

CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

1. Turn the set on and tune in a TV station, preferably with a test pattern.
2. Set the brightness and contrast controls for a normal picture.
3. 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.
4. Turn the horizontal hold slowly counter clockwise until the picture just falls into sync.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

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



MODEL Z2221RZ (Ch. 17Z30)

MODELS	CHASSIS
Z2221RZ, Z2221YZ	17Z30
Z2221RZU, Z2221YZU	17Z30U

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments (located in a circle around the shaft) should be made in sequence from the highest to the lowest channel in the area. Channel 13 adjustment is located at 7 o'clock proceed in a counter clockwise direction adjusting for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 2 metal screws holding the name plate at the bottom of the safety glass. Remove the safety glass.

SPECIAL ADJUSTMENTS

A. Focus

The 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.

B. Width

The width may be varied by means of a metallic sleeve located between the yoke and the picture tube neck. Adjust sleeve in or out of the yoke for a picture SLIGHTLY larger than necessary to fill the screen.

C. AGC

Observe the picture and advance the AGC control to a point where the picture distorts or a buzz is heard in the sound. Back off from this setting until the picture becomes stable with no noise in the sound.

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.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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ZENITH MODELS Z2221RZ, U, Z2221YZ, U (Ch. 17Z30, U)

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 8 metal screws.
2. Remove 2 speaker leads.
3. Remove 2 metal screws.
4. Remove 2 metal screws.
5. Remove 1 metal screw from chassis.
6. Remove the chassis from the cabinet.
7. Remove 2 speaker nut.

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the tuner oscillator is made by removing the channel selector switch. Set the fine tuning at the center (located in a circle made in sequence from the center). Channel 13 is in the area. Channel 13 is proceed in a counter clockwise direction to picture and sound.

PICTURE TUBE SAFETY

Remove 2 metal screws from the safety glass. Remove the safety glass.

SPECIAL ADJUSTMENTS

A. Focus

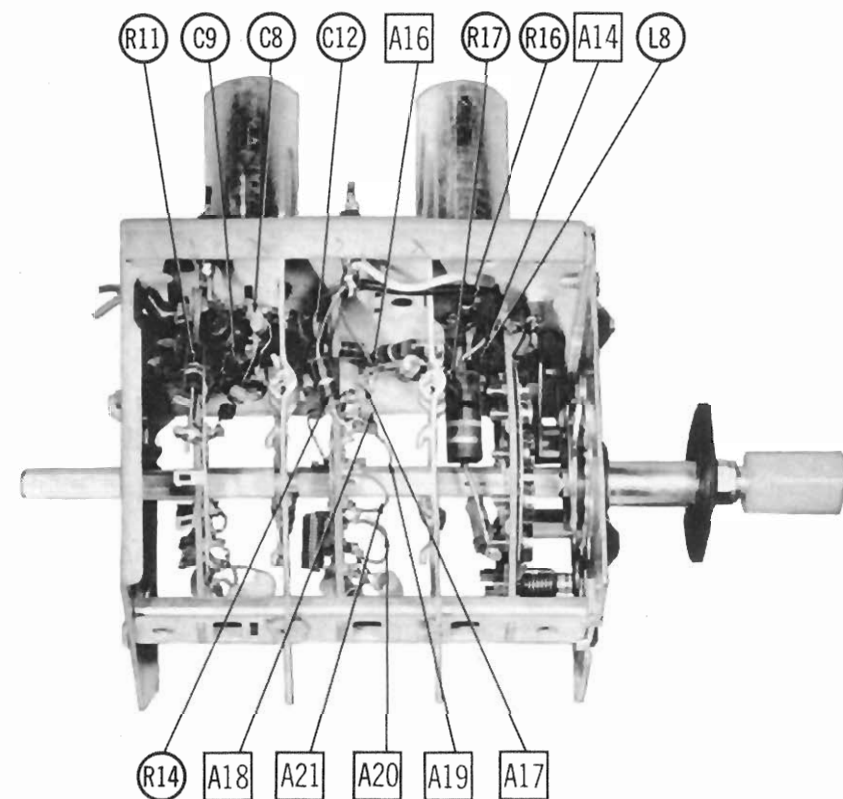
The focus may be varied by turning the focus knob at the base of the picture tube. Between pins 6 and 10 or 6 and 10 is the best focus consistent with picture and sound.

B. Width

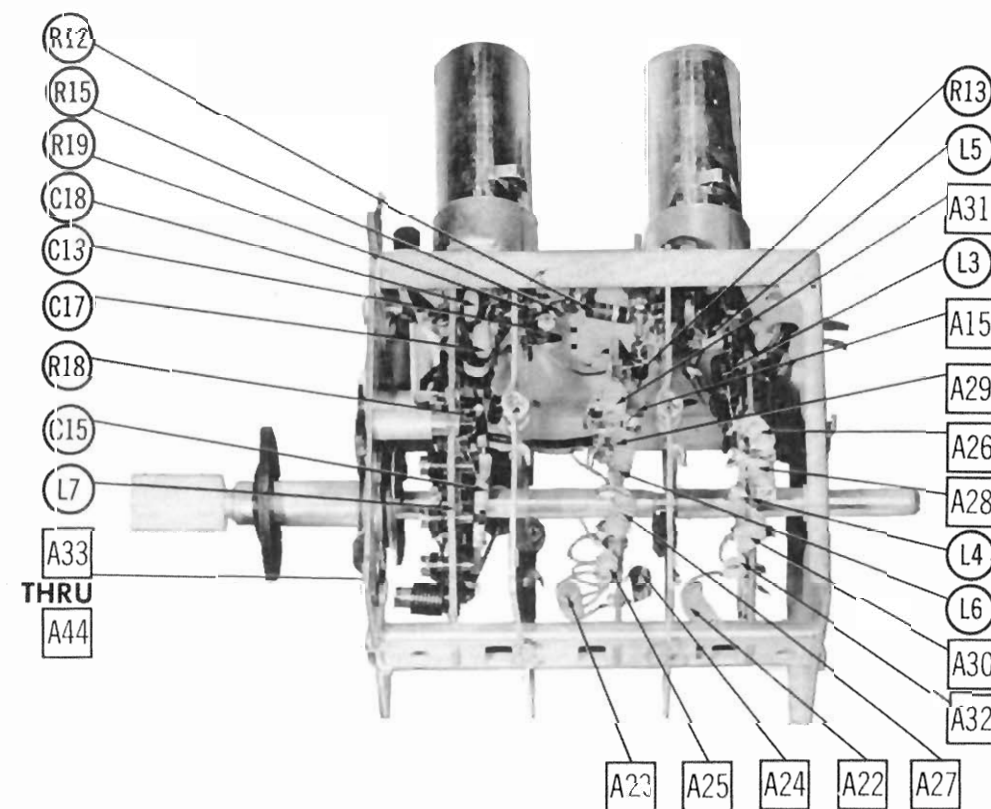
The width may be varied by turning the width knob located between the yoke sleeve in or out of the yoke. The width should be as wide as necessary to fill the screen.

HOW TO ORDER

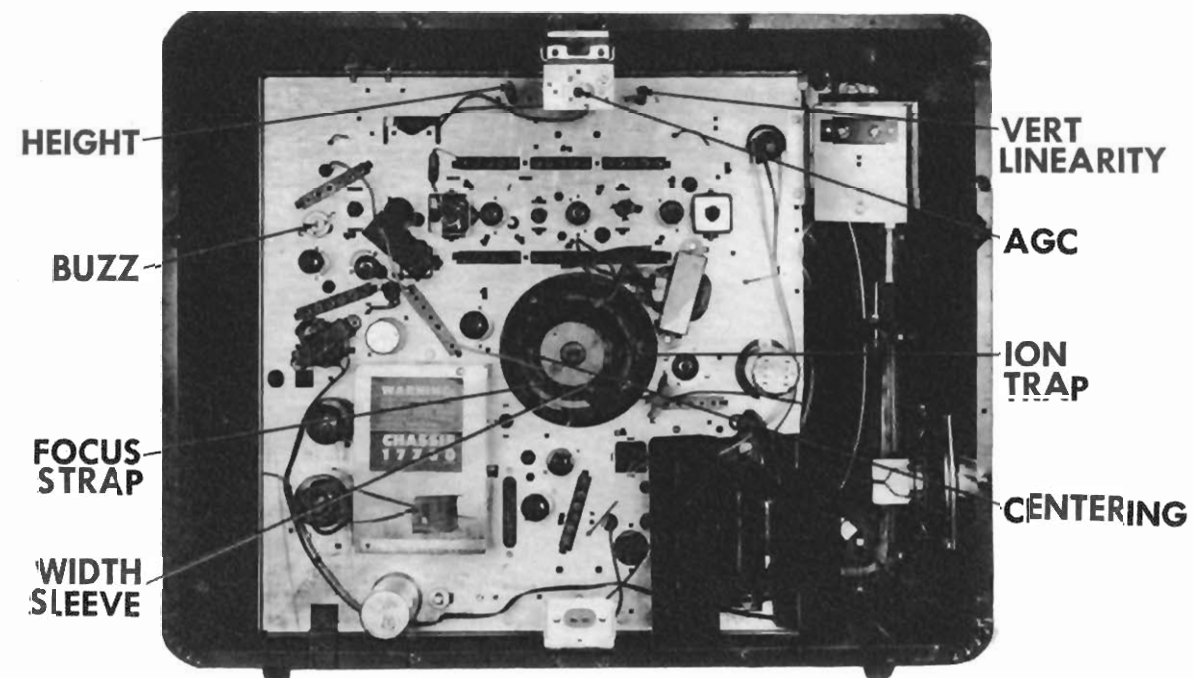
The listing of any available parts does not constitute in any case a warranty by Howard W. Sams & Co., Inc. and suitability of such replacement parts for these parts have been compared to Howard W. Sams & Co., Inc. H19



