

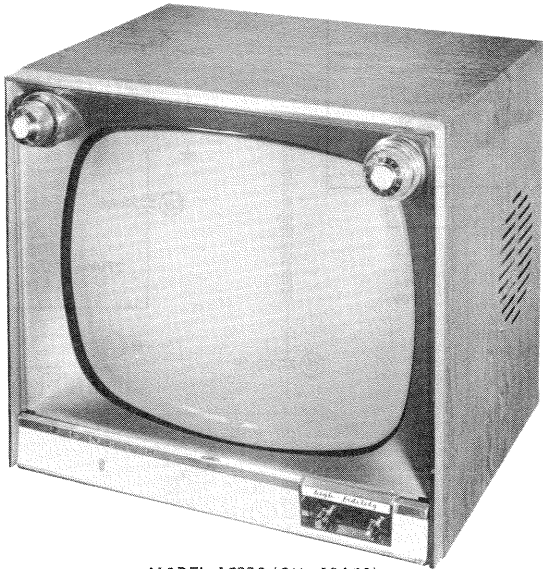
ZENITH MODELS A2329J, JU, A2330E, EU, H, HU, R, RU, A2358E, EU, R, RU, A2359E, EU, H, HU, R, RU, A2362M, MU, R, RU, A3010E, H, R, A3011E, Y, A3012H, R, A3013H, A3014H, R, A4007E, R (Ch. 19A20, Q, U)



DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

- 1. Remove 5 push-on type knobs from the front.
- 2. Remove 8 metal screws holding the rear oover. Remove the rear cover.
- 3. Remove the speaker leads, tuner output plug and tuner power plug.
- 4. Remove 8 hex nuts holding the 2 speakers and remove the speakers.
- 5. Remove 2 metal screws holding the on-off-volume control bracket to the front of the cabinet.
- 6. Remove 2 metal screws holding the rear tuner brace to the cabinet. Lower the back of the tuner and pull back to remove.
- 7. Remove 4 chassis bolts from the bottom.
- 8. Remove chassis.



MODEL A2330 (CH. 19A20)

TRADE NAME	Zenith	MODELS	CHASSIS
		A2329J, A2330E, H, R, A2358E, R, A2359E, H, R, A2362M, R	19A20
		A2329JU, A2330EU, HU, RU, A2358EU, RU, A2359EU, HU, RU, A2362MU, RU	19A20U
		A3010E, H, R, A3011, E, Y, A3012H, R, A3013H, A3014H, R, A4007E, R	19A20Q
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois		
TYPE SET	Television Receiver		
TUBES	Nineteen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle		RATING 215 Watts, 2 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the rear cover. Supply power to the receiver. Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel select-or is rotated, through a hole in the rear of the tuner. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 3 push-on type knobs at the top of the safety glass. Remove 4 metal screws holding the 2 knob escutcheons. Tilt glass out at the top and lift up to remove.

SPECIAL ADJUSTMENTS

A. 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.

B. Focus  
The focus may be varied by means of a focus control. (For location, see tube placement chart).

C. Fringe Lock  
Turn the fringe lock control fully clockwise, then counter clockwise approximately 1/4 turn. Adjust picture to lock-in with hold controls. If picture jitters, tears, etc., adjust fringe lock counter clockwise until stable. Readjust hold controls and check operation on all channels in the area.

D. 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.

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).

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.

PINCUSHION CORRECTION

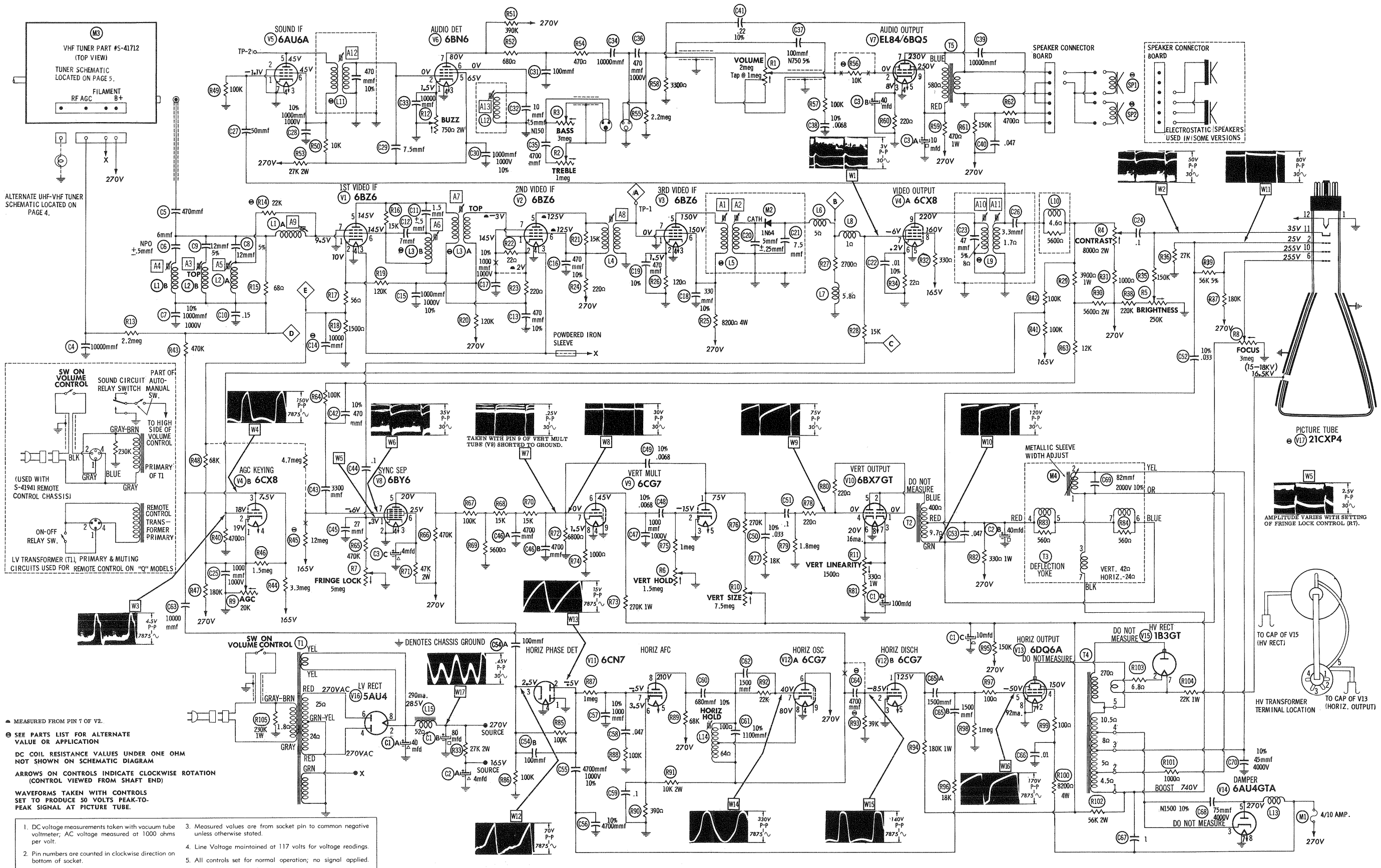
Reduce the picture size so that the sides of the raster are visible. Position the 2 magnets so that all sides are straight.

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

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A PHOTOFAC STANDARD NOTATION SCHEMATIC  
Howard W. Sams & Co., Inc. 1958

ZENITH MODELS A2329J, JU, A2330E, EU, H, HU, R, RU, A2358E, EU, R, RU, A2359E, EU, H, HU, R, RU, A2362M, MU, R, RU, A3010E, H, R, A3011E, Y, A3012H, R, A3013H, A3014H, R, A4007E, R (Ch. 19A20, Q, U)

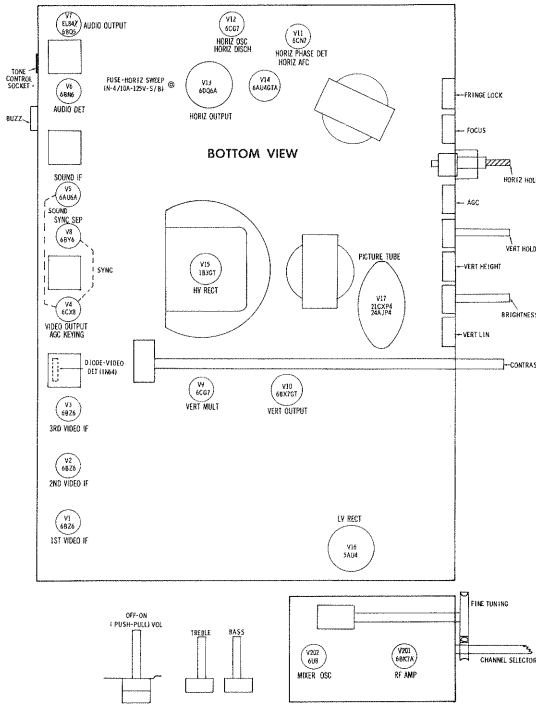
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FOLDER 4

