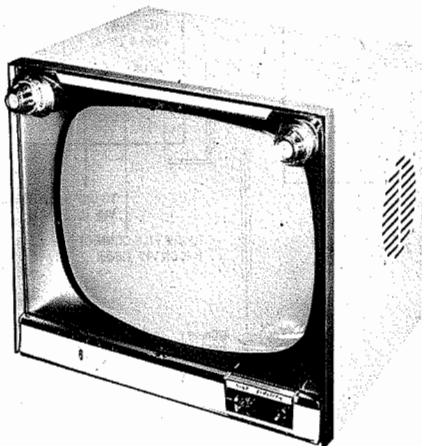




DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 11 push-on type knobs from the front.
2. Remove 5 metal screws holding rear cover. Remove rear cover.
3. Remove tone control plug, tuner and speaker leads.
4. Remove 2 metal screws holding UHF tuner and 2 metal screws holding VHF tuner to rear of cabinet.
5. Locate shaft driven, On-Off Volume control located on UHF tuner bracket. Loosen rear screw on nylon coupling bushing, slide shaft forward, remove "C" washer holding control to bracket, slide rubber grommet from shaft and remove control from bracket.
6. Remove 4 nuts holding speaker.
7. Remove 4 bottom chassis bolts.
8. Remove chassis.



TRADE NAME	Zenith	MODELS	CHASSIS
		B2329R, B2330E, R, B2335, E, R, B2358E, R, B2359, E, B2360M, R	19B20
		B2329RU, B2330EU, RU, B2335EU, RU, U, B2358EU, RU, B2359EU, U, B2360MU, RU	19B20U
		B2329RUD, B2330EUD, RUD, B2335EUD, RUD, UD, B2358EUD, RUD, B2359EUD, UD, B2360MUD, RUD	19B20UD
		B3010E, H, R, B3011, E, Y, B3012H, R, B3013H, B3014H, R, B4007E, R, B4012H, R	19B20Q
		B3010E, H, R, B3011, E, Y, B3012H, R, B3013H, B3014H, R, B4007E, R, B4012H, R	Remote Chassis S-43724 or S-43894
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Avenue, Chicago 39, Illinois		
TUBES	VHF-Nineteen, UHF-Twenty, Remote Control-Eight		
POWER SUPPLY	110-120 Volts 60 Cycle	RATING	230 Watts, 2.05 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Inter-carrier)		

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF Oscillator is possible by removing the rear cover, and supplying power to the receiver. Set the Fine Tuning to the center of its range. The adjustments are accessible, one at a time, thru a hole in rear of the tuner. Adjust for best picture and sound.

SAFETY GLASS REMOVAL

Remove 4 Channel Selector and On-Off-Volume push-on type knobs from the front. Remove 4 metal screws now visible, holding metal trim. Remove safety glass.

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
Adjust picture to lock in with hold controls. If picture jitters, tears, etc. adjust Fringe Lock until stable. Readjust the hold controls and check operation on all channels in the area.
- D. Width
The width may be varied by means of a metallic sleeve lo-

cated 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 ADJUSTMENTS

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 inter-carrier buzz, adjust the Buzz control for MINIMUM buzz and maximum sound. (For location, see tube placement chart.)

FUSE

One fuse is used for low voltage supply 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.

PIN CUSHION CORRECTION

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

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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 H964

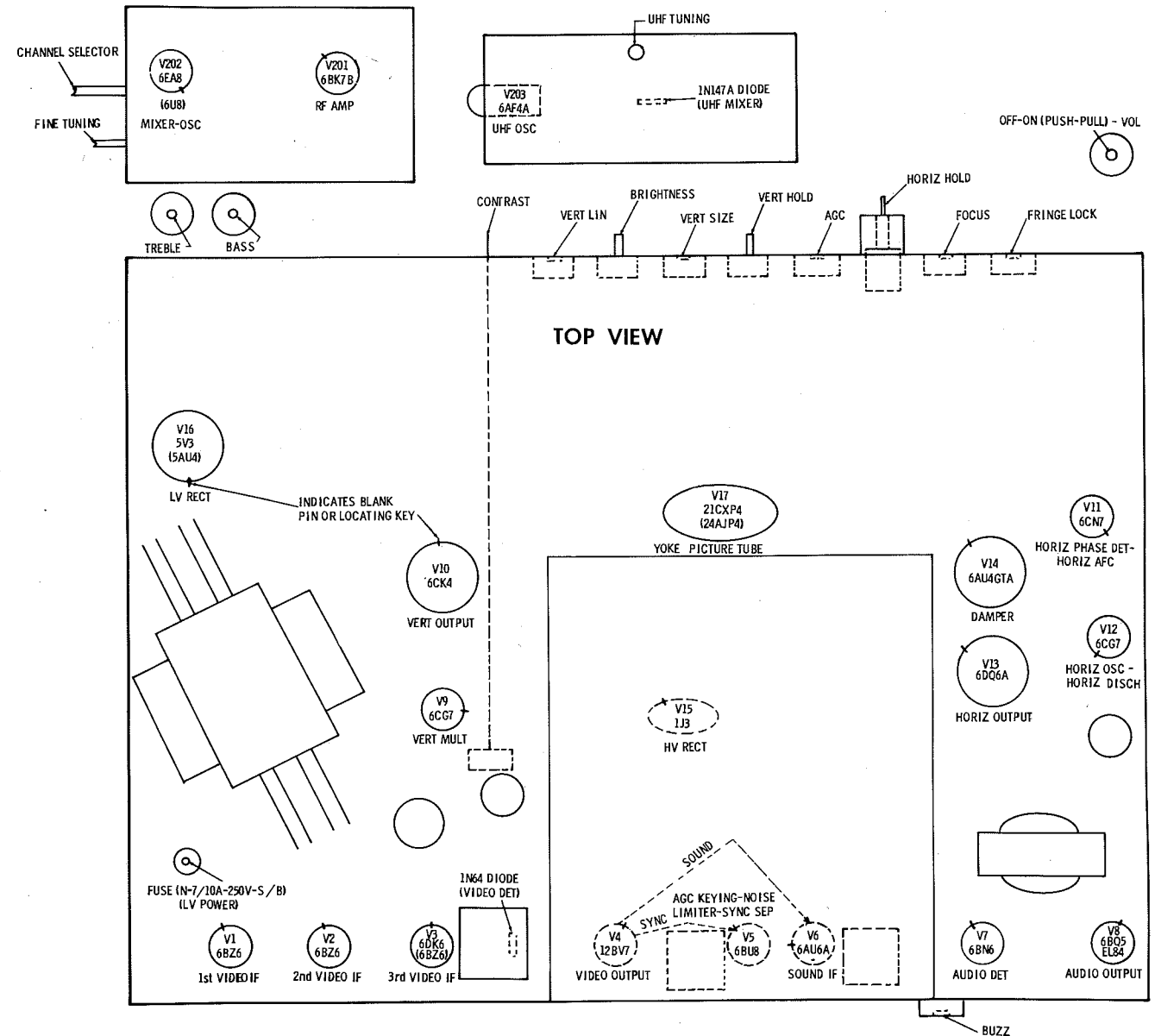
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RESISTANCE MEASUREMENTS

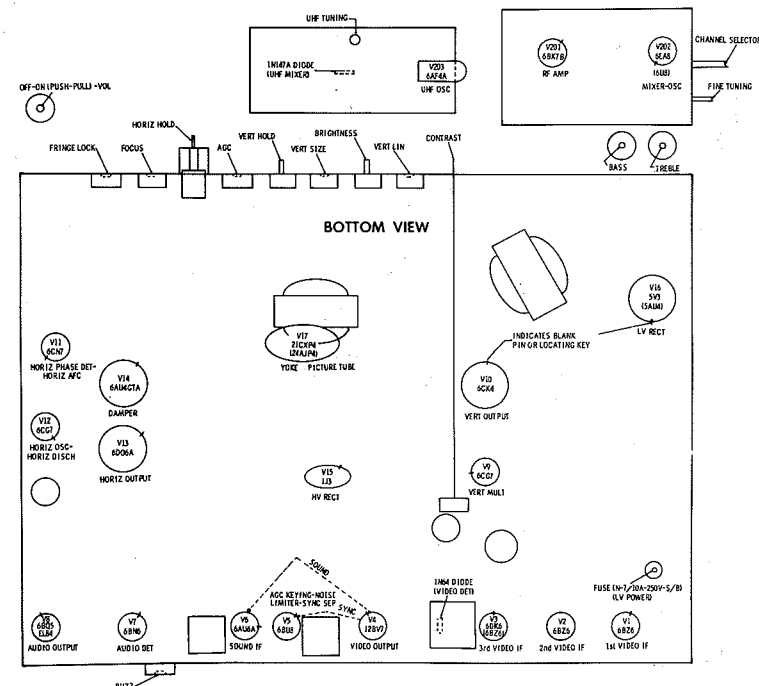
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	1.6meg	1500Ω	.1Ω	0Ω	††240Ω	††240Ω	1500Ω		
V2	6BZ6	60K	††22Ω	.1Ω	0Ω	†220Ω	†220Ω	1N		
V3	6DK6	.1Ω	120Ω	.1Ω	0Ω	†8200Ω	†8200Ω	0Ω		
V4	12BV7	15Ω	2700Ω	15Ω	.1Ω	.1Ω	0Ω	†6500Ω	†22K	15Ω
V5	6BU8	•7000Ω	†22K	650K	.1Ω	0Ω	115K	450K	†40K	†8.2meg
V6	6AU6A	100K	0Ω	.1Ω	0Ω	†37K	†37K	0Ω		
V7	6BN6	•310Ω	.2Ω	.1Ω	0Ω	†27K	4.6Ω	†390K		
V8	EL84/6BQ5	13K	13K	220Ω	0Ω	.1Ω	NC	†1100Ω	NC	†470Ω
V9	6CG7	•†2.8meg	•2.5meg	0Ω	0Ω	.1Ω	†325K	6800Ω	2200Ω	0Ω
V10	6CK4	TP	0Ω	1.2meg	NC	†740Ω	NC	.1Ω	•750Ω	
V11	6CN7	0Ω	200K	100K	0Ω	.1Ω	390Ω	1.2meg	†68K	0Ω
V12	6CG7	†235K	39K	0Ω	0Ω	.1Ω	†0Ω	32K	10K	NC
V13	6DQ6A	TP	.1Ω	NC	†8300Ω	1meg	TP	0Ω	0Ω	TOP CAP †11Ω
V14	6AU4GTA	TP	NC	†200K	NC	†.9Ω	NC	0Ω	.1Ω	
V15	1J3	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †281Ω
V16	5V3	NC	†	TP	27Ω	NC	25Ω	TP	†	
V17	21CX4	.1Ω	27K	Pin 6 •†1.6meg	Pin 10 70K	Pin 11 •220K	Pin 12 0Ω			
V201	6BK7B	†940Ω	115K	125K	0Ω	.1Ω	125K	3meg	0Ω	0Ω
V202	6EA8	†10K	68K	†68K	.1Ω	0Ω	†470Ω	0Ω	2200Ω	12K
V203	6AF4A	•†11K	5600Ω	.2Ω	.1Ω	.1Ω	5600Ω	†•11K		

THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT. THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION MEASURED FROM 1270V SOURCE. * MEASURED IN "UHF" POSITION. MEASURED FROM PIN 3 OF V14. NC NO CONNECTION MEASURED FROM PIN 7 OF V2. TP TIE POINT

TUBE PLACEMENT CHART



ZENITH CHASSIS
19B20, Q, U, UD



TUBE PLACEMENT CHART

TUBE FAILURE CHECK CHART

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

POWER SUPPLY FAILURE

No raster, no sound Fuse (7/10A), V16

SWEEP FAILURE

No raster, has sound V11, V12, V13, V14, V15, V17
No vertical deflection V9, V10
Poor vert. linearity or foldover V8, V10
Poor horiz. linearity or foldover V12, V13, V14
Narrow picture V12, V13, V14, V16
Vert. off freq. V9
Horiz. off freq. V12

LOSS OF PICTURE OR SOUND

No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1, (V203 UHF only)
No pic, has sound, has raster V4, V17
Has pic, no sound V6, V7, V8
Overloaded picture V5

SYNC FAILURE

No vert. sync V5
No horiz. sync V5, V11
No vert. or horiz. sync V5

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested alignment tools: A1 thru A13 General Cement #8606, 8606L, 8282, 9295
Walaco #2526, 2543, 2544, 2545

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 in series 56Ω Carbon Resistor across sweep output	High side to TP1. Low side to chassis.	44MC (10MC Swp)	39.75MC 41.25MC 45.75MC	Between any two channels	Vert. Amp. thru 10K to TP2. Low side to chassis.	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 for the response as in Fig. 1. The 39.75MC marker can fall within ±.5MC of the specified frequency. Check to see that the cores are entering their respective windings from opposite ends of the coils.
2. Direct	High side to ungrounded tube shield floating over Osc. -Mixer tube (V202). Low side to chassis.	"	39.75MC 41.25MC 47.25MC	"	"	A3, A4, A5, A6	Connect a clip lead from point A to chassis. Connect a clip lead from point B to TP4. Use high scope gain and adjust A3 thru A6 for MINIMUM marker amplitudes as in Fig. 2. A3 controls the 39.75MC marker, A4 the 41.25MC marker, and A5 and A6 the 47.25MC marker.
3. "	"	"	41.25MC 42.75MC 45.0MC 45.75MC	"	"	A7, A8, A9, & Mixer Plate Coll	Disconnect clip lead from point B and connect to chassis. Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. A7 affects low side of curve and A8 affects high side.

SOUND IF ALIGNMENT

Connect an adjustable attenuator between the antenna and the receiver terminals. Tune in a TV station and adjust the attenuator until the signal is below the limiting level of the 6BN6 (V7) as evidenced by a hiss in the sound similar to super-regeneration. Adjust A10, A11, A12 and A13 for maximum sound and best quality. Adjust the Buzz control (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

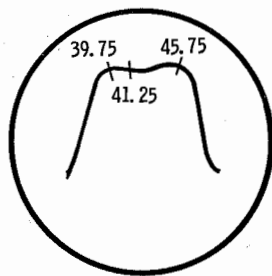


FIG. 1

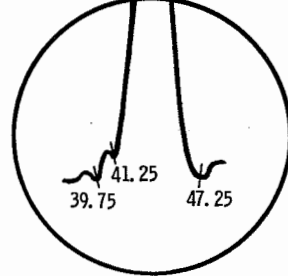


FIG. 2

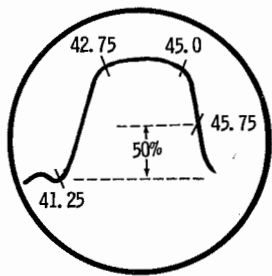
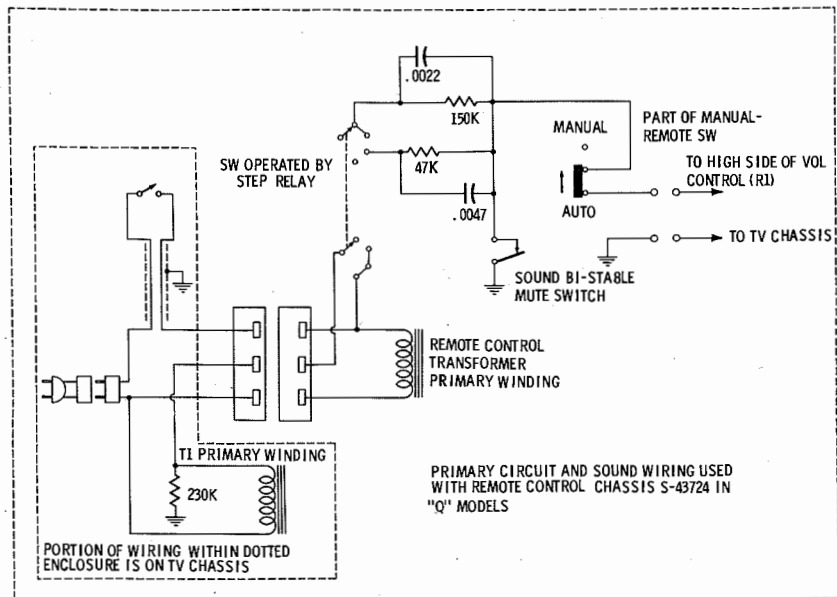
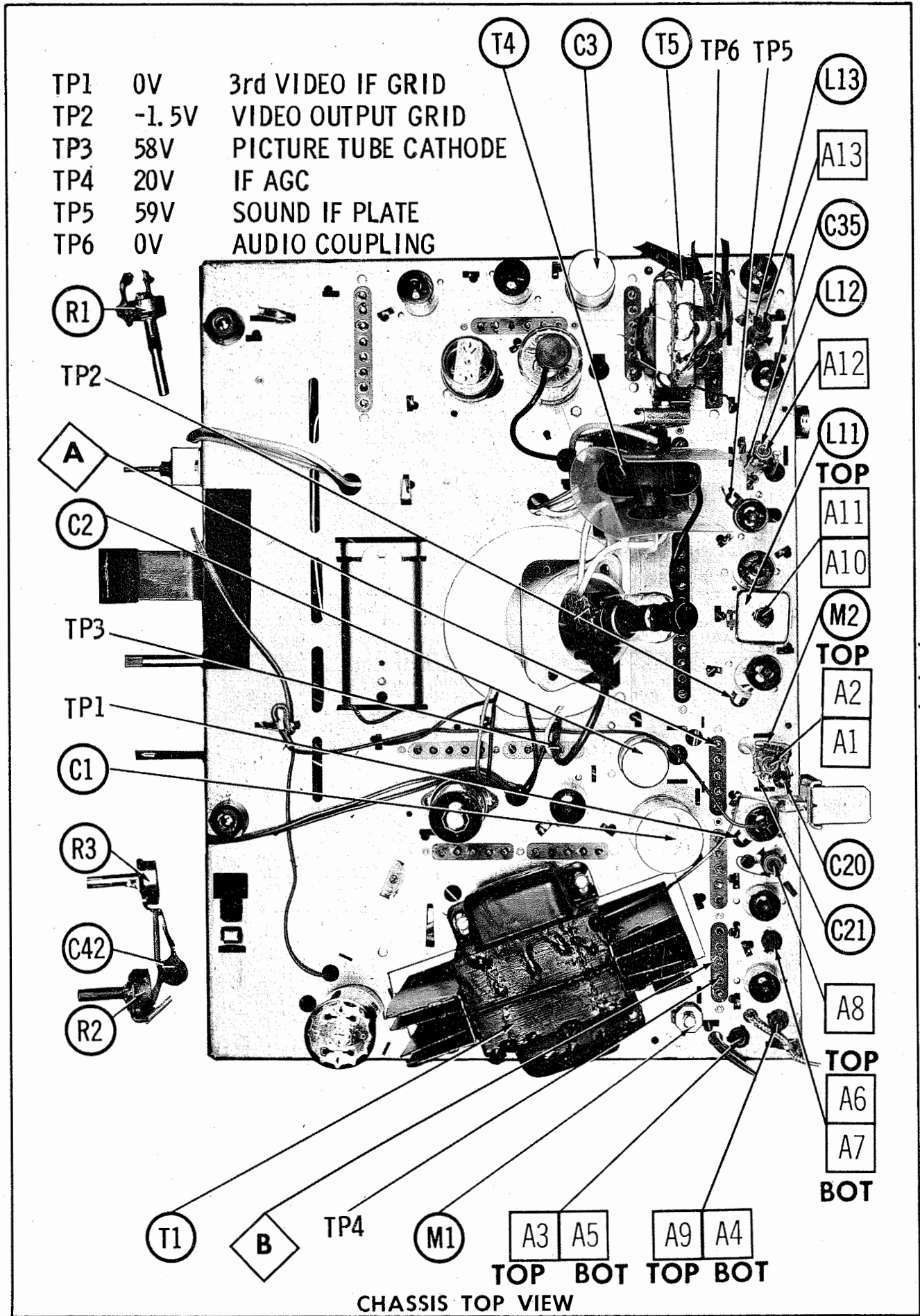


