.F. signal on the flat or average part of the curve.

WAVEFORMS



WAVEFORMS (CONTINUED)





BLOCK DIAGRAM OF TELEVISION RECEIVER

VOLTAGE CHART

MEASUREMENT CONDITIONS

- (1) Line voltage, 117 volts.
- (2) Antenna terminals short circuited.
- (3) All readings taken from socket terminal to chassis and positive except where noted.
- (4) 20,000 ohms per volt meter used unless otherwise denoted.
- (5) Asterisk denotes reading taken with V.T.V.M.

The position of controls, other than those indicated below, should have no effect on the voltage readings.

- (a) Contrast Control at maximum setting.
- (b) Contrast Control at minimum setting.
- (c) Vertical Height Control at maximum and Brilliance Control at minimum.
- (d) Vertical Height Control at minimum and Brilliance Control at maximum.
- (e) Vertical Height Control at maximum.
- (f) Vertical Height Control at minimum.

All readings may be considered good on 25 or 60 c.p.s. within the limits of $\pm 20\%$.

TUBE		PIN NUMBERS							
NO.	TYPE	1	2	3	4	5	6	7	8
1	6J6			12.5 AC	18.5 AC				
2	6J6			18.5 AC	25.25 AC				
3	6J6			25.25 AC	32 AC				
4	6AG5	(a) $-.6^\circ$ (b) -6.25°	(a) .7 (b) .1	25 AC	32 AC	(a) 95 (b) 117	(a) 127 (b) 153	(a) .7 (b) .1	
5	6AG5	0	(a) 1.5 (b) 1.8	19 AC	25 AC	(a) 105 (b) 111	(a) 130 (b) 152	(a) 1.5 (b) 1.8	
6	6AG5	(a) $.6^\circ$ (b) -6.6°	(a) 1.2 (b) 0	12.5 AC	19 AC	(a) 103 (b) 125	(a) 130 (b) 154	(a) 1.2 (b) 0	
7	6AG5	0	(a) 1.2 (b) 1.85	6 AC	12.5 AC	(a) 75 (b) 88	(a) 129 (b) 150	(a) 1.2 (b) 1.85	
8	6AL5	— 89		12.5 AC	6 AC			—89	
9	6AG5	$.5^\circ$	2.1	38 AC	32 AC	185	(a) 135 (b) 160	2.1	
10	6V6		38 AC	71	122	0	122	32 AC	8
11	6AU6	(b) $.7^\circ$	(b) 0	58 AC	51.5 AC	(b) 22.5	(b) 31		
12	6AT6	—90V	—88	51.5 AC	45 AC	—90	—90	(a) $-.5^\circ$ (b) -7.2°	
13	6AL5	92 A.C.	56	45 AC	38 AC	56	0	—115	
14	6BA6		0	38 AC	44.5 AC	108	108	1.5	
15	6AU6		0	44.5	51	44	44	0	
16	6AL5			12.5	6 AC				
17	12SQ7	0		0	0	0	90	25.5 AC	12.5 AC
18	25L6		63 AC	175	110	120	7.1	38 AC	
19	12SC7		(b) 125		(b) $.5^\circ$	(b) 60		31.5 AC	18 AC
20	12SN7	— 6.7°	125	8.2	2.0*	182	8.2	18 AC	6 AC
21	6BG6GT		75 AC			—13	232	69 AC	232
22	1B3	take no readings							
23	6W4GT			520				0	6 AC
24	12SC7		(c) 465 (d) 275	(c) 42° (f) 26°	(e) -49° (f) -30°	(c) 470 (d) 280	(e) 61 (f) 39	31.5 AC	18 AC
25	25L6GT		31.5 AC	210	130			57.5 AC	14.5

10BP4 Pin (1) 63 AC
Pin (12) 69 AC
Pin (2) Brilliance — Max. 44
Pin (10) Brilliance — Max. 480

Brilliance — Min. —65
Brilliance — Min. 520

* See Measurement Conditions (5).

REPLACEMENT PARTS LIST

For dependable repairs, use only genuine Philips Replacement Parts. When ordering always give model number of receiver and description, and part number of parts required.

