

CENTERING

CABINET—REAR VIEW

Turn the set on and tune in a TV station, preferably with a test pattern.

Adjust the horizontal hold control until the picture synchronizes horizontally.

Switch off channel and back again. If the picture does not fall back in sync, SLIGHTLY readjust the horizontal hold control until it does. Repeat until the picture remains in sync when the channel selector is switched off channel and back.

Adjust the brass width sleeve located on the neck of the picture tube for a picture slightly wider than necessary to fill the picture mask horizontally.

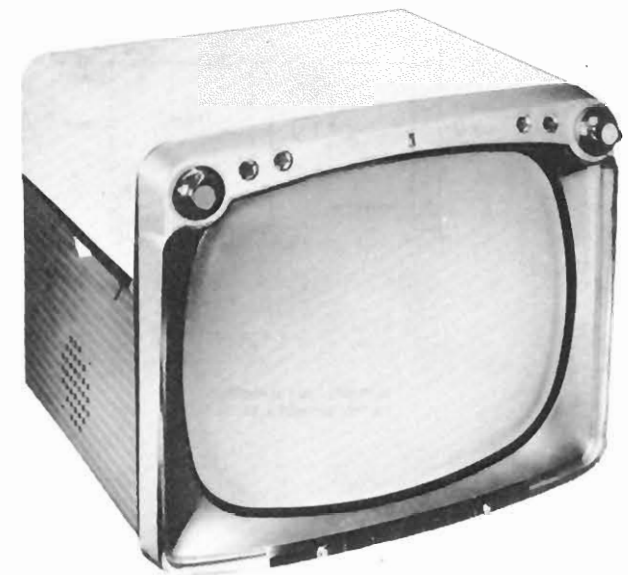
PHOTOFACT* Folder



DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 8 metal screws. Remove rear cover.
2. Remove 5 metal screws holding chassis brackets to rear of cabinet.
3. Disconnect speaker leads.
4. Slide chassis from front of cabinet.
5. Remove 2 speaker nuts. Remove speaker.



MODEL	CHASSIS
Z2222C	17Z20

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF tuner oscillator circuit may be accomplished one at a time thru a hole in rear cover below and to the right of the fine tuning shaft.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 2 metal screws holding name plate at the bottom edge of the safety glass. Remove name plate and safety glass. Use extreme caution when removing safety glass.

SERVICE ADJUSTMENT LOCATION

See tube placement chart on page 11.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjust the horizontal hold until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

Adjust the buzz control (R7) located on tube side of chassis for maximum volume and MINIMUM buzz.

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, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

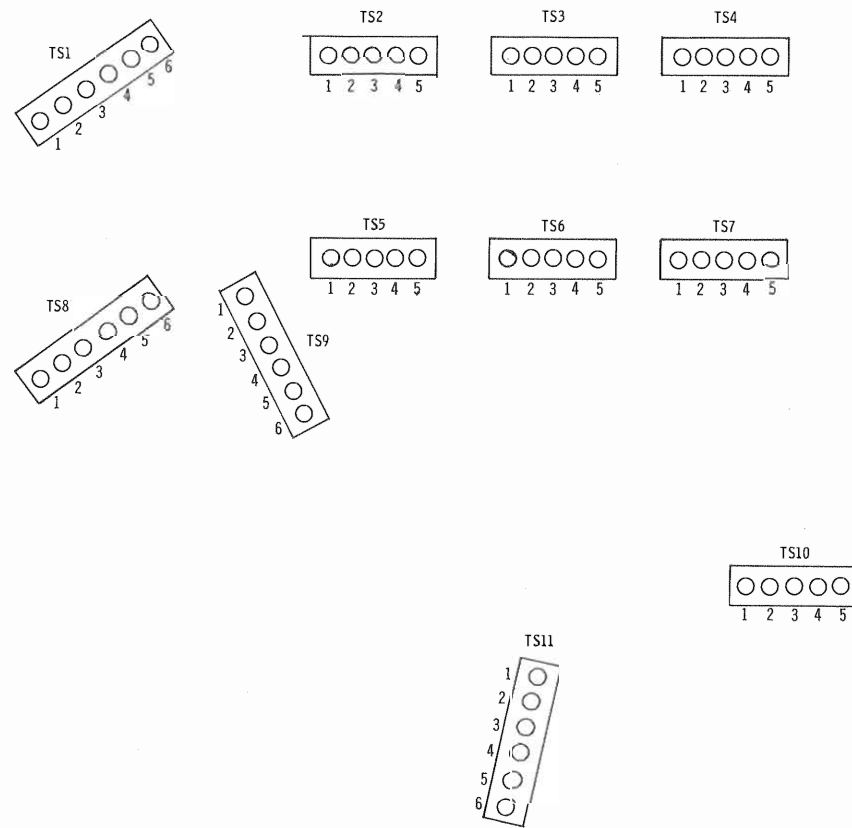
ZENITH MODELS Z2220R, RU, Y, YU, Z2222C, CU, E, EU, R, RU, Y, YU, Z2247E, EU, H, HU, R, RU, Z2258E, EU, H, HU, R, RU, Z2282E, EU, Z2637E, EU, R, RU, Y, YU, Z2672E, EU, R, RU, Z3000E, EU, R, RU, Z3004E, EU, R, RU, Z3006E, EU, R, RU, Z3008E, EU, R, RU, Z4000E, EU, R, RU (Ch. 17Z20, 17Z21, 17Z22, 17Z22Q, 17Z23, 17Z23Q)

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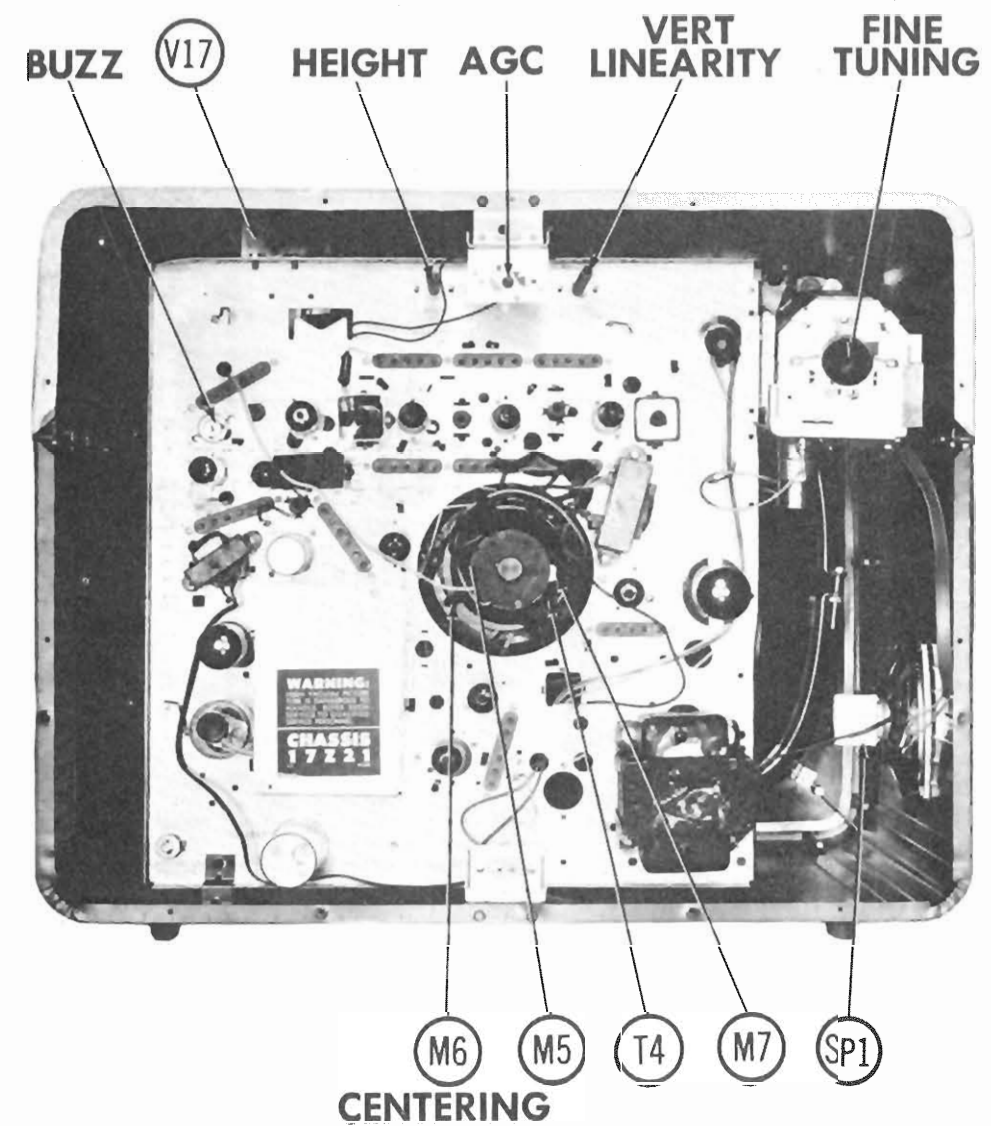
"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1957 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 1-57

SET 343 FOLDER 18



TERMINAL LOCATION CHART



CENTERING
CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Adjust the horizontal hold control until the picture synchronizes horizontally.

Switch off channel and back again. If the picture does not fall back in sync, adjust the horizontal hold control until it does. Repeat until the picture remains in sync when the channel selector is switched off channel and back.

Adjust the brass width sleeve located on the neck of the picture tube for a picture slightly wider than necessary to fill the picture mask horizontally.