FIG. 3



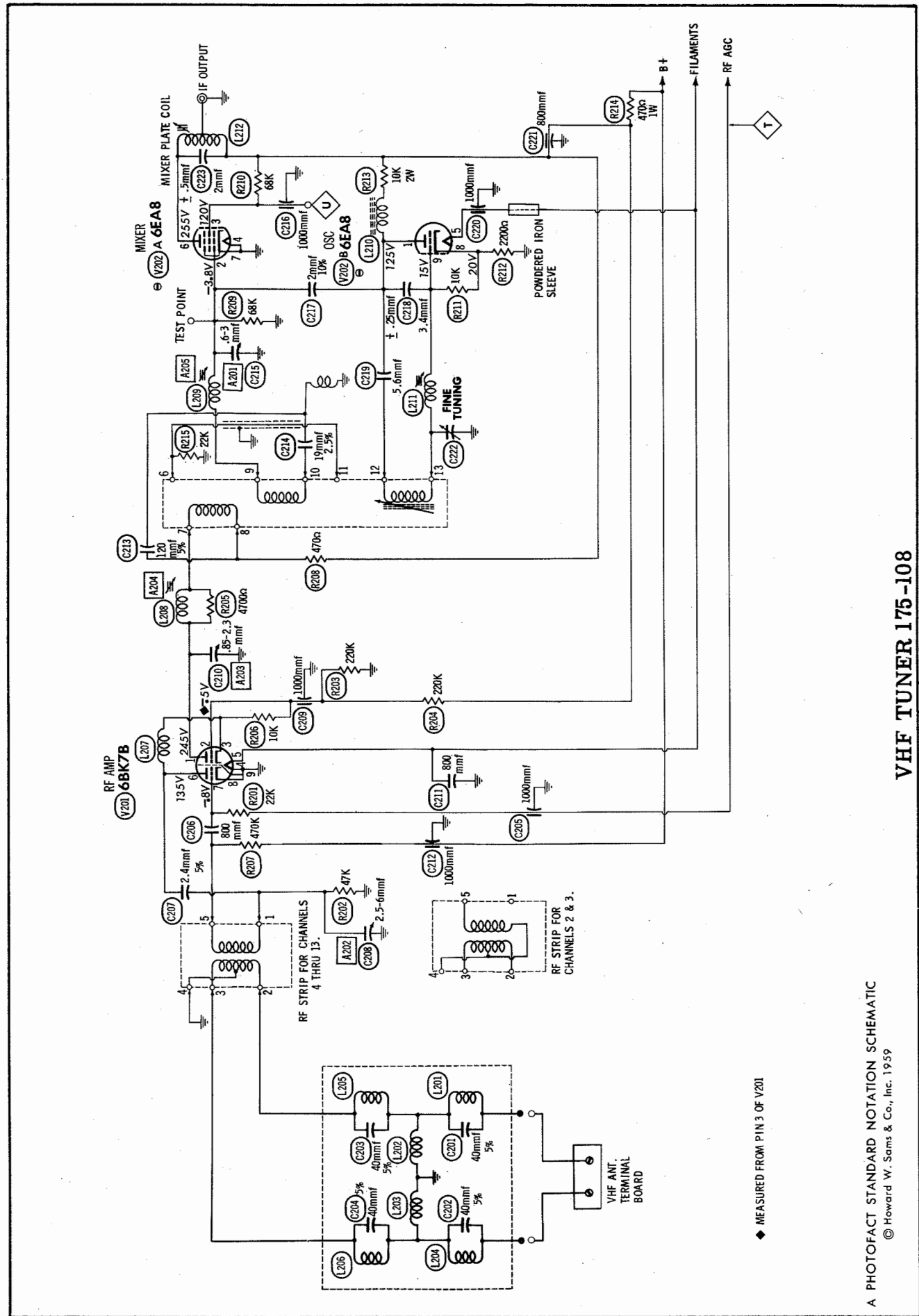
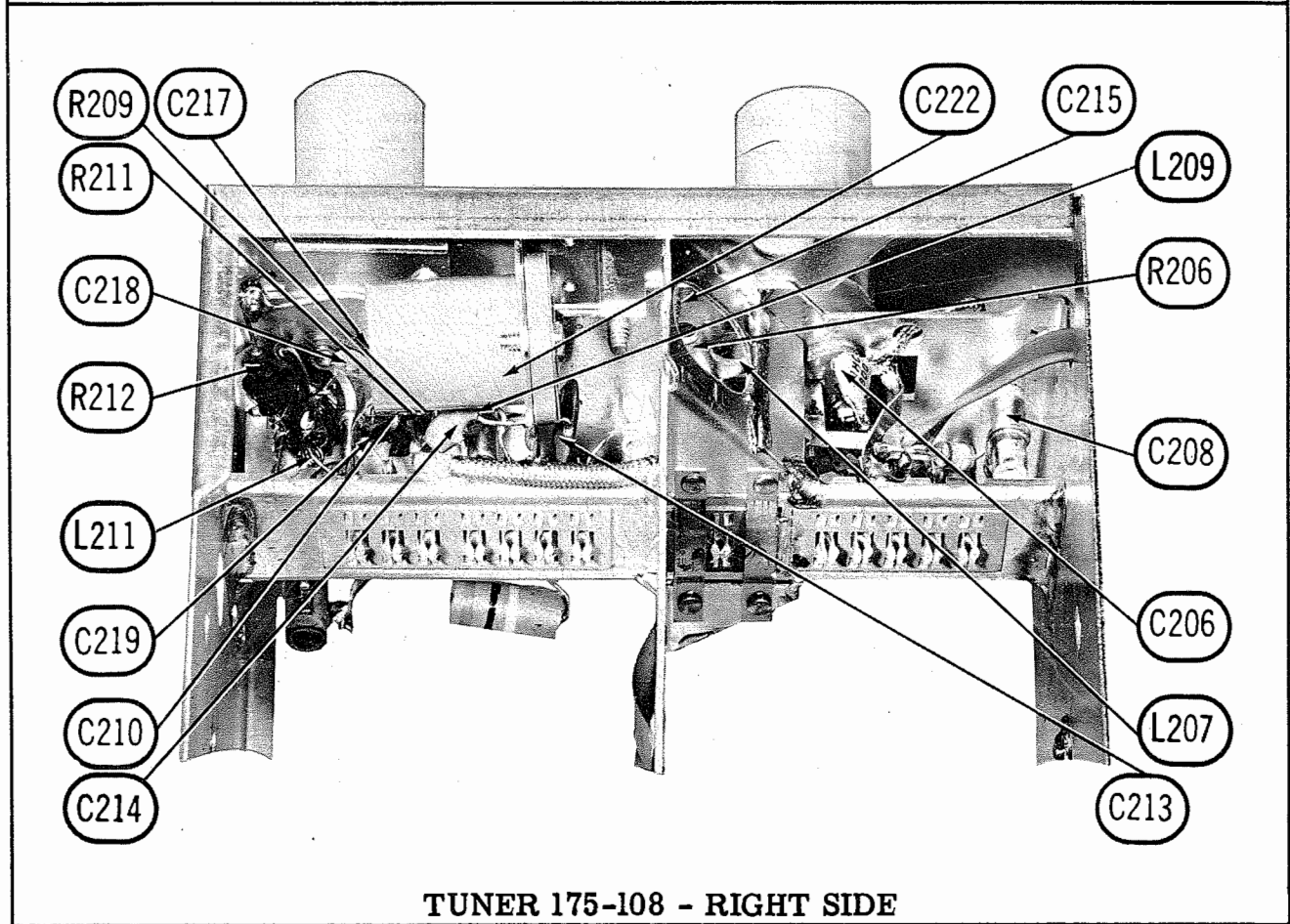
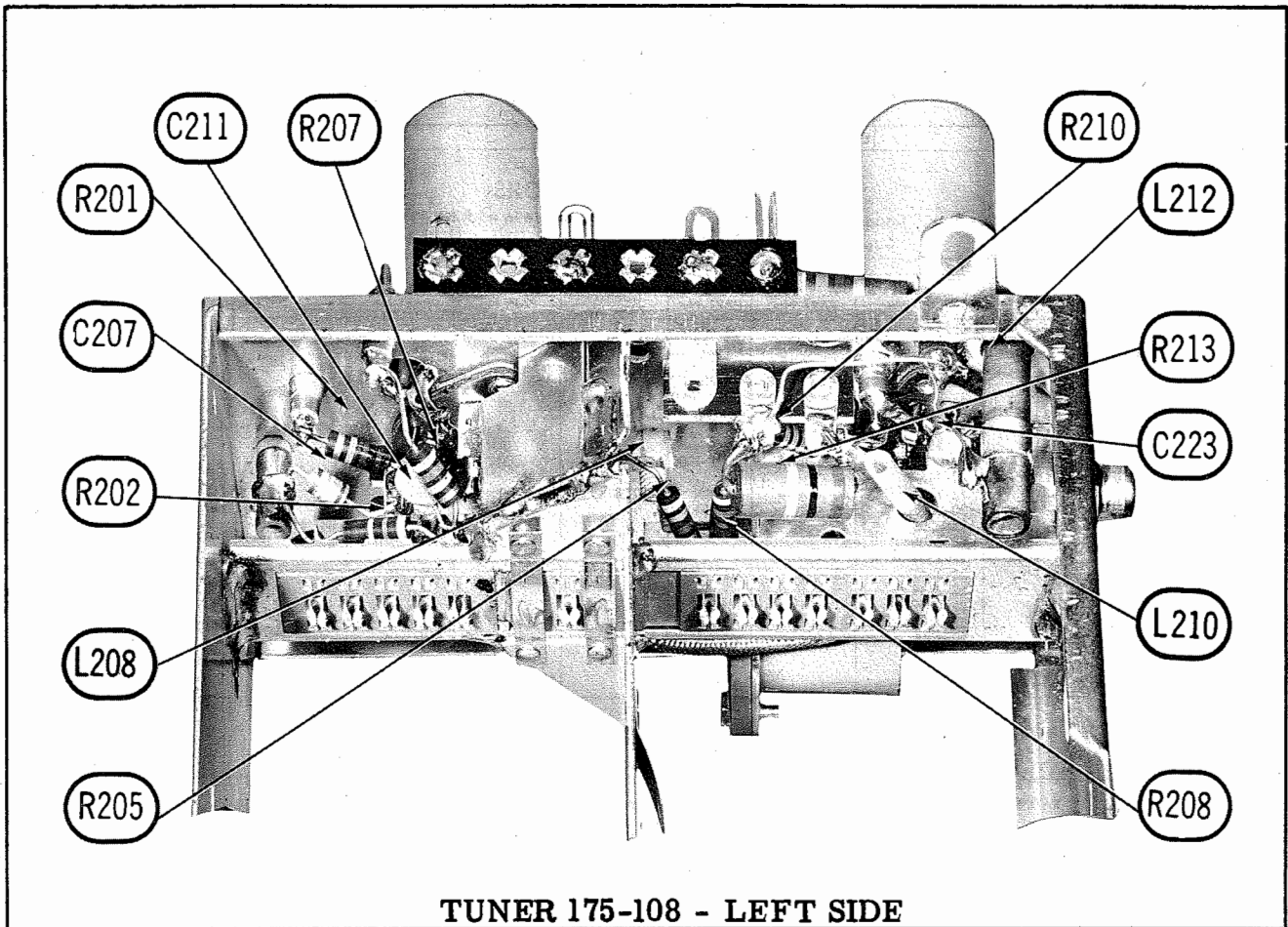
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ALTERNATE SCHEMATIC



ZENITH CHASSIS
19B20, Q, U, UD

FOLDER 3



TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS FOR TUNERS #175-107, #175-108

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VHF OSCILLATOR ALIGNMENT

Individual channel adjustment screws are accessible one at a time, thru a hole in the back of the tuner, as the channel selector is rotated. Set the Fine Tuning to the center of its range and switch to channel to be adjusted. Adjust for best picture and sound.

VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a 2.5 volt bias supply to point \diamond . 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.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1. 50-30 Ω Matching Trans.	Across VHF antenna terminals thru matching transformer.	69MC (10MC Swp)	67.25MC 71.75MC	4	Vert. Amp. thru 10K to point \diamond . 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 (10MC Swp)	199.25MC 203.75MC	"	"	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 ALIGNMENT FOR TUNER #175-4

Alignment of the UHF tuner should not be attempted without the proper test equipment.

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 (Fig. 202).	713MC (10MC Swp)	711.25MC	53	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 counterclockwise position of A206 is the proper response. Adjust A207 and A208 for maximum amplitude of response similar to Fig. 203.
4. "	"	473MC (10MC Swp)	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 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.
5. "	"	887MC (10MC Swp)	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.