CAPACITORS

No.	Value	Rating	Description	Part No.
C1	7 mmf.....		Ceramic	
C2	7 mmf.....		Ceramic	
C6	2000 mmf.....	500V.....	Dual Ceramic	514-013
C7		Fixed	Part of T3	
C8	2000 mmf.....	500V.....	Dual Ceramic	514-013
C9	120 mmf°.....	500V.....	Ceramic	514-317
C10		Fixed	Part of T4	
C11	1500 mmf.....	500V.....	Ceramic	514-330
C12		Fixed	Part of T5	
C13		Fixed	Part of T5-T6	
C14		Fixed	Part of T6	
C15	270 mmf°.....	500V.....	Ceramic	514-321
C16	.047 mf.....	400V.....	Tubular	515-521
C17	.01 mf.....	200V.....	Tubular	515-463
C18	.01 mf.....	200V.....	Tubular	515-463
C19	.01 mf.....	400V.....	Tubular	515-513
C20	.01 mf.....	600V.....	Tubular	515-563
C21	120 mmf°.....	500V.....	Ceramic	514-317
C22	1500 mmf.....	500V.....	Ceramic	514-330
C24	1500 mmf.....	500V.....	Ceramic	514-380
C25	2000 mmf.....	500V.....	Dual Ceramic	514-013
C26	2000 mmf.....	500V.....	Dual Ceramic	514-013
C27	120 mmf°.....	500V.....	Ceramic	514-317
C28	1500 mmf.....	500V.....	Triple Ceramic	514-014
C29	2000 mmf.....	500V.....	Dual Ceramic	514-013
C30	1500 mmf.....	500V.....	Triple Ceramic	514-014
C31	1500 mmf.....	500V.....	Triple Ceramic	514-014
C32	1500 mmf.....	500V.....	Triple Ceramic	514-014
C33	.056 mf.....	150V.....	Tubular	515-472
C34	120 mmf°.....	500V.....	Ceramic	514-317
C35	1500 mmf.....	500V.....	Triple Ceramic	514-014
C36	1500 mmf.....	500V.....	Triple Ceramic	514-014
C37	50 mf.....	350V.....	Triple Electrolytic	Part of 516-530
C38	2000 mmf.....	500V.....	Dual Ceramic	514-013
C40	120 mmf°.....	500V.....	Ceramic	514-317
C41	10 mmf.....	500V.....	Ceramic G.P.	514-354
C42	2000 mmf.....	500V.....	Dual Ceramic	514-013
C43	1500 mmf.....	500V.....	Ceramic	514-330
C44	1500 mmf.....	500V.....	Ceramic	514-330
C45	330 mmf.....	500V.....	Ceramic	514-322
C46	50mf.....	350V.....	Triple Electrolytic	Part of 516-530
C47	.047 mf.....	400V.....	Tubular	515-521
C48	680 mmf°.....	500V.....	Ceramic	514-326
C49	1000 mmf.....	500V.....	Ceramic	514-378
C50	5 mf.....	150V.....	Electrolytic	516-040
C51	33 mmf.....	500V.....	Ceramic G.P.	514-360
C52	22 mmf.....	500V.....	Ceramic	514-358
C54	40 mf.....	150V.....	Electrolytic	516-049
C55	50 + 50 mf.....	355V.....	Electrolytic	516-528
C57	.01 mf.....	200V.....	Tubular	515-463
C58	.1 mf.....	150V.....	Tubular	515-009
C59	.5 mf.....	150V.....	Tubular	515-006
C60	270 mmf°.....	500V.....	Ceramic	514-321
C61	270 mmf°.....	500V.....	Ceramic	514-321
C62	330 mmf°.....	500V.....	Ceramic	514-322
C63	1000 mmf.....	500V.....	Ceramic	514-378
C64	1000 mmf.....	500V.....	Ceramic	514-378
C65	.01 mf.....	400V.....	Tubular	515-513
C66	.0056 mf.....	600V.....	Tubular	515-559
C68	.01 mf°.....	500V.....	Mica	512-449
C69	250 mmf°.....	500V.....	Mica	512-515
C70	25 mf.....	500V.....	Dual Electrolytic	Part of 516-526
C71	2200 mmf°.....	500V.....	Ceramic	514-332
C72	2200 mmf°.....	500V.....	Ceramic	514-332
C73	140-600 mmf.....		Trimmer	511-041
C74	2200 mmf.....	500V.....	Ceramic	514-382
C76	400 mmf°.....	500V.....	Mica	512-518
C77	400 mmf°.....	500V.....	Mica	512-518
C78	12.5 + 12.5 mf.....	355V.....	Dual Electrolytic	516-525
C79	3300 mmf.....	500V.....	Ceramic	514-384
C80	3300 mmf.....	500V.....	Ceramic	514-384
C81	1 mf.....	150V.....	Tubular	515-007
C82	1500 mmf.....	500V.....	Ceramic	514-380
C83	.1 mf°.....	400V.....	Tubular	515-525
C84	4 mf.....	450V.....	Electrolytic	516-042
C85	25 mf.....	500V.....	Dual Electrolytic	Part of 516-526
C86	68 mmf.....	800V.....	Mica	512-070
C88	.22 mf.....	200V.....	Tubular	515-479
C89	100 mf.....	25V.....	Electrolytic	516-045
C90	50 mf.....	355V.....	Dual Electrolytic	Part of 516-528
C91	.056 mf.....	400V.....	Tubular	515-522
C92	.1 mf.....	400V.....	Tubular	515-525
C94	1500 mmf.....	500V.....	Ceramic	514-330
C95	1500 mmf.....	500V.....	Ceramic	514-330
C96	2000 mmf.....	500V.....	Dual Ceramic	514-013
C97	1500 mmf.....	500V.....	Ceramic	514-330
C98	1500 mmf.....	500V.....	Ceramic	514-330
C99	1500 mmf.....	500V.....	Ceramic	514-330

CAPACITORS (Continued)

No.	Value	Rating	Description	Part No.
C100	2000 mmf.	500V.	Dual Ceramic	514-013
C101	2000 mmf.	500V.	Dual Ceramic	514-013
C102	125 + 125 mf.	150V.	Dual Electrolytic	516-527
C103	125 + 125 mf.	150V.	Dual Electrolytic	516-527
C104	125 + 125 mf.	150V.	Dual Electrolytic	516-527
C105	125 + 125 mf.	150V.	Dual Electrolytic	516-527
C106	50 + 50 mf.	355V.	Dual Electrolytic	516-528
C107	50 + 50 mf.	355V.	Dual Electrolytic	516-528
C108	50 + 50 mf.	355V.	Dual Electrolytic	516-528
C109	50 + 50 mf.	355V.	Dual Electrolytic	516-528
C110	50 + 50 mf.	355V.	Dual Electrolytic	516-528
C111	50 mf.	355V.	Dual Electrolytic	Part of 516-528
C112	125 + 125 mf.	150V.	Dual Electrolytic	516-527
C113	125 + 125 mf.	150V.	Dual Electrolytic	516-527
C114	2000 mmf.	500V.	Dual Ceramic	514-013
C115	120 mmf.	500V.	Ceramic	514-317
C116	330 mmf.	500V.	Mica	512-042
C117	330 mmf.	500V.	Mica	512-042
C127			Low Band Antenna Variable	
C128			Low Band Antenna Trimmer	
C129			Low Band Antenna Trimmer	
C130			High Band Antenna Variable	
C131			High Band Antenna Trimmer	
C132			High Band Antenna Trimmer	
C133			Low Band Converter Variable	
C134			Low Band Converter Trimmer	
C135			Low Band Converter Trimmer	
C136			High Band Converter Variable	
C137			High Band Converter Trimmer	
C138			High Band Converter Trimmer	
C139			Low Band Oscillator Variable	
C140			Low Band Oscillator Tune	
C141			High Band Oscillator Variable	
C142			High Band Oscillator Tune	
C148	1500 mmf.	500V.	Ceramic	Part of R.F. Tuner Unit
C149	1500 mmf.	500V.	Ceramic	
C150	1500 mmf.	500V.	Ceramic	
C151	1500 mmf.	500V.	Ceramic	
C152	1.5 mmf.		Ceramic	
C153	1.5 mmf.		Ceramic	
C154	1500 mmf.		Ceramic	
C155	1500 mmf.		Ceramic	
C156	500 mmf.		Ceramic	
C157	4.7 mmf.		Ceramic	
C158	4.7 mmf.		Ceramic	
C159	300 mmf.		Ceramic	Part of T2
C160	300 mmf.		Ceramic	
C161	1500 mmf.		Ceramic	
C162	330 mmf.		Ceramic	
C164	102 mmf.		Ceramic	Part of T2
C166	50mf.	50V	Electrolytic	
C168	2000 mmf.	500V.	Dual Ceramic	514-013
C169	500 mmf.	10,000V.	High Voltage Type	519-018
C170	15 mf.	350V.	Triple Electrolytic	Part of 516-530
C171	.12 mf.	200V.	Tubular	515-676
C172	30 mmf.		Adjustable Trimmer	Part of T7-T8
C173	22 mmf.		Ceramic	
C174	22 mmf.		Ceramic	
C175	30 mmf.		Adjustable Trimmer	Part of T9-T10
C176	22 mmf.		Ceramic	
C177	22 mmf.		Ceramic	
C178	30 mmf.		Adjustable Trimmer	Part of T11-T12
C179	22 mmf.		Ceramic	
C180	22 mmf.		Ceramic	
C181	30 mmf.		Adjustable Trimmer	Part of T13-T14
C182	22 mmf.		Ceramic	
C183	22 mmf.		Ceramic	
C185	.01 mf.	200V.	Tubular	515-463
C186	1000 mmf.	500V.	Ceramic	514-378
C187	.22 mf.	200V.	Tubular	515-479
C188	.1 mf.	150V.	Tubular	515-009
C189	.1 mf.	400V.	Tubular	515-525
C190	.5 mf.	150V.	Tubular	515-008
C192	2200 mmf.	500V.	Ceramic	514-382

