



### SPECIFICATIONS

<b>OVER-ALL DIMENSIONS:</b>	Height . . . . . 15 inches Width . . . . . 11 $\frac{3}{8}$ inches Depth . . . . . 21 inches
<b>ELECTRICAL RATING:</b>	Frequency . . . . . 60 cycles Voltage . . . . . 115 volts Wattage . . . . . 150 watts
<b>INTERMEDIATE FREQUENCIES:</b>	Video (Carrier Equivalent) . . . . . 26.3 MC Audio . . . . . 4.5 MC

R-F FREQUENCY:	Selector Switch Position	Frequency Range MC	Picture Carrier Frequency MC	Sound Carrier Frequency MC
	No. 2	54-60	55.25	59.75
	No. 3	60-66	61.25	65.75
	No. 4	66-72	67.25	71.75
	No. 5	76-82	77.25	81.75
	No. 6	82-88	83.25	87.75
	No. 7	174-180	175.25	179.75
	No. 8	180-186	181.25	185.75
	No. 9	186-192	187.25	191.75
	No. 10	192-198	193.25	197.75
	No. 11	198-204	199.25	203.75
	No. 12	204-210	205.25	209.75
	No. 13	210-216	211.25	215.75

<b>AUDIO POWER OUTPUT:</b>	Undistorted . . . . . 1 watt Maximum . . . . . 2 watts
<b>LOUDSPEAKER:</b>	Type, 4-inch oval, PM or electrodynamic Impedance @ 400 cycles, 3.2 ohms
<b>PICTURE SIZE:</b>	Height . . . . . 6 $\frac{3}{8}$ inches Width . . . . . 8 $\frac{1}{2}$ inches
<b>ANTENNA REQUIREMENTS:</b>	Type, Folded Dipole or Equivalent Impedance . . . . . 300 ohms

**TUBE COMPLEMENT:**

(V1) 1st R-F Amplifier . . . . .	6AU6
(V2) 2nd R-F Amplifier . . . . .	6AU6
(V3) Oscillator-Converter . . . . .	12AT7
(V4) 1st I-F Amplifier . . . . .	6AU6
(V5) 2nd I-F Amplifier . . . . .	6AU6
(V6) 3rd I-F Amplifier . . . . .	6AU6
(V7) Video Detector—DC Restorer and Clipper . . . . .	6AL5
(V8) Video Amplifier . . . . .	12AU7
(V9) Picture Tube . . . . .	10BP4
(V10) Vertical Multivibrator—Vertical Sweep Output . . . . .	12SN7GT
(V11) Phase Inverter—Clipper . . . . .	12SN7GT
(V12) Horizontal AFC—Horizontal Sweep Generator . . . . .	12SN7GT
(V13) Horizontal Sweep Output . . . . .	19BG6-G
(V14) High Voltage Rectifier . . . . .	1B3GT/8016
(V15) Horizontal Sweep Damper (Model 800A and B) . . . . .	25Z6GT
(V15) Horizontal Sweep Damper (Model 800C and D) . . . . .	25W4GT
(V16) Audio I-F Amplifier and Limiter . . . . .	6AU6
(V17) Ratio Detector . . . . .	6AL5
(V18) 1st Audio Amplifier . . . . .	6SQ7
(V19) Audio Output . . . . .	25L6GT

### GENERAL INFORMATION

The Model 800A, 800B, 800C and 800D table model receivers are basically similar in design and performance; however, certain differences do exist. These differences may be summarized in the following circuit descriptions.

The Model 800A and 800B receivers use a full-wave voltage doubler power supply and horizontal sweep output transformer of the molded coil and laminated iron core type. For the Model 800C and 800D receivers, the power supply is a half-wave voltage doubler circuit and the horizontal sweep output transformer is of the open coil and ceramic iron core construction.

The front panel control shafts for Models 800A and 800C are shorter than for the 800B and 800D chassis. Shaft lengths are given in the item descriptions of the Replacement Parts List.

Some chassis, of the four receivers above, use a focus coil assembly of the swivel type, others use a clamp type assembly. These are described in the paragraphs for Installation and Service Adjustments. See Figures 1 and 2.

An electrodynamic loudspeaker is used in some of the receivers; in others the speaker is a permanent magnet type.

### CAUTION NOTICE

THE REGULAR B+ VOLTAGES ARE DANGEROUS AND PRECAUTIONS SHOULD BE OBSERVED WHEN THE CHASSIS IS REMOVED FROM THE CABINET FOR SERVICE PURPOSES. THE HIGH VOLTAGE SUPPLY (9,000 V.) AT THE PICTURE TUBE ANODE WILL GIVE AN UNPLEASANT SHOCK BUT DOES NOT SUPPLY ENOUGH CURRENT TO GIVE A FATAL BURN OR SHOCK. HOWEVER, SECONDARY HUMAN REACTIONS TO OTHERWISE HARMLESS SHOCKS HAVE BEEN KNOWN TO CAUSE INJURY. SINCE THE HIGH VOLTAGE IS OBTAINED FROM THE B+ VOLTAGE, CERTAIN PORTIONS OF THE HIGH VOLTAGE GENERATING CIRCUIT ARE DANGEROUS AND EXTREME PRECAUTIONS SHOULD BE OBSERVED.

THE PICTURE TUBE IS HIGHLY EVACUATED AND IF BROKEN, GLASS FRAGMENTS WILL BE VIOLENTLY EXPELLED IN ALL DIRECTIONS. IF IT IS NECESSARY TO CHANGE THE PICTURE TUBE, USE SAFETY GOGGLES AND GLOVES. ALWAYS WEAR GOGGLES WHEN CHASSIS IS REMOVED FROM THE CABINET.

**INSTALLATION AND SERVICE ADJUSTMENTS**

**RECEIVER INSTALLATION**—The picture tube is shipped separate from the receiver unit. Carefully unpack the receiver from its carton. Do not unpack picture tube until it is ready to be installed. The receiver chassis must be removed from the cabinet, to permit removal of remaining packing material and tying tapes holding picture tube components. The cabinet body is removed after taking out the four screws of the felt feet on the cabinet base. The front panel is also removed to permit installation of the picture tube.

For a detailed procedure on picture tube installation see paragraph below.

**PICTURE TUBE REPLACEMENT AND INSTALLATION**—The cabinet is removed from the chassis as outlined above, in preparation for picture tube installation or replacement. The tube mounting strap is loosened and the tube socket, anode cap and ion trap are removed to permit removal of the old tube.

The new tube is installed from the front of the chassis, its neck being inserted through the deflection yoke and focus coil assembly, and the picture tube pushed forward so that its face is against the rubber bumper on the chassis front apron. Tighten the picture tube mounting strap. Replace the front panel, and push the deflection yoke and focus coil assembly forward so that the deflection yoke rests against the bell of the picture tube. Tighten the yoke clamp and connect the picture tube anode lead and tube socket. Place the ion trap on the neck of the picture tube as shown in Figure 1 or 2.

When replacing cabinet body, make certain that front panel and cabinet are properly seated at their joint and chassis is

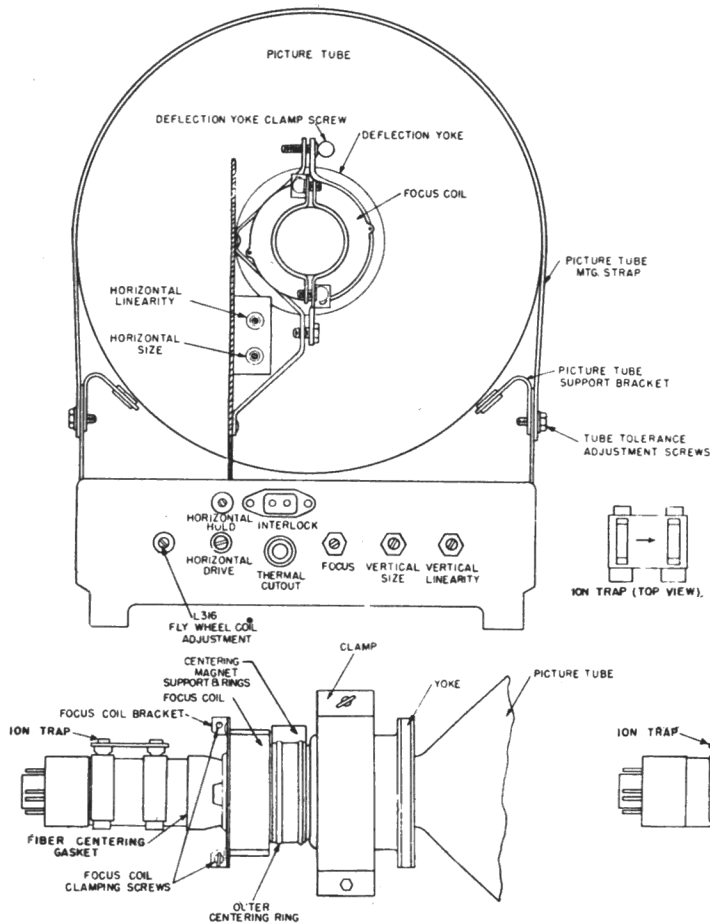
properly centered for mounting screw alignment. This is necessary to secure a proper fitting assembly and prevent breakage of cabinet parts. All screws should be loose while making fitting.

The following service and preset control adjustments should be made before the cabinet body is replaced.

