



MODEL Z2223RZ (Ch. 17Z31)

## DISASSEMBLY INSTRUCTIONS

### CHASSIS REMOVAL

1. Remove 8 metal screws and the rear cover.
2. Remove 2 speaker leads.
3. Remove 1 metal screw from the chassis brace at the lower left corner of chassis.
4. Remove 2 metal screws from the top chassis brace.
5. Remove 2 metal screws from the bottom chassis brace.
6. Remove the chassis.
7. Remove 4 speaker nuts and the speaker.

MODELS	CHASSIS
Z2223CZ, EZ, RZ, YZ	17Z31
Z2223CZU, EZU, RZU, YZU	17Z31U
Z2243EZ, RZ, Z2244EZ, RZ,	
Z2249EZ, RZ, Z2251EZ, RZ,	17Z32
Z2282EZ, RZ	
Z2243EZU, RZU, Z2244EZU, RZU,	
Z2249EZU, RZU, Z2251EZU, RZU,	17Z32U
Z2282EZU, RZU	
Z3000EZ, RZ, Z3004EZ, RZ	17Z32Q
Z3000EZU, RZU, Z3004EZU, RZU	17Z32QU
Z3001EZ, RZ, Z3008EZ, RZ	17Z34Q
Z3001EZU, RZU, Z3008EZU, RZU	17Z34QU

## SERVICING IN THE FIELD

### TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector knob. The fine tuning at the center of its range. The adjustment is accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

### PICTURE TUBE SAFETY GLASS CLEANING

Remove 2 metal screws holding the metal trim at the bottom of the safety glass. Pull out at the bottom and down to remove.

### FOCUS

Focus may be varied by the position of a strap on the base of the picture tube. The strap can be connected between pins 6 and 10 or 6 and 2. Readjust the ion trap for the best focus consistent with maximum brightness.

### HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

The horizontal frequency coil is used as the horizontal

hold control. Adjust the horizontal hold until the picture synchronizes horizontally. (For location, see tube placement chart).

### SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate audio detector buzz, adjust the buzz control for MINIMUM buzz and maximum sound. (For location, see tube placement chart).

### FUSES

One fuse is used for horizontal sweep circuit protection. (For location, see tube placement chart).

### CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

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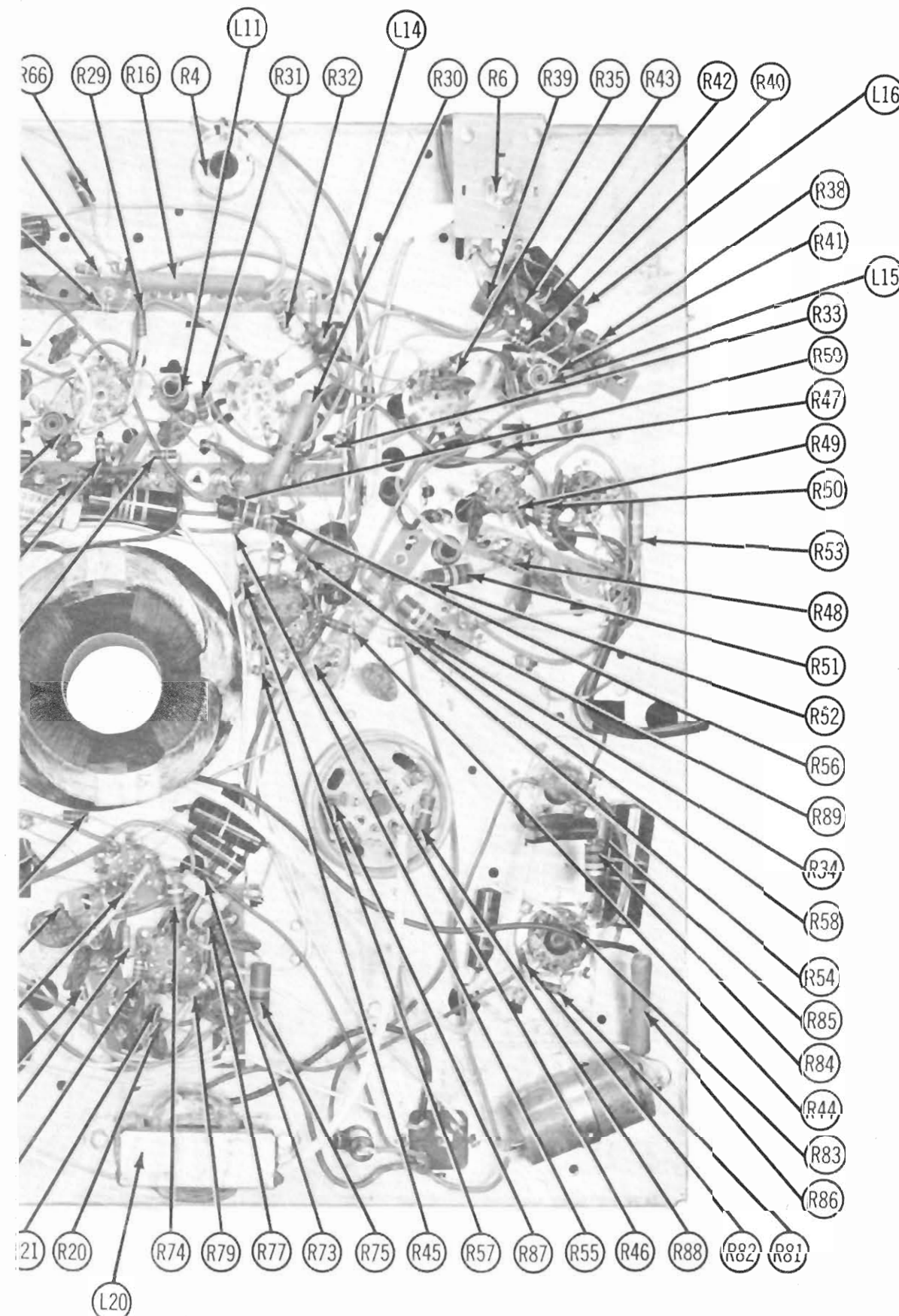
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of H62

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DATE 10 - 57

SET 374

FOLDER 16



## RESISTOR AND INDUCTOR IDENTIFICATION

# DISAS

## CHASSIS R

1. Remove
2. Remove
3. Remove lower left
4. Remove
5. Remove
6. Remove
7. Remove

## TUNER OS

Touch-up i  
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for best pl

## PICTURE

Remove 2  
bottom of  
to remove.