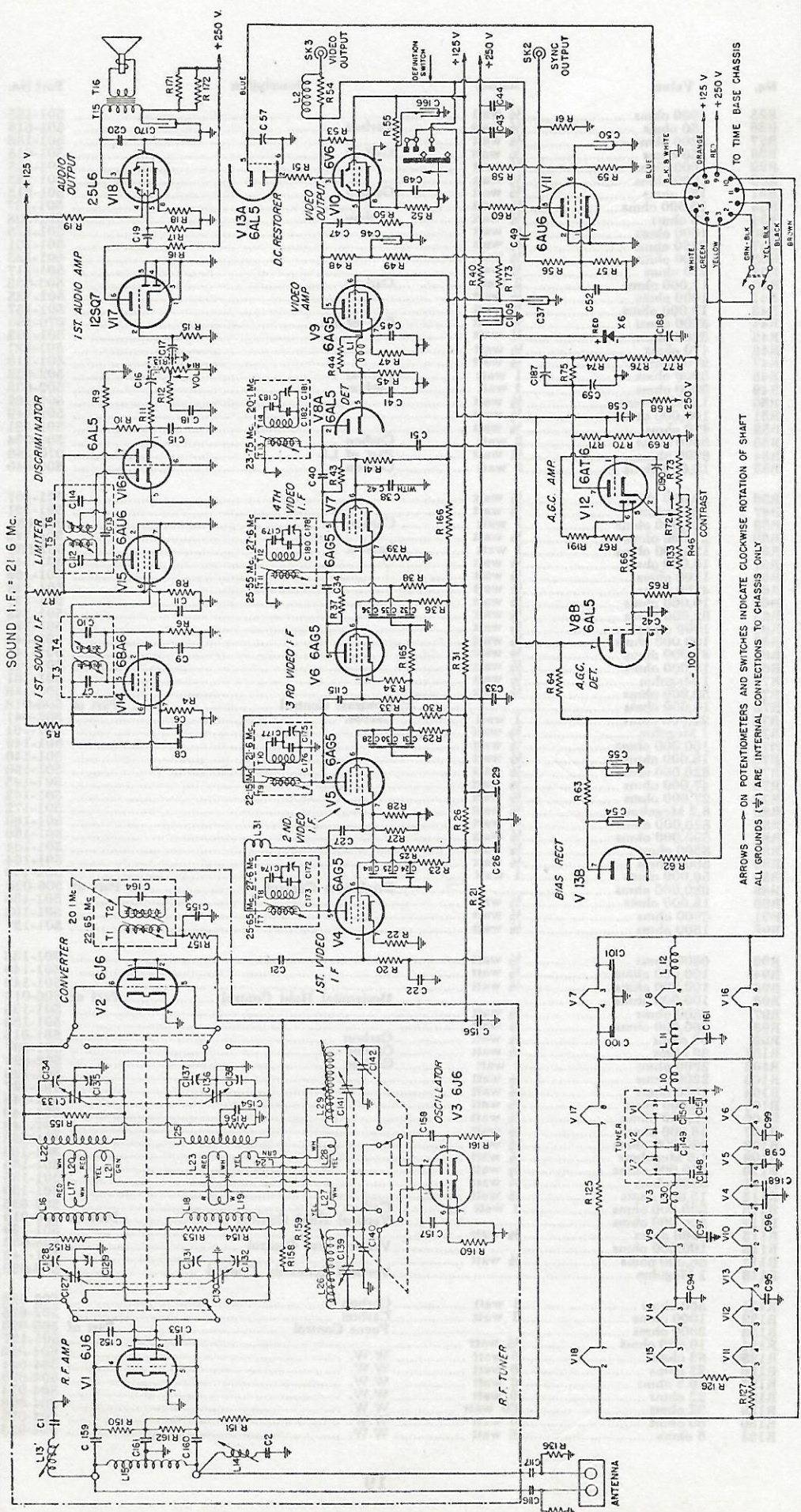
• Tolerance $\pm 10\%$

RESISTORS

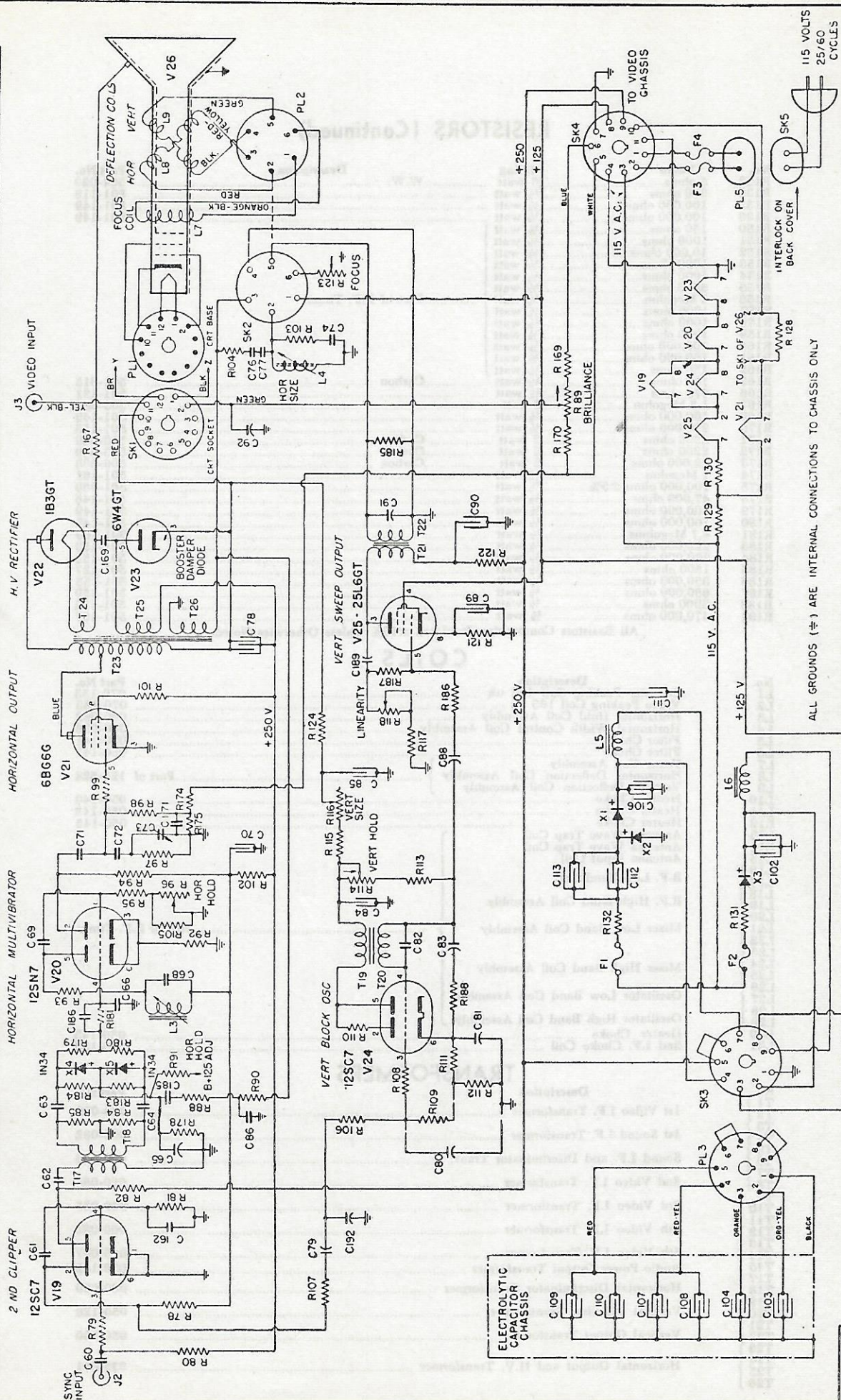
No.	Value	Rating	Description	Part No.
R4	100 ohms	$\frac{1}{2}$ watt	Carbon	501-613
R5	1000 ohms	$\frac{1}{2}$ watt	Carbon	501-125
R6	22,000 ohms	$\frac{1}{2}$ watt	Carbon	501-141
R7	10,000 ohms	1 watt	Carbon	502-637
R8	10,000 ohms	1 watt	Carbon	502-637
R9	100,000 ohms	$\frac{1}{2}$ watt	Carbon	501-149
R10	100,000 ohms	$\frac{1}{2}$ watt	Carbon	501-149
R11	100,000 ohms	$\frac{1}{2}$ watt	Carbon	501-149
R12	22,000 ohms	$\frac{1}{2}$ watt	Carbon	501-141
R13	750,000 ohms			
R14	250,000 ohms			
R15	10 Megohms	$\frac{1}{2}$ watt	Volume Control	Part of 506-018
R16	330,000 ohms	$\frac{1}{2}$ watt		501-173
R17	470,000 ohms	$\frac{1}{2}$ watt		501-155
R18	150 ohms	1 watt	Carbon	501-157
R19	8200 ohms	$\frac{1}{2}$ watt		502-615
R20	4700 ohms	$\frac{1}{2}$ watt		501-136
R21	470 ohms	$\frac{1}{2}$ watt		501-133
R22	39 ohms	$\frac{1}{2}$ watt	Carbon	501-121
R23	1000 ohms	$\frac{1}{2}$ watt	Carbon	501-608

No.	Value	Rating	Description	Part No.
R25	1000 ohms	$\frac{1}{2}$ watt		501-125
R26	150 ohms	$\frac{1}{2}$ watt	Carbon	501-615
R27	8200 ohms	$\frac{1}{2}$ watt		501-136
R28	150 ohms	$\frac{1}{2}$ watt	Carbon	501-615
R29	1000 ohms	$\frac{1}{2}$ watt		501-125
R30	1000 ohms	$\frac{1}{2}$ watt		501-125
R31	150 ohms	$\frac{1}{2}$ watt	Carbon	501-615
R33	10,000 ohms	$\frac{1}{2}$ watt		501-137
R34	39 ohms	$\frac{1}{2}$ watt	Carbon	501-608
R36	1000 ohms	$\frac{1}{2}$ watt		501-125
R37	3300 ohms	$\frac{1}{2}$ watt		501-131
R38	1000 ohms	$\frac{1}{2}$ watt		501-125
R39	220 ohms	$\frac{1}{2}$ watt		501-117
R40	12,000 ohms	2 watt	Carbon	503-338
R41	1000 ohms	$\frac{1}{2}$ watt		501-125
R43	10,000 ohms	$\frac{1}{2}$ watt		501-137
R44	8200 ohms	$\frac{1}{2}$ watt	Part of L1	070-153
R45	3900 ohms	$\frac{1}{2}$ watt		501-132
R46	470 ohms	$\frac{1}{2}$ watt		501-121
R47	270 ohms	$\frac{1}{2}$ watt		501-118
R48	3900 ohms	1 watt	Carbon	502-632
R49	3900 ohms	1 watt	Carbon	502-632
R50	1.2 Megohms	$\frac{1}{2}$ watt		501-162
R51	100,000 ohms	$\frac{1}{2}$ watt		501-149
R52	470 ohms	$\frac{1}{2}$ watt		501-121
R53	5600 ohms	2 watt	Carbon	503-334
R54	8200 ohms	$\frac{1}{2}$ watt	Part of L2	070-153
R55	18,000 ohms	2 watt	Carbon	503-340
R56	10,000 ohms	$\frac{1}{2}$ watt		501-137
R57	1 Megohm	$\frac{1}{2}$ watt		501-161
R58	150,000 ohms	1 watt	Carbon	502-651
R59	27,000 ohms	$\frac{1}{2}$ watt		501-142
R60	120,000 ohms	1 watt	Carbon	502-650
R61	18,000 ohms	$\frac{1}{2}$ watt		501-140
R62	1200 ohms	$\frac{1}{2}$ watt		501-126
R63	4700 ohms	$\frac{1}{2}$ watt		501-133
R64	10,000 ohms	$\frac{1}{2}$ watt		501-137