RF TUNER-LEFT SIDE



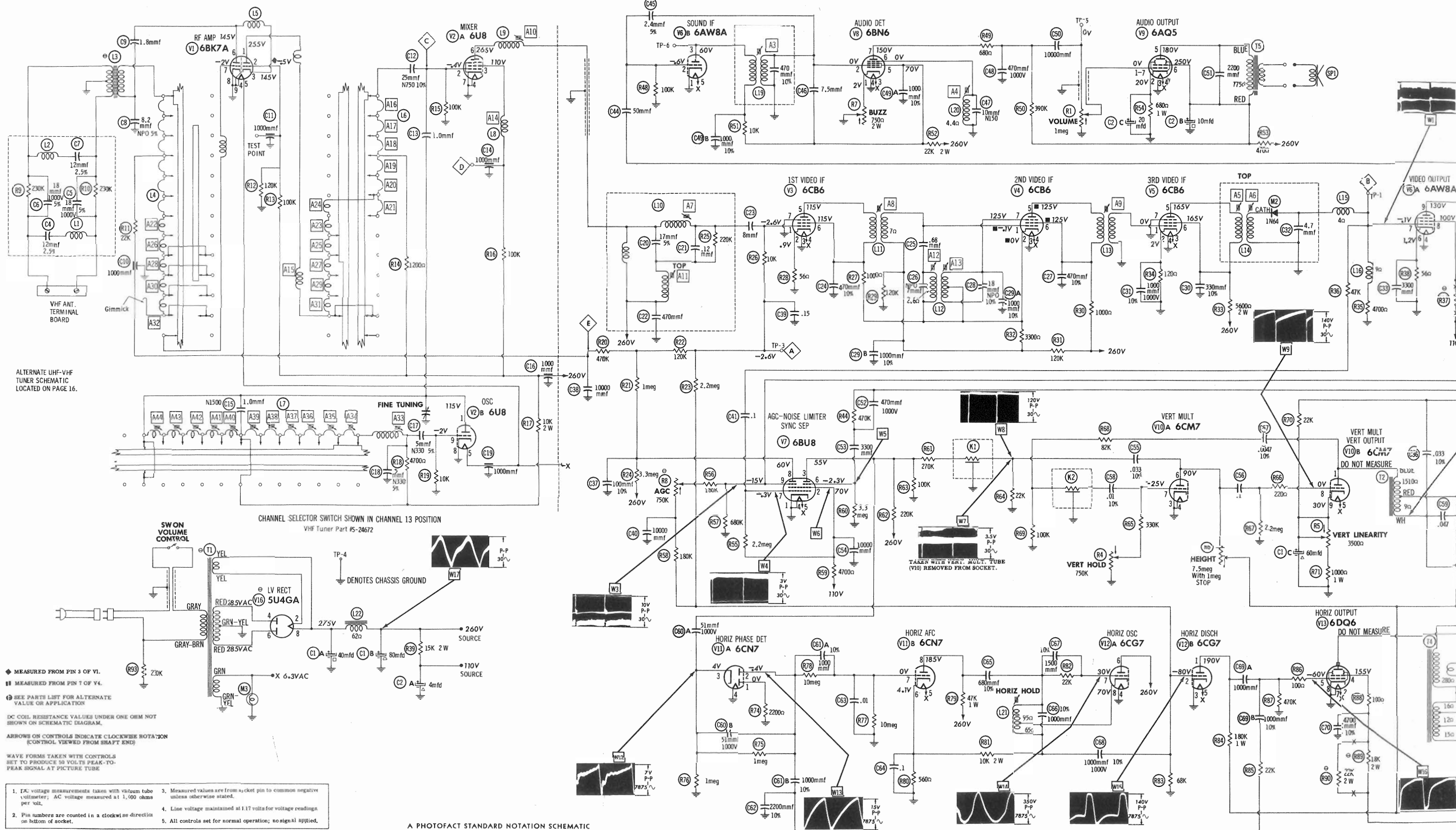
RF TUNER-RIGHT SIDE

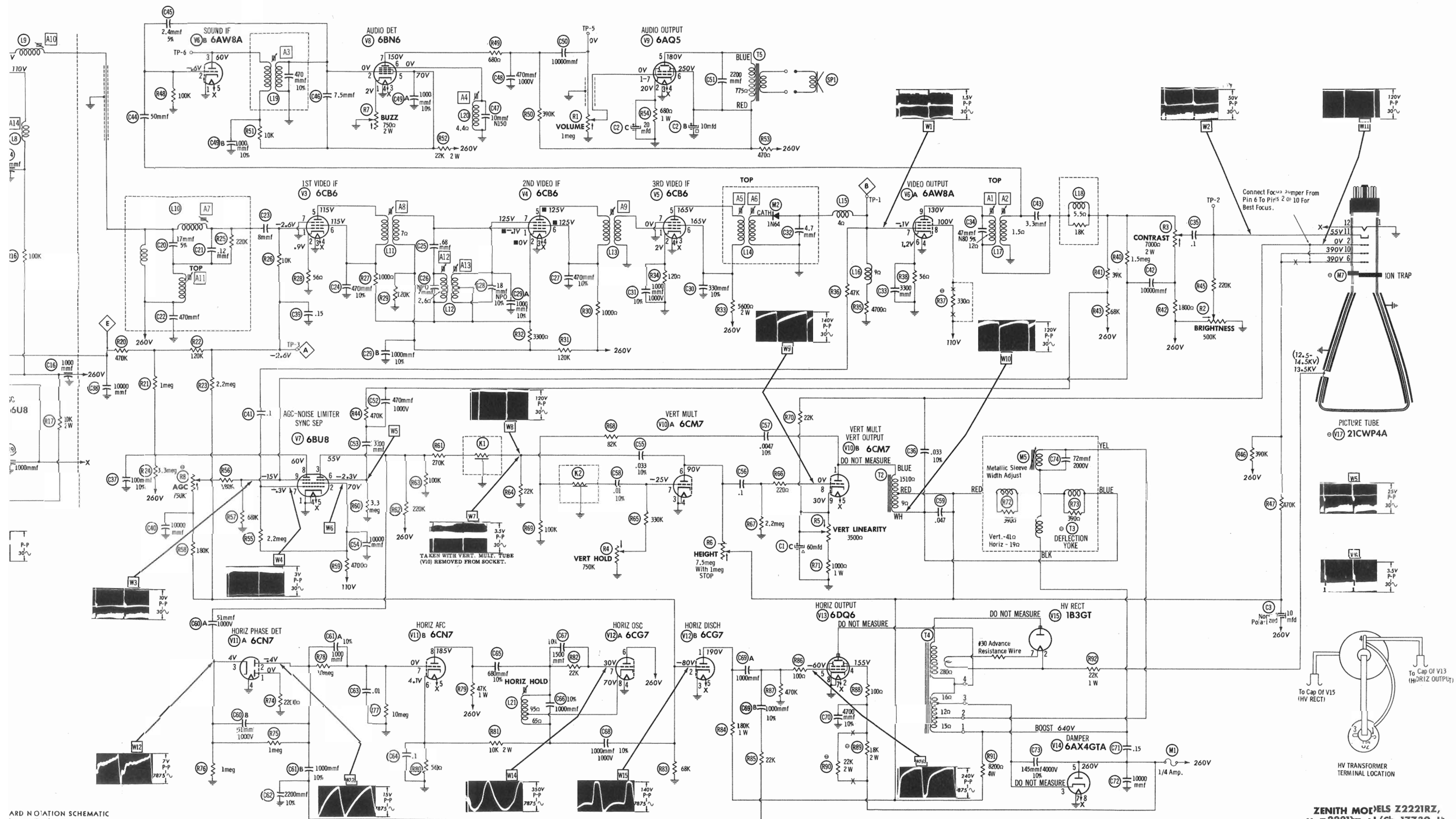


CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

1. Turn the set on and tune in a TV station, preferably with a test pattern.
2. Set the brightness and contrast controls for a normal picture.
3. 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.
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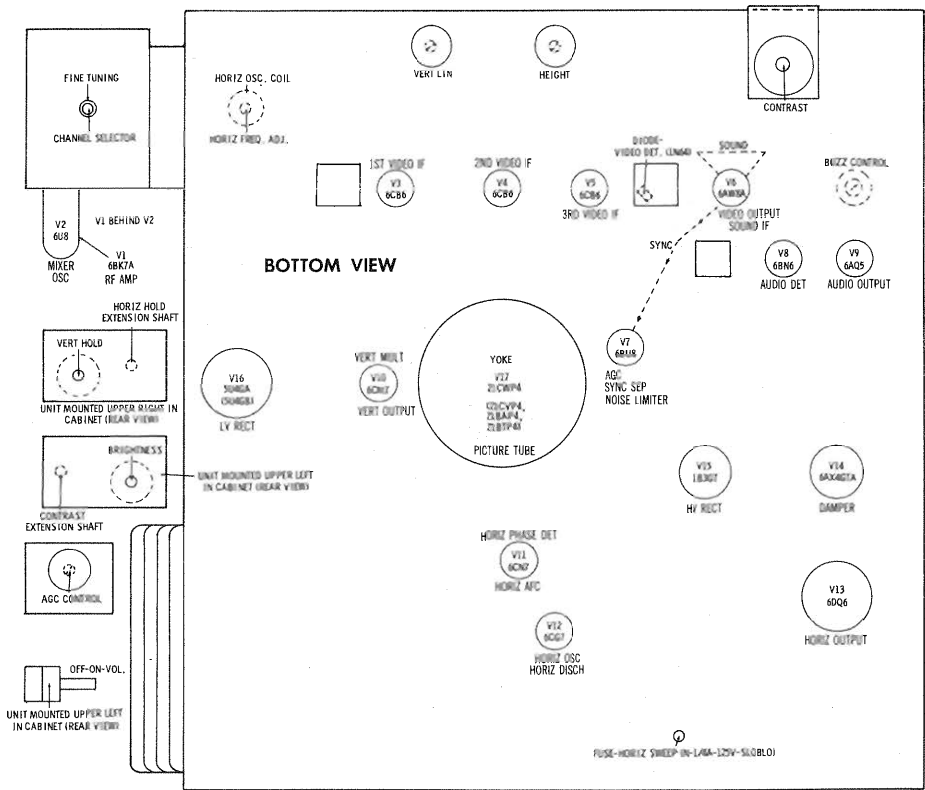