RESISTANCE MEASUREMENTS

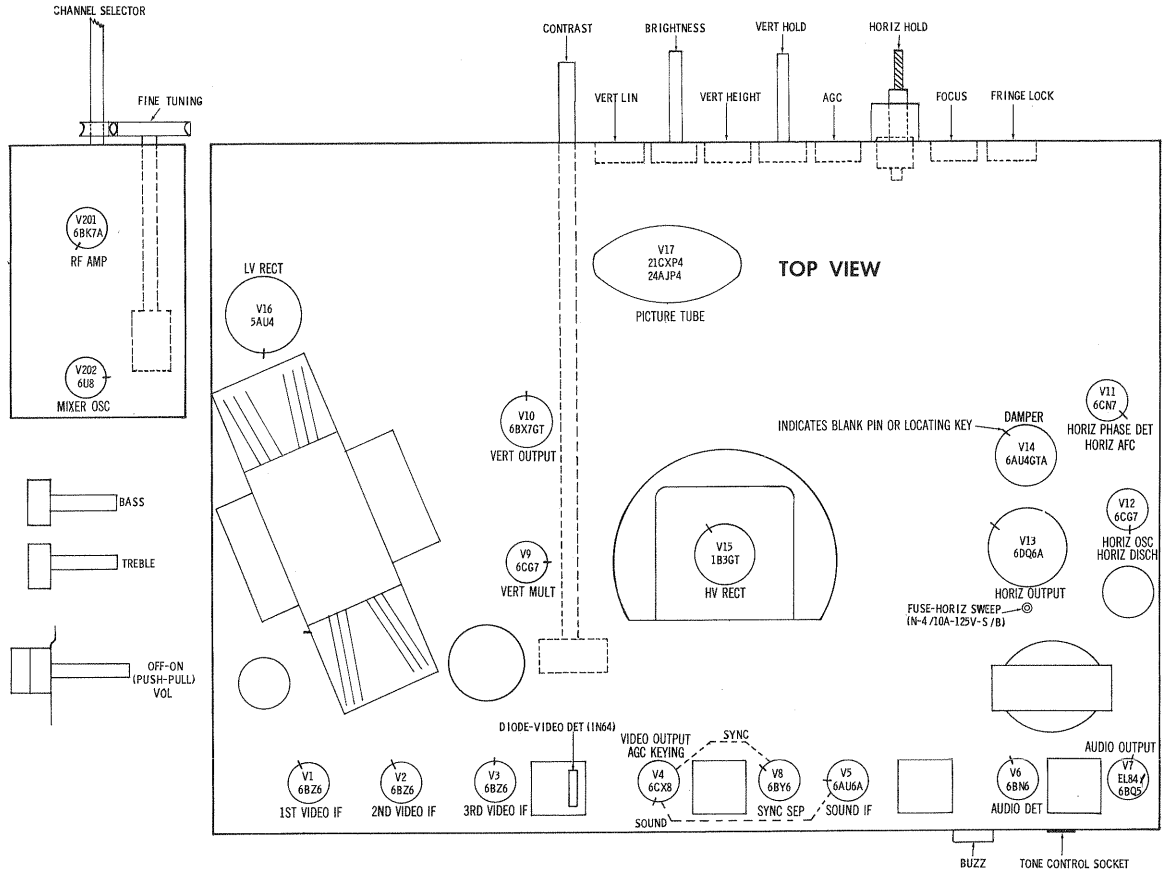
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	1.4meg	1500Ω	.1Ω	0Ω	††240Ω	†240Ω	0Ω		
V2	6BZ6	60K	††22Ω	.1Ω	0Ω	†220Ω	†220Ω	1NF		
V3	6BZ6	.1Ω	120Ω	.1Ω	0Ω	†8200Ω	†8200Ω	0Ω		
V4	6CX8	•11K	4700Ω	1.1meg	.1Ω	0Ω	22Ω	2700Ω	†23K	†4500Ω
V5	6AU6A	100K	0Ω	.1Ω	0Ω	†37K	†37K	0Ω		
V6	6BN6	•270Ω	.2Ω	.1Ω	0Ω	†27K	4.5Ω	†390K		
V7	EL84 / 6BQ5	NC	13K	220Ω	0Ω	.1Ω	NC	†1000Ω	NC	†470Ω
V8	6BY6	500K	0Ω	.1Ω	0Ω	†90K	†47K	15meg		
V9	6CG7	•†5meg	•1.4meg	0Ω	0Ω	.1Ω	†320K	6800Ω	1000Ω	0Ω
V10	6BX7GT	1.8meg	†730Ω	•600Ω	1.8meg	†730Ω	•600Ω	.1Ω	0Ω	
V11	6CN7	0Ω	200K	100K	0Ω	.1Ω	390Ω	1.2meg	†68K	NC
V12	6CG7	†240K	39K	0Ω	0Ω	.1Ω	†0Ω	32K	10K	NC
V13	6DQ6A	TP	.1Ω	TP	†8300Ω	1meg	TP	0Ω	0Ω	TOP CAP †10.5Ω
V14	6AU4GT	TP	NC	†	NC	†.9Ω	NC	0Ω	.1Ω	
V15	1B3GT		PINS 1 THRU 8	HAVE	INFINITE	RESISTANCE				TOP CAP †280Ω
V16	5AU4	NC	†	TP	24Ω	TP	25Ω	NC	†	
V17	21CX4	0Ω	23K	PIN 6 •†350K	PIN 10 65K	PIN 11 •210K	PIN 12 .1Ω			
V201	6BK7A	†940Ω	60K	60K	0Ω	.1Ω	60K	4meg	0Ω	0Ω
V202	6U8	†10K	68K	†100K	.1Ω	0Ω	†470Ω	0Ω	2200Ω	12K

- THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.  
THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.  
MEASURED FROM 270V SOURCE.  
† MEASURED FROM PIN 3 OF V14.  
†† MEASURED FROM PIN 7 OF V2.  
NC NO CONNECTION.  
TP TIE POINT.