CHASSIS I

1. Remove
2. Remove of cabinet.
3. Discon
4. Slide cl
5. Remove

TUNER OR

Touch-up may be ac cover belc

PICTURE

Remove 2 edge of th glass. Us

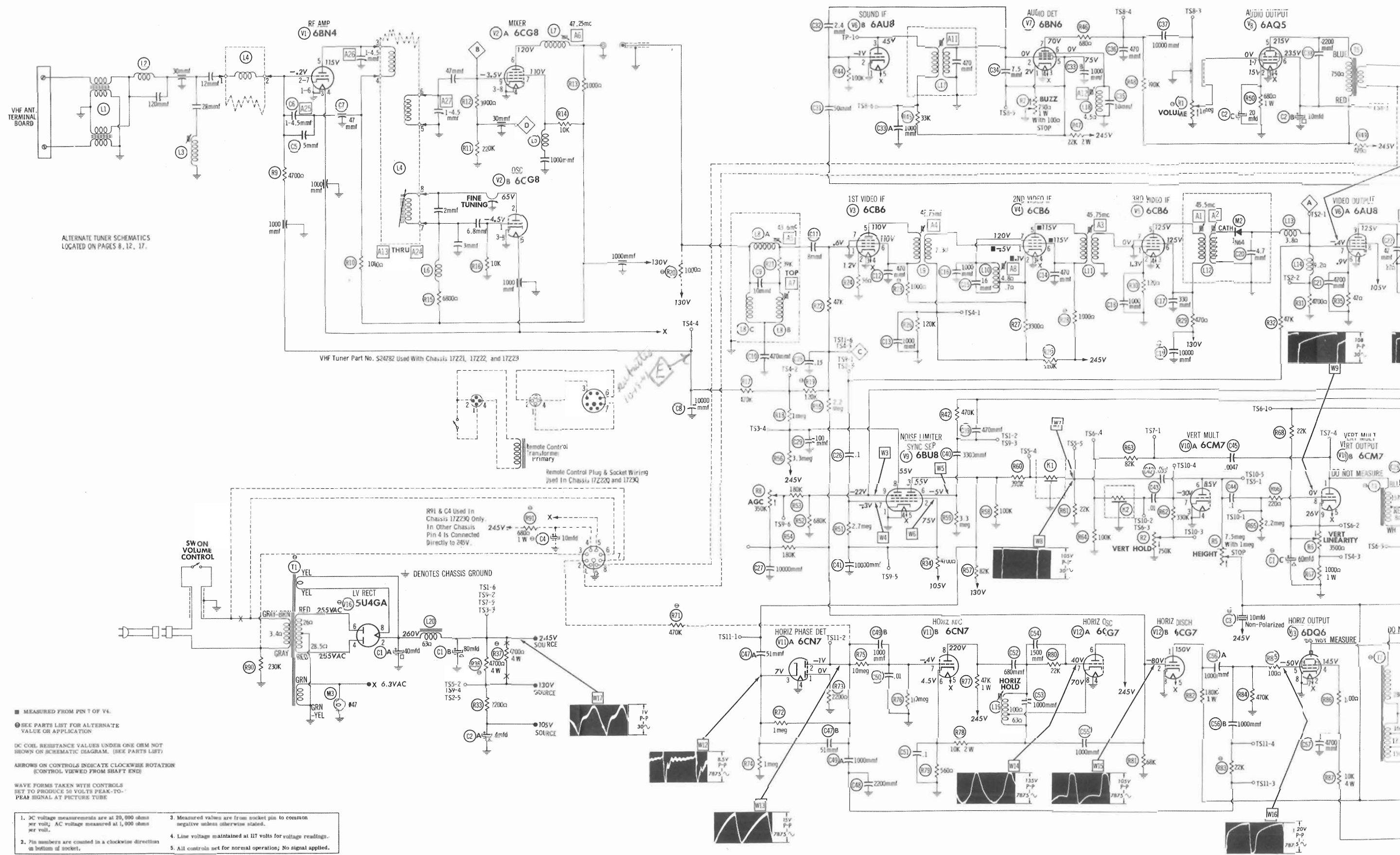
SERVICE

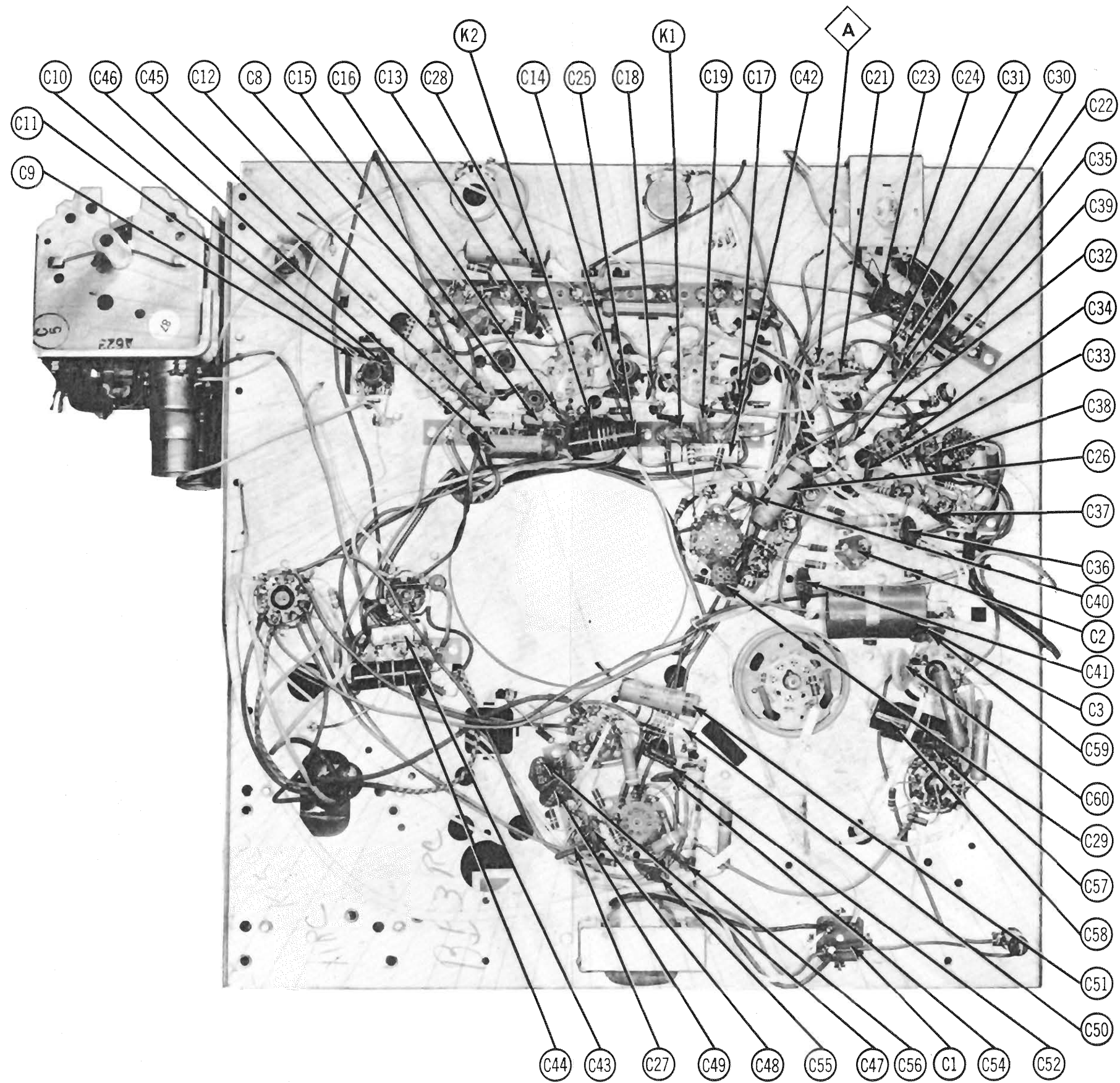
See tube p

HORIZON

Adjust the horizontal

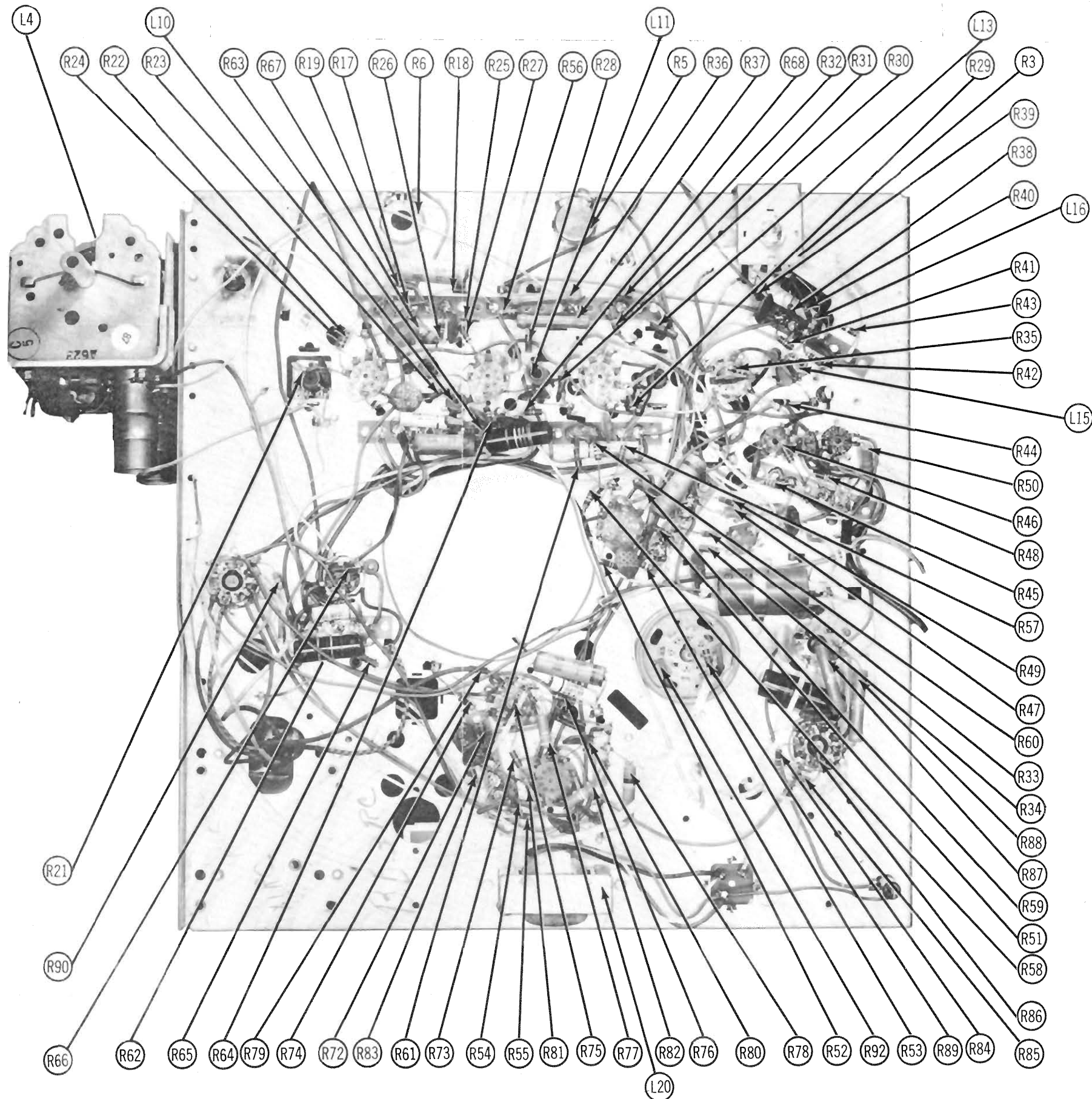
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CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