RESISTANCE MEASUREMENTS

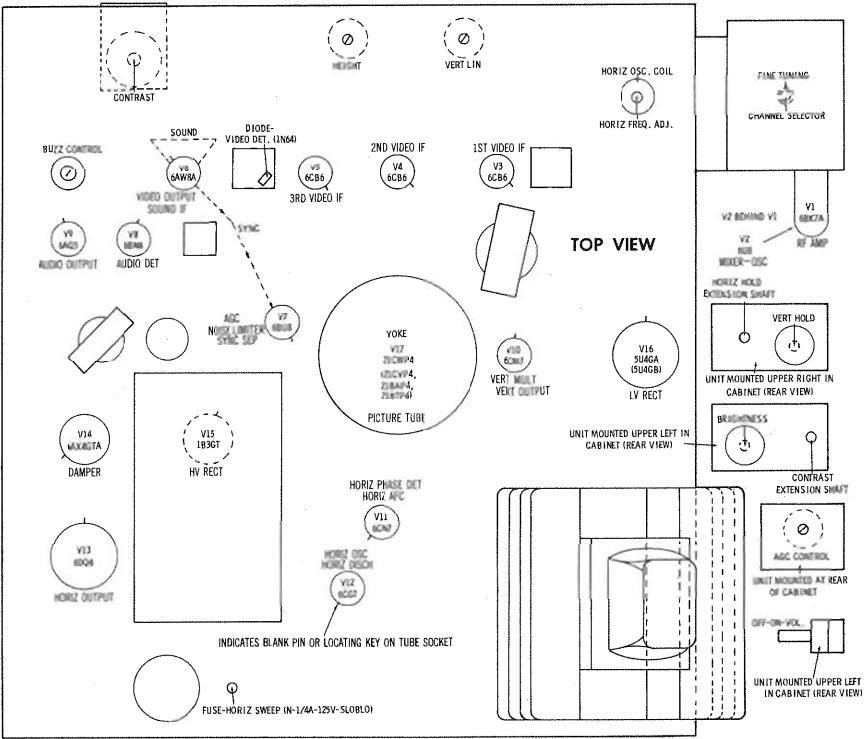
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BK7A	†1200Ω	55K	INF	0Ω	.1Ω	INF	1.8Meg	0Ω	0Ω
V2	6U8	†10K	100K	†100K	0Ω	.1Ω	†62Ω	0Ω	0Ω	10K
V3	6CB6	1.4Meg	56Ω	0Ω	.1Ω	■ 1000Ω	■ 1000Ω	0Ω		
V4	6CB6	■ 3300Ω	■ .3Ω	0Ω	.1Ω	†1000Ω	†1000Ω	60K		
V5	6CB6	.1Ω	120Ω	.1Ω	0Ω	†5600Ω	†5600Ω	0Ω		
V6	6AW8A	0Ω	100K	†32K	0Ω	.1Ω	56Ω	4700Ω	†15K	†8000Ω
V7	6BU8	0Ω	†20K	†60K	0Ω	.1Ω	3.3Meg	†2.2Meg	†1.6Meg	• 280K
V8	6BN6	• 280Ω	.4Ω	.1Ω	0Ω	†22K	4.4Ω	†390K		
V9	6AQ5	• 0Ω	680Ω	0Ω	.1Ω	†1300Ω	†530Ω	• 0Ω		
V10	6CM7	†10K	TP	0Ω	0Ω	.1Ω	• †4.5Meg	• 550K	2.2Meg	• 2000Ω
V11	6CN7	2200Ω	2Meg	1Meg	0Ω	.1Ω	560Ω	4.5Meg	†47K	NC
V12	6CG7	†190K	68K	0Ω	0Ω	.1Ω	†62Ω	32K	10K	NC
V13	6DQ6	TP	.1Ω	TP	†10K	470K	TP	0Ω	0Ω	TOP CAP †16Ω
V14	6AX4GT	TP	NC	‡	NC	†62Ω	NC	0Ω	.1Ω	
V15	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †296Ω
V16	5U4GA	NC	‡	TP	31Ω	TP	28Ω	NC	‡	
V17	21CW4	0Ω	• 24K	PIN 6 †300K	PIN 10 †300K	PIN 11 • 250K	PIN 12 .1Ω			

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



TUBE PLACEMENT CHART

TUBE PLACEMENT CHART

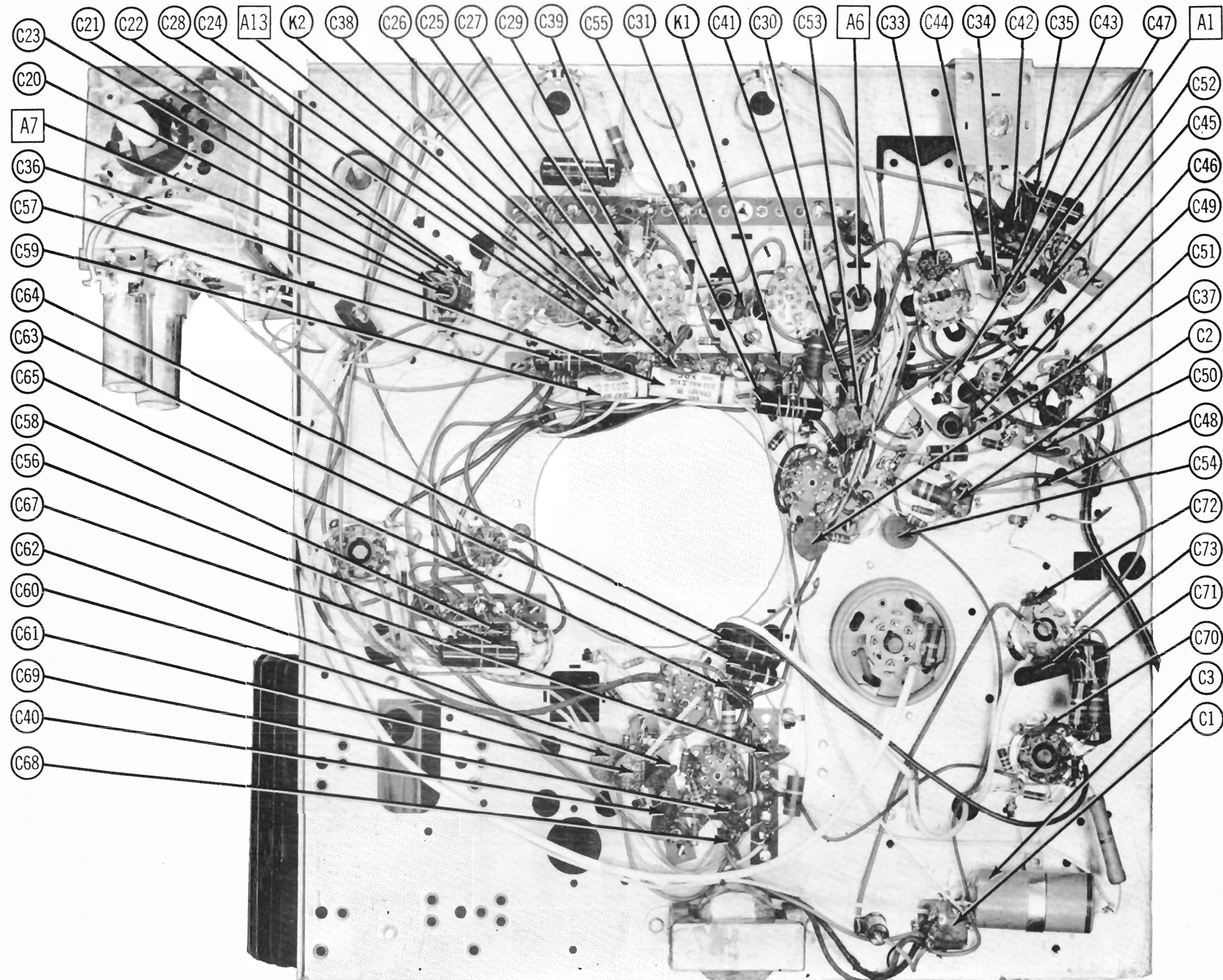


TUBE FAILURE CHECK CHART

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.