TUBE PLACEMENT CHART

TUBE PLACEMENT CHART



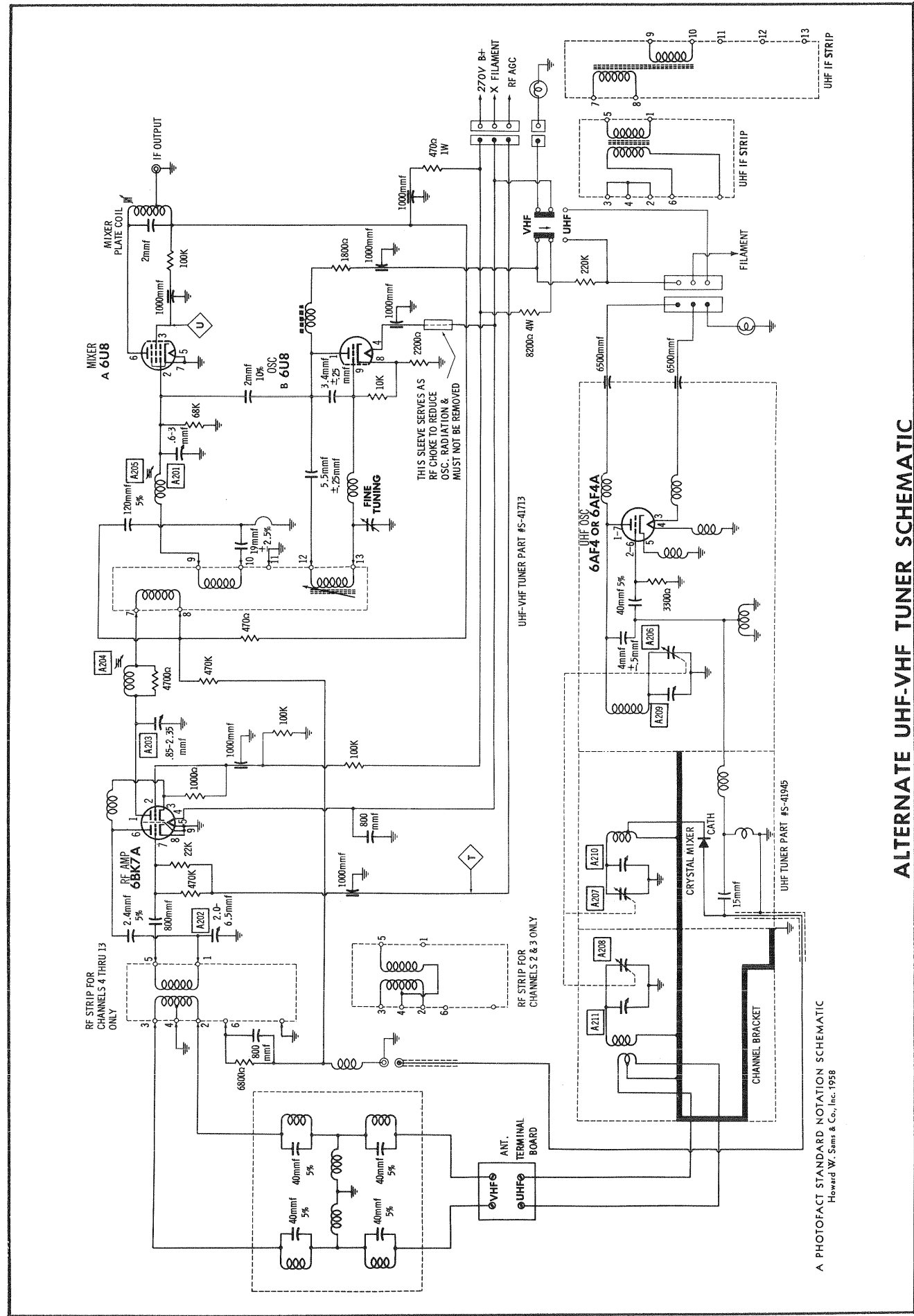
TUBE FAILURE CHECK CHART

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 - V1, V2, V3, Diode (M2), V4  
No pic, no sound, has snow - V201, V202, V1  
No pic, has sound, has raster - V4, V17  
Has pic, no sound - V5, V6, V7  
Overloaded picture - V4
- SYNC FAILURE**  
No vert. sync - V8  
No horiz. sync - V8, V11  
No vert. or horiz. sync - V8
- SWEEP FAILURE**  
No raster, has sound - Fuse (M1), V11, V12, V13, V14, V15, V17  
No vertical deflection - V9, V10  
Poor vert. linearity or foldover - V9, V10  
Poor horiz. linearity or foldover - V12, V13, V14  
Narrow picture - V12, V13, V14, V16  
Vert. off freq. - V9  
Horiz. off freq. - V12

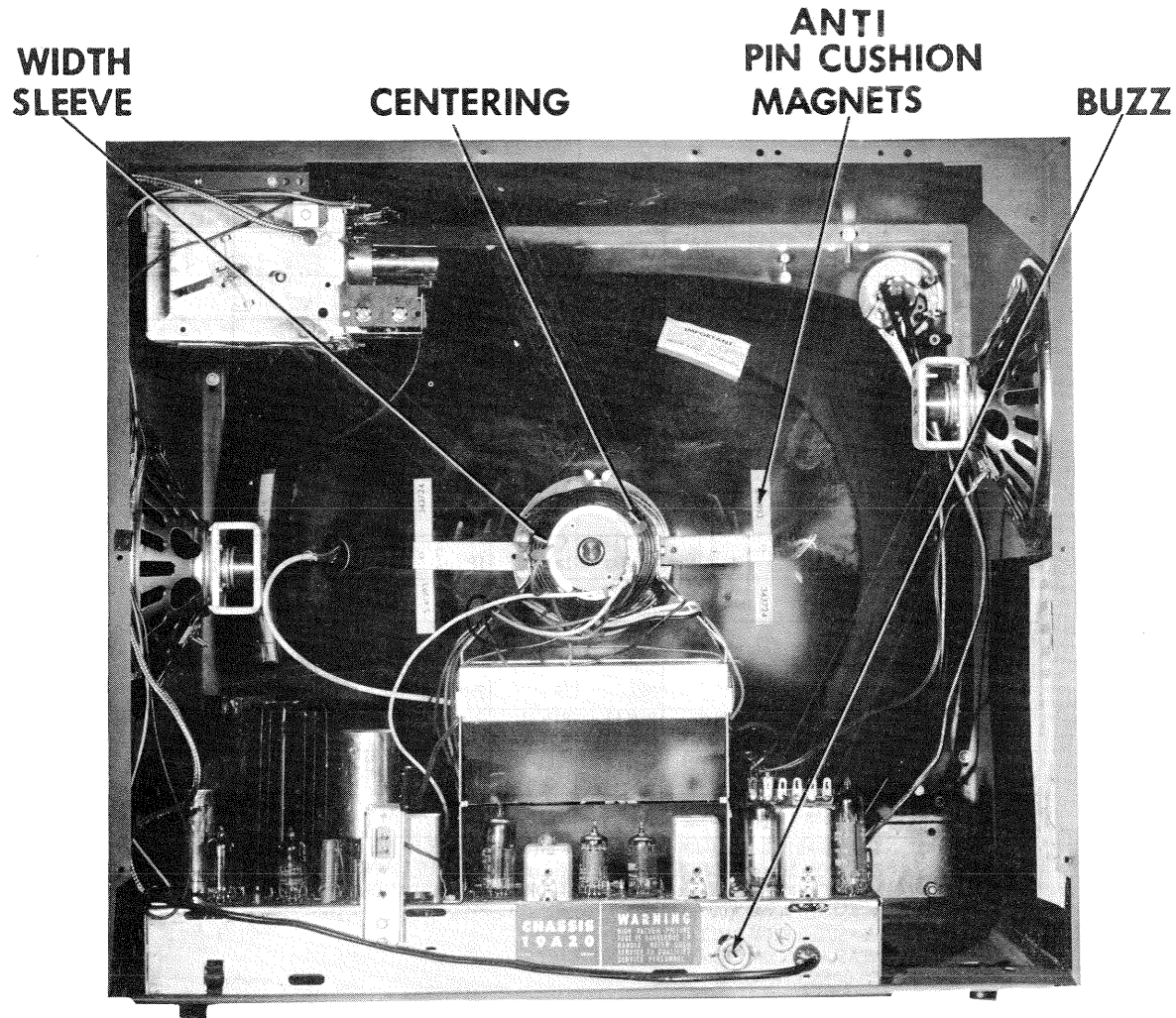
ZENITH MODELS A2329J, JU, A2330E, EU, H, HU, R, RU, A2358E, EU, R, RU, A2359E, EU, H, HU, R, RU, A2362M, MU, R, RU, A3010E, H, R, A3011E, Y, A3012H, R, A3013H, A3014H, R, A4007E, R (Ch. 19A20, Q, U)