ZENITH MODELS Z2220R, RU, Y, YU, Z2222C, CU, E, EU, R, RU, Y, YU, Z2247E, EU, H, HU, R, RU, Z2258E, EU, H, HU, R, RU, Z2282E, EU, Z2637E, EU, R, RU, Y, YU, Z2672E, EU, R, RU, Z3000E, EU, R, RU, Z3004E, EU, R, RU, Z3006E, EU, R, RU, Z3008E, EU, R, RU, Z4000E, EU, R, RU (Ch. 17220, 17221, 17222, 17222Q, 17223, 17223Q)



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

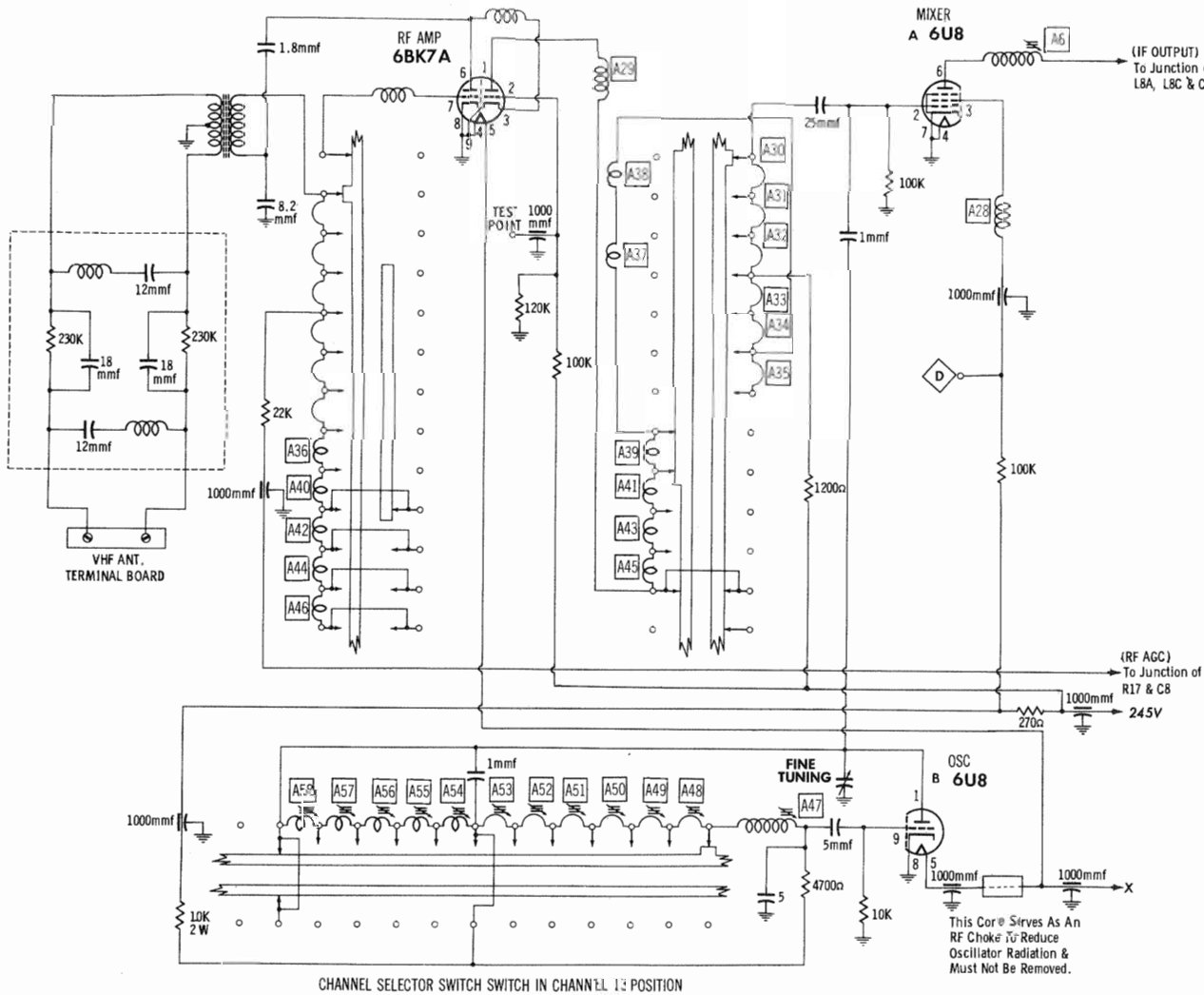
ZENITH MODELS Z2220R, RU, Y, YU, Z2222C, CU, E, EU, R, RU, Y, YU, Z2247E, EU, H, HU, R, RU, Z2258E, EU, H, HU, R, RU, Z2282E, EU, Z2637E, EU, R, RU, Y, YU, Z2672E, EU, R, RU, Z3000E, EU, R, RU, Z3004E, EU, R, RU, Z3006E, EU, R, RU, Z3008E, EU, R, RU, Z4000E, EU, R, RU (Ch. 17220, 17221, 17222, 17223, 17223Q)

ALIGNMENT INSTRUCTIONS (cont)

UHF TUNER ALIGNMENT

Alignment of the UHF tuner should not be attempted unless proper test equipment is available. Switch the receiver to the UHF position. Connect the negative lead of a 2 volt bias supply to point \diamond . Connect the positive lead to chassis. Connect the synchronized 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 only enough sweep generator output to provide usable pattern on scope.