R65	82,000 ohms	$\frac{1}{2}$ watt		501-148
R66	1000 ohms	$\frac{1}{2}$ watt		501-125
R67	100,000 ohms	$\frac{1}{2}$ watt		501-149
R68	47,000 ohms	$\frac{1}{2}$ watt		501-145
R69	15,000 ohms	$\frac{1}{2}$ watt		501-139
R70	1 Megohm	$\frac{1}{2}$ watt		501-161
R71	56,000 ohms	$\frac{1}{2}$ watt		501-148
R72	10,000 ohms		Contrast Control	Part of 506-018
R73	22,000 ohms	1 watt	Carbon	502-641
R74	1 Megohm	$\frac{1}{2}$ watt		501-161
R75	100,000 ohms	$\frac{1}{2}$ watt		501-149
R76	18,000 ohms	$\frac{1}{2}$ watt		501-140
R77	820,000 ohms	$\frac{1}{2}$ watt		501-160
R78	47,000 ohms	$\frac{1}{2}$ watt		501-145
R79	27,000 ohms	$\frac{1}{2}$ watt		501-142
R80	8.2 Megohms	$\frac{1}{2}$ watt		501-172
R81	820,000 ohms	$\frac{1}{2}$ watt		501-160
R82	390,000 ohms	$\frac{1}{2}$ watt		501-156
R84	5600 ohms	$\frac{1}{2}$ watt		501-134
R85	5600 ohms	$\frac{1}{2}$ watt		501-134
R88	56,000 ohms	1 watt		502-146
R89	680,000 ohms		Brightness Control	Part of 506-020
R90	12,000 ohms	$\frac{1}{2}$ watt		501-138
R91	3900 ohms	$\frac{1}{2}$ watt		501-168
R92	1500 ohms	$\frac{1}{2}$ watt		501-127
R93	6800 ohms	$\frac{1}{2}$ watt		501-135
R94	100,000 ohms	$\frac{1}{2}$ watt		501-149
R95	100,000 ohms	$\frac{1}{2}$ watt		501-149
R96	100,000 ohms		Horizontal Hold Control	Part of 506-019
R97	6800 ohms	$\frac{1}{2}$ watt		501-135
R98	560,000 ohms	$\frac{1}{2}$ watt		501-158
R99	82 ohms	$\frac{1}{2}$ watt	Carbon	501-612
R101	33 ohms	$\frac{1}{2}$ watt	Carbon	501-607
R102	2200 ohms	1 watt	Carbon	502-629
R103	2200 ohms	$\frac{1}{2}$ watt		501-129
R104	1500 ohms	$\frac{1}{2}$ watt		501-127
R105	82,000 ohms	$\frac{1}{2}$ watt		501-148
R106	56,000 ohms	$\frac{1}{2}$ watt		501-146
R107	56,000 ohms	$\frac{1}{2}$ watt		501-146
R108	220,000 ohms	$\frac{1}{2}$ watt		501-153
R109	1.5 Megohms	$\frac{1}{2}$ watt		501-163
R110	220,000 ohms	$\frac{1}{2}$ watt		501-153
R111	6800 ohms	$\frac{1}{2}$ watt		501-135
R112	15,000 ohms	$\frac{1}{2}$ watt		501-139
R113	330,000 ohms	1 watt	Carbon	502-655
R114	200,000 ohms		Vertical Hold Control	Part of 506-019
R115	2200 ohms	$\frac{1}{2}$ watt		501-129
R116	100,000 ohms		Vertical Size Control	505-032
R117	56,000 ohms	$\frac{1}{2}$ watt		501-146
R118	1 Megohm		Vertical Linearity Control	505-033
R121	560 ohms	1 watt	Carbon	502-622
R122	1000 ohms	1 watt	Carbon	502-625
R123	2000 ohms		Focus Control	Part of 506-020
R124	10,000 ohms	$\frac{1}{2}$ watt		501-137
R125	82 ohms	6 watt	W.W.	504-022
R126	22 ohms	6 watt	W.W.	504-024
R127	10.5 ohms	6 watt	W.W.	504-020
R128	22 ohms	6 watt	W.W.	504-024
R129	32 ohms	60 watt	W.W.	504-028
R130	60 ohms	6 watt	W.W.	504-025
R131	5 ohms	6 watt	W.W.	504-023