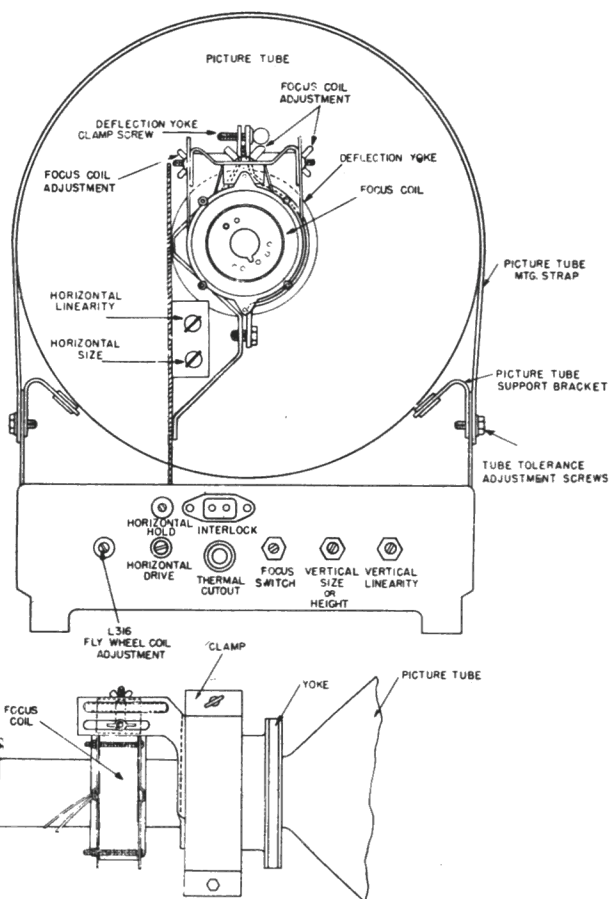
**ION TRAP**—Either the single or double magnet ion trap is used on these receivers. The double magnet type is shown in the illustration of Figure 1 showing a clamp type focus coil assembly. The illustration of the swivel type mounting focus coil of Figure 2 shows the single magnet ion trap. Note that the double magnet ion trap must be mounted upon the picture tube neck with its stamped arrow pointed toward the front of the picture tube. Adjust position of ion trap on tube neck by alternately rotating and moving the trap forward and backward to give maximum screen brightness. As screen becomes brighter, reduce brightness by adjusting the front panel Brightness Control. Make certain the ion trap is adjusted for maximum brightness of picture tube. Do not leave the ion trap adjusted for less than maximum brightness as this may shorten the life of the picture tube.

**HORIZONTAL HOLD**—Adjust the rear of chassis Horizontal Hold Control, L313, for a steady picture, with the front panel Horizontal Hold Control, R321, set to the middle of its range.

Check for proper setting of the rear Horizontal Hold Control by turning the front panel control in one and then the other direction from its center point and observe its ability to pull the picture into synchronization. Adjust the rear control so that the pull-in to sync is approximately equal, as the front panel control



**Fig. 1. Preset Adjustment Controls (Clamp Type Focus Coil)**



**Fig. 2. Preset Adjustment Controls (Swivel Type Focus Coil)**

is turned respectively each side of its center position. An additional check indicating that correct setting of these controls has been attained will reveal that, if the Channel Selector is turned to a vacant channel, the picture will immediately lock into synchronization as the Channel Selector is returned to the operating channel position.

**PICTURE TILT**—If the picture is tilted in respect to the picture tube mask, loosen the deflection yoke clamp wing screw and rotate yoke to align picture squarely with the mask. Tighten the wing screw after completing the adjustment.

**PICTURE CENTERING (Chassis Using Clamp Type Focus Coil)**—Chassis employing the clamp type focus coil arrangement of Figure 1 use centering magnet rings located between the focus coil and deflection yoke. The centering ring assembly consists of an outer magnet ring upon a brass sleeve which is moveable. An inner ring lies in a fixed position inside the sleeve. Adjustment of the position of the outer ring affects the position of the electron beam. Therefore, to center the picture within the tube mask, begin with the moveable ring placed near the focus coil and rotate the complete ring assembly until picture moves in the desired direction for centering. Then move the outer ring forward toward the deflection coil to bring picture to center of screen.

**PICTURE CENTERING AND FOCUS (Chassis Using Swivel Type Focus Coil)**—Both picture centering and focus are affected by positioning of the focus coil for receivers using the swivel type focus coil arrangement of Figure 2. Five adjustments may be made.

A. By loosening the two side wing nuts, the focus coil may be adjusted in three dimensions:

1. It may be moved forward or backward along the neck of the tube.
2. It may be tilted with respect to the tube neck.
3. It may be moved slightly up or down, vertically across the tube neck.

B. By loosening the top wing nut on the focus coil mounting bracket, two adjustments of the focus coil are possible.

4. The focus coil may be moved slightly to the right or left, horizontally, across the tube neck.

5. The focus coil may be rotated about a vertical axis.

The tilting, as in steps 2 and 5, and the offset of the focus coil about the neck of the picture tube, as in steps 3 and 4, govern the centering of the picture tube electron beam and consequently that of centering the picture.

The focus coil should be operated as near as possible to the base of the picture tube to secure uniformity of focus over the greatest picture area. However, if the focus coil is brought back too close to the picture tube base, a dimming of the picture may be noted as the coil is tilted further from its normal position.

Adjust the focus coil first for uniformity of focus by moving the coil back or forth along the neck of the picture tube. The front and rear focus controls should be adjusted alternately with the focus coil, to give the best and most uniform focus over the greatest picture area within the range of the front panel control. Secondly, adjust the focus coil for correct centering of the picture. Tighten all wing nuts after a satisfactory setting is secured.

**FOCUS (Chassis Using Clamp Type Focus Coil)**—The rear panel Focus Control should be set to the position which gives best focus near the center and within the range of the front panel Focus Control. In some cases a more uniform focus can be obtained if the focus coil is moved slightly backward toward the picture tube base.

**HORIZONTAL SIZE AND LINEARITY**—The Horizontal Size Control, L314, and Horizontal Linearity Control, L315, interact on each other (size affects linearity and conversely linearity affects size). Therefore, these controls should be adjusted alternately. Adjust the Horizontal Size Control so that the left and right edges of the picture extend approximately  $\frac{1}{8}$  inch beyond the picture tube mask. It will be noted that an improper adjustment of the size control makes the inner circle of the test pattern egg-shaped instead of a circle. The Horizontal Linearity Control is best adjusted when viewing a picture test pattern and should be set so that the respective distances from the picture center to the left and right edges of the test pattern are the same. The Horizontal Drive Control can be slightly readjusted to give a good compromise between linearity and high voltage.

**HORIZONTAL DRIVE**—This control should be turned full counter-clockwise. This position gives maximum high voltage. In some

receivers a white vertical line will appear on the screen at this control setting and the control must be advanced clockwise until this line just disappears.

**VERTICAL SIZE AND LINEARITY**—The Vertical Size Control, R302, and Vertical Linearity Control, R300, control the vertical proportions of the picture. These controls should be adjusted alternately as an adjustment of one will have an effect on the other. Adjustment of the Vertical Size Control varies the height of the picture and should be set so that the top and bottom edges of picture extend approximately  $\frac{1}{8}$  inch beyond the tube mask.

The Vertical Linearity Control adjusts the picture in regard to linearity. This control is adjusted until the vertical distances from center to top and bottom edges of a picture test pattern measure the same.

**FLYWHEEL COIL (L316) ADJUSTMENT**—This adjustment has been factory set and it should rarely be necessary to readjust it. Normally, the adjustment of the front panel and rear chassis apron Horizontal Hold Controls should be all that is necessary to obtain proper horizontal sync. When the flywheel coil, L316, is adjusted as described below a good compromise is obtained between the horizontal sync circuit's immunity to noise and ability to pull into synchronization.

Connect a low input capacity oscilloscope (General Electric Type ST2A or equivalent) to the junction of L316 and the Horizontal blocking oscillator transformer, L313. Connect the ground side of the oscilloscope to B1— of the horizontal sweep circuit. Other oscilloscopes, while their input capacities are high, may be used if the special probe shown in Figure 3 is incorporated in the test setup. The value of "R" for a given type oscilloscope is shown in the following table.

Value of "R"	Type of Oscilloscope
18,000 ohms	General Electric CR03A*
150,000 ohms	General Electric CR05A
82,000 ohms	General Electric CR05S
82,000 ohms	Dumont Type 208

\*Note: Vertical attenuator set at mid-range.

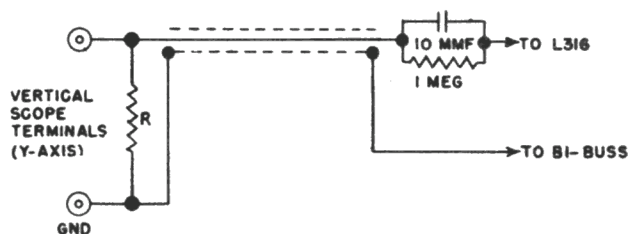


Fig. 3. Oscilloscope Probe for Flywheel Coil Adjustment

The television receiver must first be tuned for normal picture; the usual adjustments of either, or both, front panel or rear of chassis Horizontal Hold Controls being made to obtain horizontal sync. The flywheel coil, L316, is adjusted for equal amplitude of its positive peaks, A and B, as shown in Figure 4. Keep the picture in sync during adjustment of the flywheel coil by adjusting either or both of the Horizontal Hold Controls.

After properly setting L316, the rear of chassis Horizontal Hold Control should be readjusted as described in the paragraph for "Horizontal Hold."

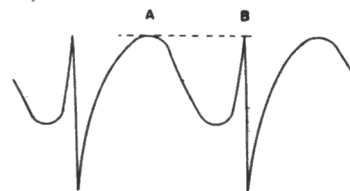


Fig. 4. Flywheel Coil Adjustment Waveshape

**CIRCUIT ALIGNMENT**

**CAUTION: TO PROTECT TEST EQUIPMENT ALWAYS USE AN ISOLATION TRANSFORMER**

**GENERAL**—A complete alignment of the receiver tuned circuits is given in the following charts. Read all alignment notes prior to making an alignment. The procedure shown in the charts is based upon the use of the G-E test equipment specified and if other equipment is used which has different characteristics, the charts may have to be modified slightly. A diagram showing the location of most adjustments used in alignment is shown in Figure 28 on page 10. Use the alignment service diagram, Figure 29 on page 11, with the charts.

It is important to connect the low side of the test equipment to the specified B — bus of the receiver.

Always permit a 15 minute warm-up period for the receiver and test equipment prior to attempting alignment.

To align the receiver with the picture tube removed, a Type 6SN7 tube with all pins clipped off except pins #7 and #8 may be used to complete the filament circuit. Plug pins #7 and #8 of the 6SN7 into pins #1 and #12 of the picture tube socket.

To protect the test equipment, always use an isolation transformer between the power line and the TV receiver.

**TEST EQUIPMENT**—The following test equipment is required.

**1. R-F Sweep Generator. (G-E Type ST-4A or Equivalent)**

- a. Frequency Requirements:  
4.5 MC with 1 MC sweep width.

- 20–30 MC with 10 MC sweep width.
- 40–90 MC, 170–220 MC with 15 MC sweep width.
- b. Constant output in the sweep width range.
- c. At least 0.1 volt output.

**2. Marker Generator. (G-E Type ST-5A or Equivalent)**

Must have good frequency stability, must be accurately calibrated and should cover the following frequencies.

23.3 MC, 25.55 MC, 26.3 MC for Video I-F

4.5 MC for Sound I-F

Picture and sound carrier frequencies, channels 2 through 13.