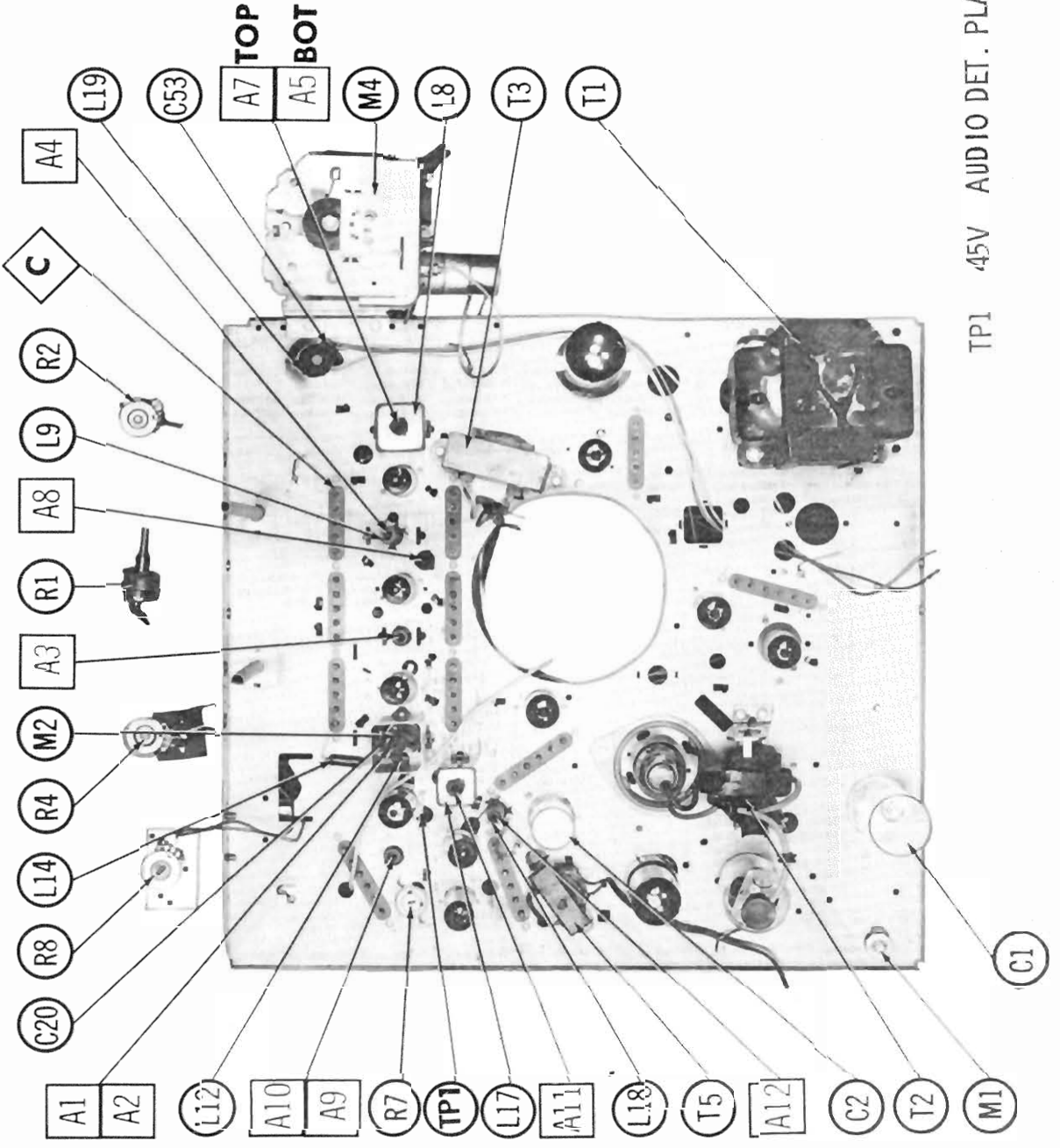
DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
23. Fig. 7	Across antenna terminals thru matching network. (Fig. 7).	713MC (10MC Swp)	711.25MC 715.75MC	54	Vert. Amp. thru 10K to point \diamond . Low side to chassis.	A59, A60, A61	Tuner rocker arm 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 A59 unless oscillator calibration is off more than 3 channels. If necessary, adjust A59 to place video marker at 50% on the response curve as in Fig. 6. The image (weaker response) will appear also. The response toward the counter clockwise position of A59 is the proper response. Adjust A60 and A61 for maximum amplitude of response similar to Fig. 6.
24. "	"	473MC (10MC Swp)	471.25MC 475.75MC	14	"	"	Check for response similar to Fig. 6. If oscillator is off more than 3 channels, adjust the oscillator travel adjustments (osc. mixer and antenna travel adjustments are the 3 round thumb screws on top 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 response on scope.
25. "	"	887MC (10MC Swp)	885.25MC 889.75MC	83	"	A62, A63, A64	Adjust A62 to place video marker at 50% as in Fig. 6. Adjust A63 and A64 for maximum amplitude and symmetry of response similar to Fig. 6.



A PHOTOFACT STANDARD NOTATION SCHEMATIC
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VHF Tuner Part No. S-24672 Used With Chassis 17220







ALTERNATE VHF TUNER SCHEMATIC



TP1 45V AUDIO DET. PLATE

ZENITH MODELS Z2220R, RU, Y, YU, Z2222C, CU, E, EU, R, RU, Y, YU, Z2247E, EU, H, HU, R, RU, Z2258E, EU, H, HU, R, RU, Z2282E, EU, Z2637E, EU, R, RU, Y, YU, Z2672E, EU, R, RU, Z3000E, EU, R, RU, Z3004E, EU, R, RU, Z3006E, EU, R, RU, Z3008E, EU, R, RU, Z4000E, EU, R, RU (Ch. 17220, 17221, 17222, 17222Q, 17223, 17223Q)

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ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT										
The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal multivibrator tube (V12) to disable the high voltage.										
VIDEO IF ALIGNMENT										
Remove the Mixer-Oscillator tube (V2) from its socket and connect a wire to the grid (pin 1 on 6CG8 or pin 9 of 6U8). Replace the tube back in its socket. Connect a clip lead from the loose end of the wire to the chassis. Connect the negative lead of a 6 volt battery or low impedance bias supply to point  . Connect the positive lead to chassis.										
DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS			
470MMF	High side to point  . Low side to chassis.	Not used	45.5MC (Unmod)	Any	USE VTVM. DC probe to point  . thru 10K resistor. Common to chassis.	A1, A2	Use only enough generator output to provide usable indication on VTVM. Adjust for maximum indication on VTVM.			
"	"	"	45.75MC	"	"	A3	"			
"	"	"	42.75MC	"	"	A4	"			
"	"	"	43.6MC	"	"	A5, A6	"			
"	"	"	47.25MC	"	"	A7	Increase generator output for usable indication on VTVM. Adjust A7 for MINIMUM deflection. Repeat steps 1 thru 5.			
"	"	43MC (10MC Swp)	40.50MC 41.25MC 42.75MC 45.0MC 45.75MC 47.25MC	"	Vert. Amp. thru 10K to point  . Low side to chassis.	A8	Check for response similar to Fig. 1. If necessary, retouch A1 thru A8 to obtain desired response. Adjust A8 for maximum displacement of 40.50MC marker, but not to exceed displacement of 41.25MC marker. Adjust A3 for maximum amplitude of response curve and position of the 45.75MC marker. Adjust A4 for position of 42.75MC marker. A1 and A2 affect the bandwidth. A5 and A6 affect the top portion of the curve. Increase sweep generator output and check the position of the 47.25MC marker. If necessary, SLIGHTLY retouch A7 for correct position of 47.25MC marker. The 41.25MC marker should be in proper position on curve after correct bandpass and other marker positions are obtained. Remove wire from oscillator tube. Disconnect bias battery.			
SOUND IF ALIGNMENT										
Connect an attenuator (Zenith #S-17203 or equivalent) in series with the receiving antenna. Tune in a modulated TV signal and adjust the attenuator until the signal falls below the limiting level of the 6BN6 (audio - detector) as evidenced by a hiss similar to super-regeneration. Adjust A9, A10, A11 and A12 for maximum sound of best quality. Adjust the buzz control (R7) for minimum intercarrier buzz. If during sound IF alignment, the signal rises above the limiting level of the 6BN6 (hiss disappears) increase attenuation until the hiss reappears.										
VHF OSCILLATOR ALIGNMENT FOR TUNERS #S-24782 AND #S-24783.										
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 control to the mid-position of its range.										
DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS			
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  . Low side to chassis.	A13	Adjust to place sound marker in trap notch as in Fig. 2. Video marker should fall at 50%.			
		207MC (10MC Swp)	205.25MC 209.75MC	12		A14				
		201MC (10MC Swp)	199.25MC 203.75MC	11		A15				
		195MC (10MC Swp)	193.25MC 197.75MC	10		A16				
		189MC (10MC Swp)	187.25MC 191.75MC	9		A17				
		183MC (10MC Swp)	181.25MC 185.75MC	8		A18				
		177MC (10MC Swp)	175.25MC 179.75MC	7		A19				
		85MC (10MC Swp)	83.25MC 87.75MC	6		A20				
		79MC (10MC Swp)	77.25MC 81.75MC	5		A21				
		69MC (10MC Swp)	67.25MC 71.75MC	4		A22				
		63MC (10MC Swp)	61.25MC 65.75MC	3		A23				
		57MC (10MC Swp)	55.25MC 59.75MC	2		A24				
		VHF RF AND MIXER ALIGNMENT FOR TUNERS #S-24782 AND #S-24783								
Connect the negative lead of a 2 volt bias supply to the junction of C8 and R17. Connect the positive lead to chassis. 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 only enough sweep generator output to provide usable pattern on scope.										
DUMMY ANTENNA		SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY		CHANNEL		CONNECT SCOPE	ADJUST	REMARKS
Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.25MC 209.75MC	12	Vert. Amp. thru 10K to point  . Low side to chassis.	A25, A26 A27	Adjust for response curve similar to Fig. 3 with markers above 90%. Adjust RF coil (L4) for maximum amplitude of response curve.			
"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response similar to Fig. 3. If markers fall below 70% on any channel, make compromise adjustments of A25, A26 and A27 with channel switch set to that channel. Check all other channels to see that they have not been seriously affected. Adjust RF coil (L4) for maximum amplitude of response curve on each channel.			
		201MC (10MC Swp)	199.25MC 203.75MC	11						
		195MC (10MC Swp)	193.25MC 197.75MC	10						
		189MC (10MC Swp)	187.25MC 191.75MC	9						
		183MC (10MC Swp)	181.25MC 185.75MC	8						
		177MC (10MC Swp)	175.25MC 179.75MC	7						
		85MC (10MC Swp)	83.25MC 87.75MC	6						
		79MC (10MC Swp)	77.25MC 81.75MC	5						
		69MC (10MC Swp)	67.25MC 71.75MC	4						
		63MC (10MC Swp)	61.25MC 65.75MC	3						
		57MC (10MC Swp)	55.25MC 59.75MC	2						

Get a Peak Alignment

ALIGNMENT INSTRUCTIONS

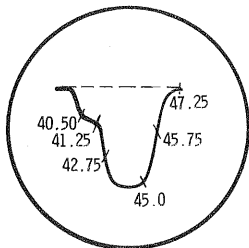


FIG. 1

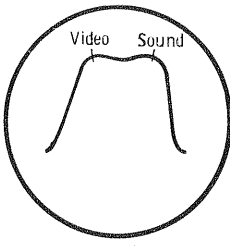


FIG. 2

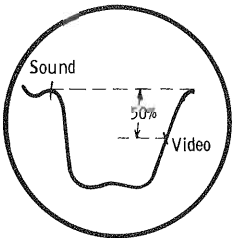
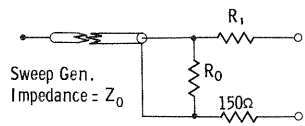