F1	13, 14, 15	L16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 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164	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000
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	L1	17	18	L3	L6	L5	L7	L8	L9				
C	60,103,104,107-110,	61,79	162,192,	65,67,65,79,80,63,64,185,	186,81,66,86,	68,82,83,69,84,113,102,70,71,72,73,71,106,6,	85	88	23,24,25,26	21	22		
R	80,79,76	81,82	83,84,85,183,184,79,	180,181,95,91,93	92,105,95,96,94,102,97,98,175,99,174	101	101	101	92	76,77,74			
P	107	106,178,109,105,111,112,110,186,	131,132,114,115,113	116	117	118,124,186,187	120,121	122	129	130	170,89,169	129	



RESISTORS (Continued)

No.	Value	Rating	Description	Part No.
R132	5 ohms	8 watt	W.W.	504-023
R133	330 ohms	1/2 watt		501-119
R135	100,000 ohms	1/2 watt		501-149
R136	100,000 ohms	1/2 watt		501-149
R150	150 ohms	1/2 watt		
R151	1000 ohms	1/2 watt		
R152	10,000 ohms	1/2 watt		
R153	1000 ohms	1/2 watt		
R154	1000 ohms	1/2 watt		
R155	5600 ohms	1/2 watt		
R156	1 Megohm	1/2 watt	Part of R.F. Tuner	
R157	1000 ohms	1/2 watt		
R158	1000 ohms	1/2 watt		
R159	1000 ohms	1/2 watt		
R160	100,000 ohms	1/2 watt		
R161	100,000 ohms	1/2 watt		
R162	150 ohms	1/2 watt		
R165	150 ohms	1/2 watt		
R166	470 ohms	1/2 watt	Carbon	501-615
R167	1.5 Megohm	2 watt		501-121
R169	100,000 ohms	1/2 watt		503-363
R170	220,000 ohms	1/2 watt		501-149
R171	2200 ohms	2 watt	Carbon	501-153
R172	2200 ohms	2 watt	Carbon	503-329
R173	12,000 ohms	2 watt	Carbon	503-329
R174	1 Megohm	1/2 watt	Carbon	503-338
R175	100,000 ohms $\pm 5\%$	1/2 watt		501-161
R178	47,000 ohms	1/2 watt		501-069
R179	100,000 ohms	1/2 watt		501-145
R180	100,000 ohms	1/2 watt		501-149
R181	4.7 Megohms	1/2 watt		501-169
R183	220,000 ohms	1/2 watt		501-153
R184	220,000 ohms	1/2 watt		501-153
R185	1500 ohms	1/2 watt		501-127
R186	330,000 ohms	1/2 watt		501-155
R187	680,000 ohms	1/2 watt		501-159
R188	3900 ohms	1/2 watt		501-132
R191	470,000 ohms	1/2 watt		501-157

All Resistors Composition Insulated $\pm 10\%$ Unless Otherwise Noted.