FOLDER 4



ALTERNATE UHF-VHF TUNER SCHEMATIC

A PHOTOFACT STANDARD NOTATION SCHEMATIC  
Howard W. Sams & Co., Inc. 1958



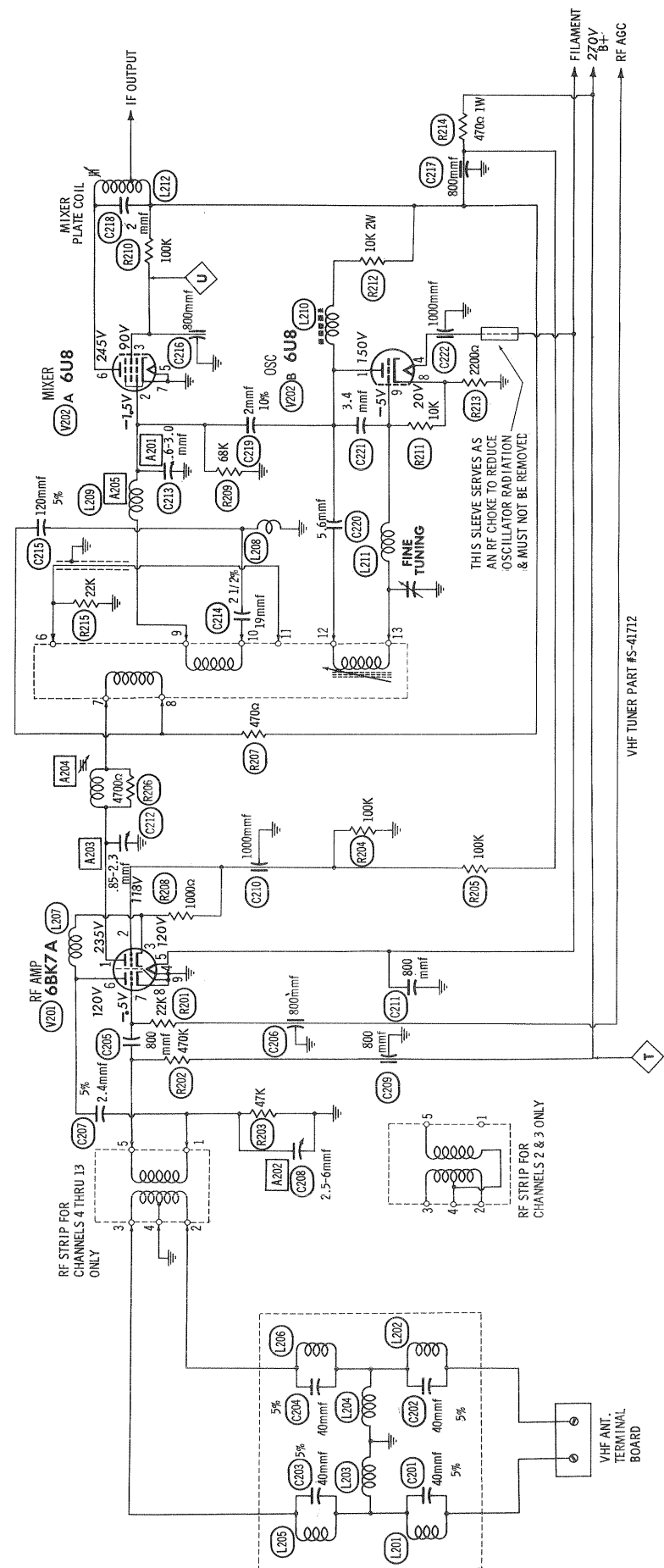
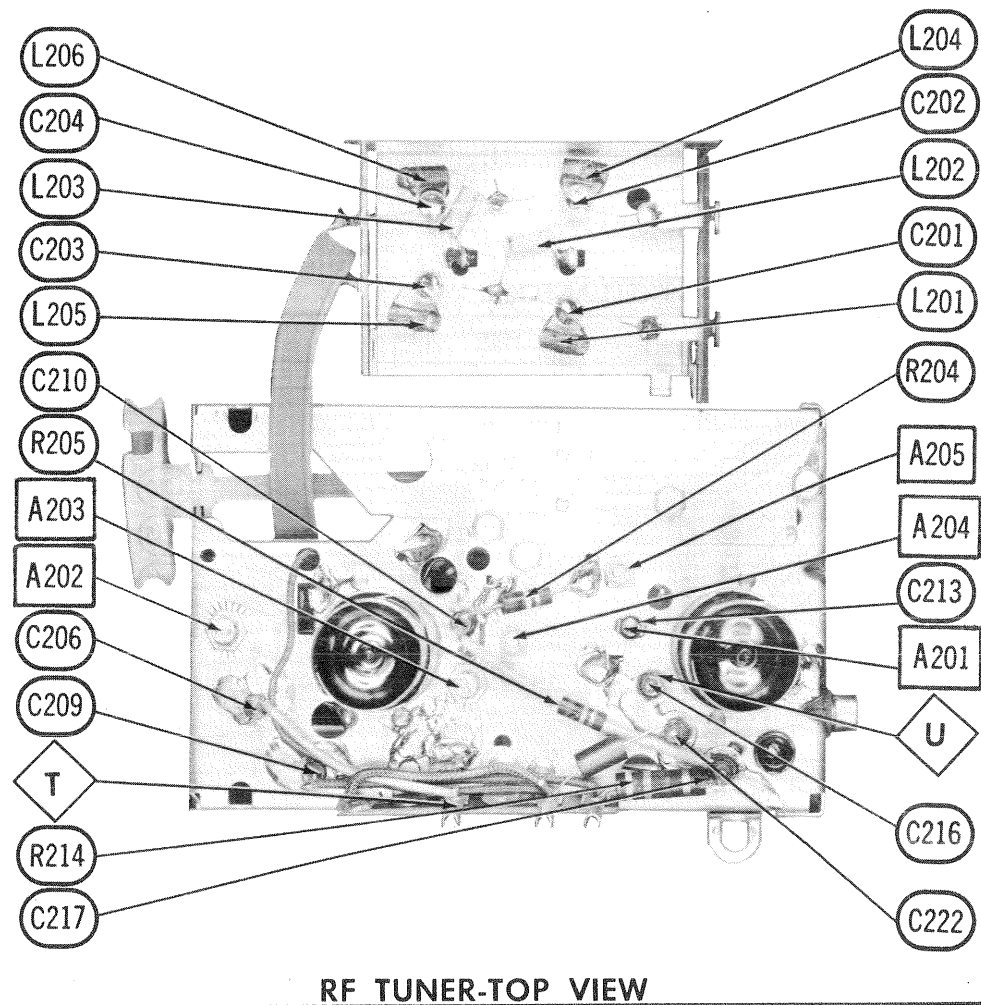
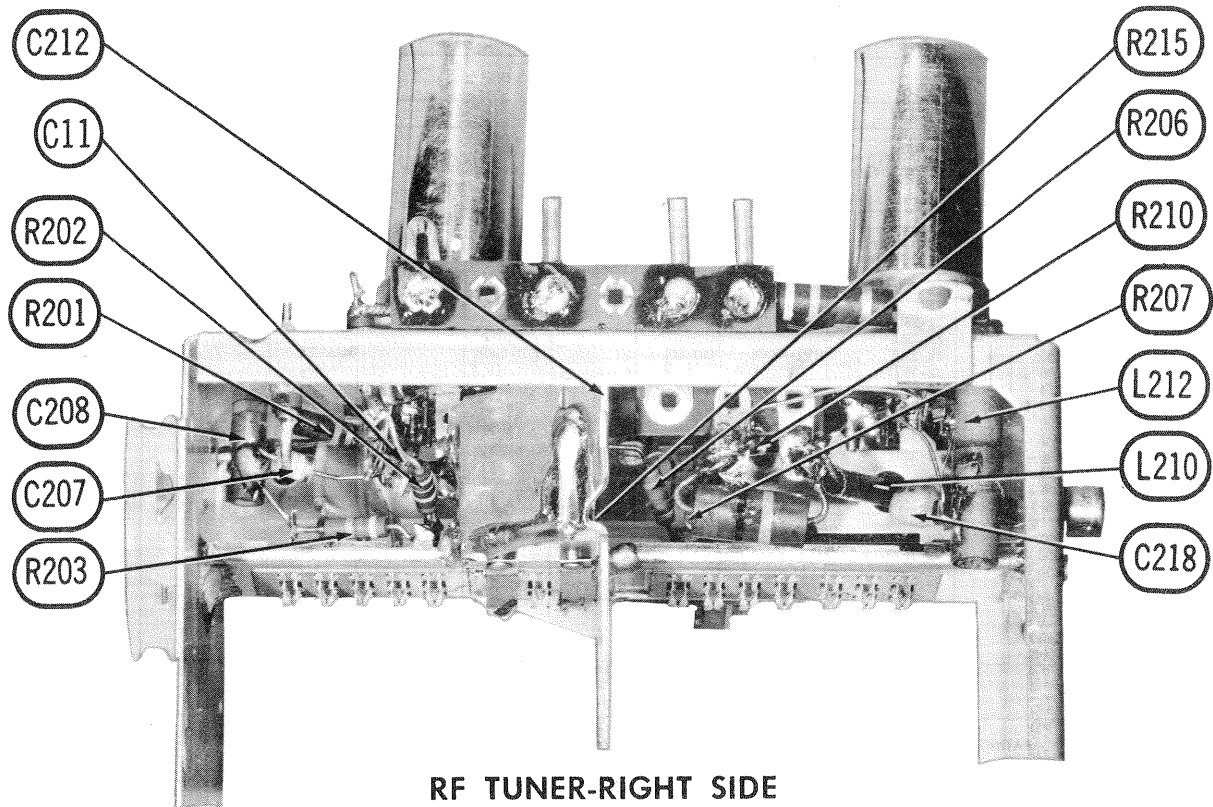
CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

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

ZENITH MODELS A2329J, JU, A2330E, EU, H, HU, R, RU, A2358E, EU, R, RU, A2359E, EU, H, HU, R, RU, A2362M, MU, R, RU, A3010E, H, R, A3011E, Y, A3012H, R, A3013H, A3014H, R, A4007E, R (Ch. 19A20, Q, U)





PHOTOFACT STANDARD NOTATION SCHEMATIC  
Howard W. Sams & Co., Inc. 1958

# CITWEMWCS TUNER

ZENITH MODELS A23291, JU, A2330E, EU, H, HU, R, RU, A23358E, EU, R, RU, A2359E, EU, H, HU, R, RU, A2362M, MU, R, RU, A3010E, H, R, A3010E, Y, A3011E, R, A3012H, R, A3013H, A3014H, R, A4007E, R (Ch. 19A20, G, U)

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Allow a 20 minute warm-up period for the receiver and test equipment.

VHF OSCILLATOR ALIGNMENT

Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated, thru a hole in the rear of the tuner. Adjust for best picture and sound.