FIG. 3



Z ₀	R ₀	R ₁
50Ω	50Ω	120Ω
75Ω	82Ω	110Ω
92Ω	110Ω	100Ω

FIG. 4

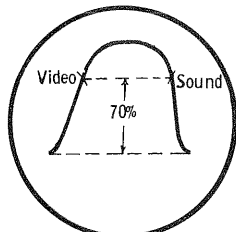


FIG. 5

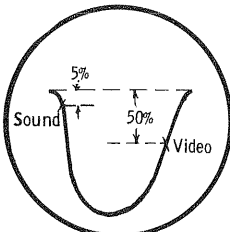


FIG. 6

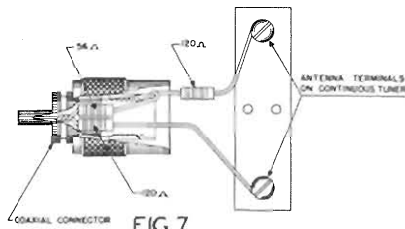



FIG. 7


VHF RF AND MIXER ALIGNMENT FOR TUNERS #S-24672 AND #S-24673

Connect the negative lead of a 2 volt bias supply to the junction of C8 and R17. Connect the positive lead to chassis.
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 only enough sweep generator output to provide usable pattern on scope.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10. Fig. 4	Across antenna terminals thru matching network (Fig. 4).	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point  . Low side to chassis.	A28, A29	Check for response similar to Fig. 5. If necessary, adjust A28 by expanding or compressing coil turns for proper bandwidth. Adjust A29 by expanding or compressing coil turns for maximum amplitude of response curve.
11. "	"	207MC (10MC Swp)	205.25MC 209.75MC	12	"	A30	Check for response curve similar to Fig. 5. If necessary, adjust by bending loop in or out from switch rotor for proper response.
12. "	"	201MC (10MC Swp)	199.25MC 203.75MC	11	"	A31	"
13. "	"	195MC (10MC Swp)	193.25MC 197.75MC	10	"	A32	"
14. "	"	189MC (10MC Swp)	187.25MC 191.75MC	9	"	A33	"
15. "	"	183MC (10MC Swp)	181.25MC 185.75MC	8	"	A34	"
16. "	"	177MC (10MC Swp)	175.25MC 179.75MC	7	"	A35	"
17. "	"	85MC (10MC Swp)	83.25MC 87.75MC	6	"	A36, A37, A38	Adjust A37 and A38 for correct bandpass. Adjust A36 for maximum amplitude similar to Fig. 5. A36, A37 and A38 are adjusted by expanding and compressing coil turns.
18. "	"	79MC (10MC Swp)	77.25MC 81.75MC	5	"	A39, A40	Adjust by expanding or compressing coil turns for response similar to Fig. 5.
19. "	"	69MC (10MC Swp)	67.25MC 71.75MC	4	"	A41, A42	"
20. "	"	63MC (10MC Swp)	61.25MC 65.75MC	3	"	A43, A44	"
21. "	"	57MC (10MC Swp)	55.25MC 59.75MC	2	"	A45, A46	"

VHF OSCILLATOR ALIGNMENT FOR TUNERS #S-24672 AND #S-24673

Connect the bias as under "Video IF Alignment". Turn the fine tuning control until the index hole in the fine tuning cam is directly over the small hole just below the channel 13 oscillator adjustment screw.
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 only enough sweep generator output to provide usable pattern on scope.

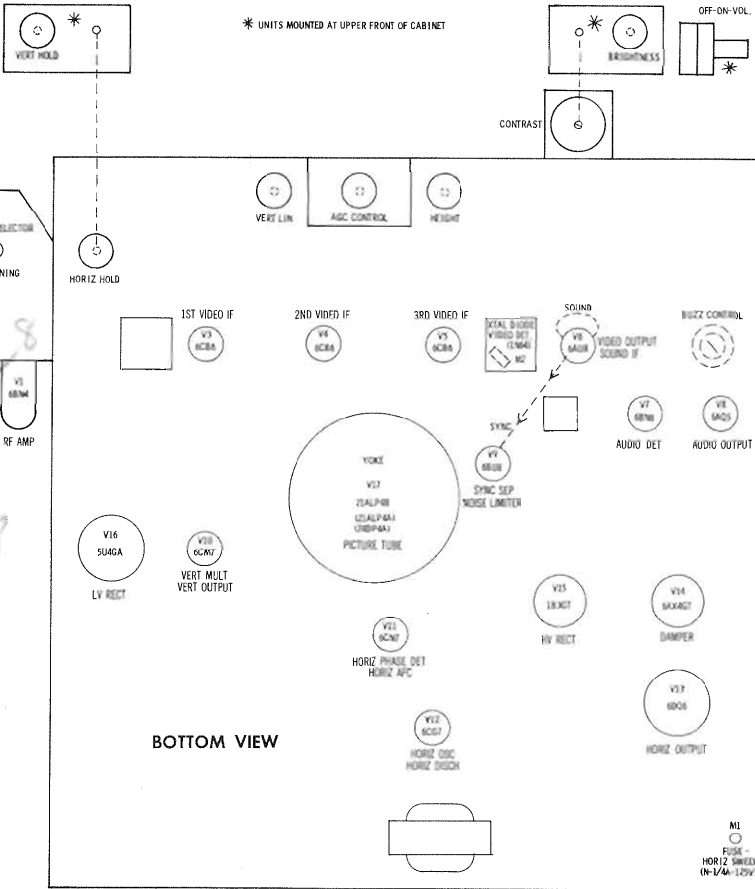
DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
22. Fig. 4	Across antenna terminals thru matching network (Fig. 4).	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 47K to point  . Low side to chassis.	A47	Adjust to place sound marker in trap notch as in Fig. 6. Video marker should fall at 50%.
		207MC (10MC Swp)	205.25MC 209.75MC	12		A48	
		201MC (10MC Swp)	199.25MC 203.75MC	11		A49	
		195MC (10MC Swp)	193.25MC 197.75MC	10		A50	
		189MC (10MC Swp)	187.25MC 191.75MC	9		A51	
		183MC (10MC Swp)	181.25MC 185.75MC	8		A52	
		177MC (10MC Swp)	175.25MC 179.75MC	7		A53	
		85MC (10MC Swp)	83.25MC 87.75MC	6		A54	
		79MC (10MC Swp)	77.25MC 81.75MC	5		A55	
		69MC (10MC Swp)	67.25MC 71.75MC	4		A56	
		63MC (10MC Swp)	61.25MC 65.75MC	3		A57	
		57MC (10MC Swp)	55.25MC 59.75MC	2		A58	

ZENITH MODELS Z2220R, RU, Y, YU, Z2222C, CU, E, EU, R, RU, Y, YU, Z2247E, EU, H, HU, R, RU, Z2258E, EU, H, HU, R, RU, Z2282E, EU, Z2637E, EU, R, RU, Y, YU, Z2672E, EU, R, RU, Z3000E, EU, R, RU, Z3004E, EU, R, RU, Z3006E, EU, R, RU, Z3008E, EU, R, RU, Z4000E, EU, R, RU (Ch. 17220, 17221, 17222, 17223Q, 17223, 17223Q)

RESISTANCE MEASUREMENTS

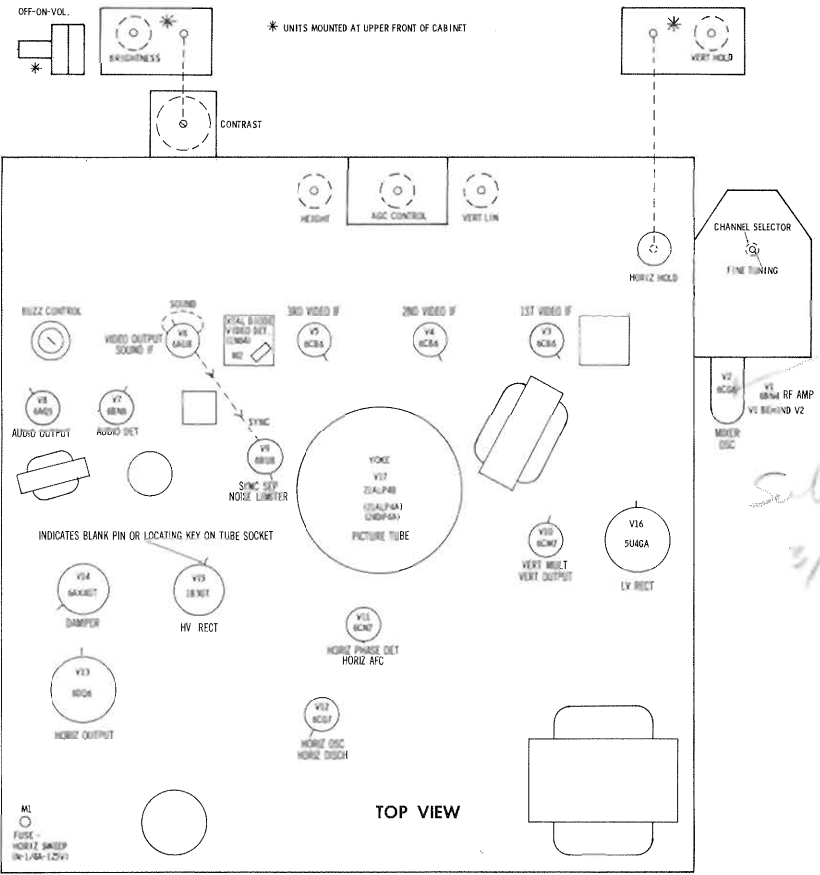
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BN4	0Ω	2Meg	0Ω	.1Ω	† 350Ω	0Ω	2Meg		
V2	6CG8	10K	† 10K	0Ω	0Ω	.1Ω	† 3500Ω	† 12K	0Ω	224K
V3	6CB6	1.5Meg	56Ω	0Ω	.1Ω	▲ 1000Ω	▲ 1000Ω	0Ω		
V4	6CB6	▲ 3300Ω	▲ 4.8Ω	0Ω	.1Ω	† 1000Ω	† 1000Ω	700K		
V5	6CB6	.1Ω	120Ω	.1Ω	0Ω	† 2700Ω	† 2700Ω	0Ω		
V6	6AU8	0Ω	100K	† 51K	0Ω	.1Ω	47Ω	4700Ω	† 4700Ω	† 8200Ω
V7	6BN6	340Ω	.7Ω	.1Ω	0Ω	† 22K	4.5Ω	† 430K		
V8	6AQ5	100K	680Ω	0Ω	.1Ω	† 1350Ω	† 500Ω	100K		
V9	6BU8	0Ω	† 9000Ω	† 53K	0Ω	.1Ω	3.3Meg	† 3Meg	† 1.7Meg	220K
V10	6CM7	▲ 11.7K	TP	0Ω	0Ω	.1Ω	▲ 3.7Meg	600K	2.2Meg	2500Ω
V11	6CN7	2200Ω	2Meg	1Meg	0Ω	.1Ω	560Ω	6Meg	† 47K	NC
V12	6CG7	▲ 180K	68K	0Ω	0Ω	.1Ω	† 65Ω	30K	10.5K	NC
V13	6DQ6	TP	.1Ω	TP	† 10K	470K	TP	0Ω	0Ω	TOP CAP ▲ 16Ω
V14	6AX4GT	TP	NC	10Meg	NC	† 63Ω	NC	0Ω	.1Ω	
V15	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								TOP CAP ▲ 296Ω
V16	5U4GA	TP	50K	TP	28Ω	TP	26Ω	NC	50K	
V17	21ALP4B	0Ω	24K	PIN 6 † 65Ω	PIN 10 † 65Ω	PIN 11 150K	PIN 12 .1Ω			