**3. Oscilloscope. (G-E Type ST-2A or Equivalent)**

This oscilloscope should have good sensitivity and should preferably have a 5-inch screen and a good wide-band frequency response on the vertical deflection circuits. Although the high frequency response is unnecessary for alignment, it is necessary when making the waveform measurements.

**4. Vacuum Tube Voltmeter.**

Vacuum tube voltmeter should have a d-c voltage scale capable of reading 4 volts.

**1. VIDEO I. F. ALIGNMENT**

1. The sweep generator cable should be properly terminated in its characteristic impedance.

2. The sweep signal should be coupled to the point of input through a 100 mmf. capacitor. A 27,000-ohm resistor is also used in series with the 100 mmf. capacitor when coupling to the converter grid to prevent loading. Reduce resistor and capacitor lead to minimum length— $\frac{1}{2}$  inch lead length should be sufficient for coupling. Keep the ground return lead to B<sub>2</sub> — short.

3. Set contrast control to obtain —4 volts bias between junction of R243, R241, and head-end chassis B<sub>2</sub> — as measured on a vacuum tube voltmeter. Disconnect vacuum tube voltmeter leads during alignment.

4. Adjust the signal input to give a video output curve of approximately 3 volts peak-to-peak value, as measured at the output of V8A on a calibrated oscilloscope.

5. In most receivers, it may be only necessary to make an over-all video alignment check as in step 4, and make only minor touch-up adjustments of L208, L242, L243 and L244 to obtain the video i-f response curve of Figure 22-D. In general, the adjust-

ment of L243 places the 26.3 mc marker at the 50 percent point on the curve and L242 is used to place the 23.3 mc marker at the 50 percent point on the curve in Figure 22-D. L208 and L244 are adjusted to give maximum gain while getting an approximately flat-top curve. Reduction of L208 inductance with a corresponding increase in L244 will tend to reduce excess saddleback in the top of the curve.

6. The dashed line in the curves, Figure 22C and 22D, represents the limit in waveshape deviation from the ideal curve. The ideal curve is shown in solid line.

7. The 26.3 mc marker should fall at the 50 percent mark, as shown in Figure 22-D, to give proper sesqui-sideband operation.

The placement of the 23.3 mc marker at the 50 percent mark insures proper placement of the sound carrier in respect to the picture carrier.

8. Set the channel selector switch to channel 5 or 6. When checking the over-all video i-f alignment curve (step 4), check for oscillator influence, by turning the tuning control. If this changes the shape of the curve, switch to another channel where this interference is not noted.

**VIDEO I-F ALIGNMENT CHART**

(See Figures 28 and 29 on Pages 10 and 11)

STEP	MARKER GENERATOR FREQUENCY	SWEEP GENERATOR FREQUENCY	SIGNAL INPUT POINTS	CONNECT OSCILLOSCOPE BETWEEN	CHANNEL SWITCH SETTING	ADJUST	SEE NOTE
1	23.3 MC Marker	20 to 30 MC	V6 grid (pin 1) and B <sub>2</sub> —	Plate V8A (pin 1) and B <sub>2</sub> — on V8A socket thru 10K resistor	Channel #5 or #6. See note 8 for oscillator interference.	Core of L244 for curve of Figure 22-A.	1, 2, 3, 4
2			V5 grid (pin 1) and B <sub>2</sub> —			Core of L243 for curve of Figure 22-B.	
3			V4 grid (pin 1) and B <sub>2</sub> —			Core of L242 for curve of Figure 22-C.	
4	23.3 MC 25.55 MC 26.3 MC Markers		V3A grid (pin 7) thru 27K ohm resistor and B <sub>2</sub> — at head-end.			Core of L208 and L244 for curve of Figure 22-D. Retrim L243 and L242. See notes.	

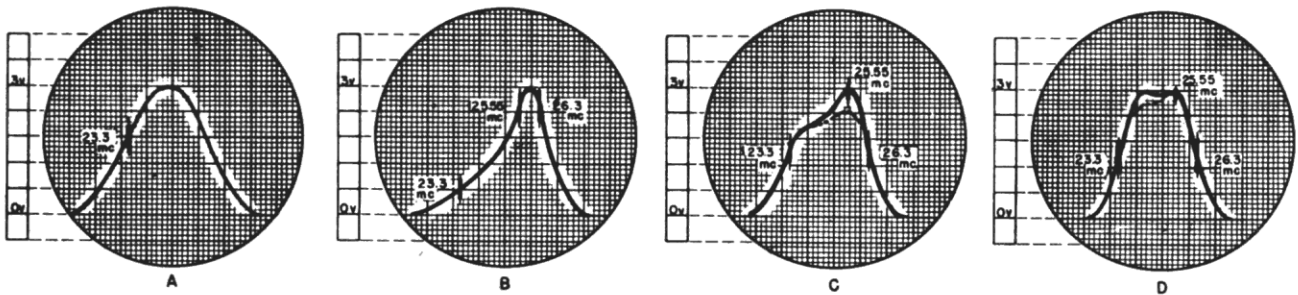


Fig. 22. Video I-F Alignment Curves

## 2. AUDIO I-F ALIGNMENT

1. Sound i-f alignment using a sweep generator, marker generator and oscilloscope is described in the chart. Another method, making use of sound alignment on an operating signal from a station, is described in note 8.

2. Connect the sweep generator to the grid (pin 7) of V8B and B2-. Keep the input of the sweep generator low enough so that limiting does not take place, otherwise the response curve will broaden out causing slight misadjustment. Check by increasing the output of the sweep generator; the response curve on the scope should increase in size proportionately.

3. With the oscilloscope connected at the limiter tube grid, L341 is adjusted visually for maximum amplitude and symmetry of the curve about the 4.5 mc marker as shown in Figure 23, curve A.

4. The secondary of T341 is adjusted for the curve shown in Figure 23, curve B. This should produce as straight a slope as possible between the two peaks with the 4.5 mc falling at the center of the slope. The marker at this point will be broad, necessitating interpolation.

5. The primary of T341 is adjusted for maximum amplitude, consistent with a straight slope between peaks, of the curve shown in Figure 23, curve B.

6. For the adjustment of L341, the oscilloscope should be con-

nected through a 100,000-ohm resistor to the grid of the limiter tube, V16. For the adjustment of T341, the oscilloscope is connected through a 10,000-ohm resistor to the junction of R343 and R346.

7. As a final alignment step, the secondary adjustment of T341 should be checked on an operating signal if possible. Try several of the operating stations and if a buzz in the audio is heard, the secondary of T341 should be readjusted as follows. Tune in the station and adjust the Contrast control for a relatively weak sound output. Readjust the secondary of T341 until the buzz is a minimum or disappears entirely and best quality audio output is obtained.

8. An alternate method to the visual alignment method is the sound output method using an operating station, preferably when transmitting tone modulation during the test pattern.

a. Tune the receiver for optimum picture detail.

b. Keeping signal input low by reducing contrast control for weak audio, align the choke L341 and the primary of T341 for maximum audio output.

c. Adjust secondary of T341 for best quality audio (low audio distortion, least noise) and for a minimum buzz in the output.

### AUDIO I-F ALIGNMENT CHART

(See Figures 28 and 29 on Pages 10 and 11)

STEP	MARKER GENERATOR	SWEEP GENERATOR	SIGNAL INPUT	OSCILLOSCOPE CONNECTION	ADJUST	SEE NOTE
5				Grid (pin 1) of V16 in series with 100,000 ohms and to B2-	Core of L341 for curve in Fig. 23-A.	2, 3, 6
6	4.5 MC	4.5 MC with 1MC sweep	Grid of V8B (pin 7) and B2-	Junction R346, R343, C347 in series with 10,000 ohms and to B2-	Secondary of T341 for curve in Fig. 23-B.	2, 4, 6
7					Primary of T341 for curve in Fig. 23-B.	2, 5, 6
8	Repeat step 6.					
9	Recheck alignment of step 8 on operating station.					7

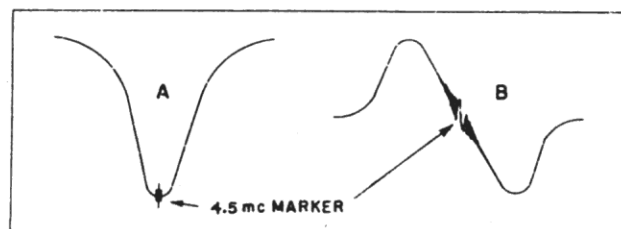


Fig. 23. Sound Alignment Curves

3. R-F ALIGNMENT

1. The input sweep signal is applied to the antenna terminal board at the r-f unit. Disconnect the 300-ohm cable between the antenna terminal board and the r-f amplifier input. To prevent distortion of the r-f response curve by standing waves, the unbalanced shielded cable of the signal generator should be terminated as shown in Figure 24. The resistors used should be non-inductive.

2. The oscilloscope input is connected to the junction of L208, R209, C216 in series with 10,000 ohms and to B2-. Connect a 400 mfd., 350 volt electrolytic capacitor between the r-f head-end B+ and B2- to provide further filtering, to reduce the effect of B+ hum upon the response curve of the oscilloscope. This is necessary since the output signal voltage at the oscilloscope connection of L208 is relatively small.

3. Shunt L208 with a 220-ohm resistor during r-f alignment to prevent the oscillator from affecting the curve.

4. Adjust the contrast control for r-f alignment to give a -4 volts bias, measured with vacuum tube voltmeter, from Pin 1 of V2 to head-end chassis.

5. On all channels the picture carrier marker should not be less than 67% of the peak of the r-f response curve. The sound carrier marker should not be less than 50% of the peak of the response curve. See Figure 25. On the high channels the picture carrier marker should ride up nearer to the top of the curve provided the sound carrier marker does not go below 50%. On the low channels the picture carrier marker should ride as high up on the curve as possible and still keep the sound carrier marker above 50%.

6. Since the coils for Channels 12 through 7 are fixed inductances, it is only necessary to check the alignment on these channels. It might be necessary to slightly readjust Channel 13 alignment (Step 9) to give best over-all tracking on Channels #13 thru #7.

7. Check tracking on Channels #6, #5, and #4. Slight readjustment of Channel #6 (Step 16) may be necessary for best tracking on Channels #5 and #4.

8. Check tracking on Channels #3 and #2. Slight readjustment of Channel #3 may be necessary for best tracking on Channels #2 and #3.