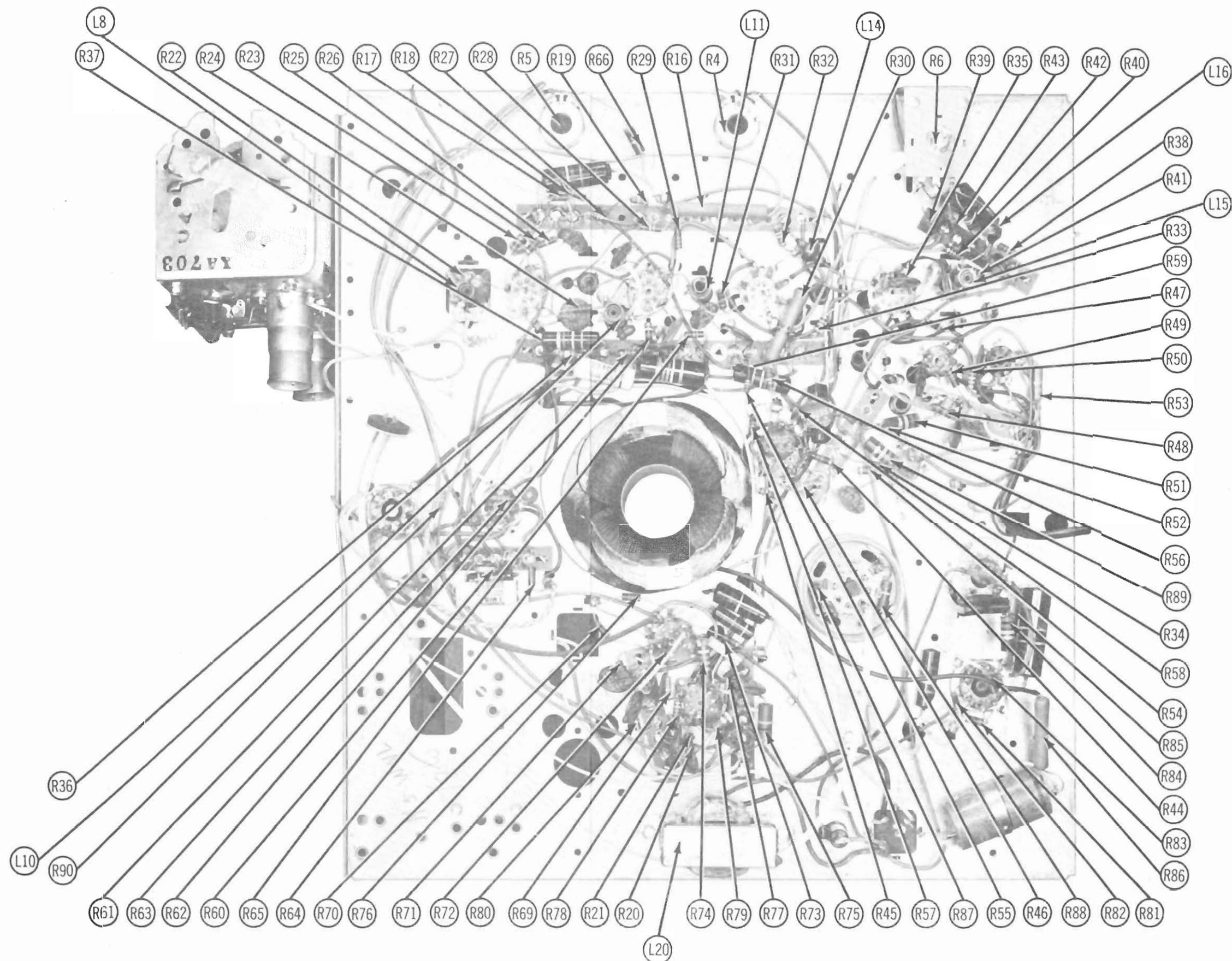
## FOCUS

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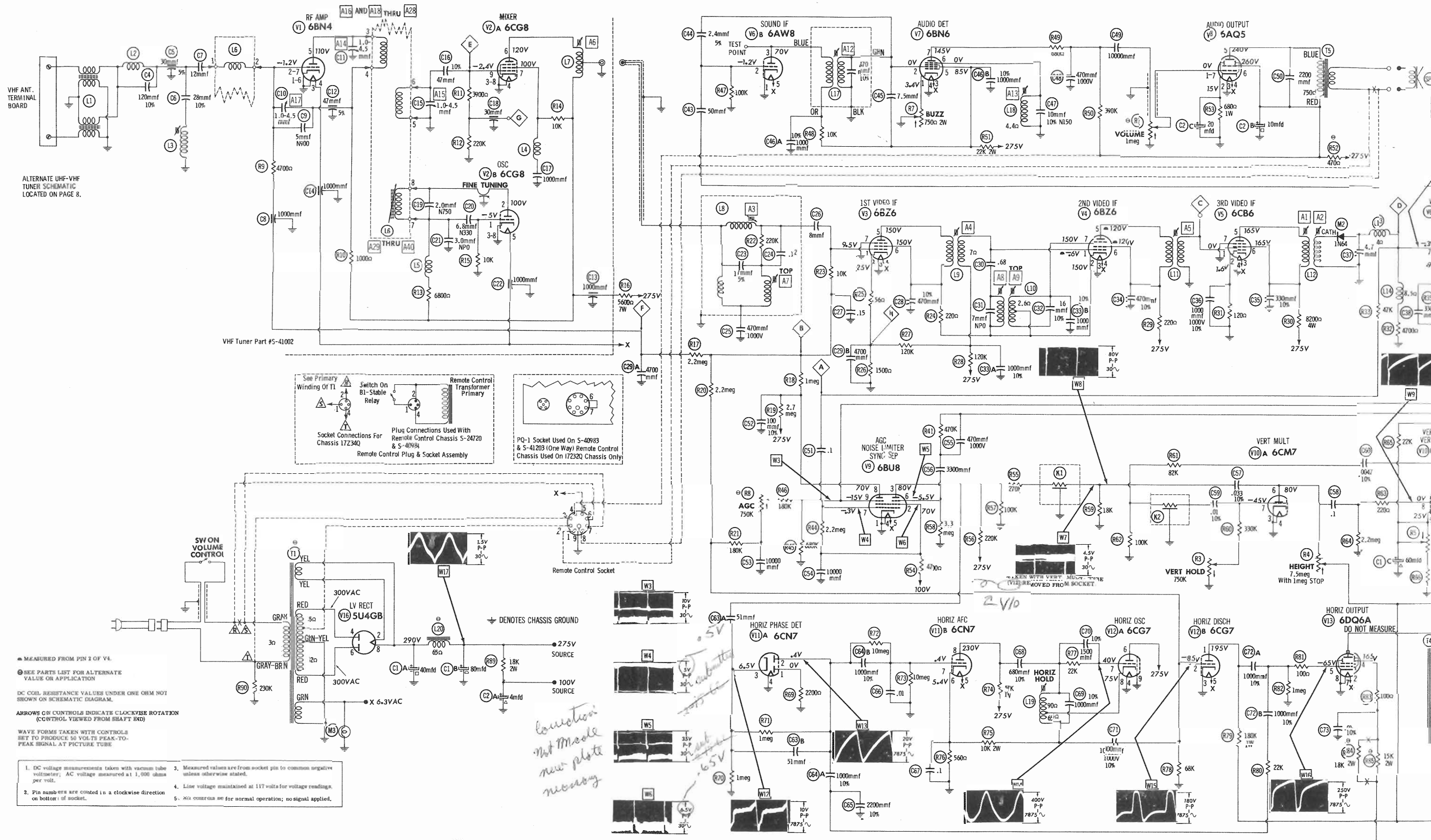
## HORIZONTAL

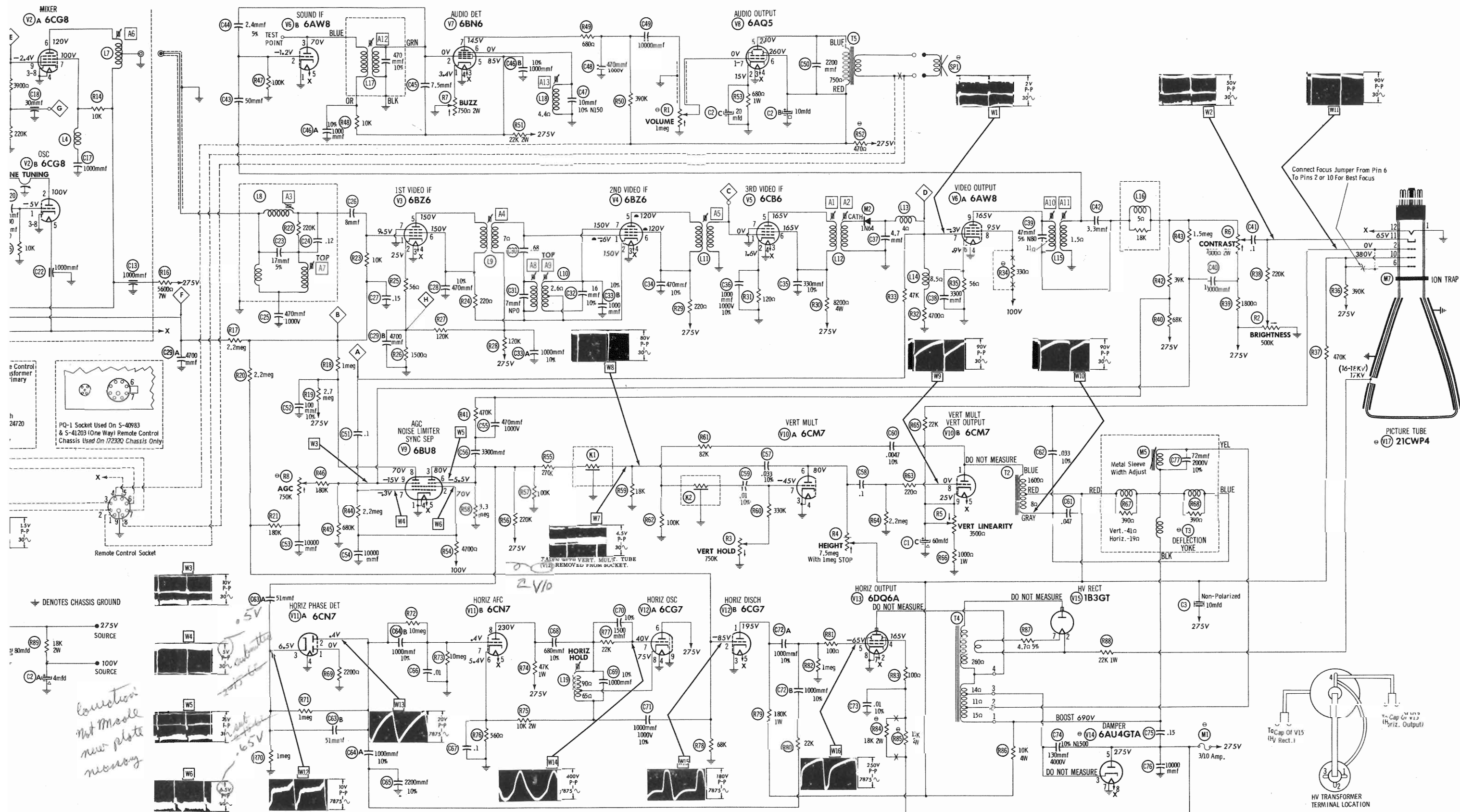
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The listing o  
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CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