VHF RF AND MIXER ALIGNMENT

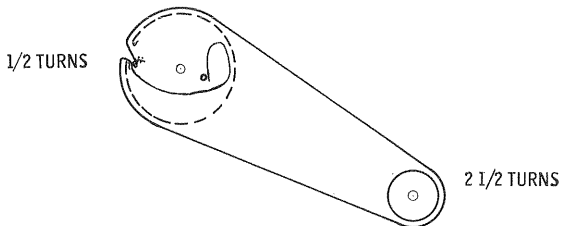
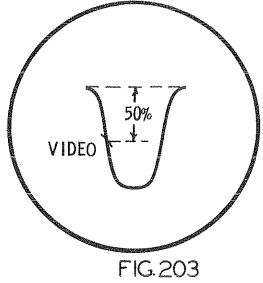
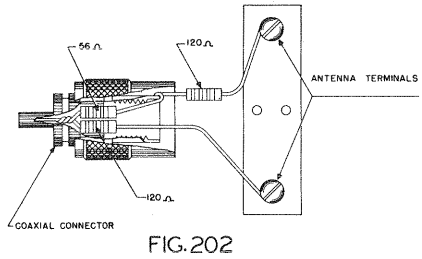
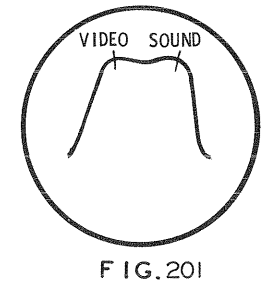
Connect the negative lead of a 2.5 volts bias supply to point ④. Positive to chassis.  
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.  
Use only enough sweep generator output to provide a usable pattern on scope.  
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	50-300Ω Matching Trans.	Across antenna terminals thru matching transformer	69MC	67.25MC 71.75MC	4	Vert. Amp. thru 10K to point ④. Low side to chassis.	A201, A202, A203	Adjust for maximum gain and symmetry of response similar to Fig. 201 with markers as shown.
2.	"	"	201MC	199.25MC 203.75MC	11	"	A204, A205	Adjust for maximum gain and symmetry of response similar to Fig. 201 with markers as shown. Repeat steps 1 and 2 until best overall symmetry is obtained.

UHF TUNER ALIGNMENT

Alignment of the UHF tuner should not be attempted without the proper test equipment.  
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.  
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.  
Set the fine tuning to 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
3.	Fig. 202	Across UHF antenna terminals thru matching network.	713MC	711.25MC	54	Vert. Amp. thru 10K across video detector load.	A206, A207, A208	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 A206 to place video marker at 50% on curve as in Fig. 203. The image (weaker response) will appear also. The response toward counter clockwise position of A206 is the proper response. Adjust A207 and A208 for maximum amplitude of response similar to Fig. 203.
4.	"	"	473MC	471.25MC	14	"	"	Check for response similar to Fig. 203. If the oscillator is off more than 3 channels, adjust oscillator travel adjustment (osc., mixer and antenna travel adjustments are the three hex nuts on top of the UHF tuner next to the tuner chassis) to scale. Care must be used when making the adjustments so as not move the rocker arm out of its bearing. Set the mixer and antenna travel adjustments for maximum response on scope.
5.	"	"	887MC	885.25MC	83	"	A209, A210, A211	Adjust A209 to place marker at 50% on curve similar to Fig. 203. Adjust A210 and A211 for maximum amplitude and symmetry.



FINE TUNING DRIVE CORD STRINGING

TUNER PARTS LIST AND DESCRIPTIONS  
TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amplifier	6BK7A	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	6U8	

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		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.	
C201	40		22-2511							5%
C202	40		22-2511							5%
C203	40		22-2511							5%
C204	40		22-2511							5%
C205	800		22-2531	BPD-0008	DD-801		ED-0008		5GA-T8	
C206	800		22-2577							
C207	2.4		22-2596							
C208	2.5-6		22-2221							
C209	800		22-2577							
C210	1000		22-2732	EF-001	MFT-1000				503C-D1	
C211	800		22-2331							
C212	.85-2.3		22-2453							
C213	6-3.0		22-2504							
C214	19		22-2406							2 1/2%
C215	120		22-2591		TCZ-120		TCO-120			5%
C216	800		22-2577							
C217	800		22-2577							
C218	2		22-2585	NPO-SI 2.2	TCZ-2R2	C10V22C	TCO-2.2		5TCCB-V22	
C219	2		22-2434	NPO-SI 2.2	TCZ-2R2	C10V22C	TCO-2.2		5TCCB-V22	10% ± .25mmf
C220	5.6		22-2499							
C221	3.4		22-2592							
C222	1000		22-2732	EF-001	MFT-1000				503C-D1	

RESISTORS

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

ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R201	22K			
R202	470K			
R203	47K			
R204	100K			
R205	100K			
R206	4700Ω			
R207	470Ω			
R208	1000Ω			

ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R209	68K			
R210	100K			
R211	10K			
R212	10K	2	63-3170	
R213	2200Ω			
R214	470Ω	1	63-2398	
R215	22K			

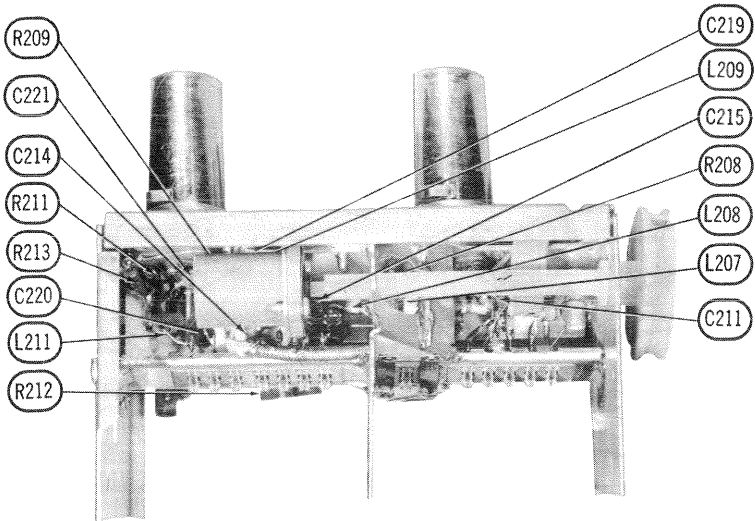
COILS (RF-IF)

ITEM No.	USE	ZENITH PART No.	NOTES
L201	IF Trap Coil	20-490	
L202	IF Trap Coil	20-505	
L203	IF Trap Coil	20-505	
L204	IF Trap Coil	20-490	
L205	IF Trap Coil	20-490	
L206	IF Trap Coil	20-490	
L207	Neut. Coil	20-431	

ITEM No.	USE	ZENITH PART No.	NOTES
L208	RF Coil	20-537	
L209	Mixer Grid Coil	20-538	
L210	RF Choke	S-18859	
L211	Osc. Coil	20-541	
L212	Mixer Plate Coil	S-22702	

MISCELLANEOUS

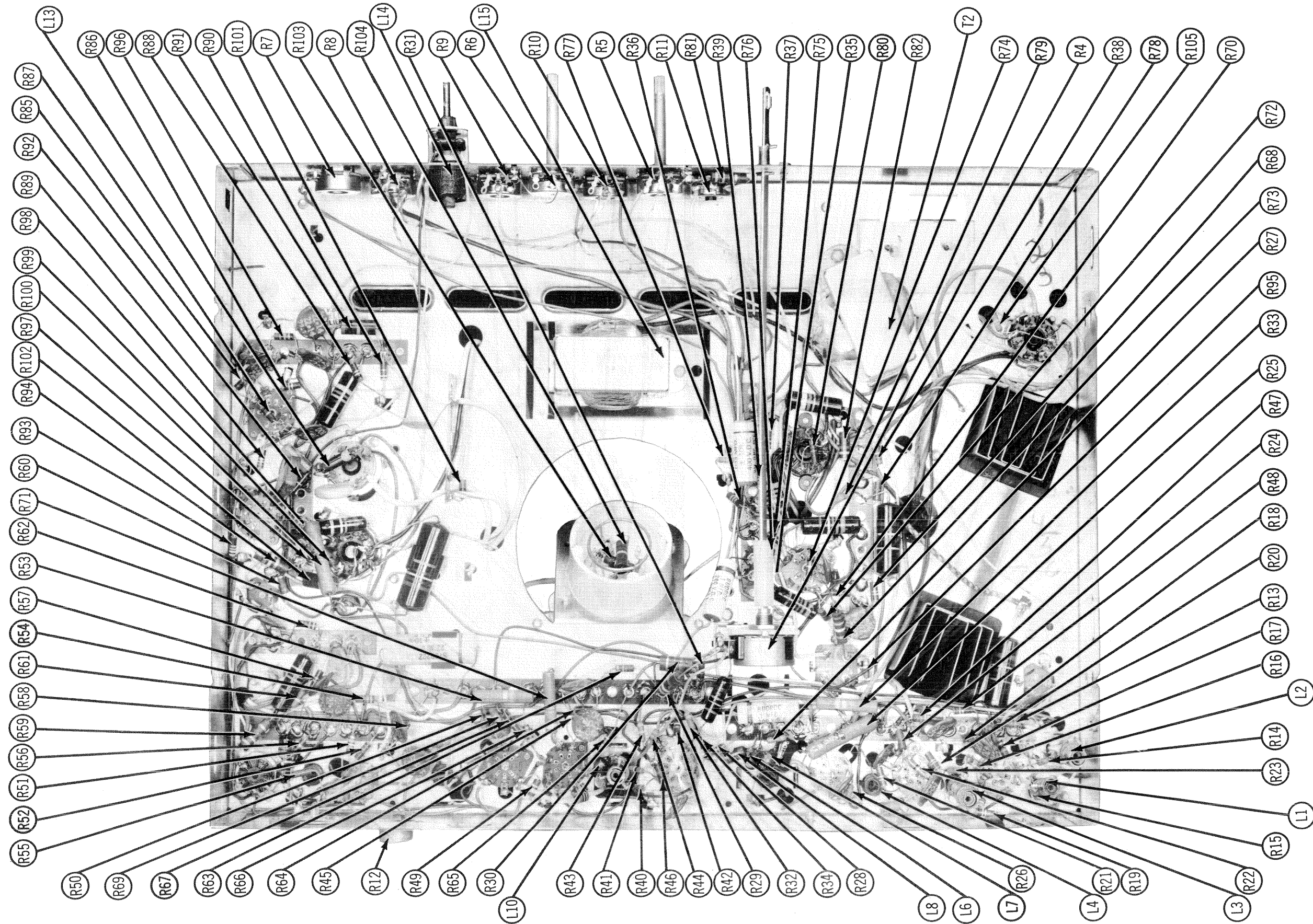
ITEM No.	PART NAME	ZENITH PART No.	NOTES
M201	Dial Lamp	100-198	#39