† MEASURED FROM PIN 8 OF V16.
▲ MEASURED FROM PIN 7 OF V4.
▲ MEASURED FROM PIN 3 OF V14.
NC NO CONNECTION.
TP TIE POINT



TUBE PLACEMENT CHART

TUBE PLACEMENT CHART



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.

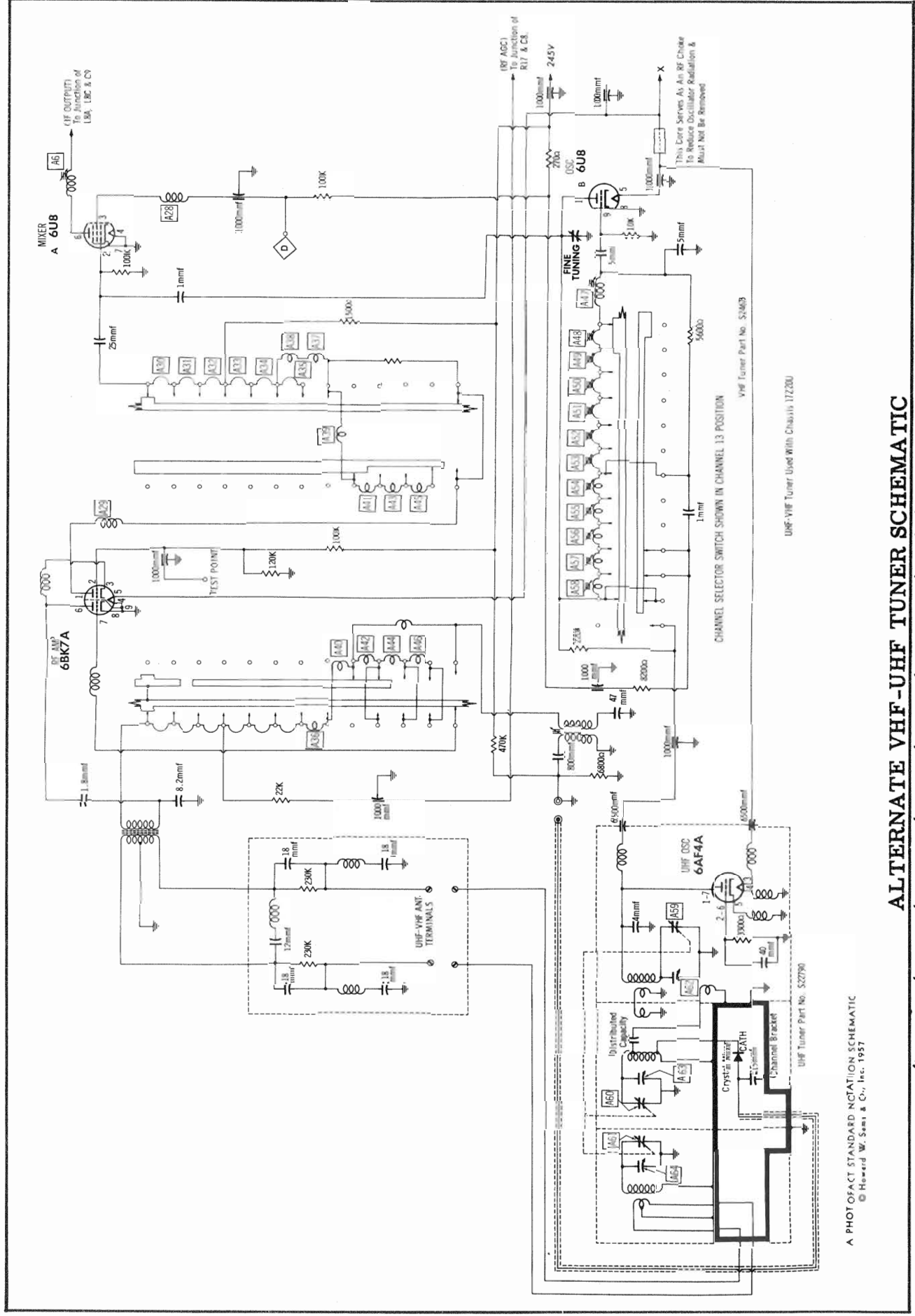
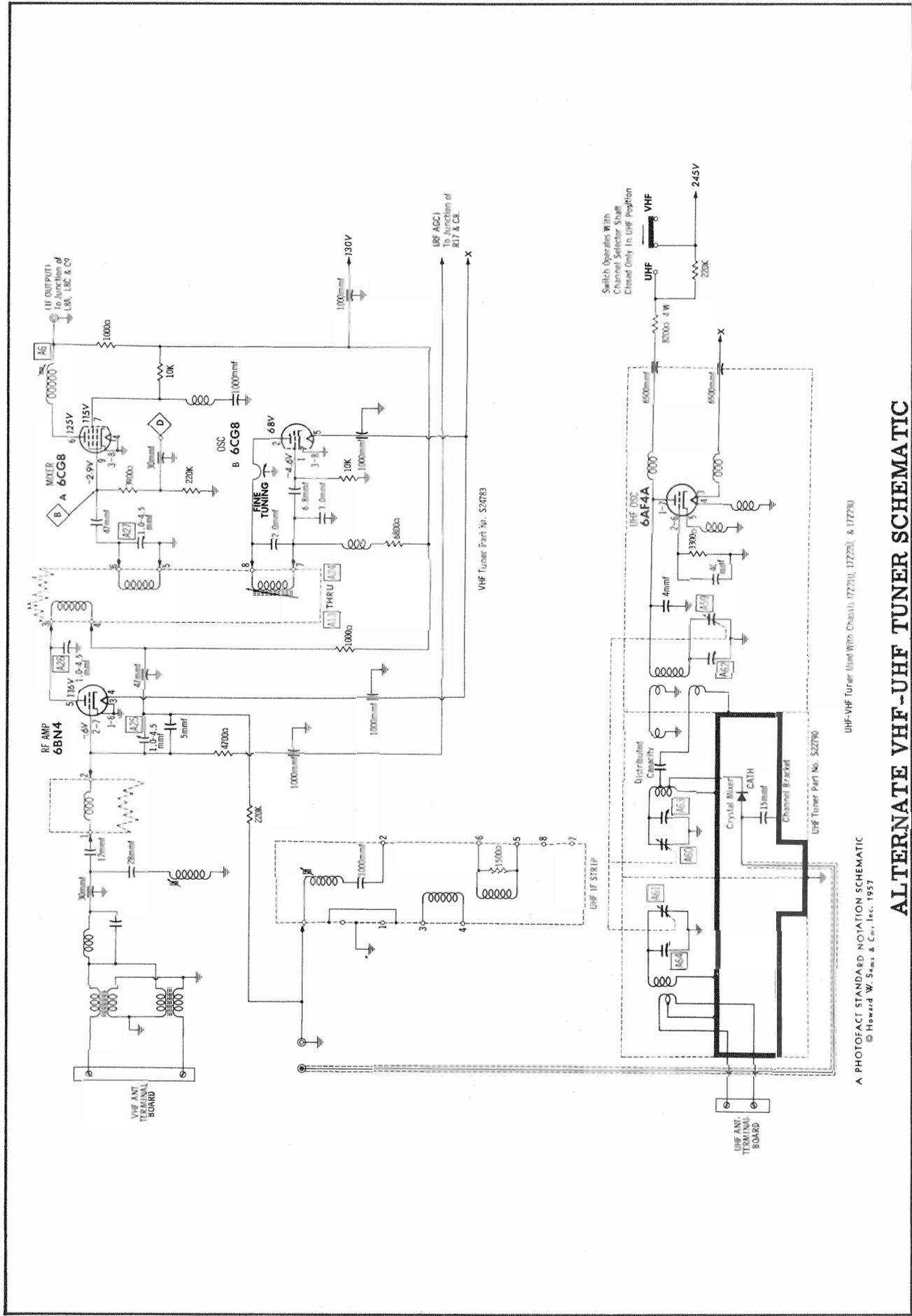
POWER SUPPLY FAILURE
No raster, no sound - V16