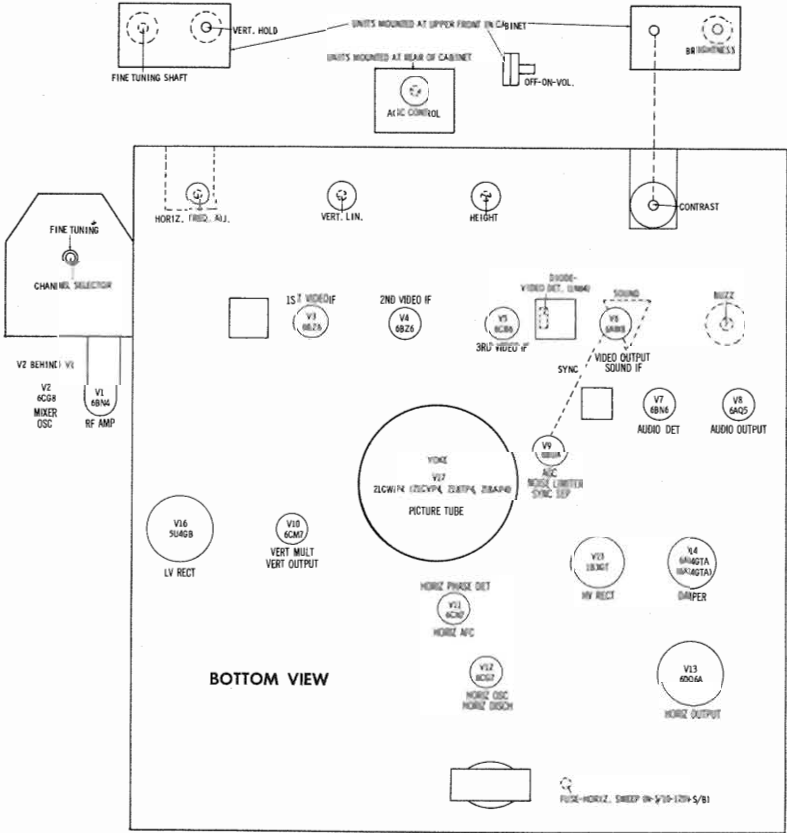




RESISTANCE MEASUREMENTS

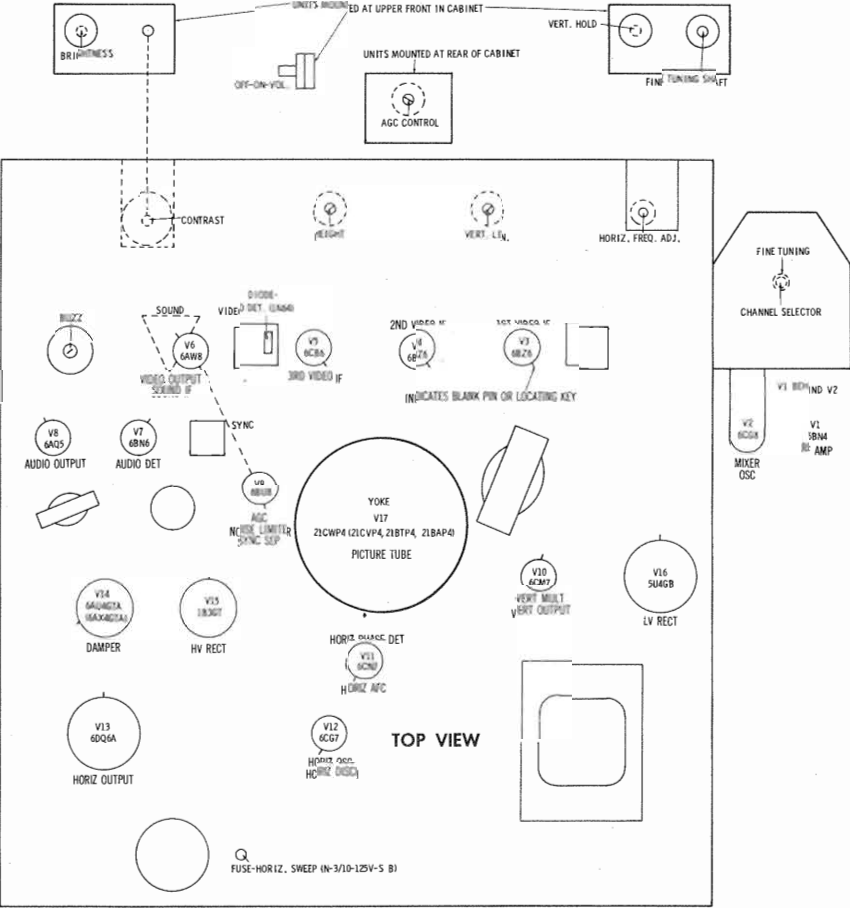
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BN4	0Ω	3.5Meg	0Ω	.1Ω	† 6700Ω	0Ω	3.5Meg		
V2	6CG8	10K	† 12K	0Ω	0Ω	.1Ω	† 5600Ω	† 16K	0Ω	220K
V3	6BZ6	2.5Meg	1500Ω	0Ω	.1Ω	• 220Ω	• 220Ω	0Ω		
V4	6BZ6	60K	1NF	0Ω	.1Ω	† 285Ω	† 285Ω	1NF		
V5	6CB6	.1Ω	120Ω	.1Ω	0Ω	† 8200Ω	† 8200Ω	0Ω		
V6	6AW8	0Ω	100K	† 32K	0Ω	.1Ω	56Ω	4000Ω	† 18K	† 7500Ω
V7	6BN6	• 425Ω	.4Ω	.1Ω	0Ω	† 22K	4.4Ω	† 390K		
V8	6AQ5	0Ω	680Ω	0Ω	.1Ω	† 1300Ω	† 500Ω	• 0Ω		
V9	6BU8	• 0Ω	† 23K	† 60K	0Ω	.1Ω	3.3Meg	† 2.2Meg	1.5Meg	270K
V10	6CM7	† 12K	TP	0Ω	0Ω	.1Ω	• † 5Meg	• 450K	2.2Meg	• 1700Ω
V11	6CN7	2200Ω	2Meg	1Meg	0Ω	.1Ω	560Ω	5Meg	† 47K	NC
V12	6CG7	† 190K	68K	0Ω	0Ω	.1Ω	† 65Ω	32K	10K	0Ω
V13	6DQ6A	TP	.1Ω	TP	† 8000Ω	1Meg	TP	0Ω	0Ω	TOP CAP † 14Ω
V14	6AU4GT	TP	NC	†	NC	† 65Ω	NC	0Ω	.1Ω	
V15	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP † 274Ω
V16	5U4GB	NC	60K	TP	35Ω	TP	32Ω	NC	60K	
V17	21CW4	0Ω	24K	PIN 6 † 480K	PIN 10 † 480K	PIN 11 270K	PIN 12 .1Ω			

† MEASURED FROM PIN 8 OF V16.  
† MEASURED FROM PIN 3 OF V14.  
• MEASURED FROM PIN 2 OF V4.  
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.  
• THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.  
† TIE POINT  
NC NO CONNECTION