R-F ALIGNMENT CHART

(See Figs. 28 and 29 on pages 10 and 11)

STEP	MARKER GENERATOR FREQUENCY MC	SWEEP GENERATOR FREQUENCY CHANNEL	SIGNAL INPUT POINTS	CONNECT OSCILLOSCOPE BETWEEN	CHANNEL SWITCH SETTING	ADJUST	SEE NOTES
9	211.25 & 215.75	No. 13 with 15 MC sweep	Ant. terminals at head-end unit	Junction L208, R209, C216 in series with 10,000 ohms and to B2- at head-end	No. 13	Screws of L228 to place 211.25 MC marker and L-238 to place 215.75 MC marker approx as shown in Fig. 25(A).	
10	205.25 & 209.75	No. 12 with 15 MC sweep			No. 12		
11	199.25 & 203.75	No. 11 with 15 MC sweep			No. 11		
12	193.25 & 197.75	No. 10 with 15 MC sweep			No. 10		1, 2, 3, 4, 5, 6
13	187.25 & 191.75	No. 9 with 15 MC sweep			No. 9	No adjustment. See note 6.	
14	181.25 & 185.75	No. 8 with 15 MC sweep			No. 8		
15	175.25 & 179.75	No. 7 with 15 MC sweep			No. 7		
16	83.25 & 87.75	No. 6 with 15 MC sweep			No. 6	Screws of L226 to place 83.25 MC marker and L236 to place 87.75 MC marker, as shown in Fig. 25(B).	
17	77.25 & 81.75	No. 5 with 15 MC sweep			No. 5		1, 2, 3, 4, 5, 7
18	67.25 & 71.75	No. 4 with 15 MC sweep			No. 4	No adjustment. See note 7.	
19	61.25 & 65.75	No. 3 with 15 MC sweep			No. 3	Screws of L223 to place 61.25 MC marker and L223 to place 65.75 MC marker, as shown in Fig. 25(B).	
20	55.25 & 59.75	No. 2 with 15 MC sweep			No. 2	No adjustment. See note 8.	1, 2, 3, 4, 5, 8

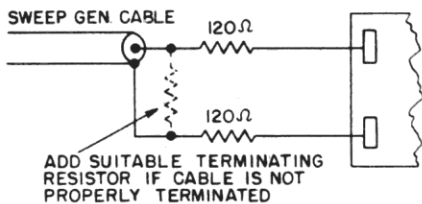


Fig. 24. Sweep Generator Termination

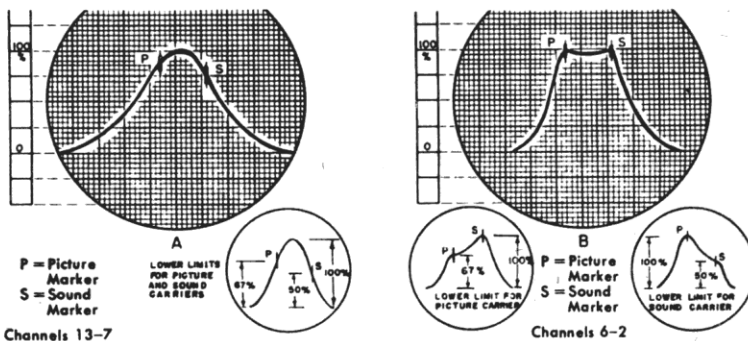


Fig. 25. R-F Alignment Curves

#### 4. OSCILLATOR ALIGNMENT

Before attempting oscillator alignment, the i-f and r-f sections of the receiver must be in satisfactory operating condition. If the receiver has to be completely realigned, the oscillator alignment must be the last adjustment attempted.

1. Disconnect the 300-ohm line at r-f head-end unit which connects to antenna terminal board. Connect sweep generator directly to head-end unit, properly terminating sweep generator output cable as shown in Figure 24. Keep leads from end of cable through the terminating resistors as short as possible.

2. The adjustment locations are shown in Figure 26 and 27. Alignment is made by viewing the placement of the video carrier on the response curve viewed at the output of the 1st video amplifier. As the oscillator tuning control is changed, the 26.3 mc

video i-f carrier equivalent marker will move up or down the response curve. The indicated adjustment is correct when this marker falls at the 50% point down on the skirt of the curve. Make sure that the marker falls on the high frequency side (pix side) of the i-f curve.

3. Set the tuning control at center of rotation for step 21. Check Channel #12 thru #7 (steps 22 thru 27) to see that proper marker placement is achieved in the range which lies between 120 degrees from each end of the tuning knob rotation. A compromise may be made in the adjustment of L215 (Channel #13) to meet this condition.

4. On Channels #6 thru #2 (steps 28 thru 32), the tuning control should be set at mid-position of its rotation during alignment.

#### OSCILLATOR ALIGNMENT CHART

(See Figure 29 on page 11)

STEP	MARKER GENERATOR FREQUENCY MC	SWEEP GENERATOR FREQUENCY WITH 15 MC SWEEP	SIGNAL INPUT POINTS	CONNECT OSCILLOSCOPE BETWEEN	CHANNEL SWITCH SETTING	ADJUST	SEE NOTES	SECO TC PRIM BOT		
21	211.25	Channel No. 13	Ant. terminals at head-end	Plate of V8A (pin 1) in series with 10,000 ohms and to B2 - on V8A socket	No. 13	L215 by squeezing or spreading turns.	1, 2, 3			
22	205.25	Channel No. 12			No. 12	No adjustment. See note 3.				
23	199.25	Channel No. 11			No. 11					
24	193.25	Channel No. 10			No. 10					
25	187.25	Channel No. 9			No. 9					
26	181.25	Channel No. 8			No. 8					
27	175.25	Channel No. 7			No. 7					
28	83.25	Channel No. 6			No. 6				Adjust screw in L213.	1, 2, 4
29	77.25	Channel No. 5			No. 5				Adjust screw in L212.	
30	67.25	Channel No. 4			No. 4				Adjust screw of L211.	
31	61.25	Channel No. 3			No. 3				Adjust screw of L210.	
32	55.25	Channel No. 2			No. 2				Adjust screw of L209.	

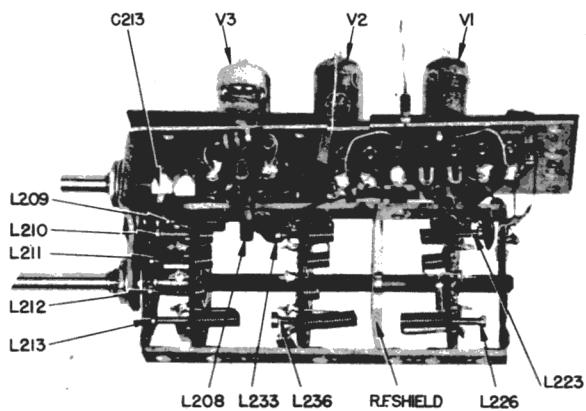


Fig. 26. Head-End (right side view)

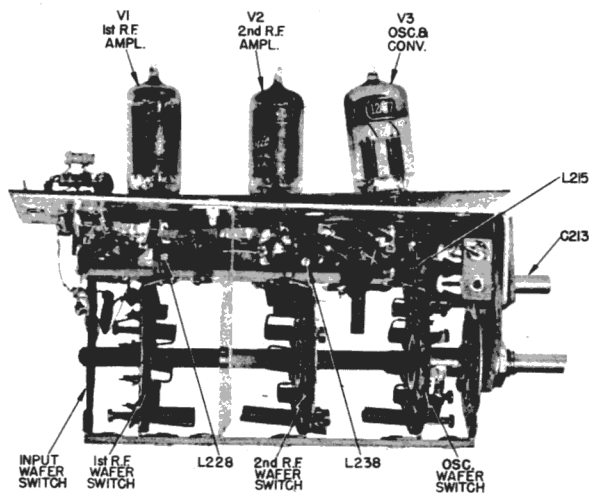


Fig. 27. Head-End Unit (left side view)