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V2, V3, V4, V5, 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, V10
No horiz. sync - V9, V11, V12
No vert. or horiz. sync - V9

SWEEP FAILURE
No raster, has sound - V11, V12, V13, V14, V15, V17, Fuse (M1)
No vertical deflection - V10
Poor vert. linearity or foldover - V12
Poor horiz. linearity or foldover - V12, V13, V14
Narrow picture - V12, V13, V14, V16
Vert. off freq. - V9, V10
Horiz. off freq. - V9, V11, V12

ZENITH MODELS Z2220R, RU, Y, YU, Z2222C, CU, E, EU, R, RU, Y, YU, Z2247E, EU, H, HU, R, RU, Z2258E, EU, H, HU, R, RU, Z2282E, EU, Z2637E, EU, R, RU, Y, YU, Z2672E, EU, R, RU, Z3000E, EU, R, RU, Z3004E, EU, R, RU, Z3006E, EU, R, RU, Z3008E, EU, R, RU, Z4000E, EU, R, RU (Ch. 17Z20, 17Z21, 17Z22, 17Z22Q, 17Z23, 17Z23Q)



PARTS LIST AND DESCRIPTIONS (Continued)
TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ZENITH PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	
L19	163Ω		S-19743	19-1577		6324			Tapped @ 63Ω

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 Ω)	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L20	.240A	63Ω	1.84 HY	95-1376	C50371	C-2996 1	C-2329 1	26C44	C-23X

① Drill one new mounting hole.

COMPONENT COMBINATIONS

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

FUSES

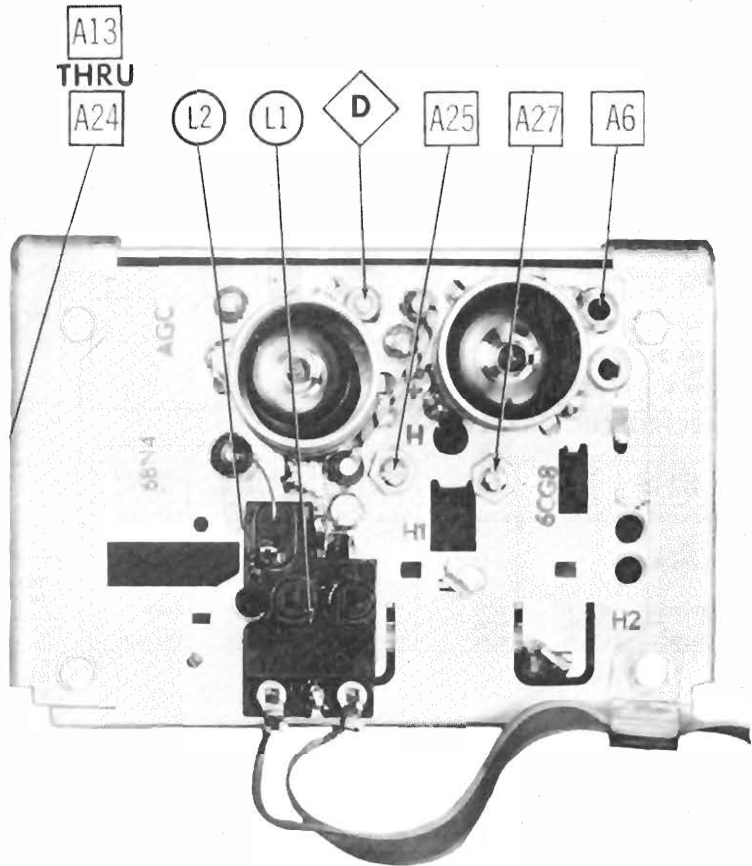
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			ZENITH PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	N	1/4A 125V	136-33		333.250 (N 1.4A)	346008	N 1/4	HN 0 to 3/10

CRYSTAL DIODES

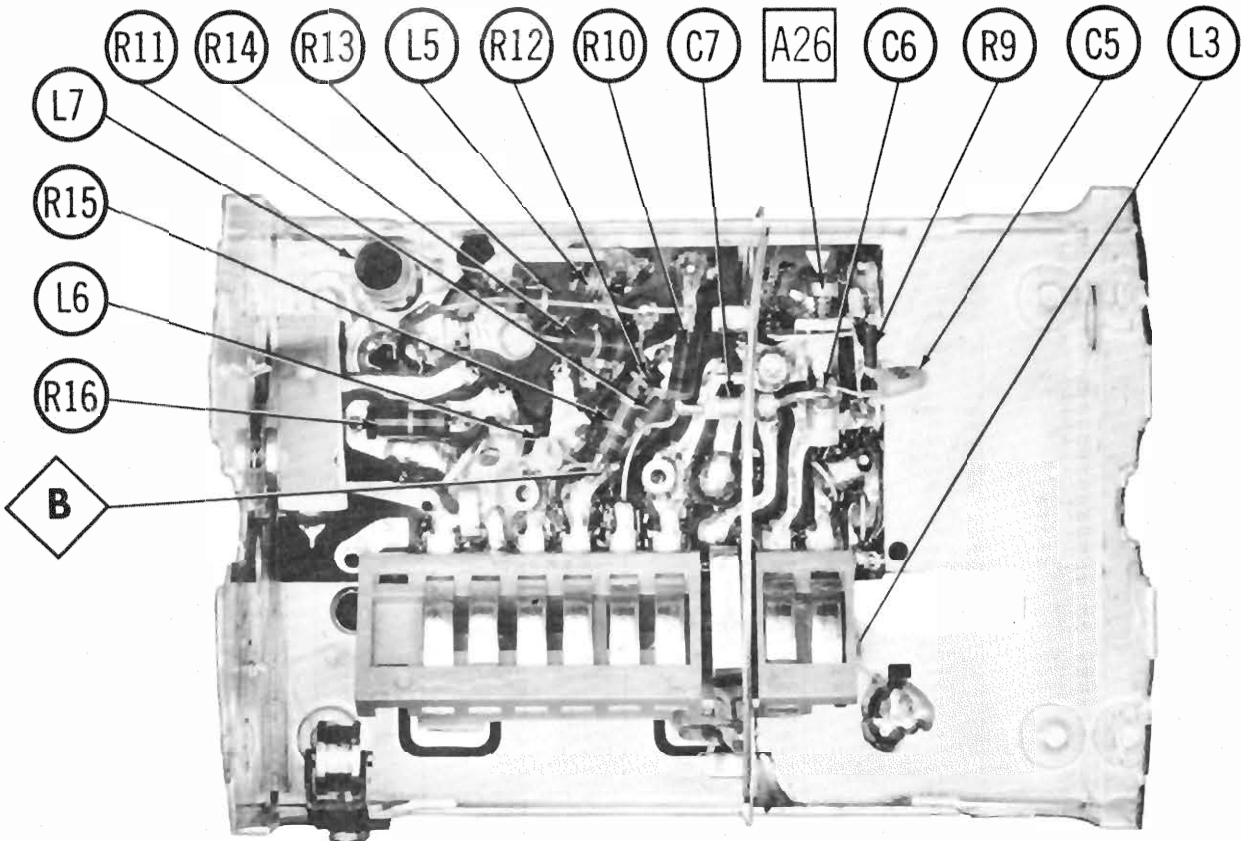
ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		ZENITH PART No.	SYLVANIA PART No.	
M2	1N64	103-18	1N64	Video Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M3	Pilot Lamp	100-198	#47
M4	Tuner	S-24782	VHF - Models Z2222C, Y, E, R, Z2247R, E, H, Z2258R, E, H, Z2282R, E, Z2637R, E, Y, Z2672E, R
	Tuner	S-24783	VHF - Models Z2222CU, YU, EU, RU, Z2247RU, EU, HU, Z2258RU, EU, HU, Z2282RU, EU, Z2637RU, EU, YU, Z2672EU, RU
	Tuner	S-24672	VHF - Models Z2220R, Y
	Tuner	S-24673	VHF - Models Z2220RU, YU
	Tuner	S-22790	UHF - Models Z2220RU, YU, Z2222CU, YU, EU, RU, Z2247RU, EU, HU, Z2258RU, EU, HU, Z2282RU, EU, Z2637RU, EU, YU, Z2672EU, RU
	Tuner	S-24792	VHF - Models Z3000R, E, Z3004R, E, Z3006R, E, Z3008R, E, Z4000R, E
M5	Width Adjustment		Brass Sleeve
M6	Centering Device	S-22560	
M7	Ion Trap	S-17164	
	Trap Assy.	S-23233	Part of Tuner S-24672
	Trap Assy.	S-23233	Part of Tuner S-24673
	Knob	46-1539	On-off-volume - Models Z2220R, RU, Y, YU
	Knob	46-1541	On-off-volume - Models Z2222R, RU, Y, YU, C, CU, Z2247R, RU, Z2258R, RU, Z2282R, RU, Z2637R, RU, Y, YU, Z2672R, RU, Z3000R, RU, Z3004R, RU, Z3006R, RU, Z3008R, RU, Z4000R, RU
	Knob	46-1585	On-off-volume - Models Z2222E, EU, Z2247E, EU, H, HU, Z2258E, EU, H, HU, Z2282E, EU, Z2637E, EU, Z2672E, EU, Z3000E, EU, Z3004E, EU, Z3006E, EU, Z3008E, EU, Z4000E, EU
	Knob	46-1542	Channel Selector - Models Z2220R, RU, Y, YU
	Knob	S-24855	Channel Selector - Models Z2222R, RU, Y, YU, C, CU, Z2247R, RU, Z2258R, RU, Z2282R, RU, Z2637R, RU, Y, YU, Z2672R, RU, Z3000R, RU, Z3004R, RU, Z3006R, RU, Z3008R, RU, Z4000R, RU
	Knob	S-24875	Channel Selector - Models Z2222E, EU, Z2247E, EU, H, HU, Z2258E, EU, H, HU, Z2282E, EU, Z2637E, EU, Z2672E, EU, Z3000E, EU, Z3004E, EU, Z3006E, EU, Z3008E, EU, Z4000E, EU
	Knob	S-22853	Fine tuning - Models Z2220R, RU, Y, YU
	Knob	S-24856	Fine tuning - Models Z2222R, RU, E, EU, Y, YU, C, CU, Z2247R, RU, E, EU, H, HU, Z2258R, RU, E, EU, H, HU, Z2282R, RU, E, EU, Z2637R, RU, E, EU, Y, YU, Z2672R, RU, E, EU, Z3000R, RU, E, EU, Z3004R, RU, E, EU, Z3006R, RU, E, EU, Z3008R, RU, E, EU, Z4000R, RU, E, EU
	Knob	S-22408	Fine tuning - Models Z3000R, RU, E, EU, Z3004R, RU, E, EU, Z3006R, RU, E, EU, Z3008R, RU, E, EU, Z4000R, RU, E, EU
	Knob	S-22025	UHF Dial - Models Z2220RU, YU, Z2222RU, EU, YU, CU, Z2247RU, EU, HU, Z2258RU, EU, HU, Z2637RU, EU, YU, Z2672RU, EU
	Knob	S-22048	UHF Dial - Models Z2282RU, EU
	Knob	S-24848	Horiz. Hold. Contrast - Models Z2220R, RU, Y, YU, Z2222R, RU, Y, YU, C, CU
	Knob	S-24842	Horiz. Hold. Contrast - Models Z2222E, EU
	Knob	S-24914	Vert. Hold. Brightness - Models Z2220R, RU, Y, YU, Z2222R, RU, Y, YU, C, CU
	Knob	S-24915	Vert. Hold. Brightness - Models Z2222E, EU
	Knob	S-24912	Horiz. Hold. Vert. Hold. Brightness, Contrast - Models Z2247R, RU, Z2258R, RU, Z2282R, RU, Z3000R, RU, Z3004R, RU, Z3006R, RU, Z3008R, RU
	Knob	S-24913	Horiz. Hold. Vert. Hold. Brightness, Contrast - Models Z2247E, EU, H, HU, Z2258E, EU, H, HU, Z2282E, EU, Z3000E, EU, Z3004E, EU, Z3006E, EU, Z3008E, EU
	Knob	S-24847	Horiz. Hold. Vert. Hold. Brightness, Contrast - Models Z2237R, RU, Y, YU, Z2672R, RU, Z4000R, RU
	Knob	S-24841	Horiz., Vert. Hold. Brightness, Contrast - Models Z2637E, EU, Z2672E, EU, Z4000E, EU