COILS

No.	Description	Part No.
L1	Detector Peaking Coil 165 uh	070-153
L2	Video Peaking Coil 165 uh	070-153
L3	Horizontal Hold Coil Assembly	060-098
L4	Horizontal Width Control Coil Assembly	060-088
L5	Filter Choke	050-141
L6	Filter Choke	050-141
L7	Focus Coil Assembly	
L8	Horizontal Deflection Coil Assembly	Part of 120-524
L9	Vertical Deflection Coil Assembly	
L10	Heater Choke	050-143
L11	Heater Choke	050-143
L12	Heater Choke	050-143
L13	Antenna Wave Trap Coil	
L14	Antenna Wave Trap Coil	
L15	Antenna Input Coil	
L16	R.F. Low Band Coil	
L17		
L18		
L19	R.F. High Band Coil Assembly	
L20		
L21	Mixer Low Band Coil Assembly	Part of R.F. Tuner
L22		
L23		
L24	Mixer High Band Coil Assembly	
L25		
L26		
L27	Oscillator Low Band Coil Assembly	
L28		
L29	Oscillator High Band Coil Assembly	
L30	Heater Choke	050-143
L31	2nd I.F. Choke Coil	070-183

TRANSFORMERS

No.	Description	Part No.
T1		
T2	1st Video I.F. Transformer	060-092
T3		
T4	1st Sound I.F. Transformer	060-082
T5		
T6	Sound I.F. and Discriminator Trans.	060-083
T7		
T8	2nd Video I.F. Transformer	060-084
T9		
T10	3rd Video I.F. Transformer	060-085
T11		
T12	4th Video I.F. Transformer	060-086
T13		
T14	5th Video I.F. Transformer	060-087
T15	Audio Power Output Transformer	050-142
T17		
T18	Horizontal Discriminator Transformer	060-090
T19		
T20	Vertical Blocking Transformer	050-129
T21		
T22	Vertical Output Transformer	050-130
T23		
T24		
T25	Horizontal Output and H.V. Transformer	053-091
T26		

MISCELLANEOUS PARTS FOR DV1050

Part No.	Description	Part No.	Description
120-522	Antenna Terminal Panel Assembly	120-553	H.V. Anode Connector & Lead Assembly, 6BG6G
303-178	Antenna Line Support	571-196	H.V. Connector Snap-In for CRT
120-567	Back Cover and Interlock Assembly	572-071	Knob, Large
303-205	Back Cover only, Table Viewer	572-072	Knob, Large, Channel Indicator
303-189	Bottom Plate	572-083	Knob, Small
030-137	Cabinet Table Viewer, DV1050	572-073	Knob, Single (Rear Controls)
300-922	Chassis Grounding Strap, Sides	100-003	Line Cord and Plug
300-923	Chassis Grounding Strap, Front	571-197	Line Cord Interlock Plug
100-545	Cable Assembly, 2-Conductor Shielded	571-198	Line Cord Interlock Socket
120-550	Cable Assembly with 9-prong plug	120-520	Pin Jack and Lead Assembly, Yellow
120-523	Cable Assembly with 11-prong plug	120-575	Pin Jack and Lead Assembly, Green
332-581	CRT Metal Mask	120-576	Pin Jack and Lead Assembly, Black
325-027	CRT Rubber Support Channel	571-195	Plug, Single Prong Male, Yellow
120-541	CRT Web Strap Assembly	571-190	Plug, Single Prong Male, Green
525-036	CRT Web Strap Hook Bolt	571-187	Plug, 6-contact
531-015	CRT Web Strap Wing Nut	571-177	Plug, 9-contact with cover
130-047	CRT Ion Trap Magnet (Beam Bender)	571-180	Plug, 11-contact
120-519	CRT Socket and Cable Assembly	642-003	Rectifier, Selenium Diode
621-006	CRT Rubber Mounting Pad	120-616	Rectifier, 1N34 Germanium Crystal Assembly (Matched Pair)
120-524	Deflection Yoke and Plug Assembly	130-044	Rectifier, Selenium, 400 mA
525-037	Deflection Yoke Mounting Bolt 1/4-20	313-024	Shaft, Extension 1/4 x 8 1/4
531-018	Deflection Yoke Wing Nut 1/4-20	310-169	Shaft, Coupling for 1/4" shaft
531-021	Deflection Yoke Wing Nut 8-32	571-186	Socket, Single Contact (Yellow)
540-513	Electrolytic Capacitor Washer	571-185	Socket, Single Contact (Green)
503-186	Electrolytic Capacitor Insulated Washer	544-010	Socket, Retainer Ring for above
531-020	Electrolytic Capacitor Mounting Nut	570-014	Socket, 6-prong
332-587	Escutcheon Glass, DV1050	570-015	Socket, 9-prong
332-591	Escutcheon Knob Function, Top	570-016	Socket, 11-prong
332-596	Escutcheon Knob Function, Bottom	570-023	Socket, 12-prong
646-012	Fuse, 2 amp. 3AG, 250V	570-001	Socket, Tube Octal
646-013	Fuse, 5 amp. 3AG, 250V	570-021	Socket, Miniature 7-prong
571-188	Fuse Holder	041-081	Speaker 5" x 7"
120-551	H.V. Lead Assembly 10" tube	620-559	Speaker Leads and Sleeve Assembly
303-203	H.V. Rectifier Insulating Cover	080-100	Switch, Definition
571-193	H.V. Rectifier Plug Cover	130-043	Tuner Chassis Assembly
120-557	H.V. Resistor Mounting Platform	632-009	Tuner Chassis Mounting Grommets
120-552	H.V. Anode Connector & Lead Assembly, 1B3GT	542-022	Washer (Resistor Insulating)

MISCELLANEOUS PARTS FOR VR1039

Part No.	Description	Part No.	Description
120-522	Antenna Terminal Panel Assembly	120-553	H.V. Anode Connector & Lead Assembly, 6BG6G
303-178	Antenna Line Support	571-196	H.V. Connector Snap-In for CRT
120-558	Back Cover and Interlock Assembly	572-071	Knob, Large
303-205	Back Cover only, Table Viewer	572-072	Knob, Large, Channel Indicator
303-189	Bottom Plate	572-083	Knob, Small
030-135	Cabinet Table Viewer, VR1039	572-073	Knob, Single (Rear Controls)
300-922	Chassis Grounding Strap, Sides	100-003	Line Cord and Plug
300-923	Chassis Grounding Strap, Front	571-197	Line Cord Interlock Plug
100-545	Cable Assembly, 2-Conductor Shielded	571-198	Line Cord Interlock Socket
120-550	Cable Assembly with 9-prong plug	120-520	Pin Jack and Lead Assembly, Yellow
120-523	Cable Assembly with 11-prong plug	120-575	Pin Jack and Lead Assembly, Green
332-581	CRT Metal Mask	120-576	Pin Jack and Lead Assembly, Black
325-027	CRT Rubber Support Channel	571-195	Plug, Single Prong Male, Yellow
120-541	CRT Web Strap Assembly	571-190	Plug, Single Prong Male, Green
525-036	CRT Web Strap Hook Bolt	571-187	Plug, 6-contact
531-015	CRT Web Strap Wing Nut	571-177	Plug, 9-contact with cover
130-047	CRT Ion Trap Magnet (Beam Bender)	571-180	Plug, 11-contact
120-519	CRT Socket and Cable Assembly	642-003	Rectifier, Selenium Diode
621-006	CRT Rubber Mounting Pad	120-616	Rectifier, 1N34 Germanium Crystal Assembly (Matched Pair)
120-524	Deflection Yoke and Plug Assembly	130-044	Rectifier, Selenium, 400 mA
525-037	Deflection Yoke Mounting Bolt 1/4-20	313-024	Shaft, Extension 1/4 x 8 1/4
531-018	Deflection Yoke Wing Nut 1/4-20	310-169	Shaft, Coupling for 1/4" shaft
531-021	Deflection Yoke Wing Nut 8-32	571-186	Socket, Single Contact (Yellow)
540-513	Electrolytic Capacitor Washer	571-185	Socket, Single Contact (Green)
503-186	Electrolytic Capacitor Insulated Washer	544-010	Socket, Retainer Ring for above
531-020	Electrolytic Capacitor Mounting Nut	570-014	Socket, 6-prong
332-579	Escutcheon Glass, VR1039	570-015	Socket, 9-prong
332-590	Escutcheon Knob Function, Top	570-016	Socket, 11-prong
332-595	Escutcheon Knob Function, Bottom	570-023	Socket, 12-prong
646-012	Fuse, 2 amp. 3AG, 250V	570-001	Socket, Tube Octal
646-013	Fuse, 5 amp. 3AG, 250V	570-021	Socket, Miniature 7-prong
571-188	Fuse Holder	041-081	Speaker 5" x 7"
120-551	H.V. Lead Assembly 10" tube	620-559	Speaker Leads and Sleeve Assembly
303-203	H.V. Rectifier Insulating Cover	080-100	Switch, Definition
571-193	H.V. Rectifier Plug Cover	130-043	Tuner Chassis Assembly
120-557	H.V. Resistor Mounting Platform	632-009	Tuner Chassis Mounting Grommets
120-552	H.V. Anode Connector & Lead Assembly, 1B3GT	542-022	Washer (Resistor Insulating)