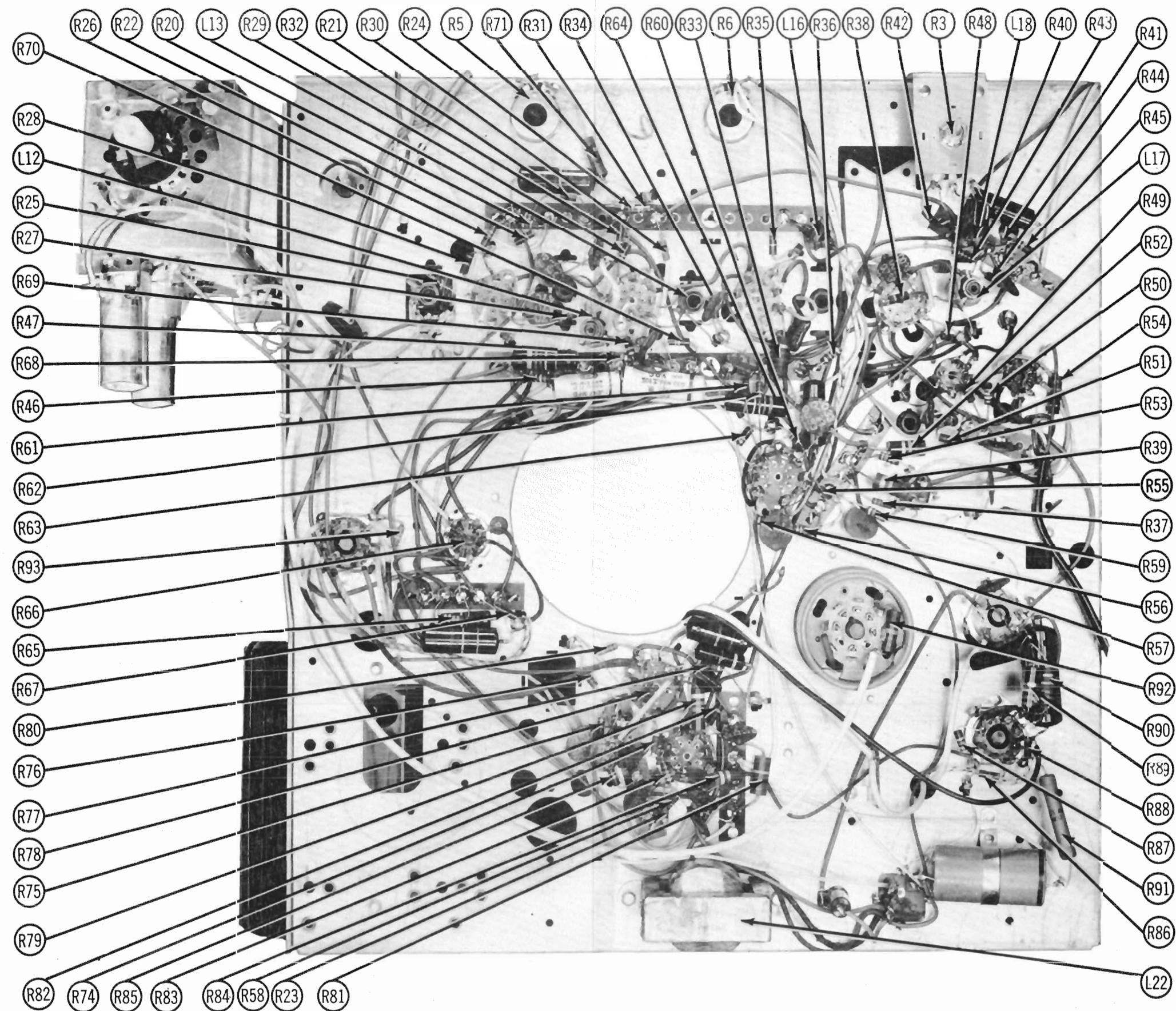
- POWER SUPPLY FAILURE**
No raster, no sound - V16
- LOSS OF PICTURE OR SOUND**
No pic, no sound, has raster - V3, V4, V5, Diode (M2), V6
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V6, V17
Has pic, no sound - V8, V9, V9
Overloaded picture - V7
- SYNC FAILURE**
No vert. sync - V7
No horiz. sync - V7, V11
No vert. or horiz. sync - V7
- SWEEP FAILURE**
No raster, has sound - 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

ZENITH MODELS Z2221RZ,
U, Z2221YZ, U (Ch. 17Z30, U)



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

ZENITH MODELS Z2221RZ,
U, Z2221YZ, U (Ch. 17Z30, U)



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

ZENITH MODELS Z2221RZ,
U, Z2221YZ, U (Ch. 17Z30, U)

ALIGNMENT INSTRUCTIONS

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 oscillator tube (V13) to disable the high voltage.							
SOUND IF ALIGNMENT							
Connect an attenuator (Zenith #S-17203 or equivalent) in series with the antenna. Tune in a modulated TV signal and adjust the attenuator until the signal falls below the limiting level of the 6BN6 (V8) as evidenced by a hiss in the sound similar to super-regeneration. Adjust A1, A2, A3 and A4 for maximum sound and best quality. Adjust the Buzz control (R7) for MINIMUM buzz. If the signal rises above the limiting level of the 6BN6 during the alignment, increase the attenuation until the hiss reappears.							
VIDEO IF ALIGNMENT							
Remove the mixer-oscillator tube (V2) from its socket and connect a wire to pin 9 (Grid) of the tube. Place the tube back in its socket and connect the loose end of the wire to chassis. Connect the negative lead of a 6 volt bias supply to point A. Positive to chassis.							
DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1. Fig. 1	High side thru network (Fig. 1) to pin 1 (grid) of 6CB6 (V5). Low side to chassis.	44.0MC (10MC Swp)	41.25MC 45.75MC	Any non-interfering channel	Vert. Amp. thru 10K to point B. Low side to chassis.	A5, A6	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown.
2. "	High side to point C. Low side to chassis.	"	41.25MC 42.75MC 45.0MC 45.75MC 47.25MC	"	"	A7, A8, A9, A10	Adjust for maximum gain and symmetry of response similar to Fig. 3. with markers as shown. A7 affects peak of curve, A8 affects low frequency side and A9 and A10 affect high frequency side.
3. "	"	"	47.25MC	"	"	A11, A12	Switch scope to 10X gain used in steps 1 and 2. Adjust A11 and A12 for maximum attenuation at 47.25MC marker as in Fig. 4.
4. "	"	"	40.5MC	"	"	A13	Switch scope gain back to where it was in steps 1 and 2. Remove bias supply. Adjust A13 for maximum displacement of the 40.5MC marker as in Fig. 5. Do not exceed the displacement of the 41.25MC marker.

VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a 2 volt bias supply to point E. Positive 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
5. 50Ω to 300Ω Matching Trans.	Across antenna terminals thru matching transformer.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point D. Low side to chassis.	A14, A15	Check for response similar to Fig. 6. If necessary, adjust A14 by expanding or compressing coil turns for proper bandwidth. Adjust A15 the same way for maximum amplitude of response curve.
6. "	"	207MC (10MC Swp)	205.25MC 209.75MC	12	"	A16	Check for response curve similar to Fig. 6. If necessary, adjust by bending loop in or out from switch rotor for proper response.
7. "	"	201MC (10MC Swp)	199.25MC 203.75MC	11	"	A17	"
8. "	"	195MC (10MC Swp)	193.25MC 197.75MC	10	"	A18	"
9. "	"	189MC (10MC Swp)	187.25MC 191.75MC	9	"	A19	"
10. "	"	183MC (10MC Swp)	181.25MC 185.75MC	8	"	A20	"
11. "	"	177MC (10MC Swp)	175.25MC 179.75MC	7	"	A21	"
12. "	"	85MC (10MC Swp)	83.25MC 87.75MC	6	"	A22, A23, A24	Adjust by expanding or compressing coil turns for response similar to Fig. 6.
13. "	"	79MC (10MC Swp)	77.25MC 81.75MC	5	"	A25, A26	"
14. "	"	69MC (10MC Swp)	67.25MC 71.75MC	4	"	A27, A28	"
15. "	"	63MC (10MC Swp)	61.25MC 65.75MC	3	"	A29, A30	"
16. "	"	57MC (10MC Swp)	55.25MC 59.75MC	2	"	A31, A32	"

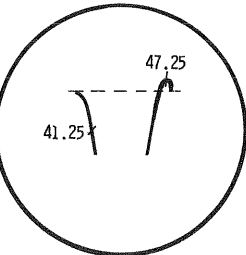
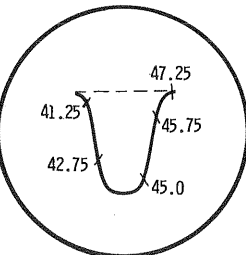
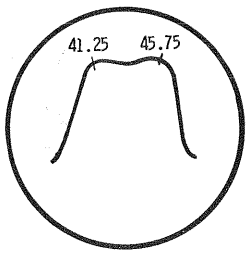
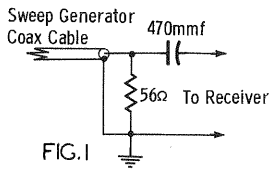


FIG. 2

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 usable pattern on scope.							
DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
17. Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp) 207MC (10MC Swp) 201MC (10MC Swp) 195MC (10MC Swp) 189MC (10MC Swp) 183MC (10MC Swp) 177MC (10MC Swp) 85MC (10MC Swp) 79MC (10MC Swp) 69MC (10MC Swp) 63MC (10MC Swp) 57MC (10MC Swp)	211.25MC 215.75MC 205.25MC 209.75MC 199.25MC 203.75MC 193.25MC 197.75MC 187.25MC 191.75MC 181.25MC 185.75MC 175.25MC 179.75MC 83.25MC 87.75MC 77.25MC 81.75MC 71.75MC 75.75MC 65.75MC 69.75MC 59.75MC 63.75MC	13 12 11 10 9 8 7 6 5 4 3 2	Vert. Amp. thru 10K to point B. Low side to chassis.	A33 A34 A35 A36 A37 A38 A39 A40 A41 A42 A43 A44	Adjust to place sound marker in trap notch as in Fig. 7. Video marker should fall at 50%.

UHF TUNER ALIGNMENT

Alignment of the UHF tuner should not be attempted without the proper test equipment. Connect the negative lead of a 2 volt bias supply to point A. Positive to chassis. 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 usable pattern on scope.							
DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
18. Fig. 8	Across UHF antenna terminals thru matching network (Fig. 8).	713MC (10MC Swp)	711.25MC	54	Vert. Amp. thru 10K to point D. Low side to chassis.	A45, A46, A47	With the UHF tuning knob set to channel 54, the rocker arm on the tuner should be in the horizontal position. If necessary, loosen set screw and turn the shaft independently of the pulley until the arm is in the horizontal position with the channel indicator on channel 54. Tighten the set screw. If the calibration is off more than 3 channels, adjust A45 to place video marker at 50% on curve as in Fig. 9. The image (weaker response) will appear also. The response toward counter clockwise position of A45 is the proper response. Adjust A46 and A47 for maximum amplitude of response similar to Fig. 9.
19. "	"	473MC (10MC Swp)	471.25MC	14	"		Check for response similar to Fig. 9. If the oscillator is off more than 3 channels, adjust the oscillator travel adjustment (osc., mixer and antenna travel adjustments are the three hex nuts on top of the UHF tuner next to tuner chassis) to scale. Care must be used when making this adjustment so as not to move the rocker arm out of its bearing. Set the mixer and antenna travel adjustments for maximum response on scope.
20. "	"	887MC (10MC Swp)	885.25MC	83	"	A48, A49, A50	Adjust A48 to place marker at 50% on curve similar to Fig. 9. Adjust A49 and A50 for maximum amplitude and symmetry.