MODELS 800A, 800B, 800C, 800D

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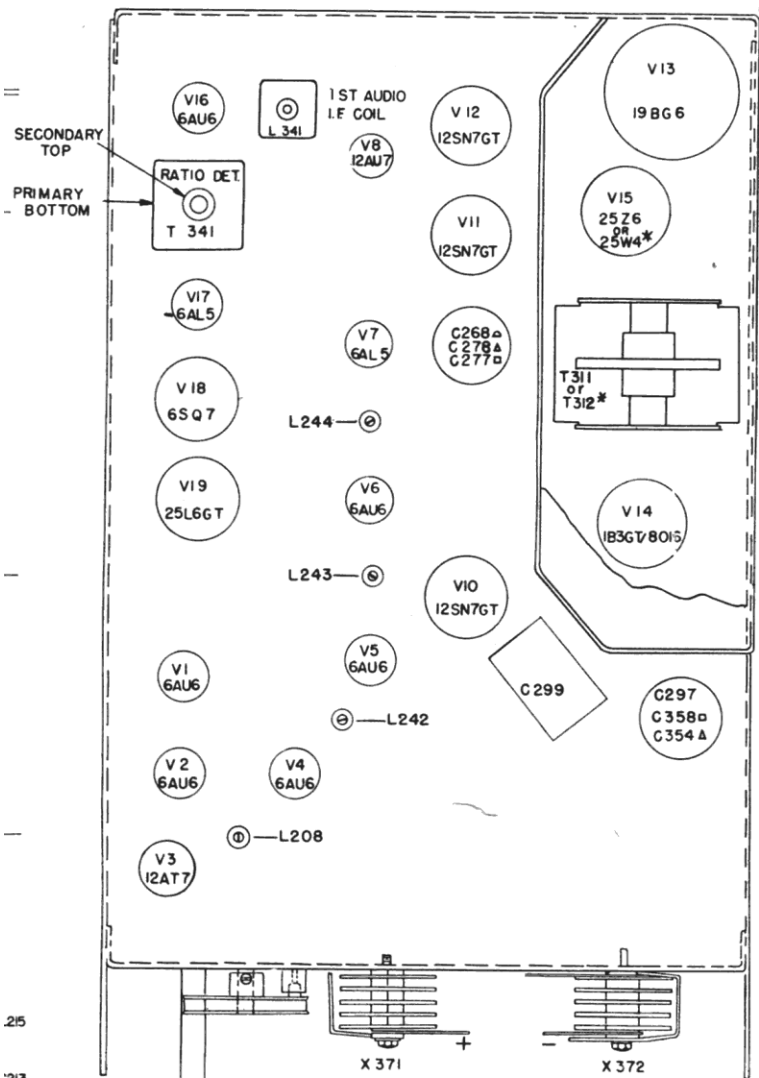
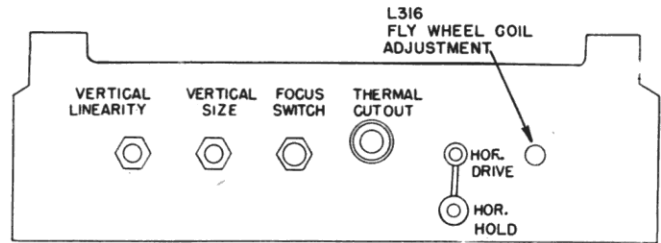
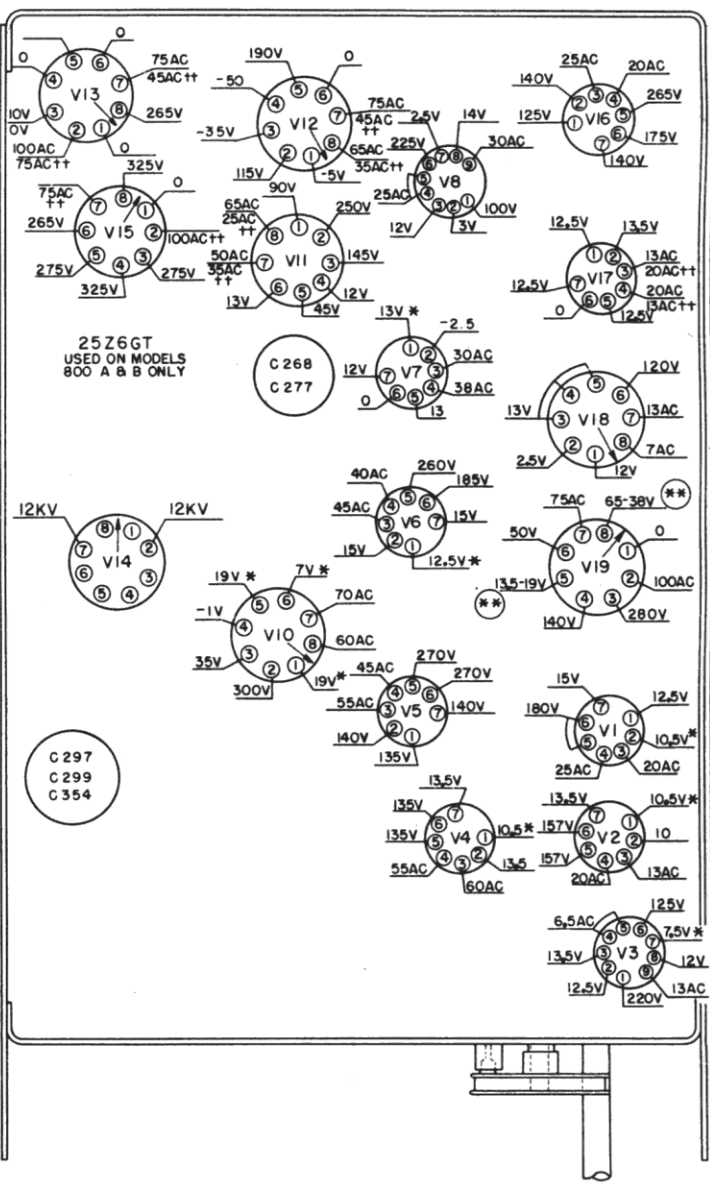
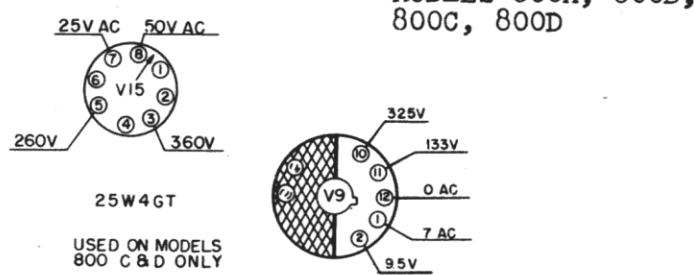


Fig. 28. Tube and Trimmer Location



VOLTAGES MEASURED TO B<sub>1</sub>- CONTROLS SET AT VOLUME - MIN. FOCUS - NORMAL H. HOLD - NORMAL V. HOLD - NORMAL BRIGHTNESS - MIN. CONTRAST - MAX.

METERS AC 1000Ω/V DC 20,000Ω/V

\* USE SCALE 50V OR HIGHER

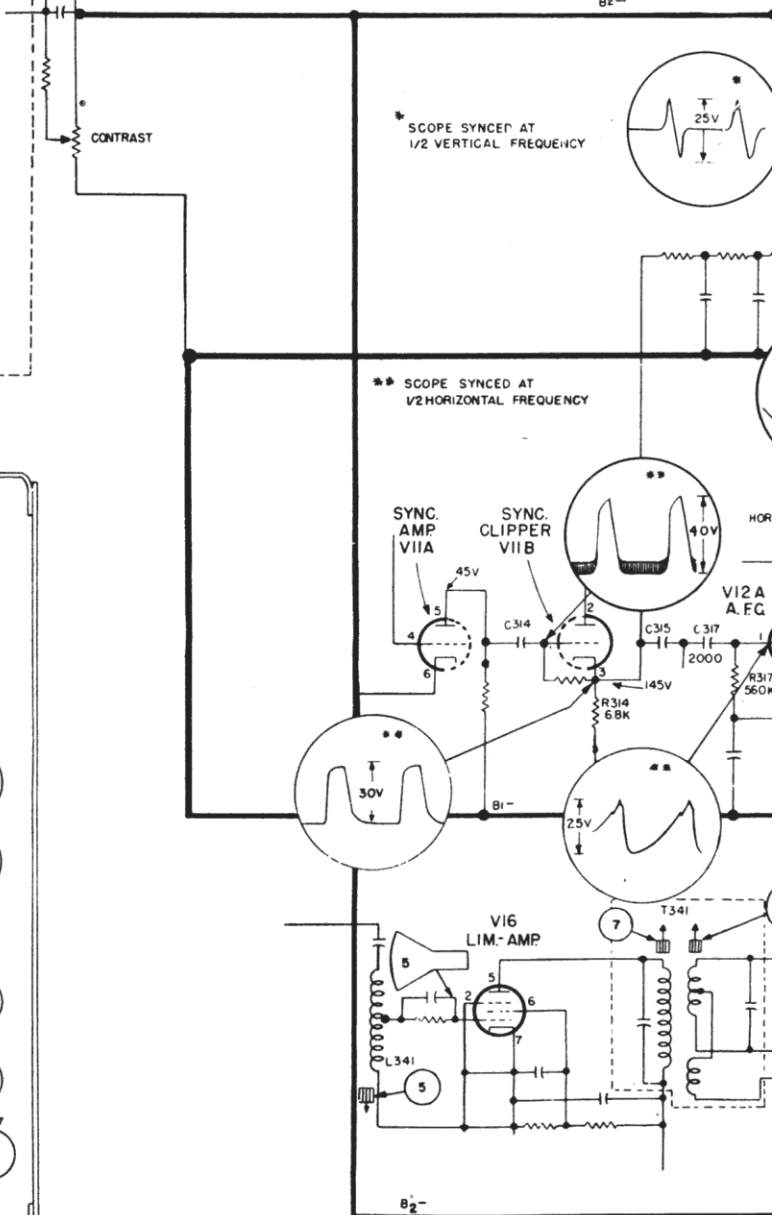
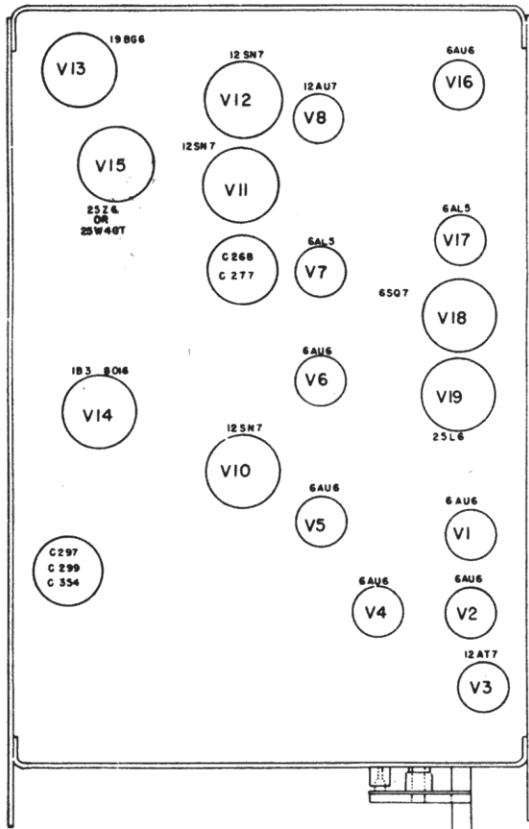
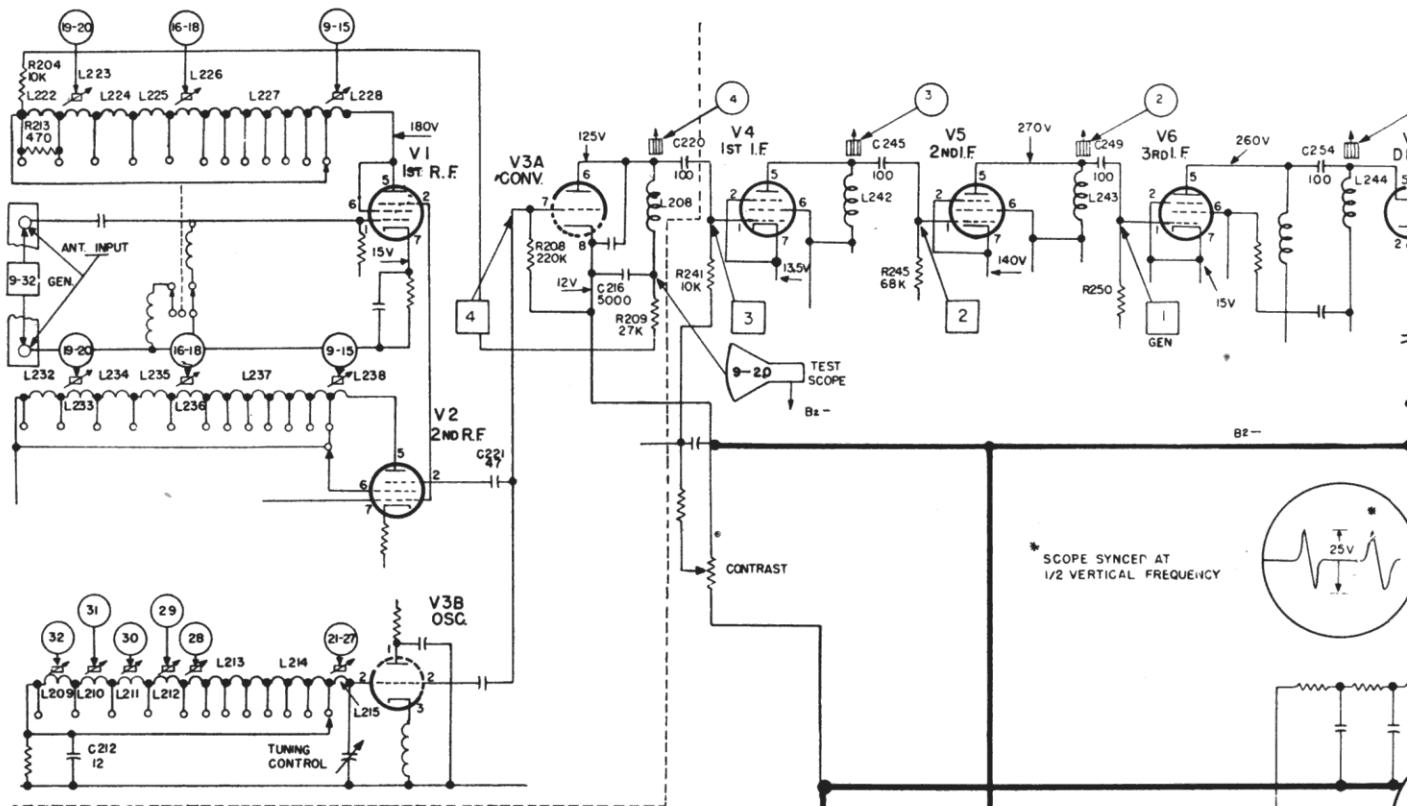
\*\* MIN.-MAX OF FOCUS CONTROL LINE VOLTS-117V