RF TUNER—LEFT SIDE

ZENITH MODELS A2329J, JU, A2330E, EU, H, HU, R, RU, A2358E, EU, R, RU, A2359E, EU, H, HU, R, RU, A2362M, MU, R, RU, A3010E, H, R, A3011E, Y, A3012H, R, A3013H, A3014H, R, A4007E, R (Ch. 19A20, G, U)

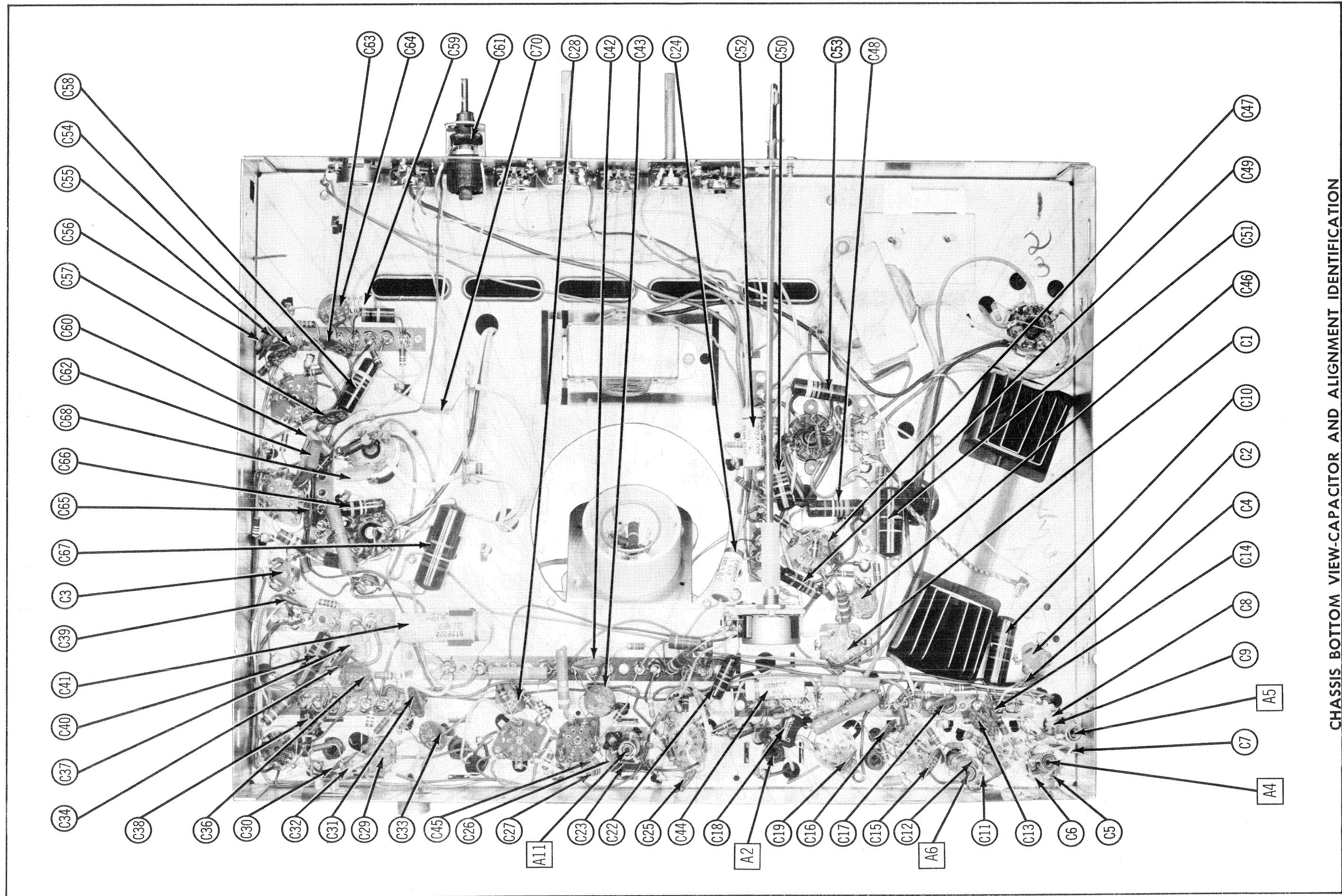
FOLDER 4



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

ZENITH MODELS A2329J, JU, A2330E, EU, H, HU, R, RU, A2358E, EU, R, RU, A2359E, EU, H, HU, R, RU, A2362M, MU, R, RU, A3010E, H, R, A3011E, Y, A3012H, R, A3013H, A3014H, R, A4007E, R (Ch. 19A20, Q, U)





CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

ZENITH MODELS A2329J, JU, A2330E, EU, H, HU, R, RU, A2358E, EU, R, RU, A2359E, EU, H, HU, R, RU, A2362M, MU, R, RU, A3010E, H, R, A3011E, Y, A3012H, R, A3013H, A3014H, R, A4007E, R (Ch. 19A20, Q, U)



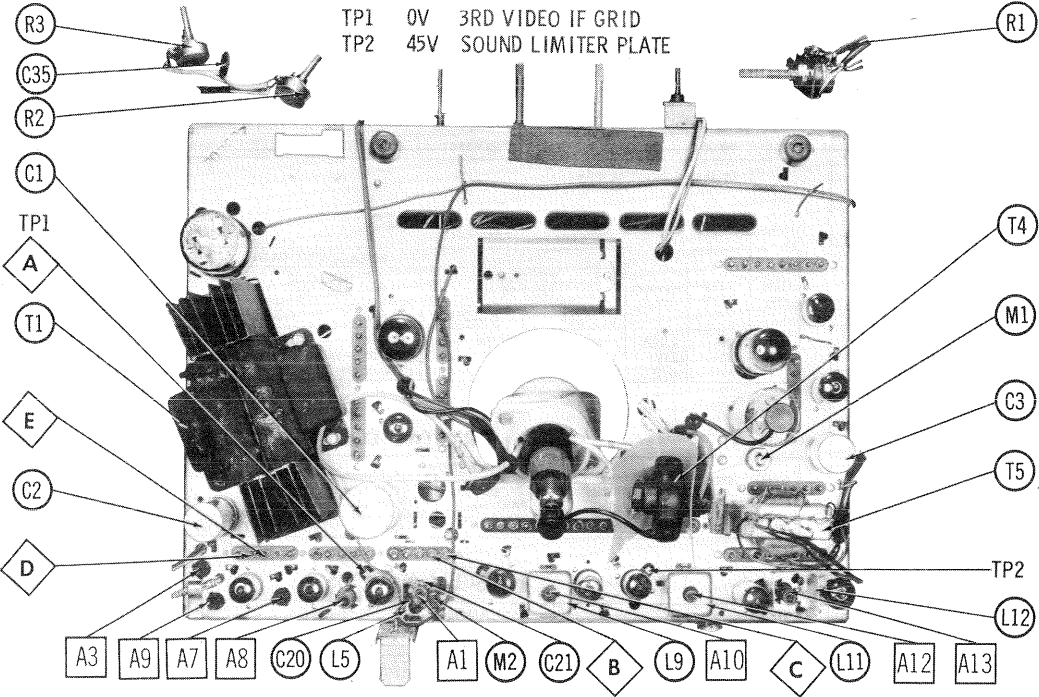
PARTS LIST AND DESCRIPTIONS (Continued)  
CABINETS & CABINET PARTS