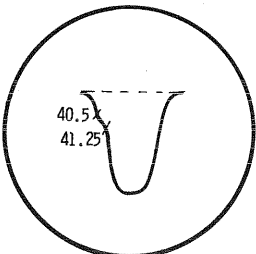


FIG. 5

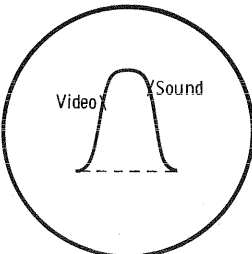


FIG. 6

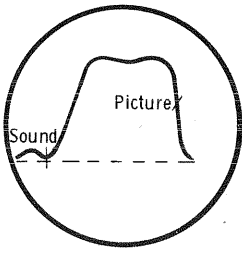


FIG. 7

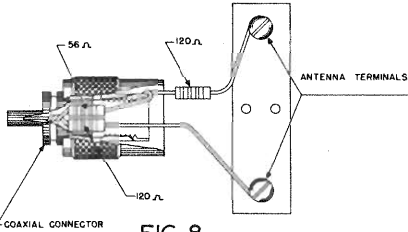


FIG. 8

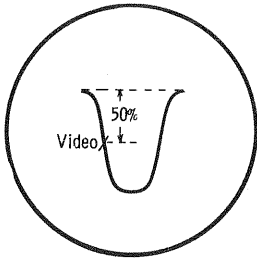
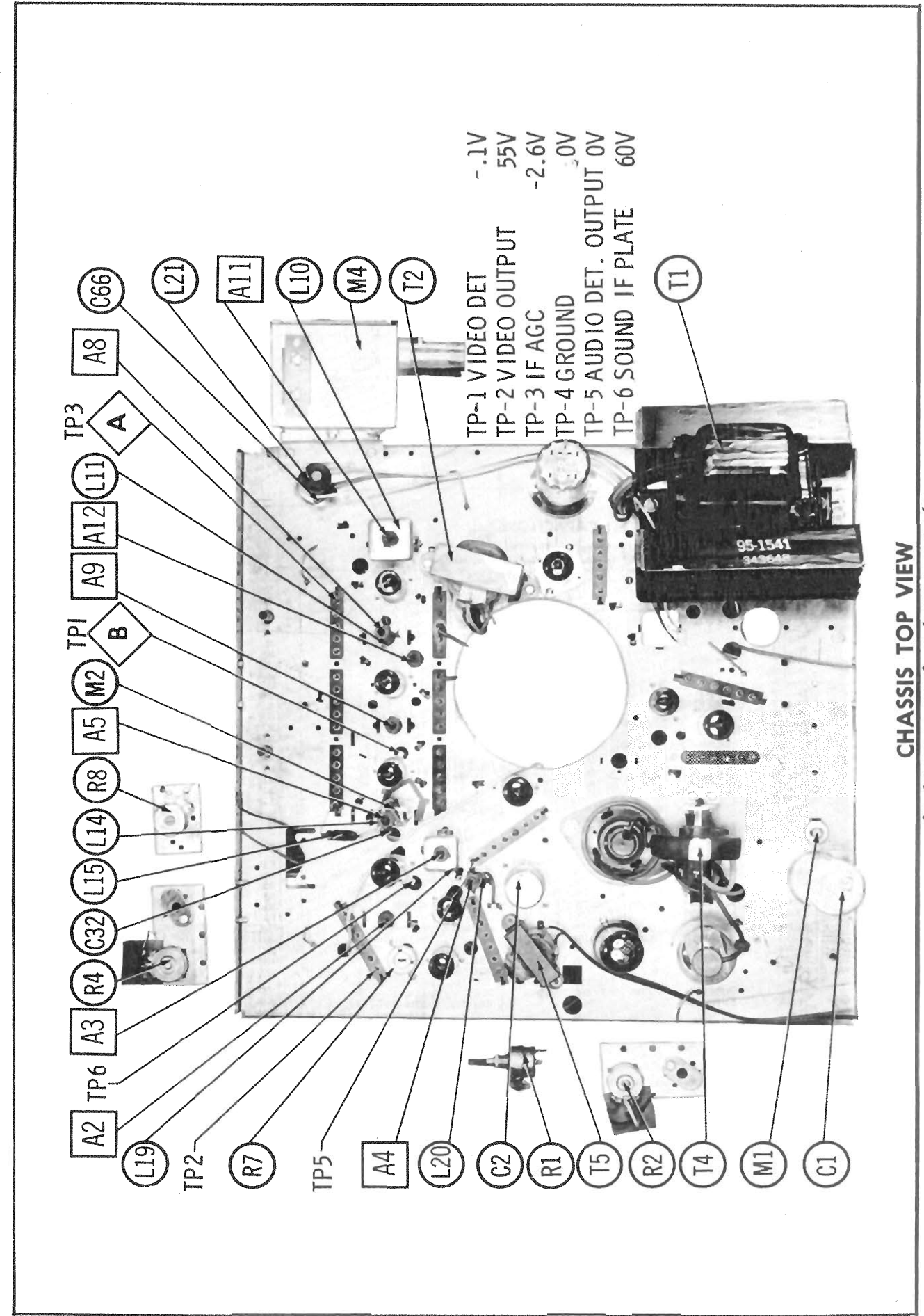
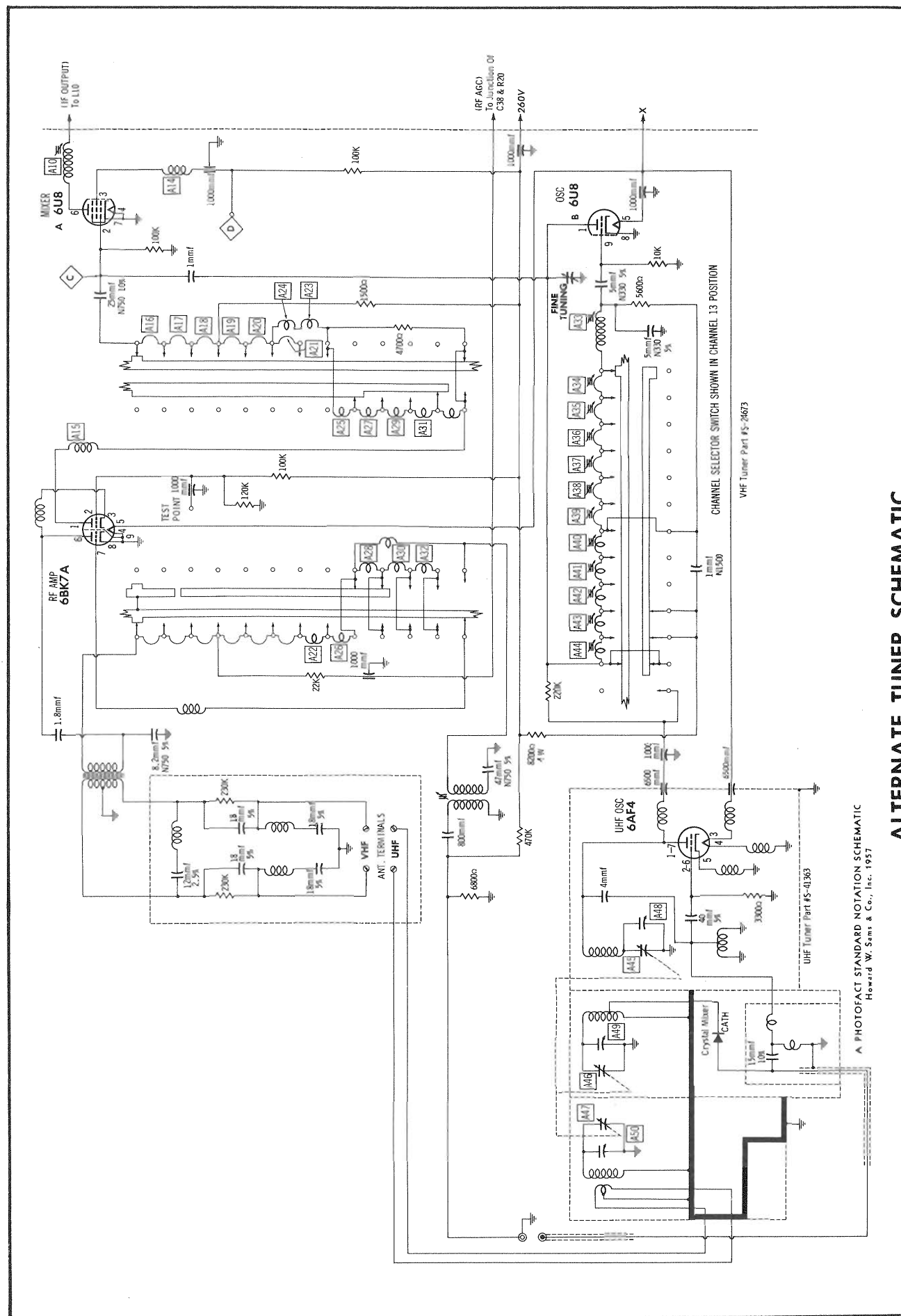
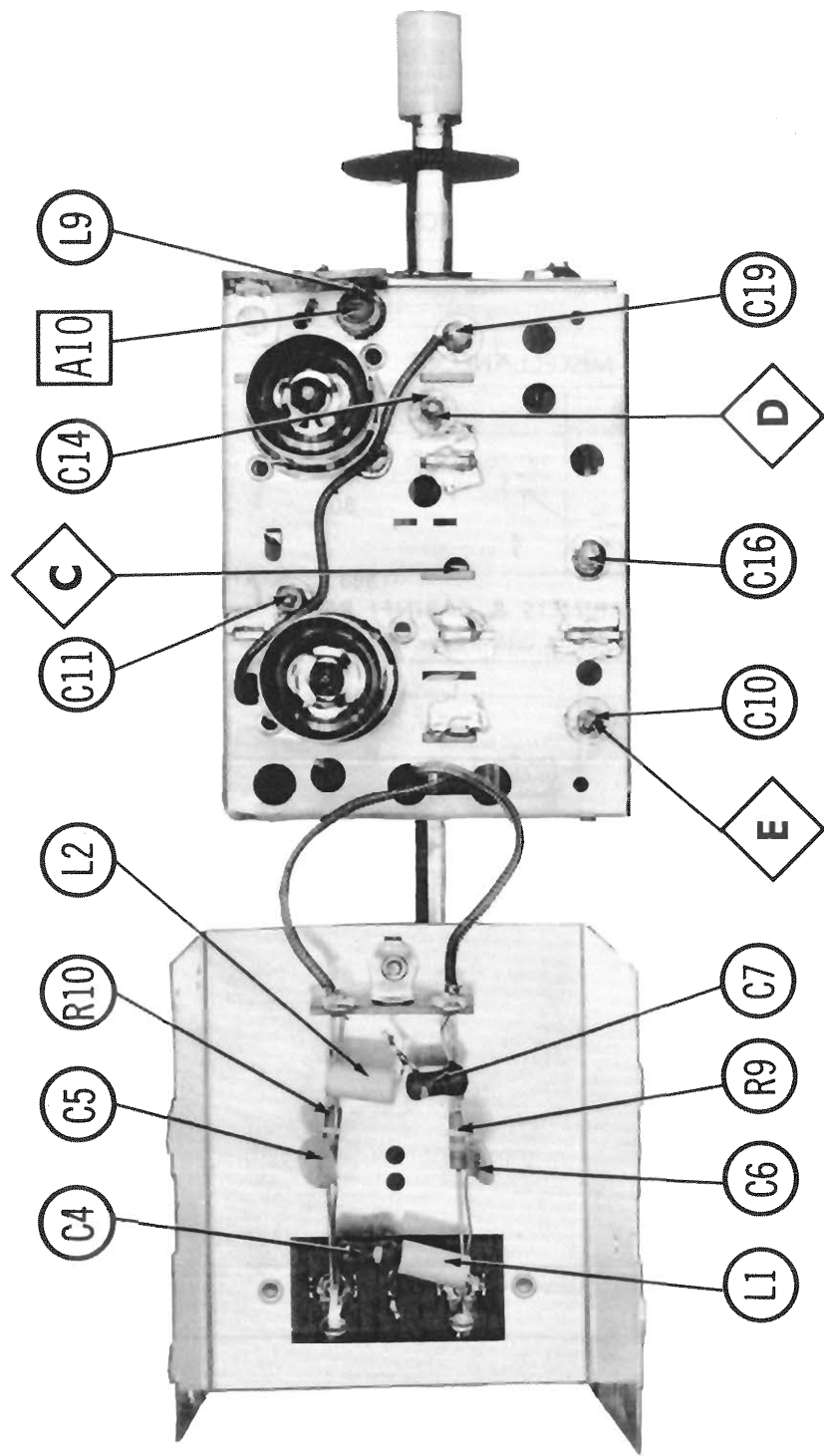