TUBE PLACEMENT CHART

TUBE PLACEMENT CHART

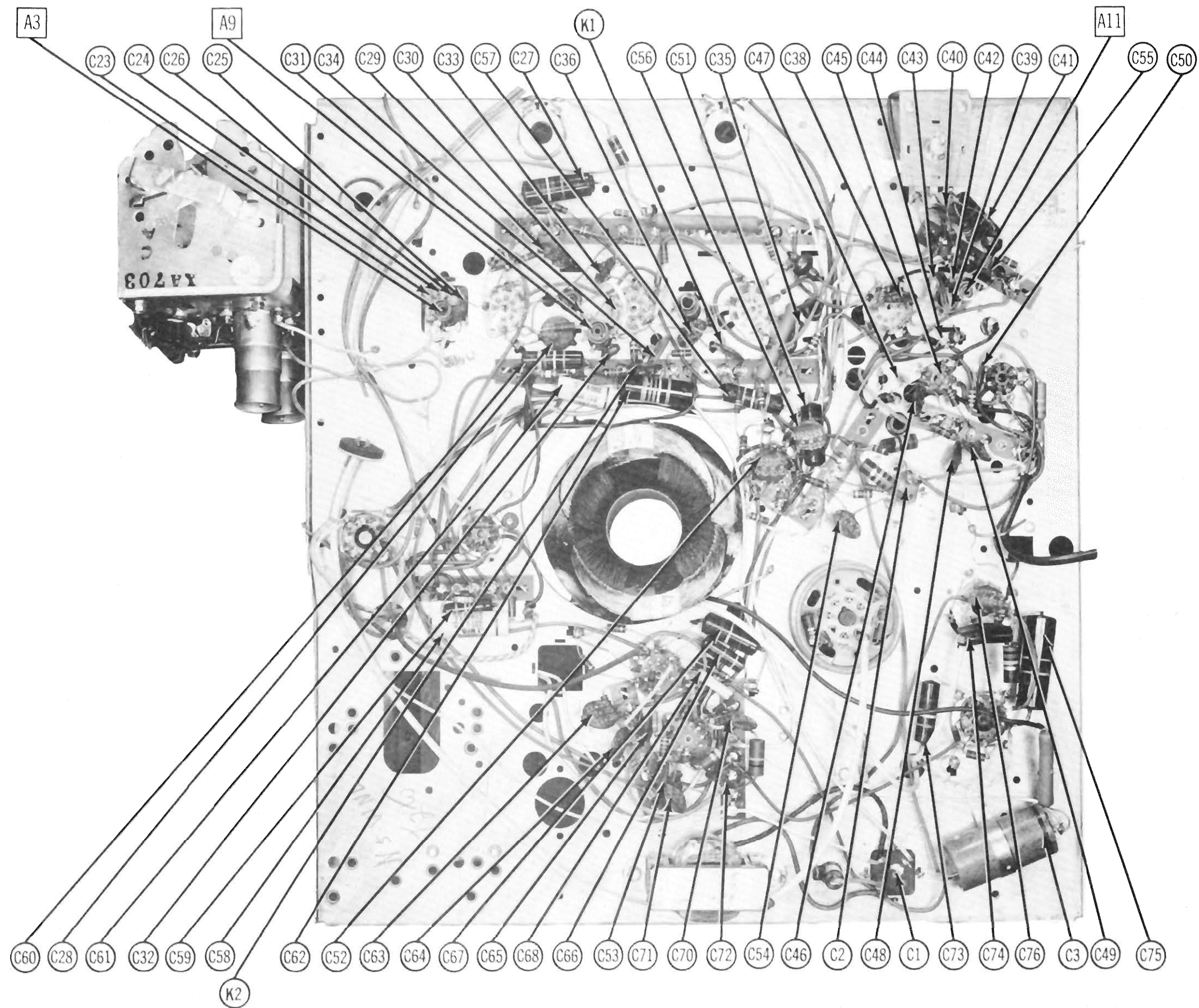


ZENITH CHASSIS 17Z31,  
U, 17Z32, U, Q, QU, 17Z34Q, QU

TUBE FAILURE CHECK CHART

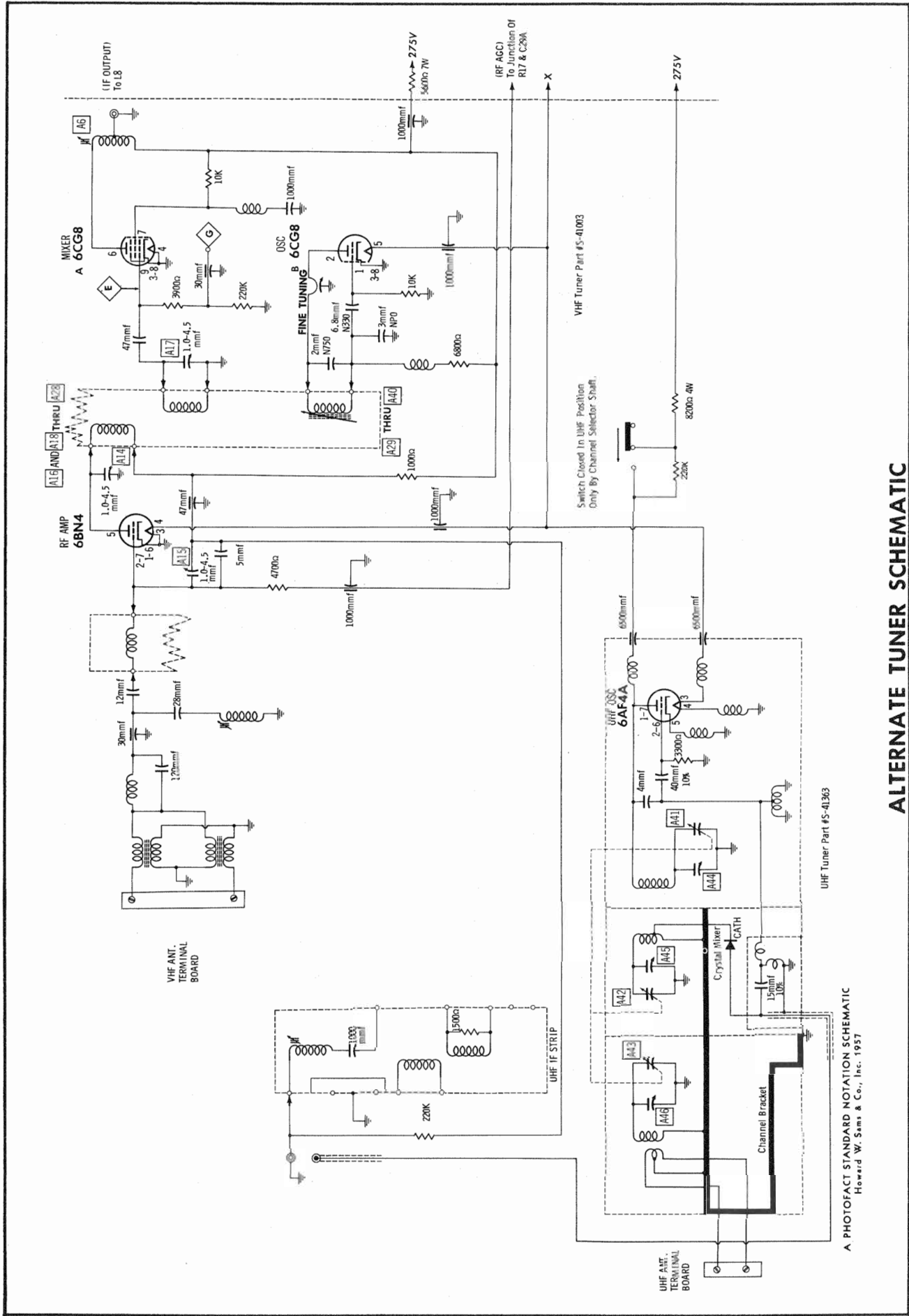
The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

- POWER SUPPLY FAILURE**  
No raster, no sound - V16
- LOSS OF PICTURE OR SOUND**  
No pic, no sound, has raster - V3, V4, V5, Diode (M2), V6  
No pic, no sound, has snow - V1, V2, V3  
No pic, has sound, has raster - V6, V17  
Has pic, no sound - V6, V7, V8  
Overloaded picture - V9
- SYNC FAILURE**  
No vert. sync - V9  
No horiz. sync - V9, V11  
No vert. or horiz. sync - V9
- SWEEP FAILURE**  
No raster, has sound - Fuse (M1), V11, V12, V13, V14, V15, V17  
No vertical deflection - V10  
Poor vert. linearity or foldover - V10  
Poor horiz. linearity or foldover - V12, V13, V14  
Narrow picture - V12, V13, V14, V16  
Vert. off freq. - V10  
Horiz. off freq. - V12