UHF ALIGNMENT FOR TUNER 175-2

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.
Use only enough generator output to provide a usable indication on VTVM.
Adjust A222 for the most satisfactory picture with MINIMUM noise on any UHF station.
Remove the AGC cable between the tuners at the UHF tuner socket.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
3. Two 120 Ω Carbon Resistors	Across UHF antenna terminals with 120 Ω in each lead.	473.5MC (Unmod)	14	DC probe to point \diamond . Common to chassis.	A223	Adjust for maximum deflection.
4. "	"	887.5MC	83	"	A224	"
5.	The Oscillator pickup coil (A225) is the short wire connected to the crystal inside the oscillator tuning gang section. Oscillator injection is changed by moving the wire in or out of the oscillator section of the tuning gang. Set tuning gang at mid range. Connect the negative lead of a 0-50 microammeter thru 5600 Ω to point \diamond . Positive to chassis. Remove B+ at point \diamond and note reading. Apply B+ and note reading. The difference between the readings should be between 10 and 40 microamps for proper injection.					

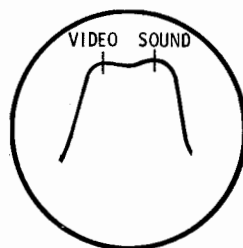


FIG. 201

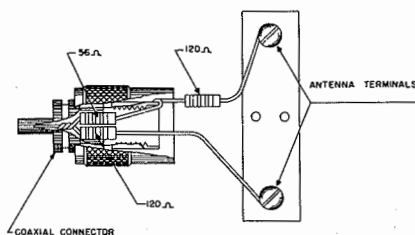


FIG. 202

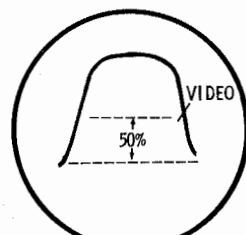


FIG. 203

TUNER PARTS LIST AND DESCRIPTIONS

175-108

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES	ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6BK7B		V202	Mixer-Osc.	6EA8	6U8 *

* Alternate.

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.	MALLORY PART No.	SPRAGUE PART No.	
C201	40		22-2511		D6-400				5%
C202	40		22-2511		D6-400				5%
C203	40		22-2511		D6-400				5%
C204	40		22-2511		D6-400				5%
C205	1000		22-3018	EF-001	MFT-1000	L10T8		503C-D1	
C206	800		22-2331	BPD-0008	DD-801			5GA-T8	
C207	2.4		22-2596						5%
C208	2.5-6		22-2221						
C209	1000		22-3018	EF-001	MFT-1000			503C-D1	
C210	.85-2.3		22-2453						
C211	800		22-2331	BPD-0008	DD-801	L10T8		5GA-T8	
C212	1000		22-3018	EF-001	MFT-1000			503C-D1	
C213	120		22-2591		DTN-120				5%
C214	19		22-2406						2.5%
C215	.6-3		22-2504						
C216	1000		22-3018	EF-001	MFT-1000			503C-D1	
C217	2		22-2434						10%
C218	3.4		22-2592						± .25mmf
C219	5.6		22-2499						± .25mmf
C220	1000		22-3018	EF-001	MFT-1000			503C-D1	
C221	800		22-2577						
C222									
C223	2		22-2585						± .5mmf

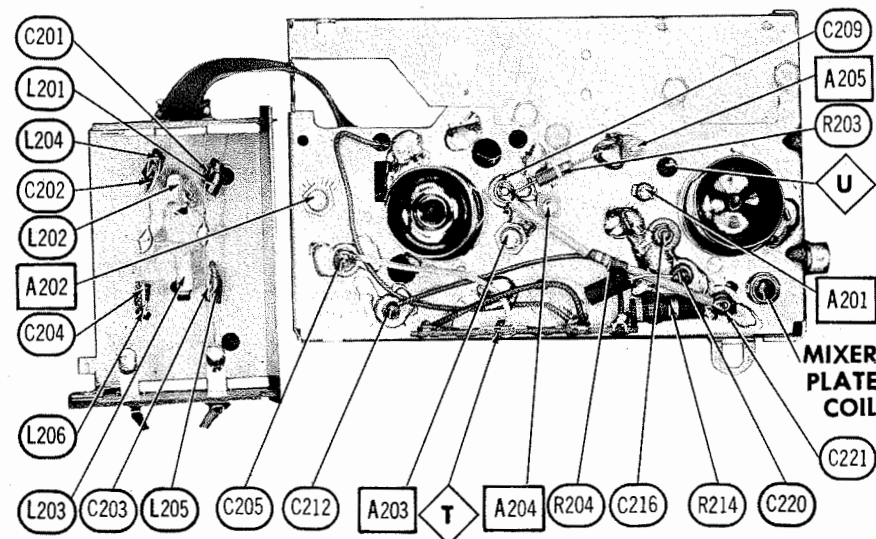
RESISTORS

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		
R201	22K				R208	470 Ω			
R202	47K				R209	68K			
R203	220K				R210	68K			
R204	220K				R211	10K			
R205	4700 Ω				R212	2200 Ω			
R206	10K				R213	10K	2	63-3170	
R207	470K				R214	470 Ω	1	63-2398	

COILS (RF-IF)

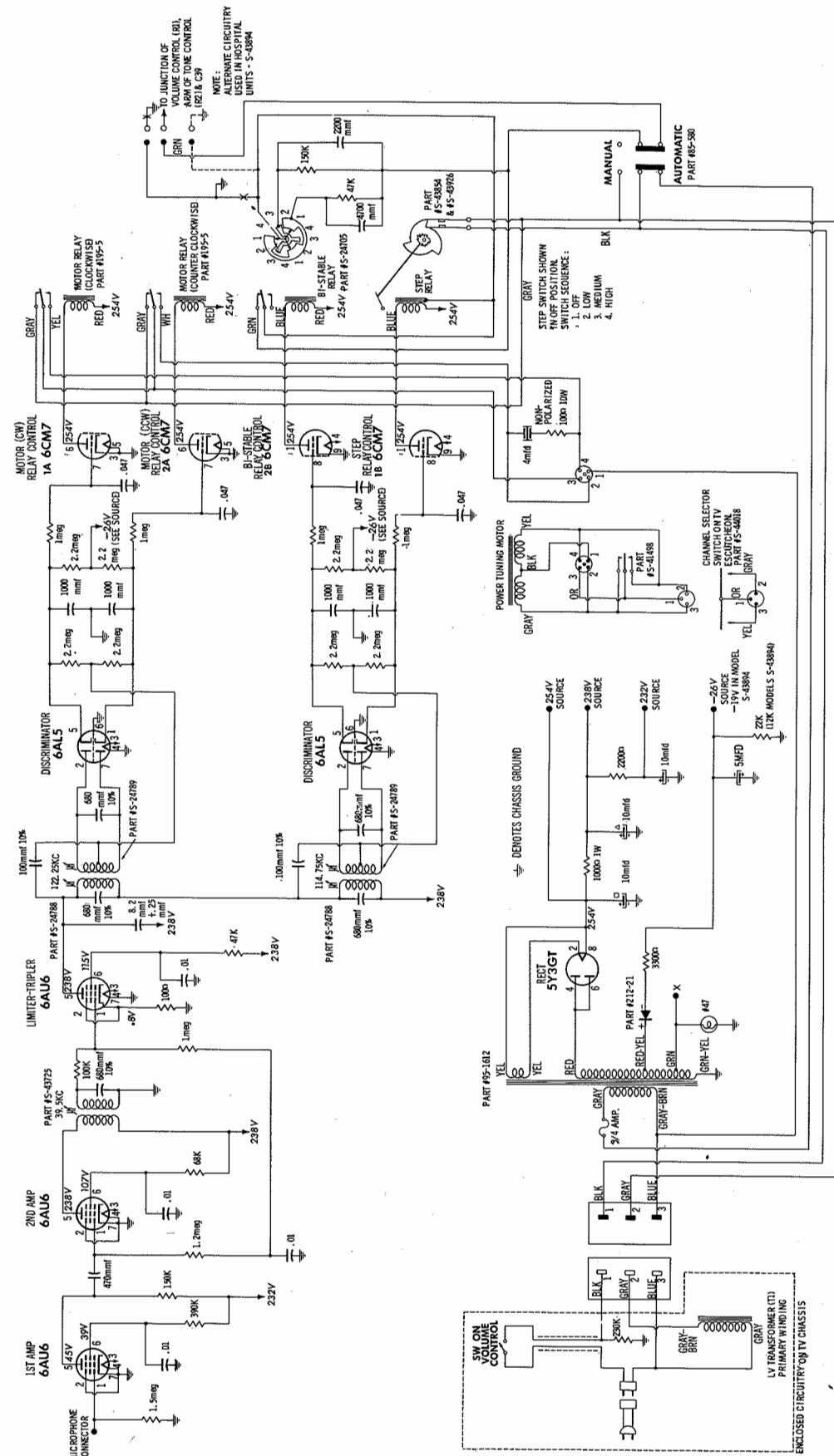
ITEM No.	USE	ZENITH PART No.	NOTES	ITEM No.	USE	ZENITH PART No.	NOTES
L201	IF Trap Coil	20-490		L208	RF Coil	20-537	
L202	IF Trap Coil	20-505		L209	Mixer Grid Coil	20-538	
L203	IF Trap Coil	20-505		L210	RF Choke	S-18859	
L204	IF Trap Coil	20-490		L211	Osc. Coil	20-541	
L205	IF Trap Coil	20-490		L212	Mixer Plate Coil	S-22702	
L206	IF Trap Coil	20-490					
L207	Neut. Coil	20-431					