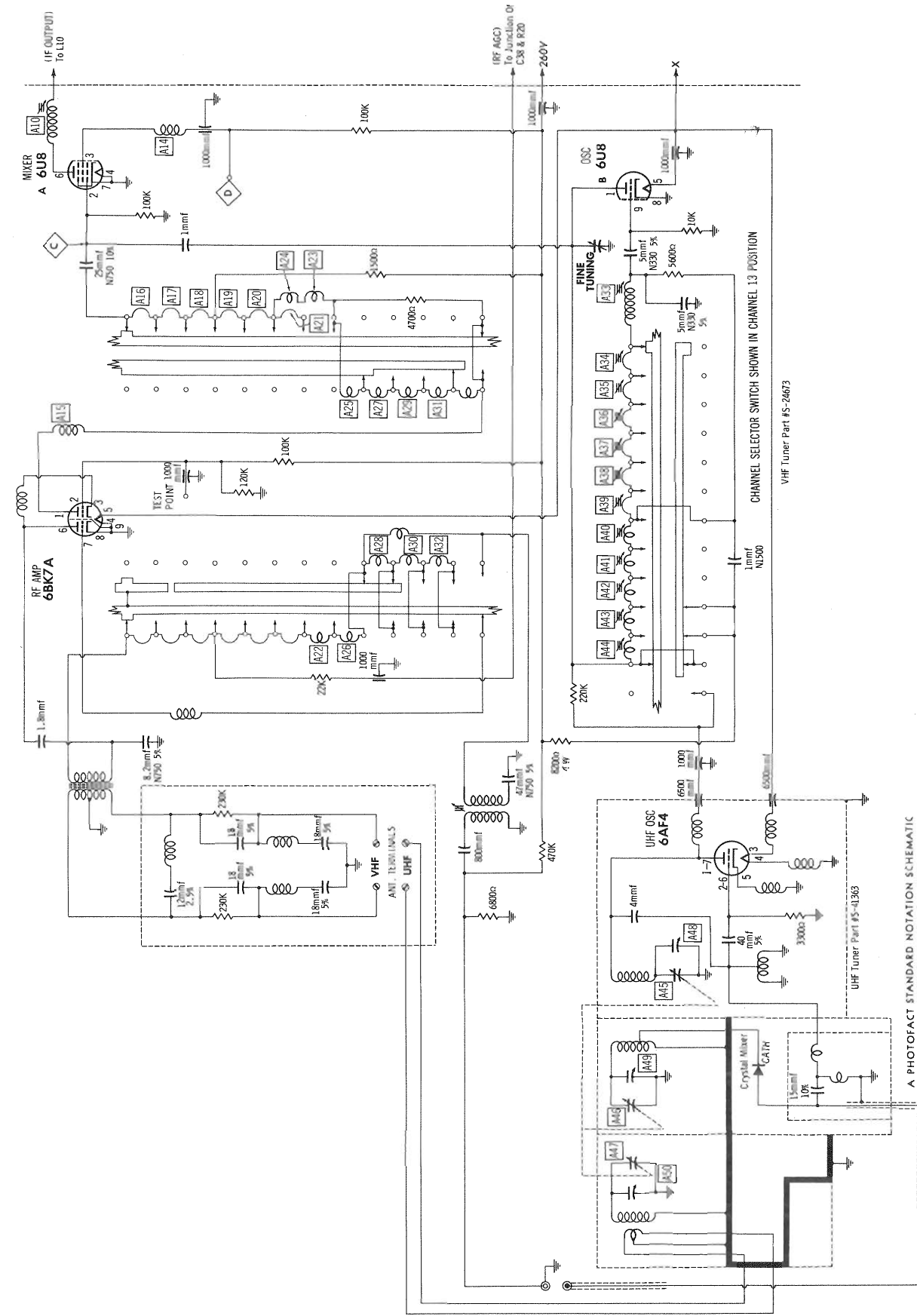
FIG. 9

ZENITH MODELS Z2221RZ,
U, Z2221YZ, U (Ch. 17Z30, U)





RF TUNER-TOP VIEW



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

ALTERNATE TUNER SCHEMATIC



TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES	ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	6BK7A		V9	Audio Output	6AQ5	
V2	Mixer-Oscillator	6U8		V10	Vert. Mult. - Vert. Output	6CM7	
V3	1st. Video IF Amp.	6CB6		V11	Horiz. Phase Det. - Horiz. AFC	6CN7	
V4	2nd. Video IF Amp.	6CB6		V12	Horiz. Osc. - Horiz. Discharge	6CG7	
V5	3rd. Video IF Amp.	6CB6		V13	Horiz. Output	6DQ6	
V6	Video Output-Sound IF Amp	6AW8A		V14	Damper	6AX4GT4	
V7	AGC - Noise Limiter - Sync Sep.	6BU8		V15	HV Rectifier	1B3GT	
V8	Audio Detector	6BN6		V16	LV Rectifier	5U4GA	Note 1

Note 1. Some versions may use a 5U4GB in this application.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA	NOTES
V17	21CWP4A 21CVP4 21BAP4 21BTP4	21BAP4 ② 21BTP4 ①

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	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	BO480	FP229.4	TMD-58	D-255	R2285 *
B	40	400			BR6015	TC68	TD-60-350	FMD-1530	
C	50	50							
C2A	44	350	22-2744	AFH3-180	BO630	FP171	TMD-72	D-345	R2416 *
B	40	400			BR435	TC60	TD-4-450	FM-4504	
C	20	25				TC26			
C3	10	400	22-2870 *	NP-PRS400 V10		TC75		MT-4520	R2286 *
						TC75		MT-4520 †	

* Non-catalog item.

+ Non-polarized unit.

† Connect negative leads together.