RF TUNER-TOP VIEW



RF TUNER-BOTTOM VIEW

SET 343 FOLDER 18

ZENITH MODELS Z2220R, RU, Y, YU, Z2222C, CU, E, EU, R, RU, Y, YU, Z2247E, EU, H, HU, R, RU, Z2258E, EU, H, HU, R, RU, Z2637E, EU, R, RU, Y, YU, Z2672E, EU, R, RU, Z3000E, EU, R, RU, Z3004E, EU, R, RU, Z3006E, EU, R, RU, Z3008E, EU, R, RU, Z4000E, EU, R, RU (Ch. 17220, 17221, 17222, 17223, 17229, 17230, 17233, 17236)

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA							
		ZENITH PART No.	Hallderson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	Horiz. Output Trans.	S-40124 1 2 S-23995 1 2 S-24095 3 4 S-40125 3 4				X137 *			
T3	Vert. Output Trans.	95-1473 2 3 95-1472 3 4 95-1479 3 4	Z1900 5 5	A-3039 ①		V312 ①	4-8141 ①	2682 4 ①	A-109X ⑤ ⑦
T4A B	Yoke (90°) Horiz. (33MH)	95-1435 2 3	DF606 ①	MDF-91 ①	237D ①	Y90F12 ① ⑦	DY-13A ①	Y-14 ① ②	Y-40 ① ②
	Vert. (49MH)	95-1452 3 3	DF606 ①	MDF-91 ①	237D ①	Y90F12 ① ⑦	DY-13A ①	Y-14 ① ②	Y-40 ① ②

CONTROLS

- 1 Complete assembly. Includes: Winding and terminal assembly, Zenith Part #S-23451.
Tertiary winding and terminal assembly, Zenith Part #S-24432.
- 2 Used in Chassis 17Z20, 17Z21 and 17Z22. Q.
- 3 Used in Chassis 17Z23. Q.
- 4 Complete assembly. Includes: Winding and terminal assembly, Zenith part #S-23451.
Tertiary winding and terminal assembly, Zenith part #S-24094.
- 5 Use 15 to 1 turns ratio.
- 6 Connect as auto transformer.
- 7 Drill new mounting hole(s).
- 8 Includes capacitor C61. Resistors R66 and R70.
- 9 Connect horizontal wire damping network across terminals #3 and #7.
- 10 See original notes.

RESISTORS

* Connect a 1Meg resistor in series with the left hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end terminals down).

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

* **HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA**
 Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Malldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	4				4			
	3				3			
	2				2			
	1				1			

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	IMPEDANCE	REPLACEMENT DATA						NOTES
		ZENTH PART No.	Hallardson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T5	10.5K SEC	68-1483	Z111	A-2932	A-3879	246R2	6-17V	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	RCA TYPE No.	
SPI	5 1/4"	PM	3-4Ω	9-751 ①	52A ¹	217SI	① One used in Models Z2220R, RU, Z2220Y, YU, Z2222R, RU, Z2222E, EU, Z2222Y, YU, Z2222C, CU, Z3000R, RU, Z3000E, EU; two used in Models Z2637K, RU, Z2637E, EU, Z2637Y, YU, Z2247E, EU, Z2247H, RU, Z3004R, RU, Z3004E, EU, Z2256R, RU, Z3006R, RU, Z3006E, EU, Z3008R, RU, Z3008E, EU
	8"	PM	3-4Ω	9-780 ②	8A21	208S2	
	10"	PM	3-4Ω	9-752 ③	10A31	236SI	
	10"	PM	3-4Ω	9-754 ④	10A1023.2		
				5-23829 ⑤ ⑥ ⑦ ⑧			
			9-768 ⑨				
			49-613 ⑩ ⑪				
							① Used in Models Z2262R, RU, Z2262E, EU
							② Used in Models Z2672R, RU, Z2672E, EU
							③ Used in Models Z4000R, RU, Z4000E, EU
							④ T2 Used.
							⑤ Electrostatic type speaker.

COILS (RF-IF)

ITEM No.	USE	ZENITH PART No.	NOTES
L1	Ant. Matching Trans.	S-40486	
L2	IF Trap Coil	20-657	
L3	IF Trap Coil	S-40497	
L4A	Ant., RF, Mixer Grid & Osc. Coils	S-40472	Channel 2
B	Ant., RF, Mixer Grid & Osc. Coils	S-40473	Channel 3
C	Ant., RF, Mixer Grid & Osc. Coils	S-40474	Channel 4
D	Ant., RF, Mixer Grid & Osc. Coils	S-40475	Channel 5
E	Ant., RF, Mixer Grid & Osc. Coils	S-40476	Channel 6
F	Ant., RF, Mixer Grid & Osc. Coils	S-40477	Channel 7

ITEM No.	USE	ZENITH PART No.	NOTES
L4G	Ant., RF, Mixer Grid & Osc. Coils	S-40478	Channel 8
H	Ant., RF, Mixer Grid & Osc. Coils	S-40479	Channel 9
I	Ant., RF, Mixer Grid & Osc. Coils	S-40480	Channel 10
J	Ant., RF, Mixer Grid & Osc. Coils	S-40481	Channel 11
K	Ant., RF, Mixer Grid & Osc. Coils	S-40482	Channel 12
L	Ant., RF, Mixer Grid & Osc. Coils	S-40483	Channel 13
L5	Mix. * Screen Regenerat., or Coil	20-656	
L6	Osc. Pl., Choke	20-655	
L7	Conv. Plate	S-40498	

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	ZENITH PART No.	Halderson PART No.	Merit PART No.	Shenar PART No.	Thorderson PART No.	Triad PART No.
TI	117VAC ① 1.46A	550VCT ① 240A	5V ① 3A	6.3V ① 8A	10-1503 ① 10-1498 ① 10-1520 ① 10-1499 ② 10-1507 ② 10-1521 ② 10-1528 ③ 10-1529 ③ 10-1530 ③ 10-1531 ④ 10-1532 ④ 10-1533 ④					

① Used in some versions of Chassis 17Z20, 17Z21, 17Z22.
 ② Used in some versions of Chassis 17Z23.
 ③ Used in some versions of 17Z22Q.
 ④ Used in some versions of 17Z23Q.

Note 3. Chassis 17Z20 uses 1000MMF in this application (Part #22-17).
 Note 4. Chassis 17Z23 and 17Z23Q use 130MMF in this application (Part #22-2697).
 Note 5. **Used only** in Chassis 17Z23 and 17Z23Q.
 Note 6. **Replace** with same value.

ZENITH MODELS Z22220R, RU, Y, YU, Z22222C, CU, E, EU, R, RU, Y, YU, Z2247E, EU, H, HU, R, RU, Z258E, EU, H, HU, R, RU, Z2637E, EU, R, RU, Y, YU, Z2672E, EU, R, RU, Z3000E, EU, R, RU, Z3004E, EU, R, RU, Z3006E, EU, R, RU, Z3008E, EU, R, RU, Z4000E, EU, R, RU (Ch. 17720, 17721, 17722, 17722Q, 17723, 17723G)