TUNER 175-108 TOP VIEW

ZENITH CHASSIS
19B20, Q, U, UD

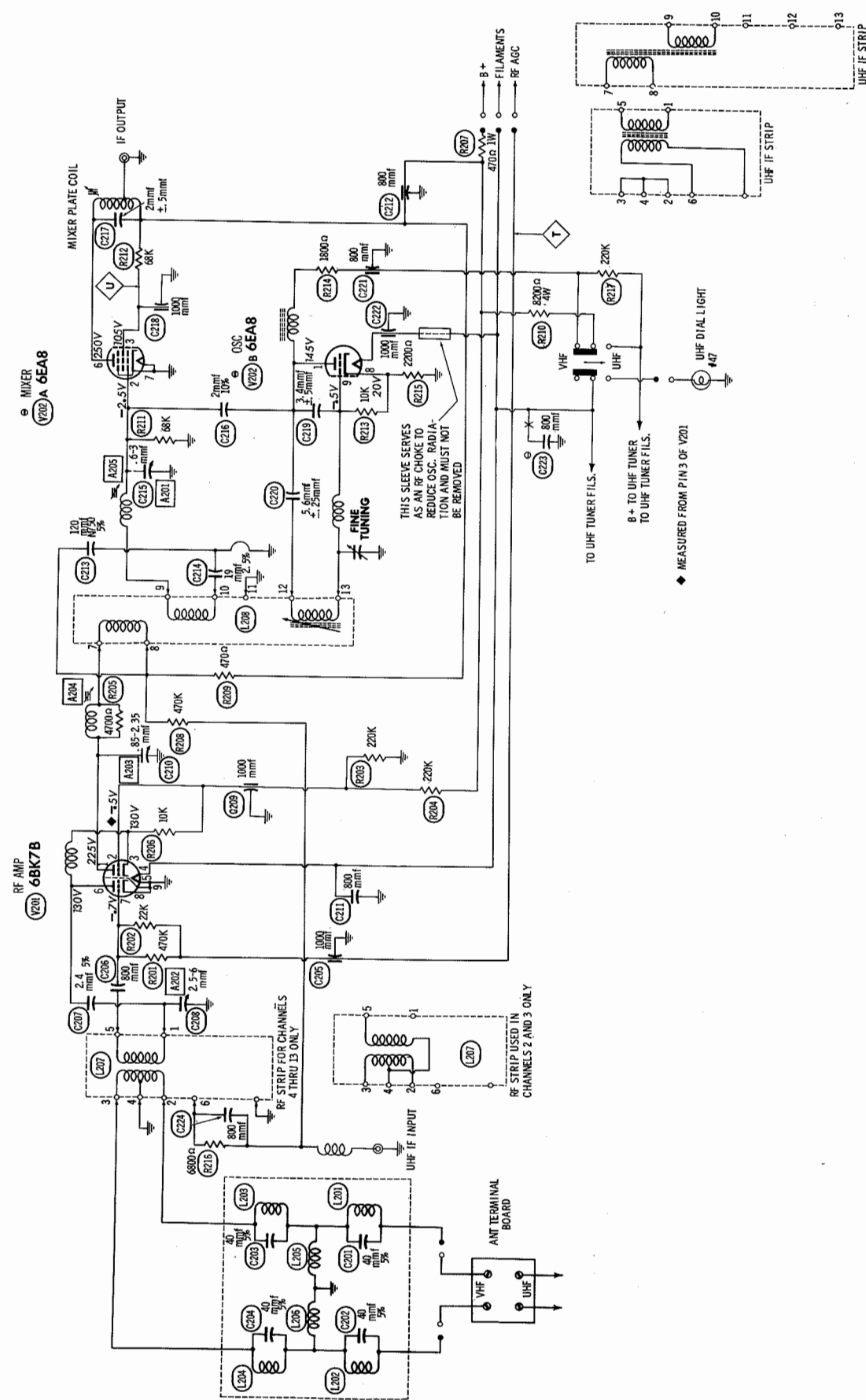
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REMOTE CHASSIS S-43724, S-43894

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VHF TUNER WITH UHF PROVISIONS 175-107 19B20, Q, U, UD

ZENITH CHASSIS

TUNER PARTS LIST AND DESCRIPTIONS

175 - 107

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES	ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6BK7B		V203	UHF Osc.	6AF4A	
V202	Mixer-Osc.	6EA8	6U8 *				

* Alternate.

FIXED CAPACITORS

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

ITEM No.	RATING		ZENITH PART No.	AEROVOX PART No.	REPLACEMENT DATA				NOTES
	CAP.	VOLT			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MAILORY 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	1000		22-3018	EF-001	MFT-1000	LI0T8	B-382	503C-DI	
C206	800		22-3331	BPD-0008	DD-801			5GA-T8	
C207	2.4		22-2596						5%
C208	2.5-60		22-2221						
C209	1000		22-3018	EF-001	MFT-1000			503C-DI	
C210	.85		22-2453						
C211	2.35		22-2331						
C212	800		22-2577	BPD-0008	DD-801	LI0T8	B-382	5GA-T8	
C213	120		22-2591	EF-001	MFT-1000			503C-DI	
C214	19		22-2406			LI0T12	CNO-312	5TCU-T12	N750 5%
C215	6-3.0		22-2504						2.5%
C216	2		22-2434	NPO-SI 2.2		CI0V22C			10%
C217	2		22-2585			CI0V22C			± .5mmf
C218	1000		22-3018	EF-001	MFT-1000			503C-DI	
C219	3.4		22-2592						± .25mmf
C220	5.6		22-2499						± .25mmf
C221	800		22-2577	EF-001	MFT-1000			503C-DI	
C222	1000		22-3018	EF-001	MFT-1000			503C-DI	
C223	800		22-2331	BPD-0008	DD-801	LI0T8	B-382	5GA-T8	
C224	800		22-2331	BPD-0008	DD-801	LI0T8	B-382	5GA-T8	①

① Not used in some versions.

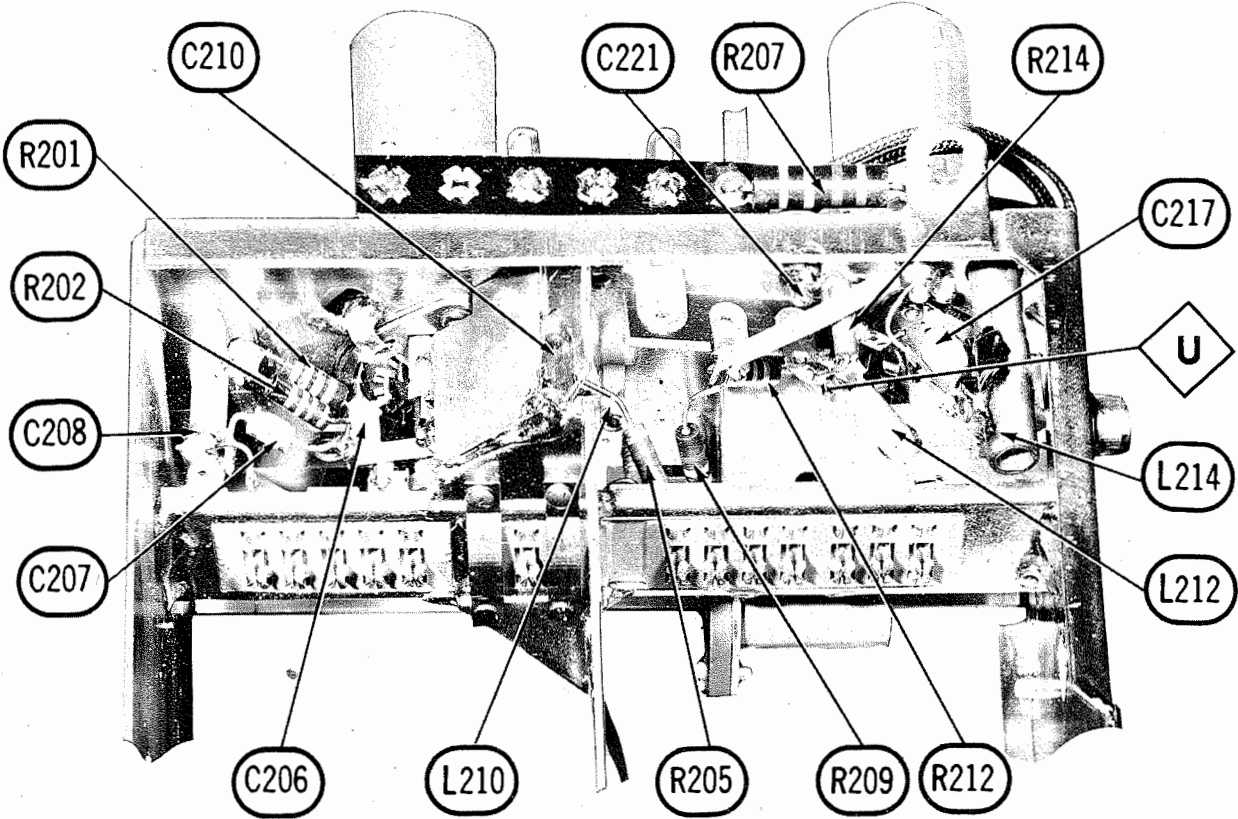
RESISTORS

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

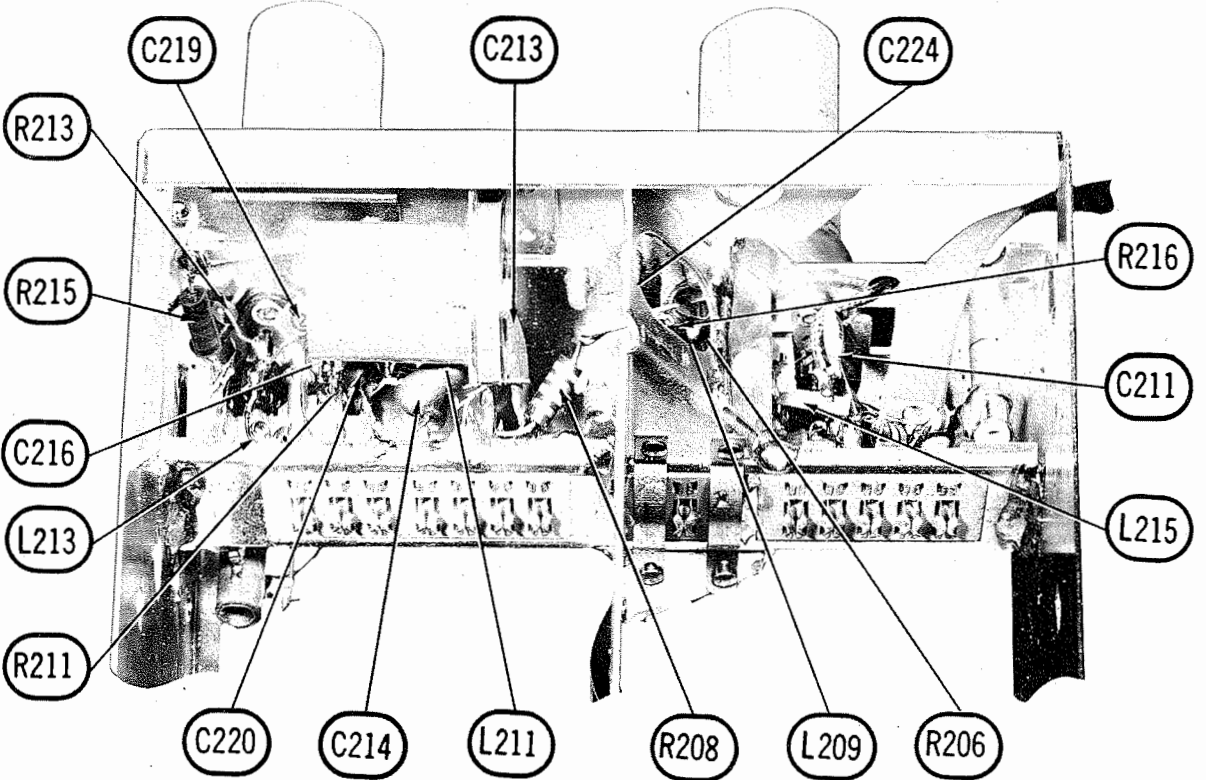
ITEM No.	RATING		ZENITH PART No.	NOTES	ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT				OHMS	WATT		
R201	470K				R210	8200Ω	4	63-3217	
R202	22K				R211	68K			
R203	220K				R212	68K			
R204	220K				R213	10K			
R205	4700Ω				R214	1800Ω			
R206	10K				R215	2200Ω			
R207	470Ω	1	63-2398		R216	6800Ω			
R208	470K				R217	220K			
R209	470Ω								

COILS (RF-IF)