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.	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.	
C4	12		22-2679		TCZ-12		TCO-12		2.5%
C5	18	1000	22-2680		TCZ-18		TCO-18		5%
C6	18	1000	22-2680		TCZ-18		TCO-18		5%
C7	12		22-2679		TCZ-12		TCO-12		2.5%
C8	8.2		22-2681	NP0-SI 8.2			TCO-8.2		NP0 5%
C9	1.8		22-2428						
C10	1000		22-2889	EF-001	MFT-1000			503C-DI	
C11	1000		22-2889	EF-001	MFT-1000			503C-DI	
C12	25		22-2671	N750-SI 25	TCN-25	TC7-15			N750 10%
C13	1.0		22-2720	NP0-SI 1.0	TCZ-1	TCO-1.0		5TCCB-VI	
C14	1000		22-2889	EF-001	MFT-1000			503C-DI	
C15	1.0		22-2714						NI500
C16	1000		22-2889	EF-001	MFT-1000			503C-DI	
C17	5		22-2716						N330 5%
C18	5		22-2716						N330 5%
C19	1000		22-2889	EF-001	MFT-1000			503C-DI	5%
C20	17		22-2694						
C21	12		22-2948						
C22	470		22-6	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47
C23	8		22-2481			C1078C			
C24	470		22-16		DD-471	LI0747	ED-470		10%
C25	.68		22-1766		TCZ-R68		TCO-.68		
C26	7		22-2313			C1077C			NP0
C27	470		22-16		DD-471	LI0747	ED-470		10%
C28	18		22-2990		TCZ-18	C10Q8C	TCO-18		NP0 10%
C29A	1000		22-21				ED-1000		10%
C30	330		22-2667	1469-00033	D6-331	5R5T33	ED-330	MS-333	10%
C31	1000	1000	22-17						10%
C32	4.7		22-2867	NP0-SI 4.7	TCZ-4R7	C10V47C	TCO-4.7	ZT-5547	5TCCB-V47
C33	3300		22-11	BPD-0033	DD-332	BYA10D33	ED-0033	UC-5233	5HK-333
C34	47		22-2467						
C35	.1	200	22-1777	P288N-1	DF-104	CUB2P1	GEM-201		N80 5%
C36	.033	600	22-2235				GEM-6133		10%
C37	100		22-4						10%
C38	10000		22-1	BPD-01	DD-103	LI0T1	ED-100	DC511	
C39	.15	200	22-247	P288N-15		BYA6S1	ED-01	DC511	
C40	10000		22-3	BPD-01	DD-103	CUB2P15	GEM-2015	5HK-SI	2TM-P15
C41	.1	200	22-1777	P288N-1	DF-104	CUB2P1	GEM-201	5HK-SI	2TM-P1
C42	10000		22-1	BPD-01	DD-103	BYA6S1	ED-01	DC511	
C43	3.3		22-2343	NP0-SI 3.3	TCZ-3R3	CTA6V33C	TCO-3.3	ZT-5533	5TCCB-V33
C44	50		22-2460	SI 50	D6-500	C10Q5C	TCO-50	UC-545	5GA-Q5
C45	2.4		22-2596	NP0-SI 2.2	TCZ-2R2				5TCCB-V22
C46	7.5		22-2742						5%
C47	10		22-2733						NI50
C48	470	1000	22-6	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47
C49A	1000		22-21				ED-1000		10%
C50	1000		22-3		DD-103	BYA6S1	ED-01	DC511	5HK-SI
C51	2200		22-8	BPD-022	DD-222	BYA10D22	ED-022	UC-5222	5G A-D22
C52	470	1000	22-6	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5G A-T47
C53	3300		22-11	BPD-033	DD-332	BYA10D33	ED-033	UC-5233	5G A-D33
C54	10000		22-3	BPD-Q	DD-103	BYA6S1	ED-01	DC511	5HK-SI
C55	.033	400	22-2615						10%
C56	.1	400	22-2011	P488N-1	DF-104	CUB4P1	GEM-401		4TM-P
C57	.0047	600	22-18-9						10%
C58	.01	400	22-2515						10%
C59	.047	200	22-178						10%
C60A	51	1000	22-25	BPD-05	DD-503	CUB2S47	ED-51	GEM-2147	5TM-S47
C61A	1000	1000	22-21	SI 51	DD-500	LI0Q51	ED-51	UC-545	5GA-Q5
C62	2200		22-18				ED-1000		10%
C63	.01	400	22-1809	BPD-01	DD-103	CUB4S1	ED-10000	GEM-411	4TM-SI
C64	.1	200	22-1777	P288N-1	DF-104	CUB2P1	GEM-201		2TM-P1
C65	680		22-2668	1464-00068	D6-681	IR5T68	ED-680	MS-368	10%

PARTS LIST AND DESCRIPTIONS

CAPACITORS (cont)

ITEM No.	RATING		REPLACEMENT DATA						NOTES	
	CAP.	VOLT	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.		SPRAGUE PART No.
C56	1000		22-2163	1464-001		1R5D1			MS-31	10%
C57	1500		22-12							10%
C58	1000	1000	22-17							10%
C59A	1000		22-21							10%
B	1000						ED-1000			10%
C70	4700		22-14				ED-1000			10%
C71	.15	400	22-2261	P488N-15		CUB4P15		GEM-4015	4TM-P15	
C72	10000		22-3	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C73	145	4000	22-2869							10%
C74	72	2000								

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST- ANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	1/2	63-3626	B-70	A47-1Meg-S	Q11-137	U54	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	
R2	500K	1/2	63-3671	B-61	WW-752 *	Q17-133	TA55R	Brightness
R3A	7000Ω	2	63-3288	Not Req.	A47-7500 *	WPKT500 *	R7500L *	Contrast - wire wound
B	Shaft			Not Req.	FS-3	Not Req.	D8-36	
R4A	750K	1/2	63-3672	B-66	A47-750K-S	Q11-136	U54	Vert. Hold
B	Shaft			Not Req.	KSS-3	Not Req.	U54	
R5A	3500Ω	1/2	63-3295	AB-9	A47-4000-S	Q11-114	PTA352L	Vert. Lin.
B	Shaft			AK-1	FKS-1/2	TQ	Not Req.	
R6A	7.5Meg	1/2	63-3294	AB-89 †	A47-7.5Meg-S †	Q11-142 †	PTA855L †	Height with 1Meg stop
B	Shaft							
R7	750Ω	2	63-3284	AK-1	FKS-1/2	TQ	Not Req.	buzz - wire wound
R8A	750K	1/2	63-3262		S9-800	BU-136	PTA754L	AGC - Note 1
B	Shaft					TM2-Kit	Not Req.	

* File shaft double flat.

† Use a 1Meg resistor in series with the right hand terminal.

Note 1. Alternate part #63-3989 may be used in some versions.

RESISTORS

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

ITEM No.	RATING	REPLACEMENT DATA	NOTES
OHMS	WATT	ZENITH PART No.	IRC PART No.
R9	230K		BTS-230K
R10	230K		BTS-230K
R11	22K		BTS-22K
R12	120K		BTS-120K
R13	100K		BTS-100K
R14	1200Ω		BTS-1200
R15	100K		BTS-100K
R16	100K		BTS-100K
R17	10K		BTS-10K
R18	4700Ω	63-3176	BTS-4700
R19	10K		BTS-10K
R20	470K	63-1898	BTS-470K
R21	1Meg	63-1911	BTS-1Meg
R22	120K	63-1873	BTS-120K
R23	2.2Meg	63-1925	BTS-2.2Meg
R24	3.3Meg	63-1932	BTS-3.3Meg
R25	220K	63-1883	BTS-220K
R26	10K	63-1897	BTS-10K
R27	1000Ω	63-1786	BTS-1000
R28	560	63-1733	BTS-560
R29	120K	63-1873	BTS-120K
R30	1000Ω	63-1786	BTS-1000
R31	120K	63-1873	BTS-120K
R32	3300Ω	63-1807	BTS-3300
R33	5600Ω	63-3223	BTS-5600
R34	120Ω	63-1747	BTS-120
R35	4700Ω	63-1813	BTS-4700
R36	47K	63-1855	BTS-47K
R37	330Ω	63-1733	BTS-330
R38	560	63-1733	BTS-560
R39	15K	63-942	BTS-15K
R40	1.5Meg		BTS-1.5Meg
R41	39K	63-1852	BTS-39K
R42	1800Ω	63-1796	BTS-1800
R43	68K	63-1862	BTS-68K
R44	470K	63-1898	BTS-470K
R45	220K	63-1883	BTS-220K
R46	390K	63-1894	BTS-390K
R47	470K	63-1898	BTS-470K
R48	100K	63-1869	BTS-100K
R49	680Ω	63-1779	BTS-680
R50	390K	63-1894	BTS-390K

Note 1. Not used in some versions.

Note 2. Some versions may use a single 10K, 4W (Part #63-3623) to replace R89 and R90.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
					ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
	75W	SEC. 1	SEC. 2	SEC. 3						
T1	117VAC @ 1.3A	570VCT @ .265A	5V @ .3A	6.3V @ .8A	95-1541 ①					

① Some versions may use alternate Part #95-1503 or #95-1520 in this application.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA						
		ZENITH PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.
T2	Vert. Output	95-1535	Z1807 ①	A-9994 ①	V313 ①	VO-101 ②	26876 ①	A-112X ①
T3A	Yoke-Horiz. (13MH)	95-1452 ③	DF906 ④ ⑤	MDF-91 ⑤	Y9C12/47 ② ③	DY-13A ⑤	Y-39 ⑥ ⑦	Y-40 ④ ⑤
B	(90°) Vert. (37.5MH)							
M6	Alt. Yoke	95-1435						
T4	Centering Device	S-22560						
	Horiz. Output	S-40124			XI37 ⑧ *	HO-271 ⑧	FLY-118 ⑨ *	

① Cut and tape blanking lead.

② Drill new mounting hole(s).

③ Includes resistors R72 and R73 and capacitor C74.

④ Use original yoke damping network across #3 and #7.

⑤ Connect horizontal damping network across #3 and #7. Use original yoke damping network, connect horizontal output transformer terminal #2 to yoke terminal #3, horizontal output transformer terminal #1 to yoke terminal #1. Cut and form a piece of .010 gauge fish paper inside the yoke itself and support with an acetate cement, to provide an insulation between the width sleeve and the yoke proper.

⑥ Connect horizontal output transformer terminal #2 to yoke terminal #2, horizontal output transformer terminal #1 to terminal #7.

⑦ Cut and tape orange lead.

⑧ Use original mounting bracket.

* HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	4				4	4	4	
	3				3	3	3	
	2				2	2	2	
	1				1	1	1	
Special Notes →					⑧	⑨	⑨	

PARTS LIST AND DESCRIPTIONS

CAPACITORS (cont)

RATING	VOLT	REPLACEMENT DATA						NOTES
		ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.
1000	22-2163	1464-001			1R5D1			MS-31
	22-12							
	22-17							
	22-21							
400	22-14	P488N-15	BPD-01	DD-103	CUB4P15	ED-01	GEM-4015	4TM-P15
	22-2261							
	22-3							
4000	22-2869							5HK-S1
2000								10%

CONTROLS

RATING	WATTS	REPLACEMENT DATA					INSTALLATION NOTES
		ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
1/2	63-3626	B-70 Not Req. KB-1	B-70 Not Req. KB-1	A47-1Meg-S FS-3 SWE-12	U54 Not Req. 76-1	U54 Not Req. 76-1	Volume
1/2	63-3671	B-61 WW-752 *	B-61 WW-752 *	A43-7500 *	Q17-133	TA55R	Brightness
1/2	63-3288	Not Req. B-66	Not Req. B-66	FS-3 A47-750K-S	Not Req. Q1-136	R7500L *	Contrast - wire wound
1/2	63-3672	Not Req. AB-9	Not Req. AB-9	KSS-3 A47-4000-S	Not Req. Q1-114	D6-36	Vert. Hold
1/2	63-3295	AK-1 AB-89 ↑	AK-1 AB-89 ↑	FKS-1/2 A47-7.5Meg-S ↑	Not Req. Q1-142 ↑	U54 Not Req. PTA352L	Vert. Lin.
1/2	63-3294					Not Req. PTA855L	Height with 1Meg stop
2	63-3284						
1/2	63-3262						

double flat.
g resistor in series with the right hand terminal.
rivate part #63-3989 may be used in some versions.

RESISTORS

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

RATING	WATT	REPLACEMENT DATA		NOTES
		ZENITH PART No.	IRC PART No.	
1/2	63-3176	BTS-230K BTS-230K BTS-22K BTS-120K BTS-100K BTS-1200 BTS-100K BTS-100K BTS-10K BTS-4700 BTS-10K		
		63-1898 63-1911 63-1873 63-1925 63-1932 63-1883 63-1827 63-1786 63-1733 63-1873 63-1786 63-1873 63-1807 63-3223 63-1747 63-1813 63-1855	BTS-220K	
		63-1733 63-942 63-1852 63-1796 63-1852 63-1898 63-1883 63-1894 63-1898 63-1869 63-1779 63-1894	BTS-56 BTS-120K BTS-1000 BTS-120K BTS-3300 BTS-5900 BTS-120 BTS-4700 BTS-47K BTS-330 BTS-56 BTS-15K BTS-1.5Meg BTS-39K BTS-180K BTS-68K BTS-470K BTS-390K BTS-470K BTS-100K BTS-680 BTS-390K	Note 1
2	63-3176	BTS-230K BTS-230K BTS-22K BTS-120K BTS-100K BTS-1200 BTS-100K BTS-100K BTS-10K BTS-4700 BTS-10K		
		63-1898 63-1911 63-1873 63-1925 63-1932 63-1883 63-1827 63-1786 63-1733 63-1873 63-1786 63-1873 63-1807 63-3223 63-1747 63-1813 63-1855	BTS-220K	
		63-1733 63-942 63-1852 63-1796 63-1852 63-1898 63-1883 63-1894 63-1898 63-1869 63-1779 63-1894	BTS-56 BTS-120K BTS-1000 BTS-120K BTS-3300 BTS-5900 BTS-120 BTS-4700 BTS-47K BTS-330 BTS-56 BTS-15K BTS-1.5Meg BTS-39K BTS-180K BTS-68K BTS-470K BTS-390K BTS-470K BTS-100K BTS-680 BTS-390K	Note 1
2	63-3176	BTS-230K BTS-230K BTS-22K BTS-120K BTS-100K BTS-1200 BTS-100K BTS-100K BTS-10K BTS-4700 BTS-10K		
		63-1898 63-1911 63-1873 63-1925 63-1932 63-1883 63-1827 63-1786 63-1733 63-1873 63-1786 63-1873 63-1807 63-3223 63-1747 63-1813 63-1855	BTS-220K	
		63-1733 63-942 63-1852 63-1796 63-1852 63-1898 63-1883 63-1894 63-1898 63-1869 63-1779 63-1894	BTS-56 BTS-120K BTS-1000 BTS-120K BTS-3300 BTS-5900 BTS-120 BTS-4700 BTS-47K BTS-330 BTS-56 BTS-15K BTS-1.5Meg BTS-39K BTS-180K BTS-68K BTS-470K BTS-390K BTS-470K BTS-100K BTS-680 BTS-390K	Note 1

Note 1. Not used in some versions.
Note 2. Some versions may use a single 10K, 4W (Part #63-3623) to replace R89 and R90.

TRANSFORMER (POWER)

RATING			REPLACEMENT DATA					
SEC. 1	SEC. 2	SEC. 3	ZENITH PART No.	Halderson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
570VCT ②. 265A	5V ②. 3A	6.3V ②. 8A	95-1541 ①					

ions may use alternate Part #95-1503 or #95-1520 in this application.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA							
		ZENITH PART No.	Halderson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	Vert. Output Yoke-Horiz. (13MH)	95-1535	Z1807 ①	A-2824 ①	237D1	Y315 ①	VO-101 ②	26876 ①	A-112X ①
T3A		95-1452 ③	DF806 ③ ⑤	MDF-9L ⑤		Y90F12/47 ③ ⑤	DY-13A ⑤	Y-39 ⑤ ⑦	Y-40 ③ ⑤
B	(90°) Vert. (37.5MH) Alt. Yoke Centering Device Horiz. Output	95-1435							
M6		S-22560							
T4		S-40124				X137 ③ *	HO-271 ③	FLY-118 ③ *	

- ① Cut and tape blanking lead.
- ② Drill new mounting hole(s).
- ③ Includes resistors R72 and R73 and capacitor C74.
- ④ Connect horizontal damping network across #3 and #7.
- ⑤ Use original yoke damping network, connect horizontal output transformer terminal #2 to yoke terminal #3, horizontal output transformer terminal #1 to yoke terminal #1. Cut and form a piece of .010 gauge fish paper inside the yoke itself and support with an acetate cement, to provide an insulation between the width sleeve and the yoke proper.
- ⑥ Connect horizontal output transformer terminal #2 to yoke terminal #2, horizontal output transformer terminal #1 to terminal #7.
- ⑦ Cut and tape orange lead.
- ⑧ Use original mounting bracket.

* HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halderson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	4				4	4	4	
	3				3	3	3	
	2				2	2	2	
	1				1	1	1	
Special Notes →					⑨	⑨	⑨	

⑨ Install 3.3Ω in series with filament.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA						NOTES
		ZENITH PART No.	Halderson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T5	10.5K	3-4Ω	95-1483	Z1117	A-2932	A-3879	24852	S-17X

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	5"	PM	3-4Ω	49-751	52A1	

COILS (RF-IF)

ITEM No.	USE	ZENITH PART No.	NOTES	ITEM No.	USE	ZENITH PART No.	NOTES
L1	Antenna Trap	20-587		L6	RF Coils	S-23640	Channels 2-13, complete wafer assay.
L2	Antenna Trap	20-587		L7	Osc. Coils	S-23639	Channels 2-13, complete wafer assay.
L3	Ant. Trans.	S-24644		L8	RF Choke	20-632	
L4	Ant. Coils	S-23641	Alternate Part #S-24845 Channels 2-13, complete wafer assay.	L9	Mixer Plate Coil	S-24377	
L5	Neut. Coil	20-633					

ITEM No.	USE	REPLACEMENT DATA				NOTES
		ZENITH PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L10	1st. Video IF	S-41369				
L11	2nd. Video IF	S-41398	17-4522 *	TV-130 *	6219 *	Includes trap and assembly
L12A	40.5MC Trap	S-41395				
B	47.25MC Trap					
L13	3rd. Video IF	S-23993	17-4523 *	TV-130 *	6219 *	
L14	4th. Video IF	S-23999	17-4522 *	TV-130 *	6219 *	
L15	Resonant Choke	S-22444				Includes assembly
L16	Shunt Peaking Coil	S-16015	19-3300	TV-190	6132	25 Microhenries
L17A	4.5MC Trap	S-22350				325 Microhenries
B	1st. Sound IF					
L18	Series Peaking Coil	S-20880	19-3125 *		6153 *	137 Microhenries, wound to 15K resistor
L19	2nd. Sound IF	S-22348				Includes Cap.
L20	Quadrature Coil	S-19020	20-1005 *	TV-121	1480 *	

* Drill new mounting hole.
Δ Parallel with 18K resistor.

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.	
L21	160Ω		S-19743	19-1577		6324			HS-6

* Tagged ② 650.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	ZENITH PART No.	Halderson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L22	.265A	62Ω	1.84HY	95-1376 ①	C5037 ②	C-2991 ②	C-2326 ②	26C44	C-23X

① Alternate Part #95-1536
② Drill One New Mtg. Hole.

PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ZENITH PART No.	REPLACEMENT DATA
K1	Integrator		87-5	
K2	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	1/4A 125V S/B	136-33	62-18	333.250 (N-1/4A-125V S/B)	346008	N1/4	HN 0 to 3/10

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		ZENITH PART No.	CBS PART No.	SYLVANIA PART No.	
M2	5345	103-18	1N60	1N64	A Video Det. (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M3	Pilot Light	100-198	
M4	Tuner	S-24672	VHF-Chassis 17Z30
	Tuner	S-24673	VHF-Chassis 17Z30U
	Tuner	S-41363	UHF-Chassis 17Z30U
M5	Width Sleeve		
M6	Centering Device	S-22560	
M7	Ion Trap	S-22574	
	Ion Trap	S-17164	

CABINETS & CABINET PARTS

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

NAME	PART NO.	DESCRIPTION
Safety Glass	192-215	
Mask	57-2322	
Knob	46-1704	Channel Selector
Knob	S-22863	Fine Tuning
Knob	46-1702	On-Off-Vol.
Knob	S-40946	Horiz. Hold, Contrast
Knob	S-41058	Vert. Hold, Brightness
Knob	S-22863	UHF Tuning - UHF Versions only
Knob	S-22025	UHF Dial - UHF Versions only
Cabinet	14-2038	VHF versions only
Cabinet	14-2033	UHF versions only