MODELS DV1250 and VR1239

These models employ twelve inch 12LP4A picture tubes. With the exception of the cabinets and associated parts, they are basically the same as the DV1050 and VR1039 television receivers. The tuner chassis of the DV1250 and VR1239 are identical to the tuner chassis of the DV1050 and VR1039. The time base chassis is identical to the time base chassis of the DV1050 and VR1039 with the exception of C169. On DV1250 and VR1239, C169 is a 20,000 volt condenser connected from pin 2 of the 1B3GT to pin 3 of SK2. Refer to schematic diagram No. 651-084-4 for the time base chassis, which is attached herewith.

For all service information other than the wiring of the time base chassis and cabinet parts refer to the DV1050 Service Manual.

REPLACEMENT PARTS FOR DV1250

All parts listed in the DV1050 Service Manual may be ordered for the DV1250 receiver with the exception of the parts listed below which replace corresponding parts in the DV1050 manual.

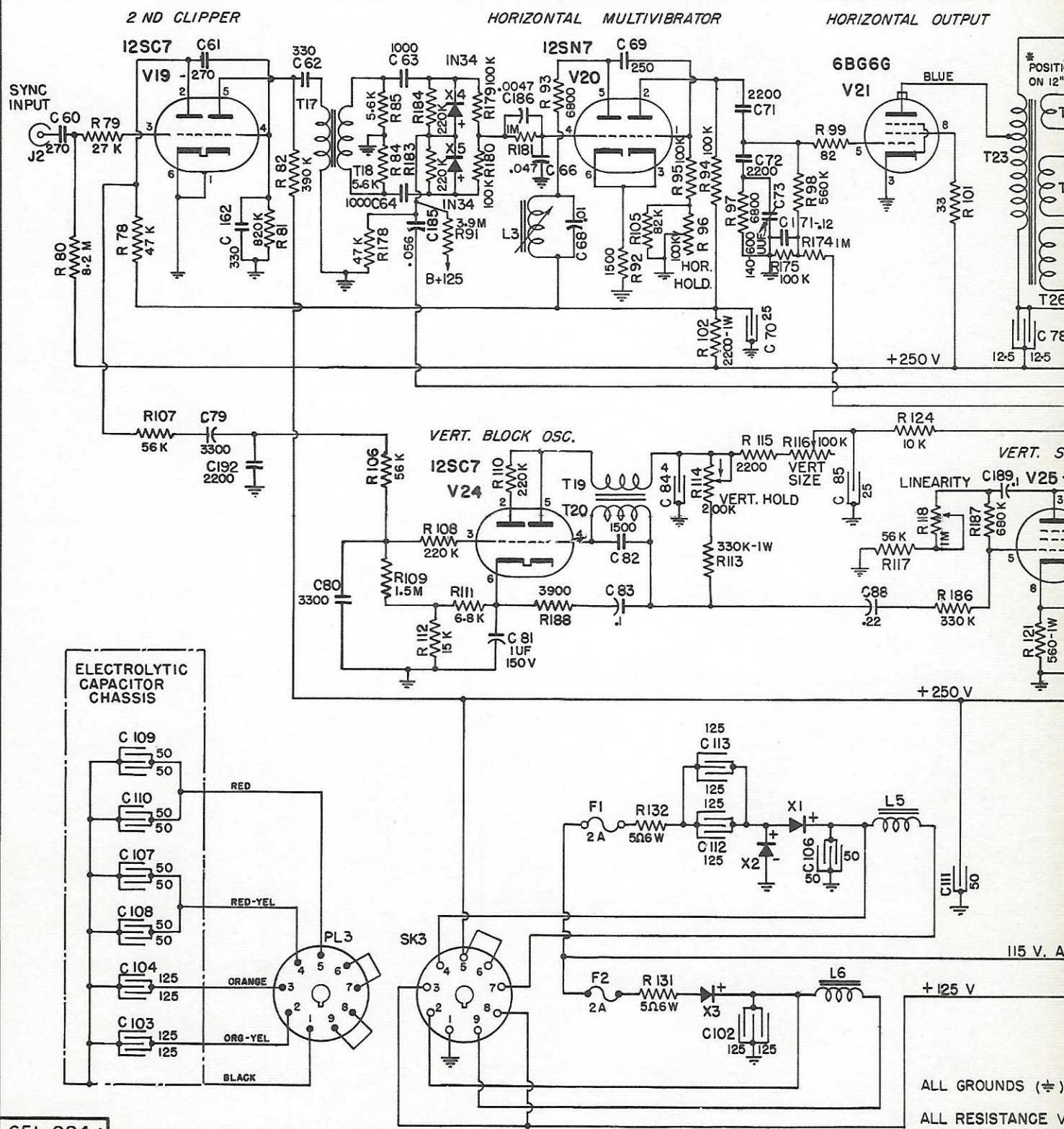
Part No.	Description	Part No.	Description
519-017	C169, 500 μ uf, 20,000 volts HV Capacitor	332-591	Escutcheon, Knob Function, Top
120-568	Back Cover and Interlock Assembly	332-596	Escutcheon, Knob Function, Bottom
303-208	Back Cover only	120-554	H.V. Lead Assembly 12" tube
030-138	Cabinet, Walnut, DV1250	571-203	H.V. Connector for CRT
030-142	Cabinet, Mahogany, DV1250	130-086	Selenium Rectifier 400 MA
332-582	CRT Metal Mask	041-017	Speaker 10" P.M. Res. V.C. 3 ohms
120-542	CRT Webb Strap Assembly	041-055	Speaker Cone and Voice Coil Assembly
621-007	CRT Rubber Mounting Pad	627-030	Speaker Grille Cloth 16½" x 17½"
332-588	Escutcheon, Glass, DV1250	350-057	Speaker Grille, Metal

REPLACEMENT PARTS FOR VR1239

All parts listed in the VR1039 Service Manual may be ordered for the VR1239 receiver with the exception of the parts listed below which replace corresponding parts in the VR1039 manual.