ITEM No.	USE	ZENITH PART No.	NOTES	ITEM No.	USE	ZENITH PART No.	NOTES
L201	Ant. Coll	20-490		L208C	RF, Mixer Grid & Osc. Coils	S-19864	Channel 4
L202	"	20-490		D	"	S-19865	Channel 5
L203	"	20-490		E	"	S-19866	Channel 6
L204	"	20-490		F	"	S-19867	Channel 7
L205	RF Choke	20-505		G	"	S-19868	Channel 8
L206	RF Choke	20-505		H	"	S-19869	Channel 9
L207A	Ant. Coll	S-21712	Channel 2	I	"	S-19870	Channel 10
B	"	S-21713	Channel 3	J	"	S-19871	Channel 11
C	"	S-21714	Channel 4	K	"	S-19872	Channel 12
D	"	S-21715	Channel 5	L	"	S-19873	Channel 13
E	"	S-21716	Channel 6				
F	"	S-19847	Channel 7	M	UHF IF	S-20992	
G	"	S-19848	Channel 8	L209	RF Choke	20-431	
H	"	S-19849	Channel 9	L210	Trap Coll	20-537	
I	"	S-19850	Channel 10	L211	Trap Coll	20-538	
J	"	S-19851	Channel 11	L212	RF Choke	S-18859	
K	"	S-19852	Channel 12	L213	RF Choke	20-541	
L	"	S-19853	Channel 13	L214	Mixer Plate	S-22152	
M	UHF IF Input	S-20990		L215	RF Choke	20-722	
L208A	RF, Mixer Grid & Osc. Coils	S-21702	Channel 2				
B	"	S-21703	Channel 3				



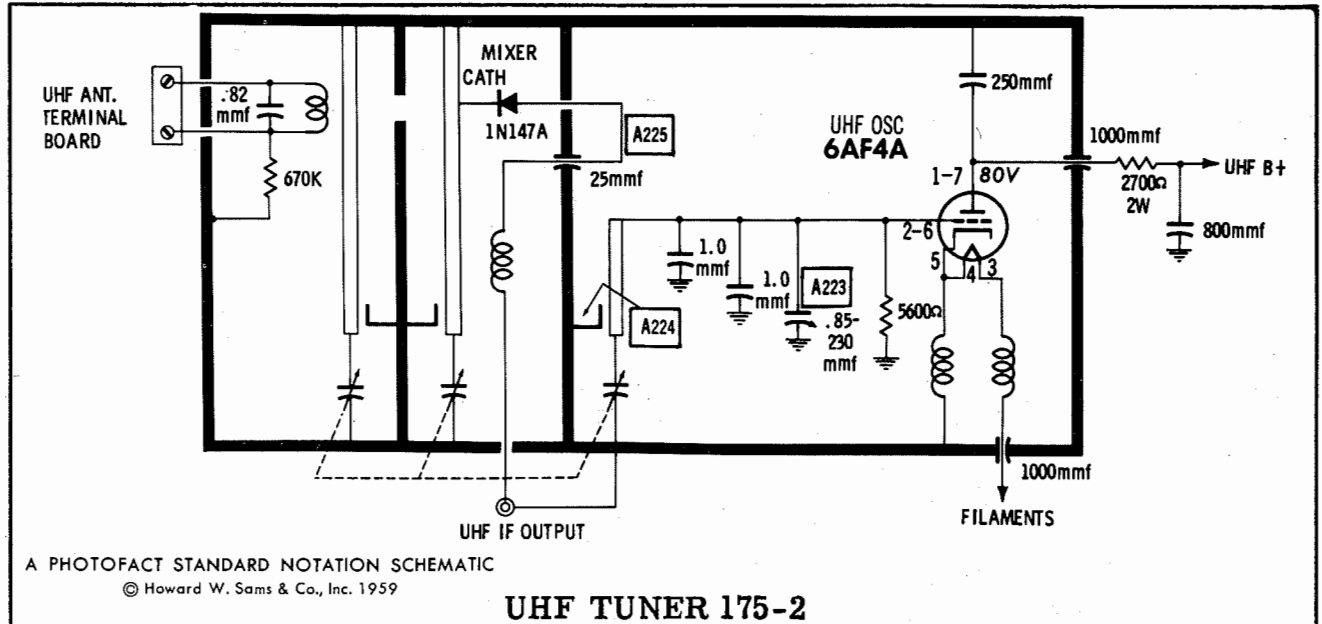
TUNER 175-107 - LEFT SIDE



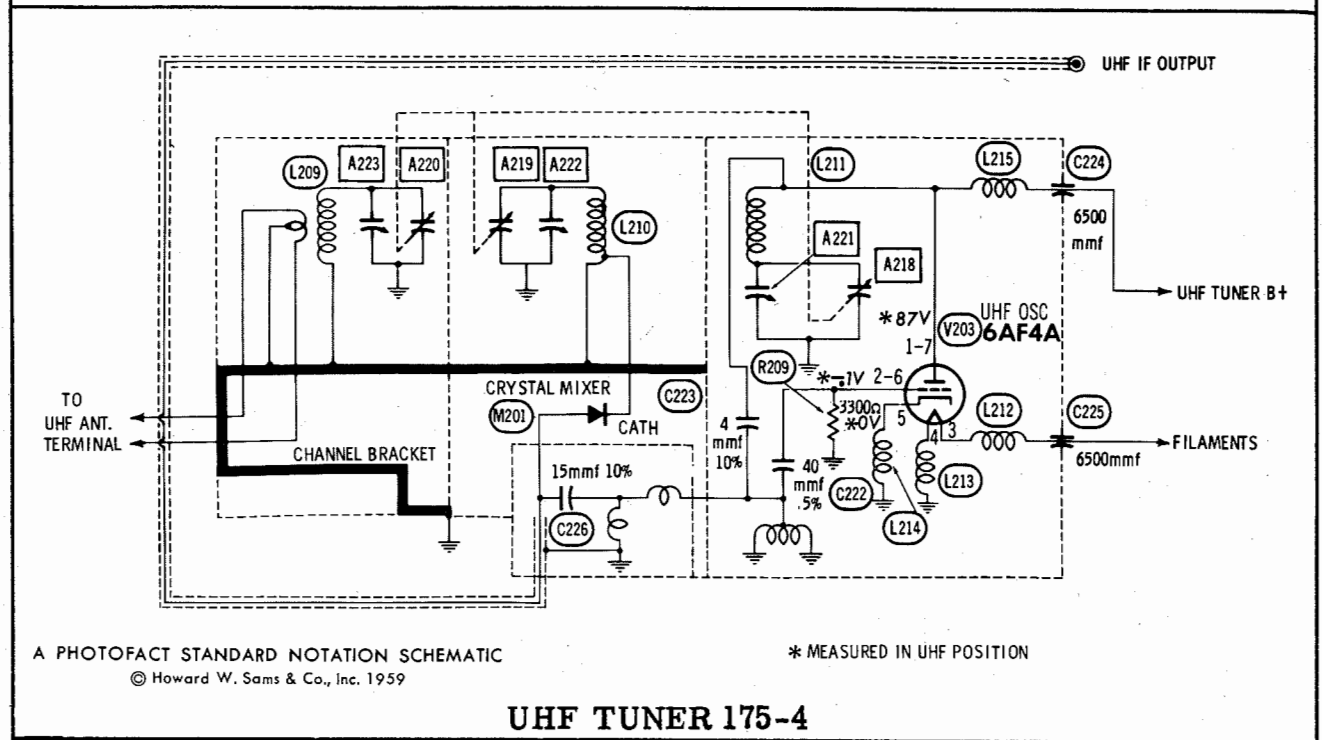
TUNER 175-107 - RIGHT SIDE

ZENITH CHASSIS
19B20, Q, U, UD

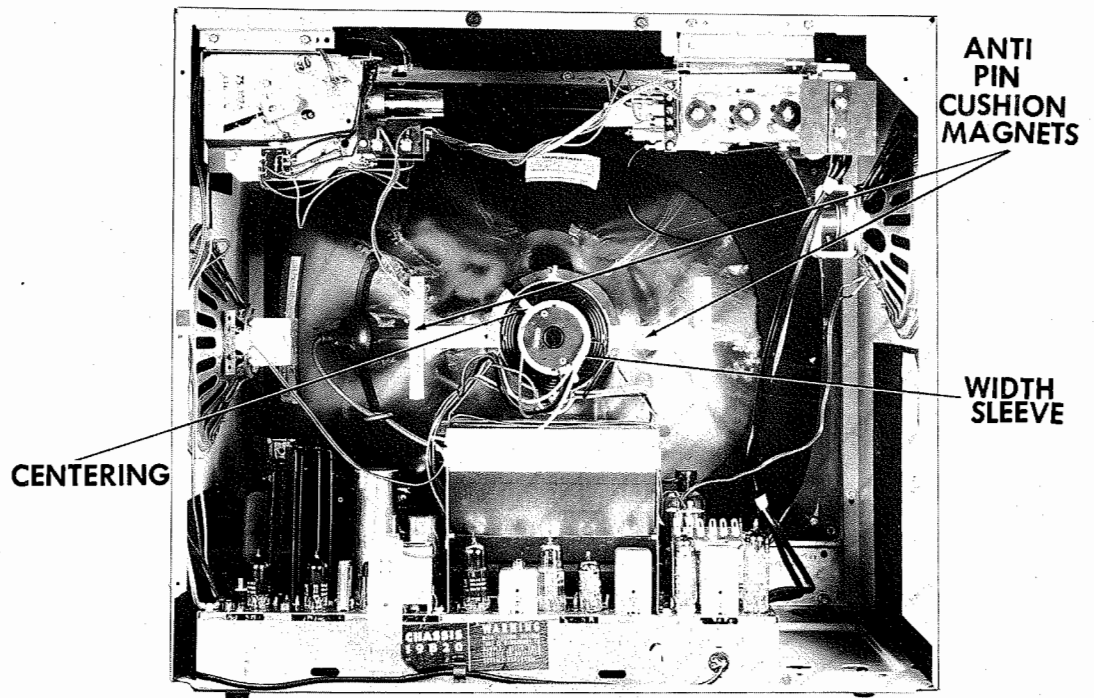
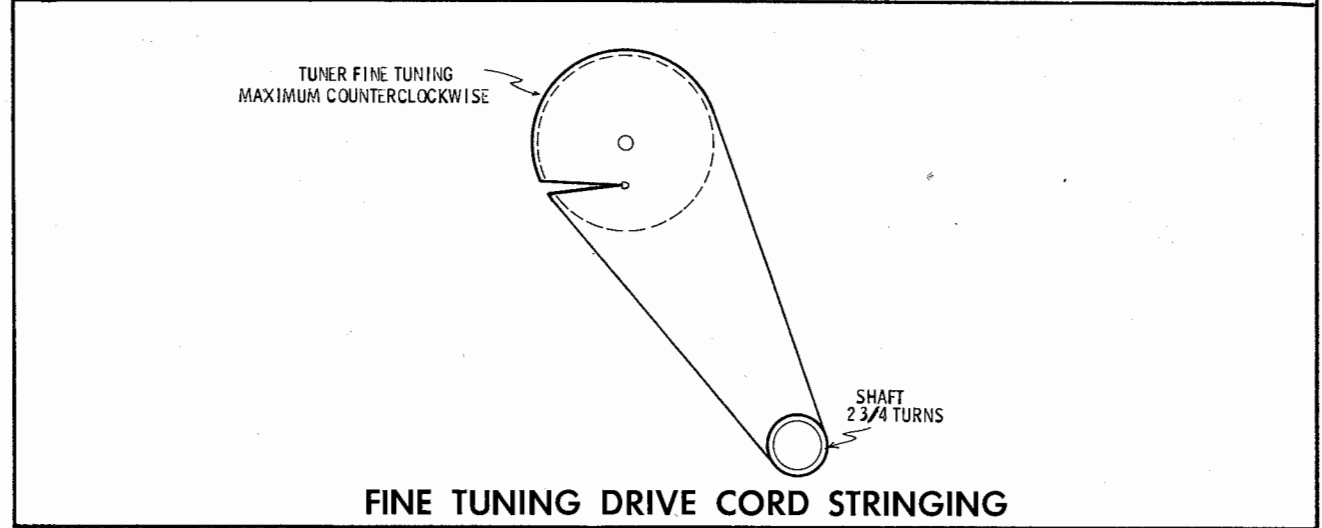
FOLDER 3