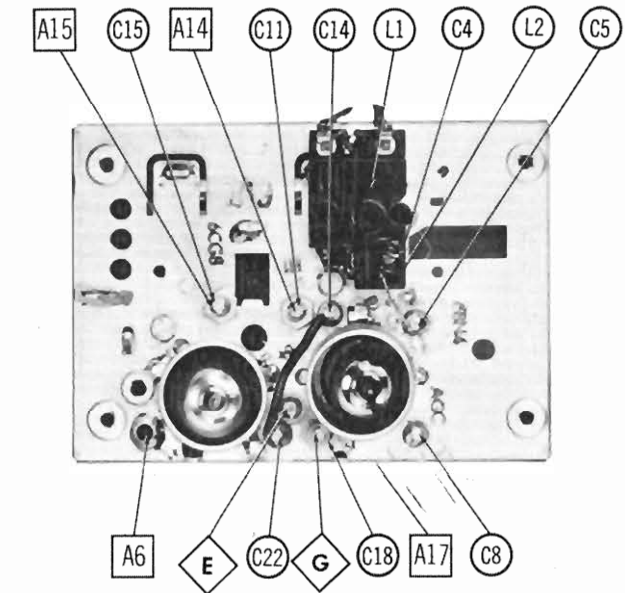


CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

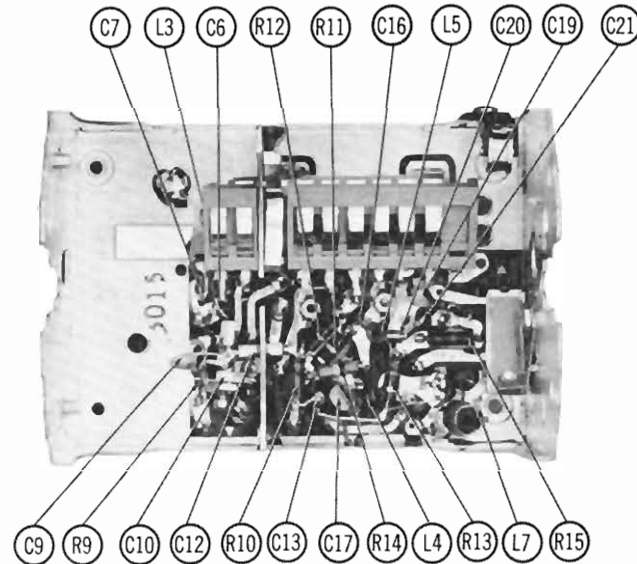
ZENITH CHASSIS 17Z31, U,  
17Z32, U, Q, QU, 17Z34Q, QU



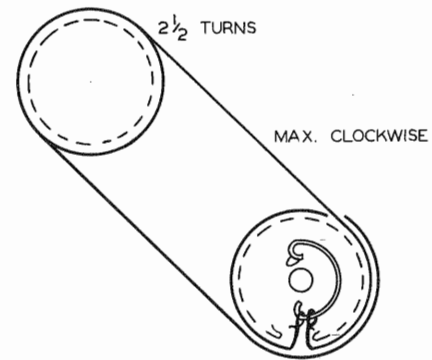
# ALTERNATE TUNER SCHEMATIC



RF TUNER TOP VIEW



RF TUNER BOTTOM VIEW



TUNING DRIVE CORD STRINGING  
SET 374 FOLDER 16

ZENITH CHASSIS 17Z31,  
U, 17Z32, U, Q, QU, 17Z34Q, QU

## ALIGNMENT INSTRUCTIONS

### ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Do not remove the horizontal oscillator tube (V12) to disable the high voltage.  
The high voltage lead should be securely taped and kept away from the chassis.

#### VIDEO IF ALIGNMENT

Short pin 1 of the oscillator tube (V2) to chassis.  
Connect a short clip lead from point A to chassis.  
Connect the negative lead of a 5 volt bias supply to point B. Connect the positive to point C.  
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.  
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.  
Use 10MC sweep unless otherwise noted.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1. 470MMF	High side to point A. Low side to chassis.	43.0MC	41.25MC 45.75MC	Any non-interfering channel	Vert. Amp. thru 10K to point D. Low side to chassis.	A1, A2	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Adjust sweep generator for 3 volts peak to peak on scope. If proper response cannot be obtained, check to see that slugs are entering their respective windings from opposite ends of coils.
2. "	High side to point A. Low side to chassis.	"	41.25MC 42.75MC 45.0MC 45.75MC 47.25MC	"	"	A3, A4, A5, A6	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown. A3 and A6 affect the peak of the curve. A4 the low frequency side and A5, the high side.
3. "	"	"	41.25MC 47.25MC	"	"	A7, A8	Switch scope gain to 10 times previous setting. Adjust A7 and A8 for maximum attenuation of response at 47.25MC (See Fig. 3). If 41.25MC marker does not fall at 50% or less, retouch A4 SLIGHTLY.
4. "	"	"	40.5MC 41.25MC 42.75MC 45.0MC 45.75MC	"	"	A9	Reduce scope gain to that used in steps 1 and 2. Remove the bias from point B and connect a jumper from point B to chassis. Adjust sweep output for 3 volts peak to peak on scope. Adjust A9 for maximum amplitude at 40.5MC marker, but not to exceed 41.25MC marker. (See Fig. 4). Restore set to normal.

#### SOUND IF ALIGNMENT

Connect a step attenuator between the antenna and the receiver antenna terminals.  
Tune in a channel and set attenuator for a signal level below the limiting level of 6BN6 as evidenced by a hiss in the sound similar to super-regeneration.  
Adjust A10, A11, A12 and A13 for maximum sound and best quality.  
Adjust the buzz control (R7) for MINIMUM buzz.  
If the hiss disappears during the alignment, further reduce the signal strength with the attenuator.

#### VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a 0-15 volt variable bias supply to point D. Positive to chassis. Adjust bias for 2.5 volts at point E.  
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.  
Use only enough sweep generator output to provide a usable pattern on scope.  
Use 10MC sweep unless otherwise noted.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5. Matching Trans.	Across antenna terminals.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point D. Low side to chassis.	A14, A15, A16	Adjust for maximum gain and symmetry of response similar to Fig. 5 with markers as shown.
6. "	"	"	"	"	"	A17	Increase bias for MINIMUM amplitude of response curve. Without changing bias, adjust A17 also, to obtain MINIMUM amplitude of response. NOTE: It may be necessary to repeat steps 5 and 6 until desired results are obtained.
7. "	"	57MC	55.25MC 59.75MC	2	"	A18	Adjust for maximum gain and symmetry of response similar to Fig. 5. Adjust by expanding or compressing coil turns.
		63MC	61.25MC 65.75MC	3		A19	
		69MC	67.25MC 71.75MC	4		A20	
		79MC	77.25MC 81.75MC	5		A21	
		85MC	83.25MC 87.75MC	6		A22	
		177MC	175.25MC 179.75MC	7		A23	
		183MC	181.25MC 185.75MC	8		A24	
		189MC	187.25MC 191.75MC	9		A25	
		201MC	199.25MC 203.75MC	11		A26	
		207MC	205.25MC 209.75MC	12		A27	
		213MC	211.25MC 215.75MC	13		A28	

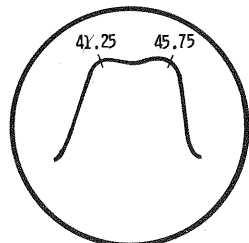


FIG. 1

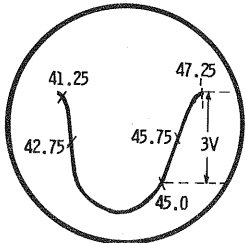


FIG. 2

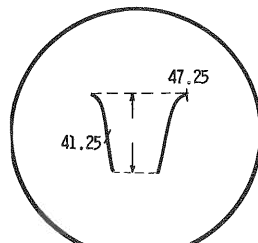


FIG. 3

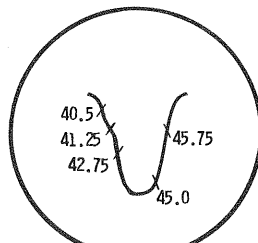


FIG. 4

## ALIGNMENT INSTRUCTIONS (cont)

### VHF OSCILLATOR ALIGNMENT

Connect bias as under "Video IF Alignment".  
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.  
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.  
Set the fine tuning to the center of its range.  
Use only enough sweep generator output to provide a usable pattern on scope.  
Use 10MC sweep unless otherwise noted.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8. Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 47K to point D. Low side to chassis.	A29	Adjust to place sound marker in trap notch as in Fig. 6. Video marker should fall at 50%.
		207MC (10MC Swp)	205.25MC 209.75MC	12		A30	
		201MC (10MC Swp)	199.25MC 203.75MC	11		A31	
		195MC (10MC Swp)	193.25MC 197.75MC	10		A32	
		189MC (10MC Swp)	187.25MC 191.75MC	9		A33	
		183MC (10MC Swp)	181.25MC 185.75MC	8		A34	
		177MC (10MC Swp)	175.25MC 179.75MC	7		A35	
		85MC (10MC Swp)	83.25MC 87.75MC	6		A36	
		79MC (10MC Swp)	77.25MC 81.75MC	5		A37	
		69MC (10MC Swp)	67.25MC 71.75MC	4		A38	
		63MC (10MC Swp)	61.25MC 65.75MC	3		A39	
		57MC (10MC Swp)	55.25MC 59.75MC	2		A40	