Fig. 32. Socket Voltage Diagram

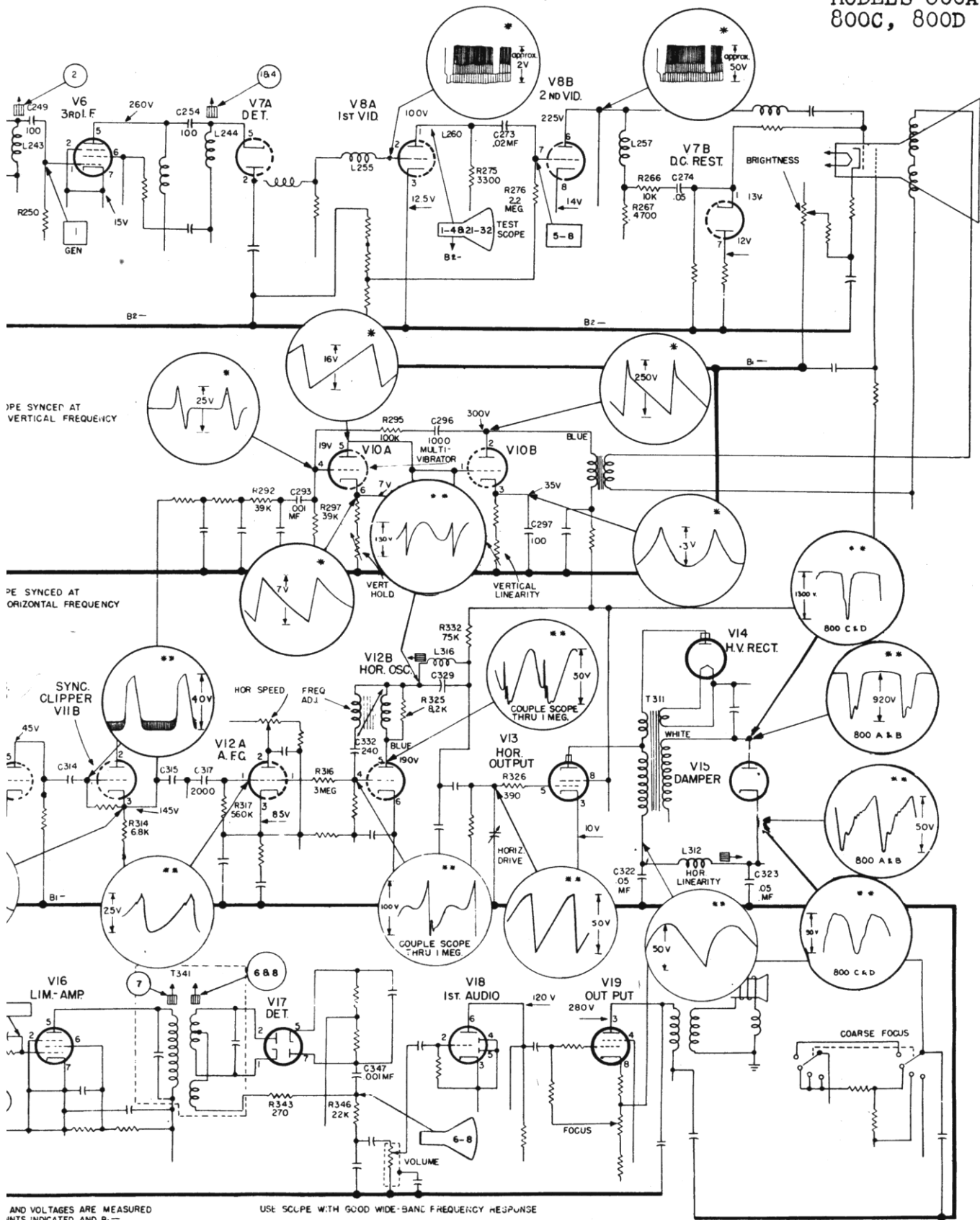
++ THESE VOLTAGES ON MODELS 800 A & B ONLY.

215  
213





WAVE SHAPES AND VOLTAGES ARE MEASURED BETWEEN POINTS INDICATED AND B<sub>2</sub>-  
 CIRCLED NUMBER REFER TO ADJUSTMENT IN ALIGNMENT CHART STEP OF THE SAME NUMBER  
 SQUARED NUMBERS REFER TO SIGNAL GENERATOR CONNECTION AS OUTLINED WITH ALIGNMENT CHART STEP OF THE SAME NUMBER



ALL VOLTAGES ARE MEASURED  
POINTS INDICATED AND B-.

USE SCOPE WITH GOOD WIDE-BAND FREQUENCY RESPONSE

REFER TO ADJUSTMENT IN ALIGNMENT CHART  
FOR SAME NUMBER.