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

NAME	PART NO.	DESCRIPTION
Safety Glass	192-239	Used in Models not equipped with remote tuning
Safety Glass	192-242	Models A3010E, H, R, A3011, E, Y, A3012H, R, A3013H, A3014H, R
Safety Glass	192-244	Models A4007E, R
Knob	S-41960	Channel Selector - Models A2329J, JU, A2330E, EU, H, HU, R, RU, A2358E, EU, R, RU, A2359E, EU, H, HU, R, RU, A2362M, MU, R, RU, A4007E, R
Knob	S-42044	Channel Selector - Models A3010E, H, R, A3011, E, Y, A3012H, R, A3013H, A3014H, R
Knob	S-22863	Fine Tuning - Models A2329J, JU, A2330E, EU, H, HU, R, RU, A2358E, EU, R, RU, A2359E, EU, H, HU, R, RU, A2362M, MU, R, RU, A4007E, R
Knob	S-42039	Fine Tuning - Models A3010E, H, R, A3011, E, Y, A3012H, R, A3013H, A3014H, R
Knob	S-42058	UHF Dial
Knob	46-1834	On-off-volume - Models A2329J, JU, A2330E, EU, H, HU, R, RU, A2358E, EU, R, RU, A2359E, EU, H, HU, R, RU, A2362M, MU, R, RU, A4007E, R
Knob	46-1806	On-off-volume - Models A3010E, H, R, A3011, E, Y, A3012H, R, A3013H, A3014H, R
Knob	S-41485	Vert. Hold & Brightness
Knob	S-41946	Contrast
Knob	46-1807	Bass & Treble
Cabinet	14-2250	Models A2330H, HU
Cabinet	14-2243	Models A2329J, JU
Cabinet	14-2245	Models A2330E, EU
Cabinet	14-2244	Models A2330R, RU
Cabinet	14-2306E	Models A2358E, EU
Cabinet	14-2306R	Models A2358R, RU
Cabinet	14-2290E	Models A2359E, EU
Cabinet	14-2290H	Models A2359H, HU
Cabinet	14-2290R	Models A2359R, RU
Cabinet	14-2282M	Models A2362M, MU
Cabinet	14-2282R	Models A2362R, RU
Cabinet	14-2289E	Model A3010E
Cabinet	14-2289H	Model A3010H
Cabinet	14-2289R	Model A3010R
Cabinet	14-2291	Model A3011
Cabinet	14-2291E	Model A3011E
Cabinet	14-2291Y	Model A3011Y
Cabinet	14-2295H	Model A3012H
Cabinet	14-2295R	Model A3012R
Cabinet	14-2303H	Model A3013H
Cabinet	14-2278H	Model A3014H
Cabinet	14-2278R	Model A3014R
Cabinet	14-2302E	Model A4007E
Cabinet	14-2302R	Model A4007R

WIRING DATA

High Voltage Lead .....	Use Belden No. 8869
Shielded Hook-up Wire .....	Use Belden No. 8865 (Single Conductor)
	8738 (Two Conductor)
General-use Unshielded Hook-up Wire .....	Use Belden No. 8530 (Solid) Available in Ten Colors
	8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type) .....	Use Belden No. 8874
300Ω Tuner Input Lead .....	Use Belden No. 8225
300Ω Antenna Lead-in .....	Use Belden No. 8230 or 8275
Antenna Rotor Cable .....	Use Belden No. 8464 (Flat) or 8484 (Round) - 4 Conductor
	8485 (Round) - 5 Conductor
	8488 (Round) - 8 Conductor



CHASSIS—TOP VIEW

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

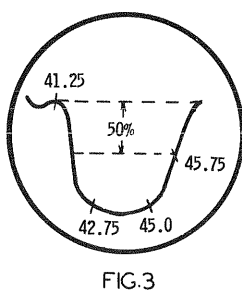
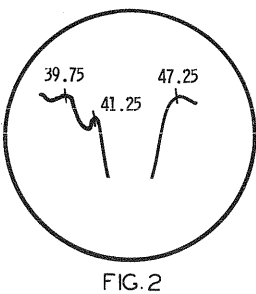
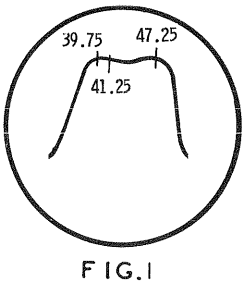
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1. 470mmf	High side to point $\odot$ . Low side to chassis.	44MC (10MC Swp)	39.75MC 41.25MC 45.75MC	Between any two channels	Vert. Amp. thru 10K to point $\odot$ . Low side to chassis. (Across video det. load)	A1, A2	Set sweep generator output to produce 3 volts peak to peak on scope. Adjust A1 and A2 alternately for maximum gain and symmetry with the 45.75MC marker positioned as shown in Fig. 1. The 39.75MC marker can fall within $\pm 5$ MC of the specified frequency. If the desired response cannot be obtained check to see that the cores are entering their respective windings from opposite ends of coils.
2. Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V202). Low side to chassis.	"	39.75MC 41.25MC 47.75MC	"	"	A3, A4, A5, A6	Connect a clip lead from point $\odot$ to chassis. Connect a clip lead from point $\odot$ to point $\odot$ . Use high scope gain and adjust A3 thru A6 for MINIMUM marker amplitudes as in Fig. 2. A3 controls the 39.75MC marker, A4 controls the 41.25MC marker and A5 and A6 controls the 47.75MC marker.
3. "	"	"	41.25MC 42.75MC 45.0MC 45.75MC	"	"	A7, A8, A9 and Mixer Plate Coil	Disconnect the clip lead from point $\odot$ and connect to chassis. Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. A7 affects the low frequency side of the curve and A8 affects the high frequency side.

SOUND IF ALIGNMENT

Connect an adjustable attenuator between the antenna and receiver terminals. Tune in a modulated TV signal and adjust the attenuator until the signal is below the limiting level of the 6BN6 (V6) as evidenced by a hiss similar to super regeneration in the sound. Adjust A10, A11, A12 and A13 for maximum sound and best quality. Adjust the buzz control (R12) for MINIMUM buzz. If the hiss disappears during alignment, further reduce the signal until the hiss returns.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGE 6.



ZENITH MODELS A2329J, JU, A2330E, EU, H, HU, R, RU, A2358E, EU, R, RU, A2359E, EU, H, HU, R, RU, A2362M, MU, R, RU, A3010E, H, R, A3011E, Y, A3012H, R, A3013H, A3014H, R, A4007E, R (Ch. 19A20, Q, U)

FOLDER 4

## TUBES ( GENERAL ELECTRIC, SYLVANIA )

ITEM No.	USE	TYPE	NOTES	ITEM No.	USE	TYPE	NOTES
V1	1st. Video IF Amp.	6BZ6		V9	Vert. Mult.	6CG7	
V2	2nd. Video IF Amp.	6BZ6		V10	Vert. Output	6B7GT	
V3	3rd. Video IF Amp.	6BZ6		V11	Horiz. Phase Det. -		
V4	Video Output-AGC Keying	6CX8		V12	Horiz. AFC	6CN7	
V5	Sound IF Amp.	6AU6A		V13	Horiz. Osc. -		
V6	Audio Det.	6BN6		V14	Horiz. Discharge	6CG7	
V7	Audio Output	EL84/6BQ5		V15	Horiz. Output	6DQ6A	
		6BY6		V16	Damper	6AU4GT	
					HV Rectifier	1B3GT	
V8	Sync Sep.				LV Rectifier	5AU4	

## PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	ZENITH PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V17	21CXP4 24AJP4			21CXP4 ①	① "Silver Screen 85"

## 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	22-2971	AFH4-113-50	C1445.3 BR8045	FP333.2 TC81	Q-460 MTD-4520		*R2584
B	80	400							
C	10	475							
D	100	50							
C2A	44	350	22-2967	AFH3-123-40	C1445	FP146 TC70	S-270 MT-4504 T-615 MT-4504		*R1335
B	40	400							
C3A	40	400							
B	40	25							
C	44	350	22-2973	AFH3-136		FP384.2			*R2618

\* Non-catalog item.