#### UHF TUNER ALIGNMENT

Alignment of the UHF tuner should not be attempted without the proper test equipment.  
Switch the receiver to the UHF position.  
Connect the negative lead of a 2 volt bias supply to point D. Positive to point E.  
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.  
Use only enough sweep generator output to provide a usable pattern on scope.  
Use 10MC sweep unless otherwise noted.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9. Fig. 7	Across antenna terminals.	713MC	711.25MC 715.75MC	54	Vert. Amp. thru 10K to point D. Low side to chassis.	A41, A42, A43	The rocker arm of the tuner should be in the horizontal position. If necessary, loosen set screw and adjust tuner so that rocker arm is horizontal when the channel indicator is set to channel 54. Do not adjust A41 unless oscillator calibration is off more than 3 channels. If necessary, adjust A41 to place video marker at 50% on response curve as in Fig. 6. The image (weaker response) will appear also. The response toward the counter clockwise position of A41 is the proper response. Adjust A42 and A43 for maximum response similar to Fig. 6.
10. "	"	473MC	471.25MC 475.75MC	14	"	"	Check for response similar to Fig. 6. If oscillator is off more than 3 channels, adjust oscillator travel adjustments (oscillator, mixer and antenna travel adjustments are the three nuts on rear of tuner) to scale. Care must be used in making this adjustment so as not to move the rocker arm out of its bearing. Set the mixer and antenna adjustments for maximum amplitude on the scope.
11. "	"	887MC	885.25MC 889.75MC	83	"	A44, A45, A46	Adjust A44 to place video marker at 50% as in Fig. 6. Adjust A45 and A46 for maximum amplitude and symmetry of response similar to Fig. 6.

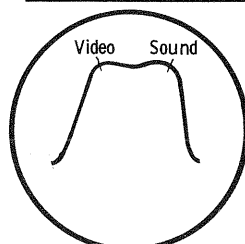


FIG. 5

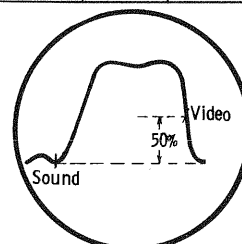


FIG. 6

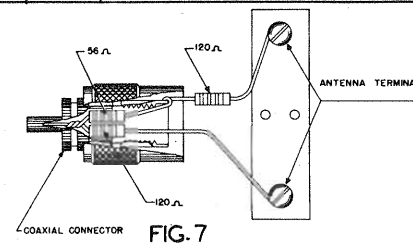


FIG. 7

## HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern. be necessary to switch off channel and back again for picture to lose sync.  
Set the brightness and contrast controls for a normal picture.  
Turn the horizontal hold clockwise until the picture loses sync. It may be necessary to switch off channel and back again for picture to lose sync.  
Turn the horizontal hold slowly counter clockwise until the picture just falls into sync.

**PARTS LIST AND DESCRIPTIONS (Continued)**  
**FILTER CHOKE**

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 CY)	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L20	.250A	65Ω	1.8 HY.	95-1376 ①	C5037 ②	C-2891 ②	C-2326 ②	26C44	C-23X

① Alternate part numbers used in this application 95-1507, 95-1521, 95-1531, 95-1532, 95-1533, 95-1542.

**COMPONENT COMBINATIONS**

ITEM No.	USE	DESCRIPTION	ZENITH PART No.	REPLACEMENT DATA
K1	Vert. Integrator		87-5	
K2	Vert. Integrator		87-4	

**FUSES**

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			ZENITH PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	N	* 3/10	136-33	62-18	333.300 (N 3/10)	346008	N 3/10	HN 0 to 3/10

\* N 1/4 used in some versions.

**CRYSTAL DIODES**

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		ZENITH PART No.	CBS PART No.	SYLVANIA PART No.	
M2	1N64	103-18	1N64	1N60	Video Detector (Pigtail)

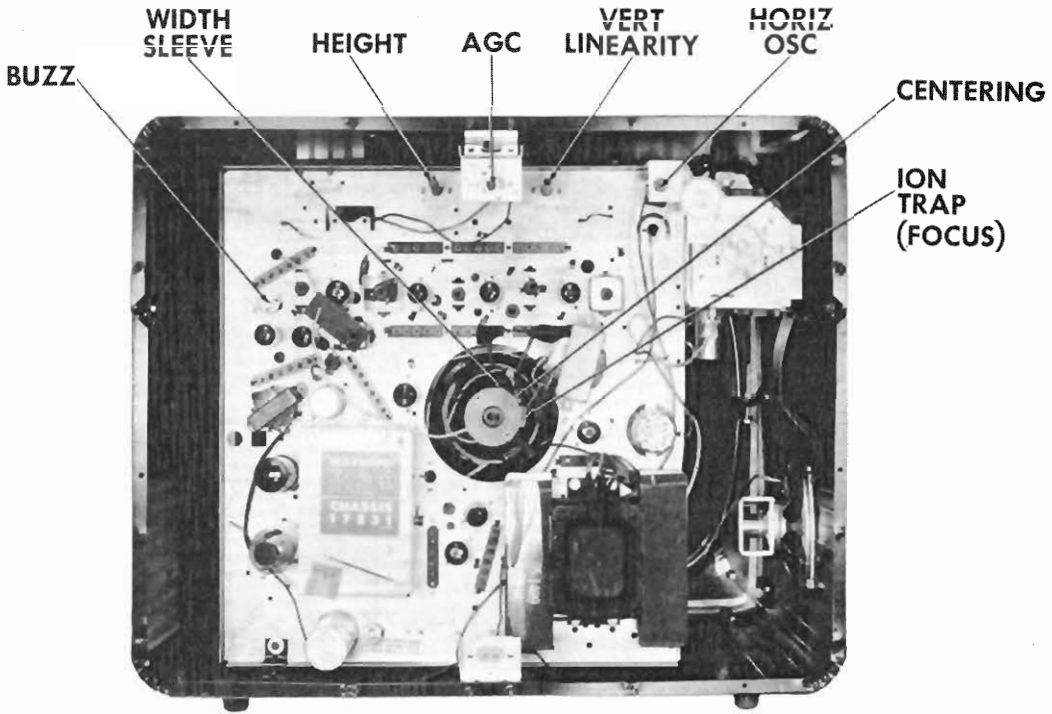
**MISCELLANEOUS**

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M3	Pilot Light	100-198	
M4	Tuner	S-41002	VHF - Chassis 17Z31, 17Z32
	Tuner	S-41012	VHF - Chassis 17Z32Q, QU, 17Z34Q, QU
	Tuner	S-41363	UHF - Chassis 17Z31U, 17Z32U
	Tuner	S-41003	VHF - Chassis 17Z31U, 17Z32U
M5	Width Sleeve	S-22560	
M6	Centering Device	S-22574	
M7	Ion Trap		