Part No.	Description	Part No.	Description
519-017	C169, 500 μ uf 20,000 volts HV Capacitor	332-590	Escutcheon, Knob Function, Top
120-562	Back Cover and Interlock Assembly	332-595	Escutcheon, Knob Function, Bottom
303-207	Back Cover only	120-554	H.V. Lead Assembly 12" tube
303-141	Cabinet Walnut VR1239	571-203	H.V. Connector for CRT
030-136	Cabinet Mahogany VR1239	130-086	Selenium Rectifier 400 MA
332-582	CRT Metal Mask	041-017	Speaker 10" P.M. Res. V.C. 3 ohms
120-542	CRT Webb Strap Assembly	041-055	Speaker Cone and Voice Coil Assembly
621-007	CRT Rubber Mounting Pad	627-039	Speaker Grille Cloth 16½" x 17½"
332-580	Escutcheon, Glass, VR1239	350-060	Speaker Grille, Metal

L&T	17 18	L3	19,20	L6	L5	23, 24, 25,
C	60,103,104,107-8,9,106,179,162,192, 62,67,	80,63,64,185,186,81,66,	68,82,83,69,84,112,113,102,70,71,72,73,171,106, 85	88	III 189	78,
R	80, 79, 78	81, 82	84,85,183,184,179,180,181,90,93	92,105,95,96,94,102,97,98,175,99,174	101	
R	107	106,178,109,108,111, 112,110,188,	131, 132, 114,115,113	116	117 118,124,186,187	121



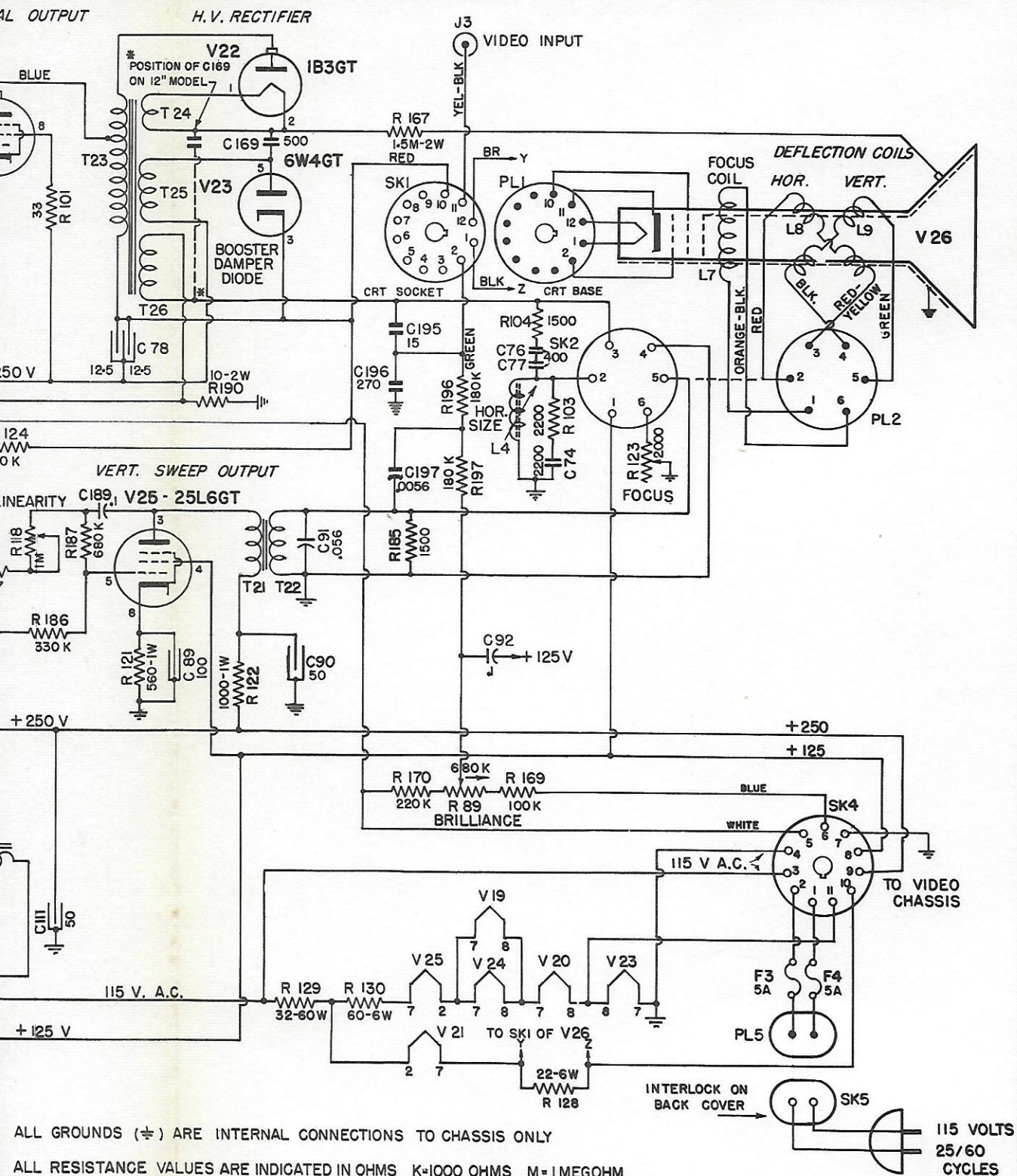
651-084-4

NOTE

In Later Models the V26 CRT heater and R128 have been connected between Pin 11 on SK4 and Pin 8 of V23.

SCHEMATIC DIAGRAM OF TIME BASE CHASSIS, MODELS VR1

23, 24, 25, 26	21 22	L4	L7	L8	L9
III 189 78, 89	169, 91, 90, 195, 196	92, 197	76, 77, 74		
101	190	167 185, 196, 197	103, 104	123	
24, 186, 187	121	122 129	130 170, 89, 169	128	



SSIS, MODELS VR1039, VR1239, DV1050, DV1250.