NUMBERS REFER TO SIGNAL GENERATOR CONNECTION  
IN ALIGNMENT CHART STEP OF THE SAME

Fig. 29. Waveshape Diagram, Models 800A, B, C and 800D

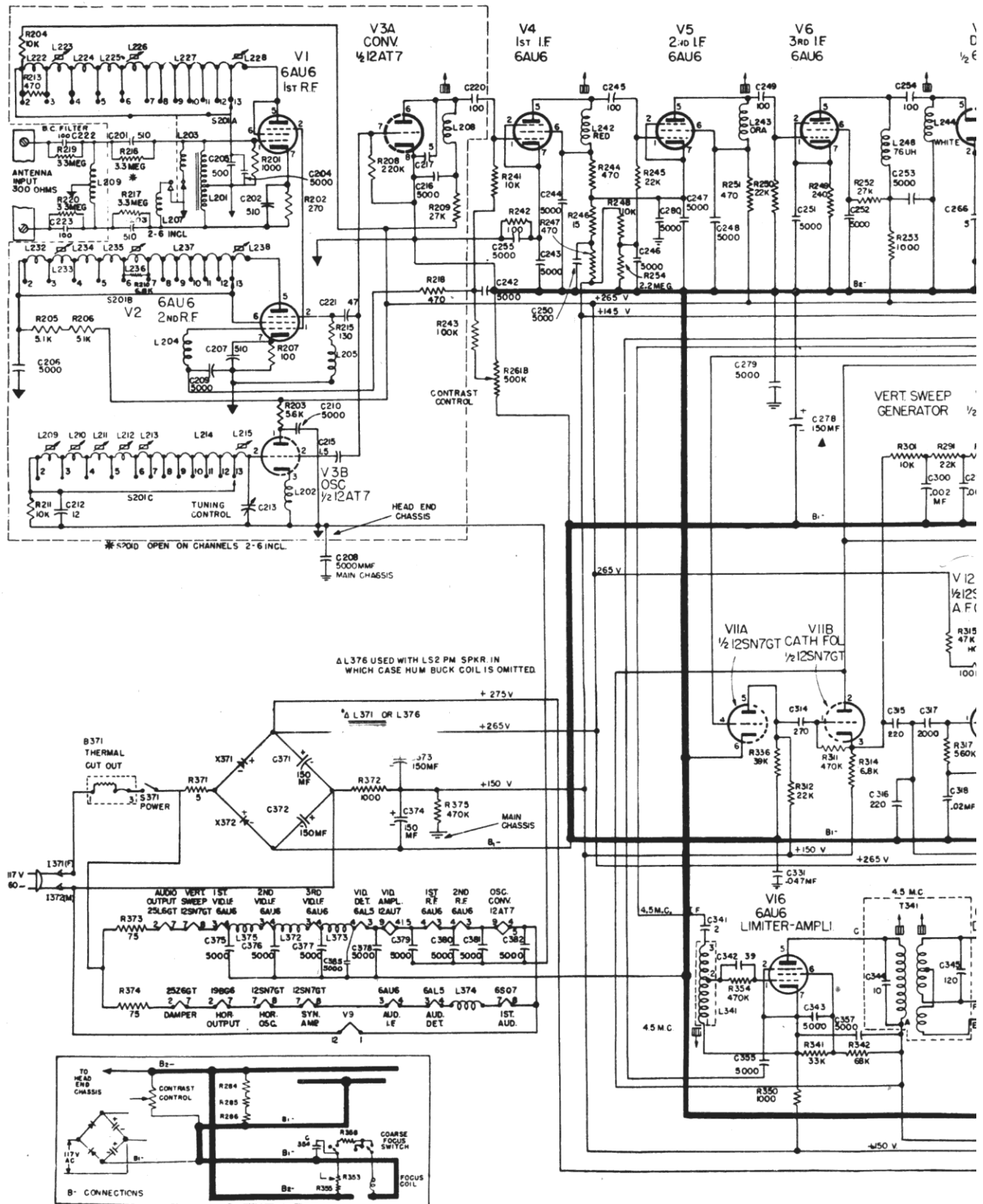
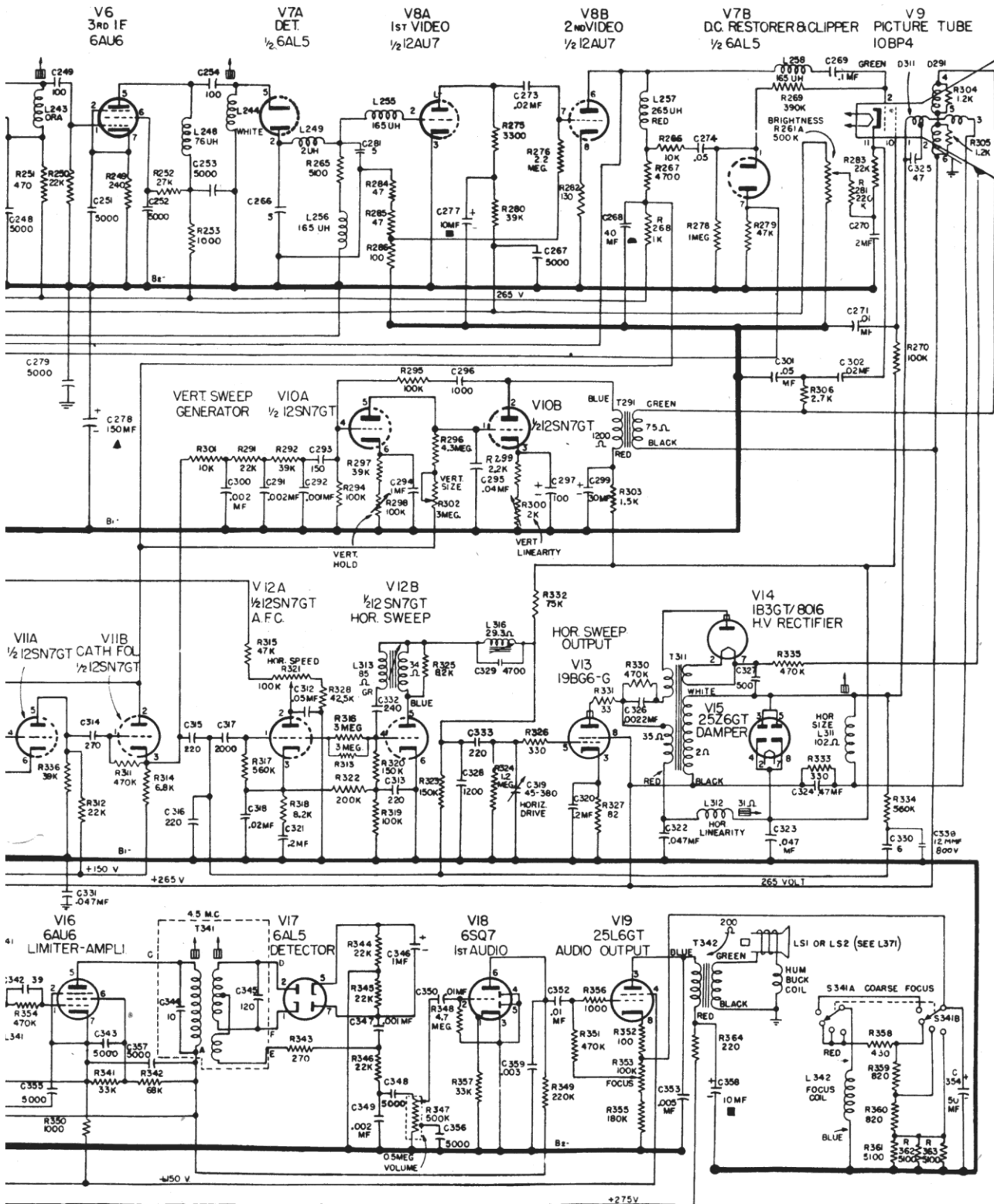


Fig. 30. Schematic Diagram, Model 800A and 800



Schematic Diagram, Model 800A and 800B

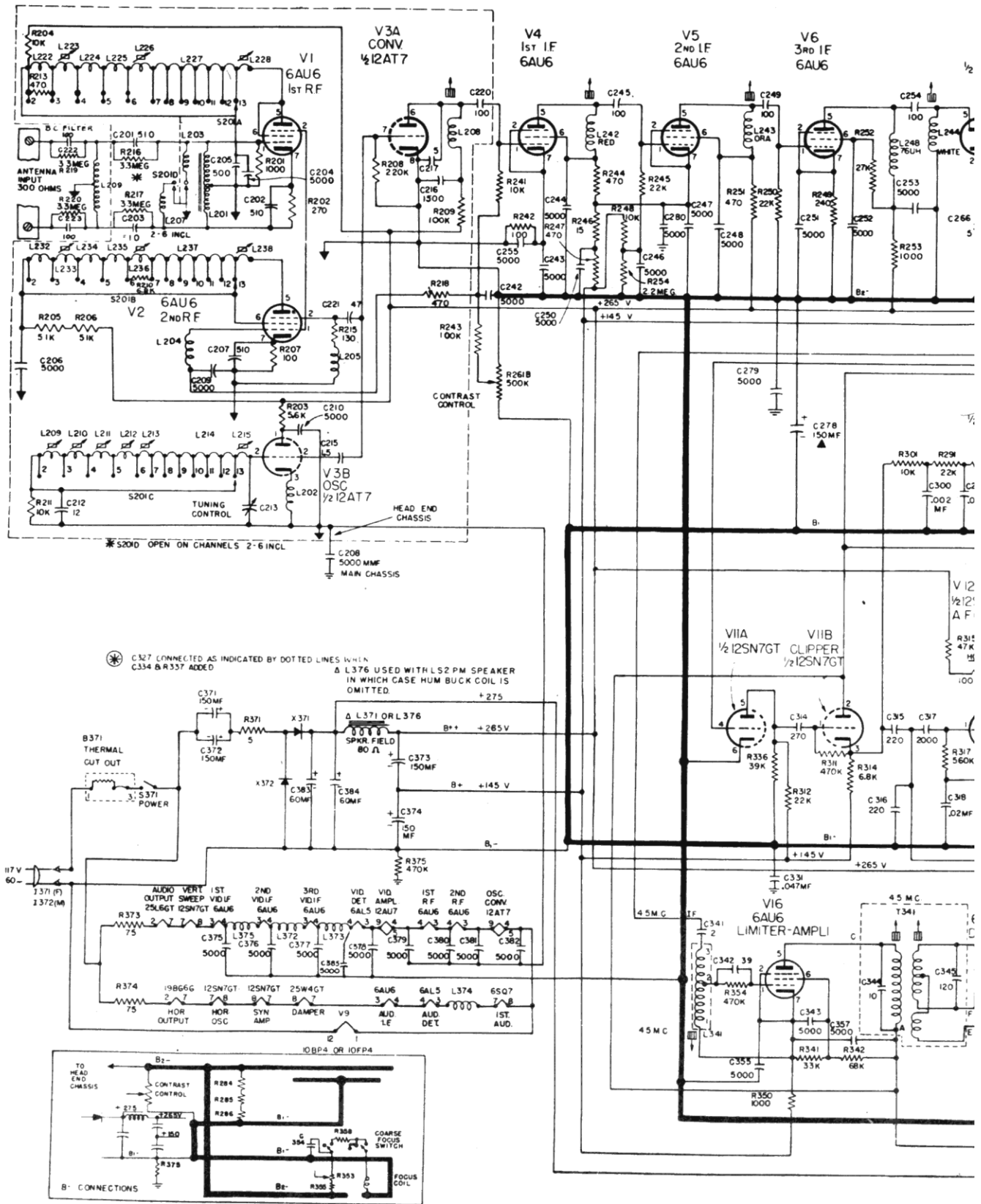
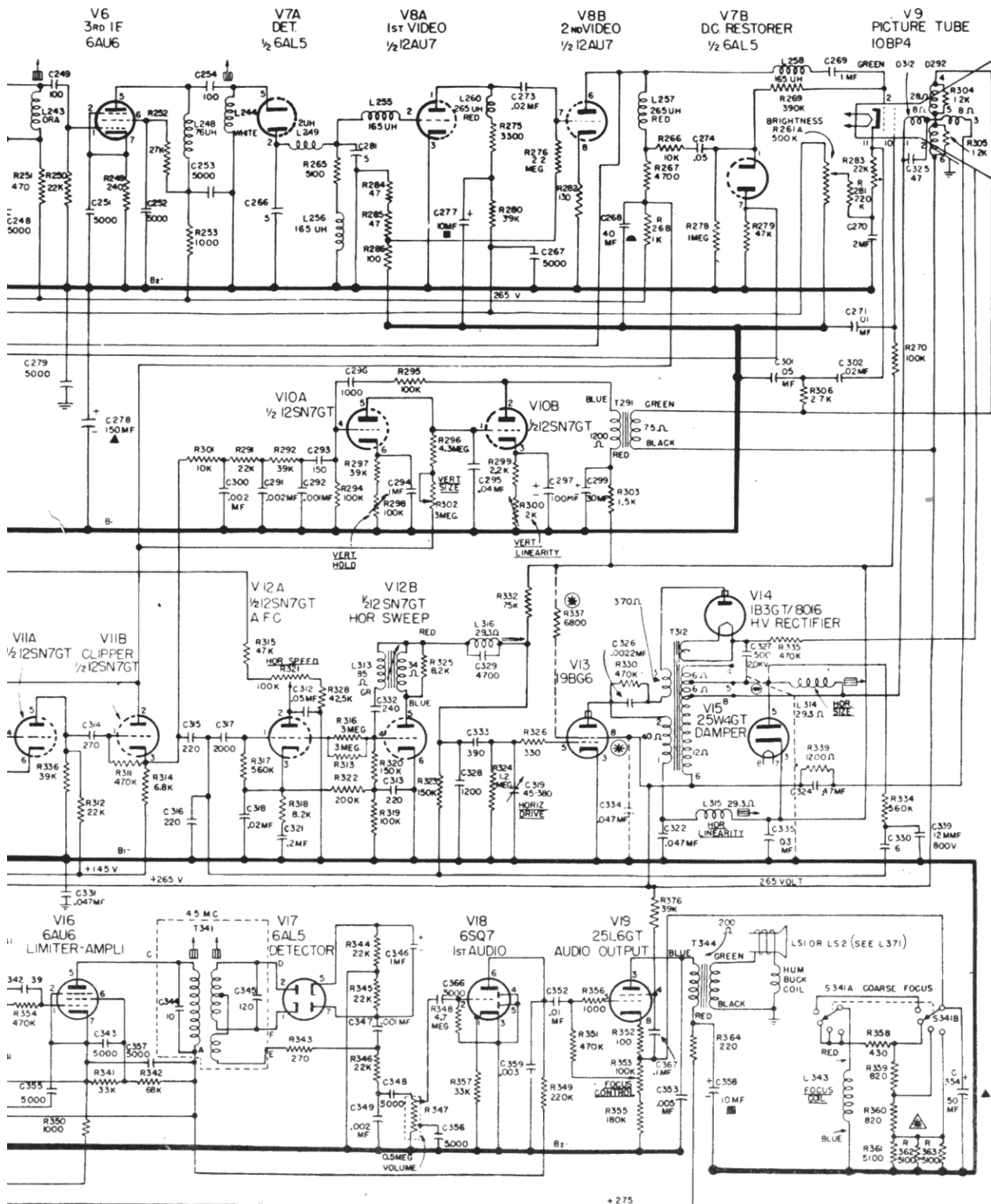


Fig. 31. Schematic Diagram, Model 800C and



Schematic Diagram, Model 800C and 800D



REPLACEMENT PARTS—MODELS 800A, B, C AND D (Cont.)