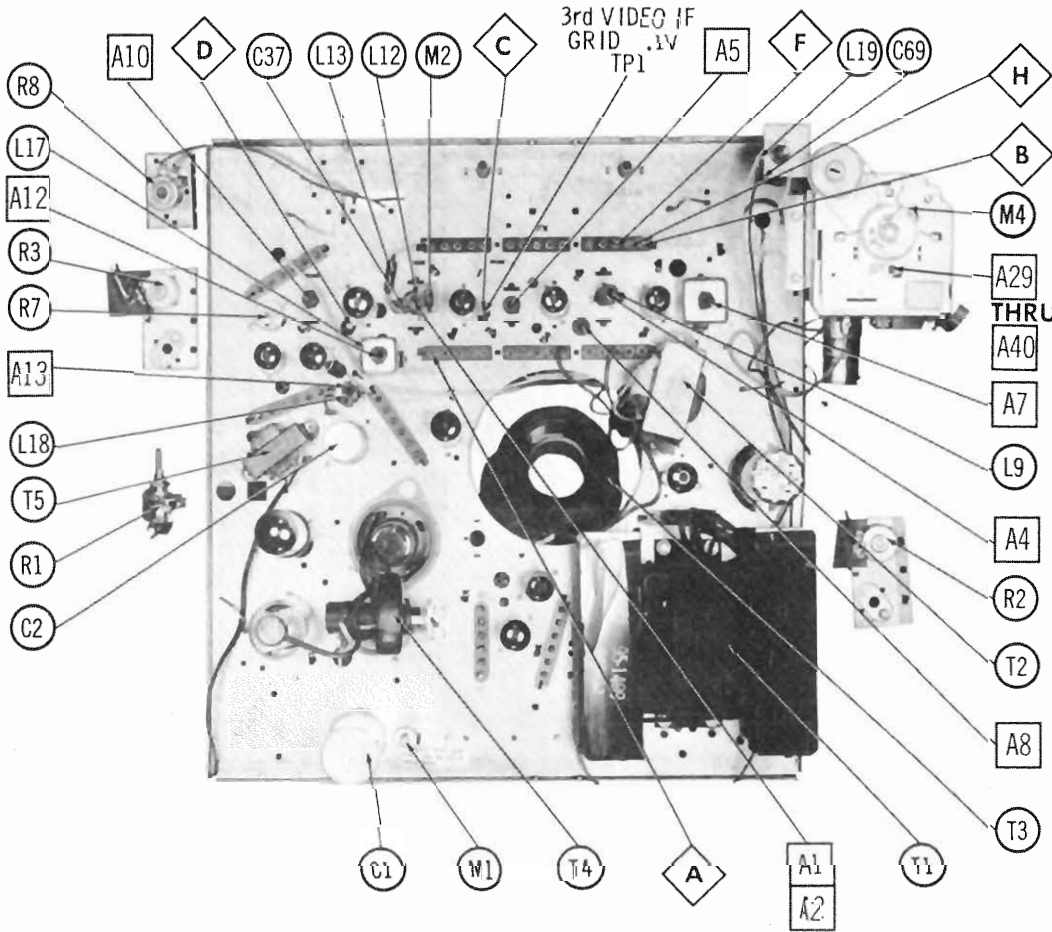
**CABINETS & CABINET PARTS**

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	192-216	In Models using Ch. 17Z31, U
Safety Glass	192-226	In Models using Ch. 17Z32, U, Q, QU, 17Z34Q, QU
Mask	57-2323	In Models using Ch. 17Z31, U
Mask	57-2332	Models Z2243EZ, EZU, RZ, RZU, Z2251EZ, EZU, RZ, RZU
Mask	57-2330	Models Z2244EZ, EZU, RZ, RZU, Z2249EZ, EZU, RZ, RZU, Z2282EZ, EZU, RZ, RZU
Mask	57-2352	Models Z3000EZ, EZU, RZ, RZU, Z3001EZ, EZU, RZ, RZU, Z3004EZ, EZU, RZ, RZU, Z3008EZ, EZU, RZ, RZU
Knob	S-22863	UHF Channel Selector - All UHF versions
Knob	S-40973	VHF Channel Selector - Models Z2223CZ, CZU, EZ, EZU, RZ, RZU, YZ, YZU, Z2244EZ, EZU, RZ, RZU, Z2249EZ, EZU, RZ, RZU, Z2282EZ, EZU, RZ, RZU
Knob	S-24875	VHF Channel Selector - Models Z2243RZ, RZU, Z2251EZ, EZU
Knob	S-24855	VHF Channel Selector - Models Z2243RZ, RZU, Z2251RZ, RZU, Z3000EZ, EZU, RZ, RZU, Z3001EZ, EZU, RZ, RZU, Z3004EZ, EZU, RZ, RZU, Z3008EZ, EZU, RZ, RZU
Knob	S-41057	Fine Tuning, Contrast - Models Z2223CZ, CZU, EZ, EZU, RZ, RZU, YZ, YZU
Knob	S-40728	Fine Tuning, Contrast - Models Z2243EZ, EZU, Z2251EZ, EZU
Knob	S-40727	Fine Tuning, Contrast - Models Z2243RZ, RZU, Z2251RZ, RZU, Z3000EZ, EZU, RZ, RZU, Z3001EZ, EZU, RZ, RZU, Z3004EZ, EZU, RZ, RZU, Z3008EZ, EZU, RZ, RZU
Knob	S-41022	Fine Tuning, Contrast - Models Z2244EZ, EZU, RZ, RZU, Z2249EZ, EZU, RZ, RZU, Z2282EZ, EZU, RZ, RZU
Knob	46-1700	On-off-volume - Models Z2223CZ, CZU, EZ, EZU, RZ, RZU, YZ, YZU, Z2244EZ, EZU, RZ, RZU, Z2249EZ, EZU, RZ, RZU, Z2282EZ, EZU, RZ, RZU
Knob	46-1585	On-off-volume - Models Z2243EZ, EZU, Z2251EZ, EZU
Knob	46-1541	On-off-volume - Models Z2243RZ, RZU, Z2251RZ, RZU
Knob	46-1742	On-off-volume - Models Z3000EZ, EZU, RZ, RZU, Z3001EZ, EZU, RZ, RZU, Z3004EZ, EZU, RZ, RZU, Z3008EZ, EZU, RZ, RZU
Knob	46-1301	Tone - Models Z2282EZ, EZU
Knob	46-1318	Tone - Models Z2282EZ, EZU
Knob	46-1300	Tone - Models Z2283RZ, RZU
Knob	46-1317	Tone - Models Z2283RZ, RZU
Knob	S-40946	Brightness, Vert. Hold - Models Z2223CZ, CZU, EZ, EZU, RZ, RZU, YZ, YZU
Knob	S-24913	Brightness, Vert. Hold - Models Z2243EZ, EZU, Z2251EZ, EZU
Knob	S-24912	Brightness, Vert. Hold - Models Z2243RZ, RZU, Z2251RZ, RZU, Z3000EZ, EZU, RZ, RZU, Z3001EZ, EZU, RZ, RZU, Z3004EZ, EZU, RZ, RZU, Z3008EZ, EZU, RZ, RZU
Knob	S-41021	Brightness, Vert. Hold - Models Z2244EZ, EZU, RZ, RZU, Z2249EZ, EZU, RZ, RZU, Z2282EZ, EZU, RZ, RZU
Knob	46-1785	Horiz. Hold
Dial	S-22025	UHF - All versions except "Q" Chassis



**CABINET-REAR VIEW**



**CHASSIS TOP VIEW**

SET 374 FOLDER 16

ZENITH CHASSIS 17Z31, U,  
17Z32, U, Q, QU, 17Z34Q, QU

## PARTS LIST AND DESCRIPTIONS

[illegible]

## TRANSFORMERS (SWEEP CIRCUITS)

- ① Cut and tape blanking lead.
- ② Drill new mounting hole(s).
- ③ Includes resistors R67, R68 and capacitor (C77).
- ④ Connect horizontal output transformer yoke terminals #3 and #7.
- ⑤ Use original yoke network, connect yoke terminal #3 to horizontal output transformer #2, yoke terminal #1 to horizontal output transformer #1. Cut and form a piece of .005 gauge .015 inch paper inside the yoke itself and support with an acetate cement, to provide an insulation between the wide sleeve and the yoke proper.
- ⑥ Connect horizontal output transformer terminal #2 to yoke terminal #2, horizontal output transformer terminal #1 to yoke terminal #7, cut and tape orange lead.
- ⑦ Use original mounting bracket.

## CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	$\frac{1}{2}$	83-3626	B-70	A47-1Meg-S	Q11-137	U54	Volume - Note 1
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	
R2	500K	$\frac{1}{2}$	83-3671	B-61	Q7-133	T455R	Brightness	Brightness Vert. Hold
R3A	750K	$\frac{1}{2}$	83-3672	B-66	A47-750K-S	Q11-136	U54	
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R4A	1.0Meg	$\frac{1}{2}$	83-3294	AB-69 †	A47-7.5Meg -Z †	Q11-142 †	PTA855L †	Height with 1Meg stop
B	Shaft			AK-1	FKS-1/2	TQ	Not Req.	Vert. Lin.
R5A	3500Ω	$\frac{1}{2}$	83-3295	AB-9	A47-4000-S	Q11-114	PTA332L	
B	Shaft			AK-1	FKS-1/2	TQ	Not Req.	
R6A	7000Ω	2	83-3288	WW-752 *	A43-7500 *	WP7500 *	R7500L *	Contrast - Wire wound
B	Shaft			Not Req.	FS-3	Not Req.	DS-36	
R7	750Ω	2	83-3284		39-800-50	FL-750	Buzz - Wire wound	
R8A	750K	$\frac{1}{2}$	83-3262			Bill-136	PTA754L	AGC Note 2
B	Shaft					TM2-Kit	Not Req.	