UHF TUNER 175-2



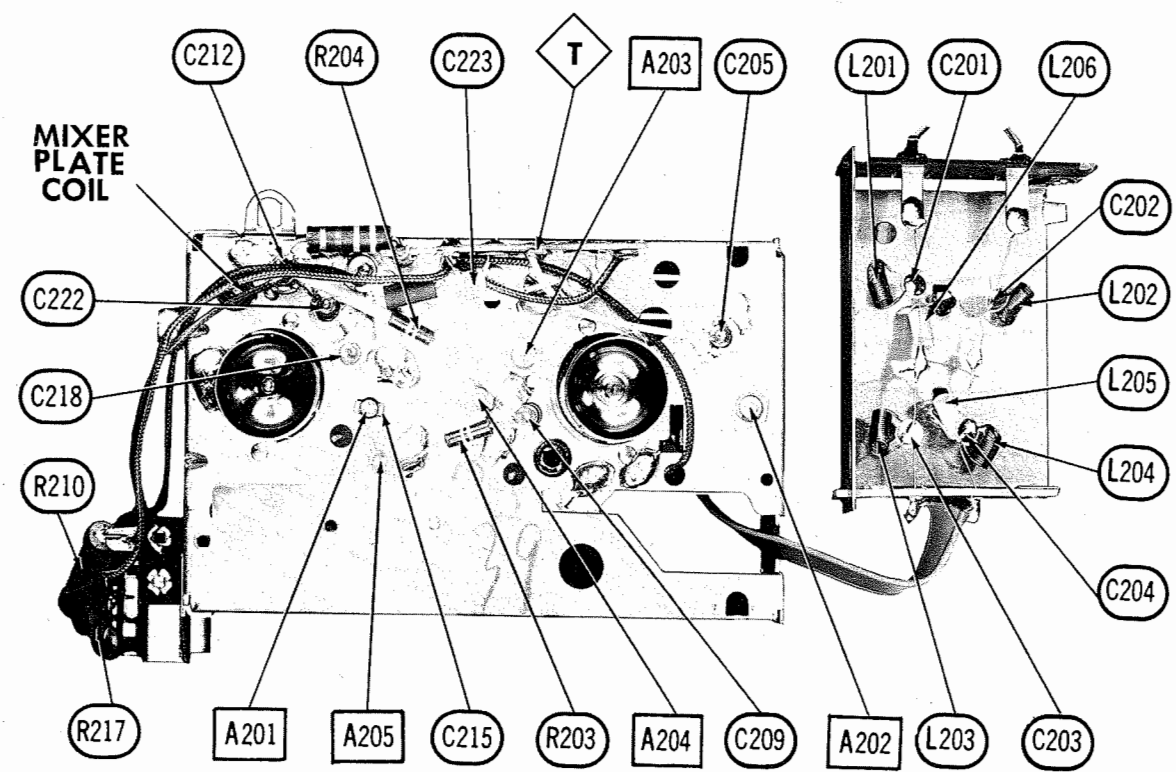
UHF TUNER 175-4



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

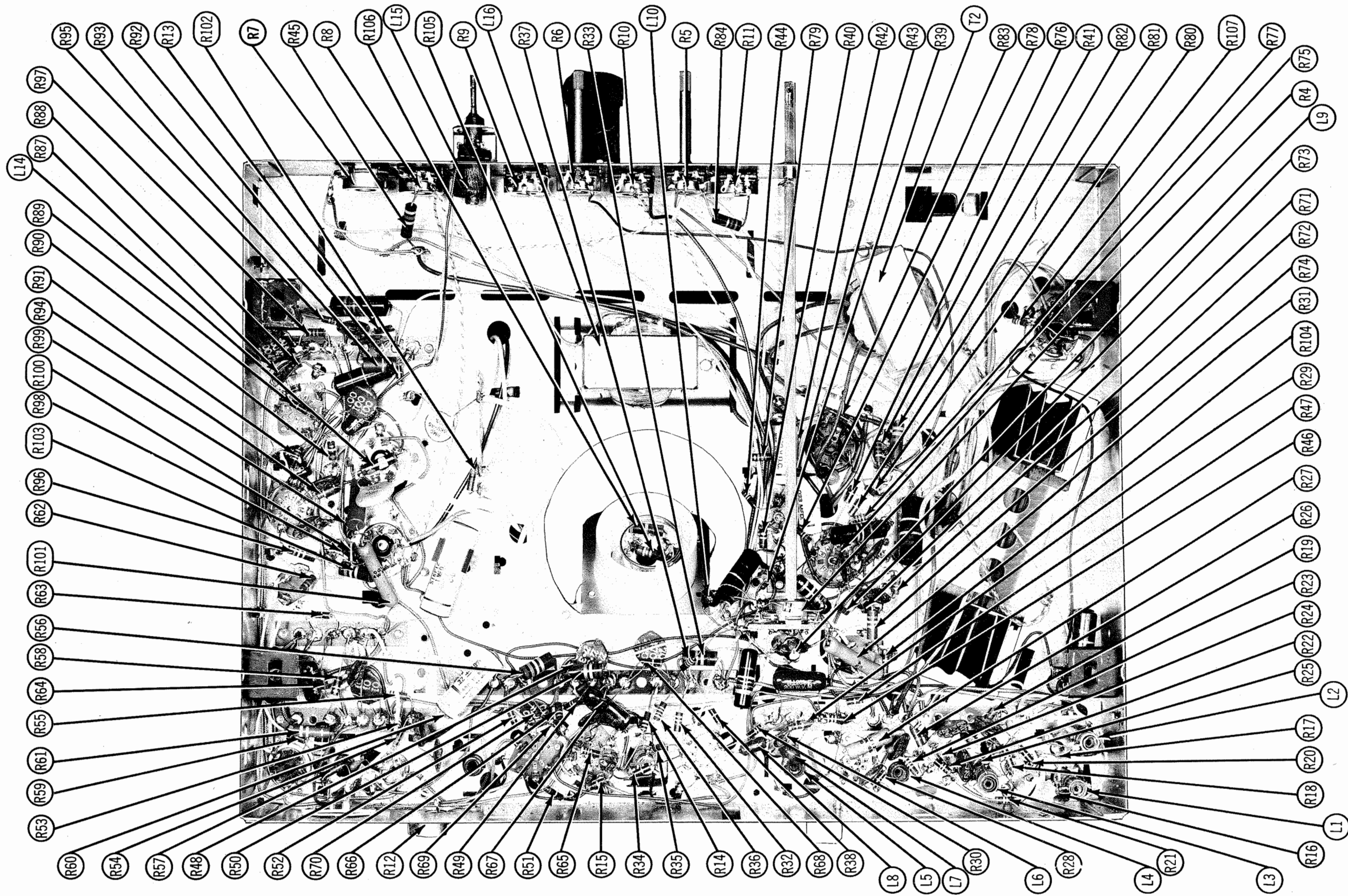
Turn the set on and tune in a TV station, preferably with a test pattern.
Set the Brightness and Contrast controls for a normal picture.
Turn the Horizontal Hold clockwise until the picture loses sync. It may be necessary to switch off channel and back again for picture to lose sync.
Turn the Horizontal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



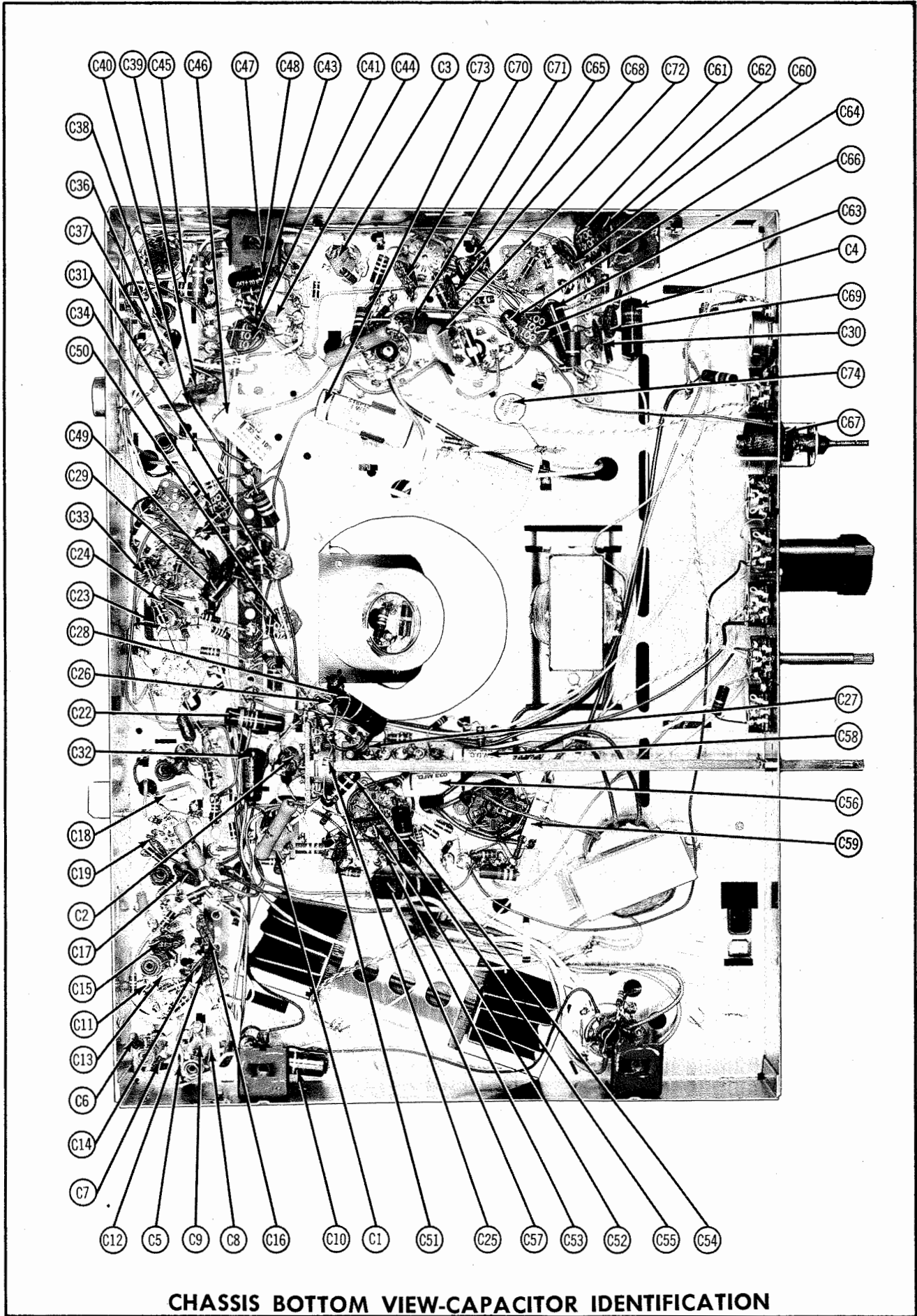
TUNER 175-107 TOP VIEW
SET 430 FOLDER 3

ZENITH CHASSIS
19B20, Q, U, UD

FOLDER 3



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION
ZENITH CHASSIS
19B20, Q, U, UD