Cat. No.	Symbol	Description	Cat. No.	Symbol	Description
*RER-007	X371	SELENIUM RECTIFIER—5 plate, limited mounting space adjacent to electrodynamic speaker dictates the use of this rectifier	*RLX-027	L209, C222, C223, R219, R220	BROADCAST FILTER ASSEMBLY
*RET-003		ION TRAP—Replaces earlier double magnet type	*RMF-003		TUBE CLAMP—For V13
*RHC-023		CLIP—Safety glass clip	*RMM-089		CENTERING RING SLEEVE—Fibre, used between picture tube neck and clamp type focus coil
*RHC-024		CLIP—Filter capacitor mounting clip, 3/8 inch	*RMM-114		CUSHION—Rubber, on picture tube supporting brackets
*RHF-007		CABINET FEET	*RMM-115		CUSHION—Rubber, on chassis beneath picture tube
*RHM-059		RING—Large outside picture centering ring, used with clamp type focus coil assemblies	*RMM-116		CUSHION—Rubber, beneath picture tube strap
*RHM-060		RING—Small inside picture centering ring, used with clamp type focus coil assemblies	*RMM-117		CUSHION—Channeled rubber, on flange of front chassis apron
*RHS-032		SCREW—Brown oxide head for front of cabinet	*RMS-130		SPRING—Tuning pulley
*RHS-033		SCREW—#10-24 x 1/2 in. Filister head for bottom of cabinet	*RMS-184		TUBE STRAP—For pix tube
*RHS-034		SCREW—Self tapping, #8 x 3/8 in.	*RMO-050		SHAFT—Tubular, for tuning control, Model 800A, C (3 3/4 in. long)
*RII-023		YOKE INSULATOR	*RMU-052		SHAFT—Tubular tuning shaft for Models 800B, D (4 1/2 in. long)
*RII-024		INSULATOR—For volume control	*RMU-053		SHAFT—Replacement switch shaft for RJX-028
*RII-025		INSULATOR—For selenium rectifiers	*RMX-124		PULLEY AND HUB ASSEMBLY—Tuning
*RII-026		HI-VOLTAGE INSULATOR—Rubber grommet	*RMX-138		SCREEN—For top of cabinet
*RJC-017		ANODE CONNECTOR	*ROP-019	LS1, L371	SPEAKER—4-in. electrodynamic
*RJJ-007	I372	POWER CORD—Receptacle	*RRC-095	R300	POTENTIOMETER—2000 ohms, 2 w., Vertical Linearity Control
*RJS-003		TUBE SOCKET—V10, V11, V15, V18, V19	*RRC-096	R302	POTENTIOMETER—2 meg., Vertical Size Control
*RJS-030		TUBE SOCKET FOR V13, V14	*RRC-097†	R261A, 261B	POTENTIOMETER—500,000-500,000 ohm dual, Brightness and Contrast control for 800A, C (shaft length 1 1/2 in.)
*RJS-120		TUBE SOCKET FOR V8	*RRC-098†	R298, 321	POTENTIOMETER—100,000-100,000 ohms, dual, Vertical and Horizontal Hold control, 800A, C (shaft length 1 1/2 in.)
*RJS-127		TUBE SOCKET—For V3 rubber mica composition	*RRC-099†	R347, 353, S371	POTENTIOMETER—500,000-100,000 ohms, dual, Volume, Focus and ON-OFF Control, 800A, C (shaft length 1 1/2 in.)
*RJS-132		TUBE SOCKET FOR V17	*RRC-102†	R261A, B	POTENTIOMETER—500,000-500,000 ohm, dual, Brightness and Contrast Control for 800B, D (shaft length 2 1/2 in.)
*RJS-133		TUBE SOCKET FOR V5, V6, V16	*RRC-103†	R298, 321	POTENTIOMETER—100,000-100,000 ohms, dual, Vertical and Horizontal Hold Control, 800B, D (shaft length 2 1/2 in.)
*RJS-135		TUBE SOCKET FOR V12	*RRC-104†	R347, 353, S371	POTENTIOMETER—500,000-100,000 ohm, dual, Volume, Focus and ON-OFF control, 800B, D (shaft length 2 3/2 in.)
*RJS-136		TUBE SOCKET FOR V4, V7, V1, V2	*RRN-007	R328	RESISTOR—42.5 K, temperature compensating
*RJX-027†		R-F HEAD-END—Completely aligned with tubes (Models 800B, D), tuning shaft length 5 1/2 in.	*RRW-041	R373, 374	GLOBAL RESISTOR—75 ohms
*RJX-028†		R-F HEAD-END—Completely aligned with tubes (Models 800A, C), tuning shaft length 4 1/2 in.	*RRW-043	R371†	RESISTOR—5 ohms, 1/2 w. (used with original thermal cut-out only)
*RJX-030		PICTURE TUBE SOCKET ASSEMBLY	*RRW-048	R371†	RESISTOR—4.6 ohms, 5 w. (used with thermal cut-out RSR-002 only)
*RLC-081	L209	COIL—Oscillator Channel #2	*RSR-002	B371†	THERMAL CUT-OUT—Power line circuit breaker (improved type)
*RLC-082	L210	COIL—Oscillator Channel #3	*RSW-066	S341	FOCUS SWITCH
*RLC-083	L211	COIL—Oscillator Channel #4	*RTD-008	T341, C344, 345	RATIO DETECTOR TRANSFORMER
*RLC-084	L212	COIL—Oscillator Channel #5	*RTL-096	L376	FILTER REACTOR—Used with PM speaker
*RLC-087	L215	COIL—Oscillator Channel #13	*RTO-062	T342	TRANSFORMER—Audio output, transf., speaker mounted
*RLD-010	D291, 311, R304, 305, C325	DEFLECTION YOKE—Used with clamp type focus coil assembly	*RTO-064	T291	VERTICAL SWEEP TRANSFORMER
*RLD-011	L311	HORIZONTAL SIZE CONTROL—Models 800A, B	*RTO-066	T342	TRANSFORMER—Audio output transformer, chassis mounted
*RLD-012	L312	HORIZONTAL LINEARITY CONTROL—Models 800A, B	*RTO-071 Δ	T312, R330, C326	TRANSFORMER—Horizontal sweep output, Models 800 C, D (ceramic core) replaces laminated core type on models 800A and 800B.
*RLD-013	D292, 312	DEFLECTION YOKE—Used with swivel type focus coil assembly	*RWL-019	I371	POWER CORD
*RLD-014	L314, 315, 316	COIL—Horizontal Size, Linearity, or Flywheel coil (L314 and L315 used on 800C and D only)	*RYN-006		G-E NAMEPLATE
*RLF-023	L201	INPUT COIL	*402C3	LS2	SPEAKER—4 in. PM
*RLF-024	L204	R-F CHOKE			
*RLF-025	L342	FOCUS COIL—Clamp type			
*RLF-026	L343	FOCUS COIL—Swivel type			
*RLF-027	L248	COIL—I-F choke coil			
*RLI-032	L202, 205	R-F AND OSC. CHOKE—8.2 uh.			
*RLI-038	L255, 256, 258	VIDEO COMPENSATING CHOKE—165 uh.			
*RLI-063	L372, 373, 374, 375, 249	R-F CHOKE COIL—2.0 uh.			
*RLI-068	L257, 260	VIDEO COMPENSATING CHOKE—L260 used on 800C, D			
*RLI-069	L341	1st AUDIO I-F COIL			
*RLI-070	L222	R-F COIL—Channel #2			
*RLI-071	L223	R-F COIL—Channel #3			
*RLI-072	L224	R-F COIL—Channel #4			
*RLI-073	L225	R-F COIL—Channel #5			
*RLI-074	L213, 226	R-F OR OSC. COIL—Channel #6			
*RLI-075	L228	R-F COIL—Channel #13			
*RLI-076	L232	R-F COIL—Channel #2			
*RLI-077	L233	R-F COIL—Channel #3			
*RLI-078	L234	R-F COIL—Channel #4			
*RLI-079	L235	R-F COIL—Channel #5			
*RLI-080	L236	R-F COIL—Channel #6			
*RLI-081	L238	R-F COIL—Channel #13			
*RLI-082		R-F COIL—Consists of copper strap			
*RLI-083	L203, 207	R-F COIL			
*RLI-086	L313, R325	COIL—Blocking oscillator coil			
*RLP-014	L208, 242, 243, 244	COIL—Video I-F plate coil, plus core, replaces earlier type			

Δ Installation of RTO-071 for replacement of the laminated iron core transformers in Model 800A and 800B chassis requires certain associated circuit modification to these receivers. Installation instructions for RTO-071 are published in a separate service bulletin.

† IMPORTANT NOTE—Item RSR-002 is a new unit with improved overload protection. These new units have an identifying yellow paint code marking and will replace the original thermal cut-out unit which is no longer stocked. It is important, with the change of units, that the proper series resistor R371 is used. With original cut-out, use RRW-043, 5 ohms, 4 w., w.w. New units, RSR-002, require the series resistance, R371, to be RRW-048, 4.6 ohms. Therefore, when original thermal cut-out units are being replaced by RSR-002, the original 5 ohm series resistor R371 must also be replaced by RRW-048.

† Shaft lengths from shoulder of mounting bushing to extended end.  
\* Indicates item previously published for other General Electric receivers.