## 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		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.	
C4	10000		22-3	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C5	470		22-6	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C6	8		22-2381							NPO ± .5 mmf
C7	1000	1000	22-17							10%
C8	12		22-2379		TCZ-12		TCO-12		MS-412	5%
C9	12		22-2379		TCZ-12		TCO-12		MS-412	5%
C10	.15	200	22-2147	P288N-15		CUB2P15		GEM-2015	2TM-P15	
C11	1.5		22-1764	NPO-SI 1.5	TCZ-IR55	CTA6V15C	TCO-1.5	ZT-5515	5TCCB-V15	± .5 mmf
C12	7		22-2513							10%
C13	470		22-16		D6-471	5R5T47	ED-470	DC511	MS-347	①
C14	10000		22-3	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-SI	10%
C15	1000	1000	22-17							10%
C16	470		22-16		D6-471	5R5T47	ED-470		MS-347	10%
C17	1000	1000	22-17							10%
C18	330		22-2667	1469-00033	D6-331	5R5T33	ED-330		MS-333	10%
C19	470		22-16		D6-471	5R5T47	ED-470		MS-347	10%
C20	5		22-2990							± .25mmf
C21	7.5		22-2742							
C22	.01	200	22-2565							10%
C23	.47		22-2467		TCZ-47	C10Q47C	TCO-47		MS-447	5%
C24	1	200	22-1777	P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C25	1000	1000	22-17	DAC-2	DD-102	BYA10D1M	HD15-1000	DC3021	5GA-D1	
C26	3.3		22-2343	NPO-SI 3.3	TCZ-3R3	CTA6V33C	TCO-3.3	ZT-5533	5TCCB-V33	
C27	50		22-2460	SI 50	D6-500	LT6Q5	GP-50	UC-545	5GA-Q5	
C28	1000	1000	22-17							10%
C29	7.5		22-2742							
C30	1000	1000	22-17							10%
C31	100		22-5	BPD-0001	DD-101	LI0T1	ED-100	UC-531	5GA-T1	
C32	10		22-2731							NI50 ± .5 mmf
C33	10000		22-3	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C34	10000		22-3	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C35	4700		22-14	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5HK-D47	
C36	470	1000	22-6	HVD-15-470	D6-471	BYA10T47	HD15-470	DC30347	5GA-T47	
C37	100		22-2992		TCN-100		TC7-100			N750 5%
C38	.0068	200	22-2656							10%
C39	10000		22-3	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C40	.047	200	22-1778	P288N-047	DF-503	CUB2S47	ED-01	GEM-4147	2TM-S47	
C41	.22	200	22-2975					GEM-2022		10%
C42	470		22-16		D6-471	5R5T47	ED-470	UC-5233	MS-347	
C43	3300		22-11	BPD-0033	DF-332	BYA10D33	ED-0033	UC-5233	5GA-D33	
C44	.1	200	22-1777	P288N-1	DF-104	CUB2P1	GP-27	GEM-201	2TM-P1	
C45	27		22-2459	SI 27	D6-270	LT6Q27	UC-5427	UC-5427	5GA-Q27	
C46A	4700		22-24	BPD-2X0047	DD-472	BYC6D47	ED-0047	UC-5247	5HK-2D47	
B	4700				DD-472		ED-0047	UC-5247		
C47	1000	1000	22-17	DAC-2		BYA10D1M	HD15-1000	DC3021	5GA-D1	
C48	.0068	600	22-2977					GEM-16268		10%
C49	.0068	400	22-2501					GEM-16268		10%
C50	.033	400	22-2635							10%
C51	.1	400	22-2051	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C52	.033	400	22-2635							10%
C53	.047	200	22-1778	P288N-047	DF-503	CUB2S47	ED-01	GEM-4147	2TM-S47	
C54A	100		22-22	BPD-0001	DD-101	LI0T1	ED-100	UC-531	5GA-T1	
B	100			BPD-0001	DD-101	LI0T1	ED-100	UC-531	5GA-T1	
C55	4700	1000								10%
C56	4700		22-14			IR5D47				10%
C57	1000		22-17			IR5D11	ED-1000	MCB255	MS-21	10%
C58	.047	200	22-1778	P288N-047	DF-503	CUB2S47		GEM-201	2TM-S47	
C59	.1	200	22-1777	P288N-1	DF-104	CUB2P1			2TM-P1	
C60	680		22-2668	1464-00068	D6-681	IR5T68	ED-680		MS-368	10%
C61	1100		22-2859	1464-0011		IR5D11			MS-211	10%
C62	1500		22-2669	1464-0015	D6-152	1W5D15	ED-1500	MC256	1FM-215	
C63	10000		22-3	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	①
C64	4700		22-14	BPD-0047	DD-472	BYA10D47M	ED-0047	UC-5247	5GA-D47	
C65A	1500		22-23	BPD-2X0015	DD-152	BYC6D15	ED2-0015	DC5215	5HK-2D15	
B	1500				DD-152					
C66	.01	400	22-1784	P488N-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C67	.1	600	22-1641	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C68	75	4000	22-2954							NI500 10%
C69	82	2000								10%
C70	45	4000	22-2858							10%

① Some versions may use 1000mmf. ② 1000V 10% (Part #22-17) in this application.

## PARTS LIST AND DESCRIPTIONS CONTROLS

RATING			REPLACEMENT DATA				INSTALLATION NOTES	
ITEM No.	RESIST-ANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.		MALLORY PART No.
R1A	2meg	$\frac{1}{2}$ W	63-4010		A47F3-2meg		PP26T16	Volume - Tap @ 1meg
B	Shaft				FS-3		Not Req.	
C	Switch				SWE-12		Not Req.	
R2A	1meg	$\frac{1}{2}$ W	63-4014	B-70	A47-1meg-Z	Q13-137	TA16A	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	3meg	$\frac{1}{2}$ W	63-4013	B-84	A47-3meg-S	Q11-140	TA36L	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R4A	8000Ω	2(WW)	63-4001	WW-752 †	WW-7500			Contrast
B	Shaft			Not Req.	DFS-1/2			
R5A	250K	$\frac{1}{2}$ W	63-3572	B-50	A47-250K-S	Q11-130	U46	Brightness
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R6A	1.5meg	$\frac{1}{2}$ W	63-4002	B-742	A47-1.5meg-S	Q11-138	TA155L	Vert. Hold
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R7A	5meg	$\frac{1}{2}$ W	63-4012	AB-88	A47-5meg-Z	B11-141	U65	Fringe lock
B	Shaft			AK-1	FKS-1/4	TMI-Kit	Not Req.	
R8A	3meg	$\frac{1}{2}$ W	63-4026	AB-84	A47-3meg-S	Q11-140	TA36L	Focus
B	Shaft			AK-1	FKS-1/4	RQ	Not Req.	
R9A	20K	$\frac{1}{2}$ W	63-4021	AB-22	A47-20K-S	Q11-119	U26	AGC
B	Shaft			AK-1	FKS-1/4	RQ	Not Req.	
R10A	7.5meg	$\frac{1}{2}$ W	63-2919	AB-89	A47-7.5meg-S	Q11-142	U82	Vert. Size
B	Shaft			AK-1	FKS-1/4	RQ	Not Req.	
R11A	1500Ω	$\frac{1}{2}$ W	63-2920	AB-6	A47-1500-S	Q11-109	PTA152L	Vert. Lin.
B	Shaft			AK-1	FKS-1/4	Not Req.	Not Req.	
R12	750Ω	2(WW)	63-3284		FS-800	FL-750	Buzz	

† Saw off shaft and file double flat as needed.

## RESISTORS

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

ITEM No.	RATING		ZENITH PART No.	NOTES	ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT				OHMS	WATT		
R13	2.2meg		63-1926	Note 1	R60	220Ω		63-1757	
R14	22K		63-1841		R61	150K		63-1877	
R15	68Ω		63-1737		R62	4700Ω		63-1813	
R16	15K		63-1834		R63	12K		63-1831	
R17	56Ω		63-1733		R64	100K		63-1870	
R18	1500Ω		63-1792		R65	470 K		63-1898	
R19	120K		63-1873		R66	470K		63-1897	
R20	120K		63-1873		R67	100K		63-1869	
R21	15 K		63-2372		R68	15K		63-1834	
R22	22Ω		63-1715		R69	5600Ω		63-1817	
R23	220Ω		63-1758		R70	15K		63-1834	
R24	220Ω		63-1758		R71	47K	2	63-1157	
R25	8200Ω		63-3602		R72	6800Ω		63-1820	
R26	120Ω	4	63-1747		R73	270K	1	63-3159	
R27	2700Ω		63-1803		R74	1000Ω		63-1785	
R28	15K		63-1834		R75	1meg		63-1911	
R29	3900Ω	1	63-2356		R76	270K		63-1887	
R30	5600Ω	2	63-3223		R77	18K		63-1838	
R31	1000Ω		63-1785		R78	220Ω		63-1758	
R32	330Ω		63-1765		R79	1.8meg		63-1922	
R33	27K	2	63-947		R80	220Ω		63-1758	
R34	22Ω		63-1715		R81	330Ω	1	63-3186	
R35	150K		63-1876		R82	330Ω	1	63-2286	
R36	27K		63-1845		R83	560Ω		63-1775	
R37	180K		63-1880		R84	560Ω		63-1775	
R38	220K		63-1884	R85	100K		63-1869		
R39	56K 5%		63-1858	R86	100K		63-1869		
R40	4700Ω		63-1813	R87	1meg		63-1911		
R41	100K		63-1869	R88	100K		63-1869		
R42	100K		63-1869	R89	68K		63-1862		
R43	470 K		63-1898	R90	390Ω		63-1768		
R44	3.3meg		63-1932	R91	10K	2	63-2145		
R45	12meg			R92	22K		63-1842		
R46	1.5meg		63-1918	R93	39K			Note 3	
R47	180K		63-1880	R94	180K	1	63-2313		
R48	68K		63-1862	R95	150K		63-1876		
R49	100K		63-1870	R96	18K		63-1838		
R50	10K		63-1827	R97	100Ω		63-1744		
R51	390K		63-1894	R98	1meg		63-1912		
R52	680Ω		63-1779	R99	100Ω		63-1744		
R53	27K	2	63-947	R100	8200Ω	4	63-3602		
R54	470Ω		63-1771	R101	1000Ω		63-1786		
R55	2.2meg		63-1926	R102	56K	2	63-2341		
R56	10K		63-1827	R103	6.8 Ω		63-3205		
R57	100K		63-1870	R104	22K	1	63-1055		
R58	3300Ω		63-1806	R105	230K	1	63-3607		
R59	470Ω	1	63-2398						