### \*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordorson Replacement Connections	Triad Replacement Connections
	4				4	4	4	
	3				3	3	3	
	2				2	2	2	
	1				1	1	1	

### TRANSFORMER (AUDIO OUTPUT)

RATING			REPLACEMENT DATA						
ITEM No.	CAP.	VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	400	22-2743	AFH4-58-75	104040 BR6015	FP368	TMD-58 TMD-60-350	D-255 FMD-1530	R2285 *
C2A	A4	350	22-2744	AFH3-180	106030 BR435	FP231.3 TC60	TMD-72 TMD-4-450	D-345 FM-4504	R2416 *
C3	10	400	22-2870 ①	PRS400VNP	BR2045 104BR2045	TC75 TC75 †		MT-4520 MT-4520 †	R2286 *

## FIXED CAPACITORS

Note 1. Alternate part #63-3969 may be used in some versions with push type on-off switch.  
 Note 2. Alternate part #63-3989 may be used in some versions.  
 † A 1Meg resistor in series with the right hand terminal.  
 \* Cut shaft to length and file double flat.

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

SPEAKER						
ITEM No.	TYPE			REPLACEMENT DATA		NOTES
				ZENITH PART No.	QUAM PART No.	
	SIZE	FIELD	V. C. IMP.			
SP1	5 1/4"	PM	3-4Ω	49-751 ①	52A1	① Used in Models Z3000EZ, EZU, RZ, RZU, Z30001EZ,RZ, EZU, RZ, Z2223CZ, CZU, EZ, EZU, RZ, RZU, YZ, YZU ② Used in Models Z2243EZ, EZU, RZ, RZU, Z2244EZ, EZU, RZ, RZU, Z2249EZ, EZU, RZ, RZU, Z3004EZ, EZU, RZ, RZU ③ Used in Models Z2251EZ, EZU, RZ, RZU, Z3008EZ, EZU, RZ, RZU ④ Used in Models Z3008EZ, EZU, RZ, RZU ⑤ Used in Models Z2282EZ, EZU, RZ, RZU ⑥ Electrostatic, two used.
	8"	PM	3-4Ω	49-780 ②	8A21	
	10"	PM	3-4Ω	49-752 ③	10A31	
	10"	PM	3-4Ω	49-818 ④ 49-764 ⑤ S-2382g ⑥	10A10Z. 2	

## COILS (RF-IF)

ITEM No.	RATING		ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	REPLACEMENT DATA				NOTES
	CAP.	VOLT				CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	120		22-2922	NP0-SI 120	TCZ-120	L10T12	ED-120		MS-32I	10%
C5	30		22-2921							5%
C6	28		22-2920							10%
C7	12		22-2919							
C8	1000		22-2912	EF-001	MFT-1000				503C-DI	N900
C9	5		22-2913							
C10	1.0-		22-2909		829-6		532-B			
C11	4.5									
C12	1.0-		22-2909		829-6		532-B			
C13	4.5									
C12	47		22-2917							5%
C13	1000		22-2918	EF-001	MFT-1000				503C-DI	
C14	1000		22-2912	EF-001	MFT-1000				503C-DI	
C15	1.0-		22-2909		829-6		532-B			
C16	4.5									
C16	47		22-2915							10%
C17	1000		22-2911	BPD-001	DD-102	BYA6DI	ED-1000	DC52I	5HK-DI	
C18	30		22-2916							
C19	2.0		22-2910							N750
C20	6.8		22-2923							N330
C21	3.0		22-2914							
C22	1000		22-2912	EF-001	MFT-1000				503C-DI	
C23	17		22-2944							5%
C24	12		22-2948							
C25	47		22-2948							
C26	8		22-2481	HVD-15-1000	DD30-47I	BYA10T47	HD15-1000	DC30347	10GAB-T47	
C27	.15	200	22-2147	P288N-15		CUB2PI5			2TM-P15	
C28	470		22-16		D6-47I	5R5T47	ED-470	GEM-2015	MS-347	10%
C29A	4700		22-24	BPD-2X0047		BYC6DD47	ED-0047	UC-5247	5HK-2D47	
B	4700						ED-0047	UC-5247		
C30	.68		22-1766		TCZ-R68		TCO-.68			
C31	7		22-2513							NP0
C32	16		22-2296			C10V7C				10%
C33A	1000		22-21			C10Q15C				10%
B	1000						ED-1000		MS-2I	10%
C34	470		22-16		D6-47I	5R5T47	ED-1000		MS-2I	10%
C35	330		22-2667	1469-00033	D6-33I	5R5T33	ED-330		MS-347	10%
C36	1000		22-17						MS-333	10%
C37	4.7		22-2867		TCZ-4R7	C10V47C	TCO-4.7	ZT-5547		10%
C38	3300		22-11	NP0-0033	D6-33I	BYA10D33	ED-0033	UC-5233	5GA-D33	
C39	47		22-2467							N80 5%
C40	10000		22-3	BPD-01	DD-103	BYA6SI	ED-01	DC51I	5HK-SI	
C41	1	200	22-1777	P288N-1	DF-104	C0 B2P1		GEM-201	2TM-P1	
C42	3.3		22-2943	NP0-SI 3.3	DF-104	C0 B2P1		GEM-201	2TM-P1	
C43	50		22-2480		TCZ-3R3	C10V33C	TCO-3.3	ZT-5533	57CCB-V33	
C44	2.4		22-2596	NP0-SI 50	TCZ-50	C10Q5C	TCO-50	UC-545	5GA-Q5	
C45	7.5		22-2742							5%
C46A	1000		22-21				ED-1000		MS-2I	10%
B	1000						ED-1000		MS-21	10%
C47	10		22-2731							N150 10%
C48	470	1000	22-8	HVD-15-470	DD30-47I	BYA10T47	HD15-470	DC30347	10GAB-T47	
C49	10000		22-8	BPD-01	DD-103	BYA6SI	ED-01	DC51I	5HK-SI	
C50	2200		22-8	BPD-0022	D6-222	BYA10D22	ED-0022	UC-5222	5GA-Q22	
C51	1	200	22-1777	P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C52	100		22-9	NP0-SI 100	D6-10I	L10T1	ED-100	ZT-531	MS-31	10%
C53	10000		22-3	BPD-01	DD-103	BYA6SI	ED-01	DC51I	5HK-SI	
C54	10000		22-3	BPD-01	DD-103	BYA6SI	ED-01	DC51I	5HK-SI	
C55	470	1000	22-6	HVD-15-470	DD30-47I	BYA10T47	HD15-470	DC30347	10GAB-T47	
C56	3300		22-11	BPD-0033	D6-33I	BYA10D33	ED-0033	UC-5233	5GA-T33	
C57	.033	400	22-2935							10%
C58	.1	400	22-2061	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C59	.01	400	22-2565							10%
C60	.0047	600	22-1849							10%
C61	.047	200	22-1778	BPD-05		CUB4S47			4TM-S47	
C62	.033	600	22-2235							10%
C63A	51		22-25	NP0-SI 50	TCZ-51	L10Q51	TCO-51	UC-545	5GA-Q5	
B	51			NP0-SI 50	TCZ-51	L10Q51	TCO-51	UC-545	5GA-Q5	

### TRANSFORMER (POWER)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		ZENITH PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L8	1st. Video IF	S-41370	17-4522 *	TV-130 *	6219 *	Includes Trap and assembly
L9	2nd. Video IF	S-41398				
L10A	40.5MC Trap	S-41395	17-4523 *	TV-130 *	6219 *	25 Microhenries
B	47.25MC Trap	S-23993				
L11	3rd. Video IF	S-23999	17-4522 *	TV-130 *	6219 *	325 Microhenries
L12	4th. Video IF	S-23999				
L13	Resonant Choke	S-22444	19-3300	TV-190	6132	137 Microhenries, wound on 18K resistor
L14	Shunt Peaking Coil	S-16015		TV-120 *		
L15A	4.5MC Trap	S-22350	19-3125 A		6153 A	Includes Cap.
B	1st. Sound IF					
L16	Series Peaking Coil	S-20880				
L17	2nd. Sound IF	S-22348	20-1005 *	TV-121	1480 *	
L18	Quadrature Coil	S-19020				

- \* Drill new mounting hole.
- ▲ Parallel with 18K resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.	REPLACEMENT DATA							NOTES
		ZENTH PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordarson PART No.	
L19	155Ω *	S-19743	19-1577	MWC-13	6324			HS-6	90-110 Millihenries

\* Tapped @ 65Ω.

**ZENITH CHASSIS 17Z31, U,  
17Z32, U, Q, QU, 17Z34Q, QU**