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES	ITEM No.	USE	TYPE	NOTES
V1	1st Video IF Amp.	6BZ6	6BZ6 *	V9	Vert. Mult.	6CG7	
V2	2nd Video IF Amp.	6BZ6		V10	Vert. Output	6CK4	
V3	3rd Video IF Amp.	6DK6		V11	Horiz. Phase Det. - Horiz. AFC	6CN7	
V4	Video Output	12BV7		V12	Horiz. Osc. - Horiz. Disch.	6CG7	
V5	AGC Keying-Noise Limiter - Sync Sep.	6BU8		V13	Horiz. Output	6DQ6A	
V6	Sound IF Amp.	6AU6A		V14	Damper	6AU4GTA	
V7	Audio Det.	6BN6		V15	HV Rect.	IJ3	
V8	Audio Output	6BQ5 / EL84		V16	LV Rect.	5V3	5AU4 *

* Alternate.

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	21CXP4 ② 24AJP4 ②	① "Silverama" ® ② "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	C0890	FP333.2		Q-460	
B	80	400			BR1250	TC81		MTD-4520	
C	100	50							
D	10	475							
C2A	4	350	22-3110 ①				TMD-46		
B	4	150					TD-40-450		
C3A	40	400	22-1625		A0430	FPI71	TMS-53	S-250	
B	10	450			BBR50-25	TC29	TD-50-25	MT-0250	
B	50	25							

* Not normally in distributors stock. Available through distributor on order to manufacturer.
① Some versions may omit C2C and use a 2 section filter 4-40 mfd @ 350-400V (Part #22-2967).

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.	MALLORY PART No.	SPRAGUE PART No.		
C4	.068	200	22-2572	P488N-088		CUB4S68	GEM-4168	4TM-S68		
C5	470	1000	22-6	HVD-15-470	DD-471	BYA10T47	B-347	10GAB-T47		
C6	4		22-2549					5TCCB-V4S 5% *	NPO 5%	
C7	1000	1000	22-17	HVD-15-1000		LI0D1	JL-210	10GAB-DIS 10% *	10%	
C8	12		22-2379		TCZ-12		CNO-412	5GA-Q12S 5% *	5%	
C9	12		22-2379		TCZ-12		CNO-412	5GA-Q12S 5% *	5%	
C10	.15	200	22-2147	P288N-15		CUB2P15	GEM-2015	2TM-P15		
C11	1		22-1762		TCZ-1		CNO-510	5TCCB-V1		
C12	10000		22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1		
C13	7		22-2513					5TCCB-V7S 5% *	5%	
C14	470		22-16	DI-470	MD-471	LI0T47	JL-347	5GA-T47S 10% *	10%	
C15	1000	1000	22-17	HVD-15-1000		LI0D1	JL-210	10GAB-DIS 10% *	10%	
C16	1000	1000	22-17	HVD-15-1000		LI0D1	JL-210	10GAB-DIS 10% *	10%	
C17	470		22-16	BPD-00047	DD-471	BYA10T47	B-347	5GA-T47		
C18	330		22-2866	I469-00033		5R5T33		MS-333	10%	
C19	470		22-16	DI-470	MD-471	LI0T47	JL-347	5GA-T47S 10% *	10%	
C20	5		22-2990					5GA-V5S ± .25mmf *	± .25mmf	
C21	7.5		22-2742					5GA-V75		
C22	.033	200	22-2510	P288N-033	DF-303			2WF-S33	10%	
C23	47		22-2467						N80 5%	
C24	3.3		22-2343	NPO-SI 3.3	TCZ-3R3	CTA6V33C	ZT-5533	5TCCB-V33		
C25	27		22-3085	SI 27	D6-270		CNO-427	5GA-Q27S 10% *	10%	
C26	10		22-3060	SI 10	D6-100		CNO-410	5GA-Q1S 10% *	10%	
C27	50		22-2460	SI 50	D6-500	LT6Q5		5GA-Q5		
C28	.1	200	22-1777	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1		
C29	.1	200	22-1777	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1		
C30	1000	1000	22-17	HVD-15-1000		LI0D1	JL-210	10GAB-DIS 10% *	10%	
C31	10000		22-3					5GA-SIS 10% *	10%	
C32	.1	200	22-1777	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1		
C33	50		22-2460	SI 50	D6-500	LT6Q5	UC-545	5GA-Q5		
C34	1000	1000	22-17	HVD-15-1000		LI0D1	JL-210	10GAB-DIS 10% *	10%	
C35	470		22-2480	I464-00047		5R5T47		MS-347	10%	
C36	7.5		22-2742					5GA-V75		
C37	100		22-5	BPD-0001	DD-101	LI0T1	CNO-310	5GA-T1		
C38	10		22-2411						N150 10%	
C39	1000	1000	22-17	HVD-15-1000		LI0D1	JL-210	10GAB-DIS 10% *	10%	
C40	10000		22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1		
C41	10000		22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1		
C42	4700		22-14	DI-4700		LI0D47	JL-247	5GA-D47S 10% *	10%	
C43	470	1000	22-6	HVD-15-1000	DD-471	BYA10T47	B-347	10GAB-T47		
C44	100		22-2992		DTN-100	C10TIU	CN7-310	5TCU-T1S 5% *	N750 5%	
C45	.0068	200	22-2656	P288N-0068				5BF-D68	10%	
C46	.22	200	22-3055	P288N-22				2WF-P22	10%	
C47	10000		22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1		
C48	.047	200	22-1778	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47		
C49	3300		22-11	BPD-0033	DD-332	BYA10D33	E-233	5HK-D1		
C50	470		22-16	DI-470	MD-471	LI0T47	JL-347	5GA-T47S 10% *	10%	
C51A	4700	1000	22-24	HVD-15-4700	DD-472	BYA10D47M	B-247	10HKB-D47		
B	4700	1000		HVD-15-4700	DD-472	BYA10D47M	B-247	10HKB-D47		
C52	1000	1000	22-17	HVD-15-1000		LI0D1	JL-210	10GAB-DIS 10% *	10%	
C53	4700		22-14	DI-4700		LI0D47	JL-247	5GA-D47S 10% *	10%	
C54	.01	600	22-1843					5GA-SIS 10% *	10%	
C55	.0068	400	22-2501	P488N-0068				5BF-D68	10%	
C56	.033	400	22-2635	P488N-033				5BF-S33	10%	
C57	.1	400	22-2061	P488N-1				5BF-P1	10%	
C58	.033	400	22-2635	P488N-033				5BF-S33	10%	
C59	.047	200	22-1778	P288N-047	DF-502	CUB2S47	GEM-4147	2TM-S47	10%	

SET 430 FOLDER 3

ZENITH CHASSIS
19B20, Q, U, UD

FOLDER 3

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C80A	100	100	22-22	BPD-0001	DD-101	L10T1	CNO-310	5GA-T1	
C81	4700		22-14	BPD-0001	DD-101	L10T1	CNO-310	5GA-T1	
C82	4700		22-14	DI-4700		L10D47	JL-247	5GA-D47S 10% *	10%
C83	1000	1000	22-17	DI-4700		L10D47	JL-247	5GA-D47S 10% *	10%
C84	.047	200	22-17	DI-1000		L10D1	JL-210	10GAB-DIS 10% *	10%
C85	330		22-1778	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C86	.1	200	22-1777			5R5T33		MS-333	10%
C87	1100		22-2859	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C88	1500		22-12	1464-0011		IR5D1		MS-211	10%
C89	4700		22-14	DI-4700		L10D15	JL-215	5GA-D15S 10% *	10%
C70A	1000		22-21	BPD-2X001	DD2-102	BYC6DD1	B-210	5GA-D47S 10% *	10%
C71	.01	400	22-1784	P488N-01				5HK-2D1	
C72	75	4000	22-2954					5BF-S1	10%
C73	.1	600	22-1841	P488N-1	DF-104	CUB6P1	GEM-601	6TM-P1	N750 10%
C74	45	4000	22-2858						
C75	82	2000				HVD20Q82	2DY-482	20GAB-Q82S 10% *	10%

* Not normally in distributors stock. Available through distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	ZENTH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2meg	$\frac{1}{2}$	63-4010				PP28T16	Volume, Tap @ 1meg
R2A	Switch		63-4377	B-75	A47-1meg-S	Q11-139	U56	Pull Type
R3A	250K	$\frac{1}{2}$	63-3572	Not Req.	KSS-3	Not Req.	Not Req.	Vert. Hold
R4	30K	$\frac{1}{2}$	63-4056	B-50	A47-250K-S	Q11-130	U46	Brightness, Tap @ 10K
R5A	3meg	$\frac{1}{2}$	63-4398	Not Req.	KSS-3	Not Req.	Not Req.	Contrast, Tap @ 10K
R6A	B Shaft	$\frac{1}{2}$	63-4399	B-855	A47-3meg-S	Q17-140	U59	Base, Note 1
R7A	1meg	$\frac{1}{2}$	63-4399	Not Req.	FS-3	Not Req.	Not Req.	Treble, Note 2
R8A	5meg	$\frac{1}{2}$	63-4012	B-70	A47-1meg-Z	Q17-137	U53	Fringe Lock
R9A	3meg	$\frac{1}{2}$	63-4026	Not Req.	FS-3	Not Req.	Not Req.	Focus
R10A	10K	$\frac{1}{2}$	63-4095	AB-87	A47-5meg-Z	BU-141	PTA56L	AGC Delay
R11A	7.5meg	$\frac{1}{2}$	63-2919	AK-1	FKS-1/4	TM-1	TA36L	Vert. Ltn.
R12	B Shaft	$\frac{1}{2}$	63-3284	AK-1	FKS-1/4	SK-2	Not Req.	Vert. Size
	750K	2(WW)		AK-1	A47-1500-S	BU-109	PTA152L	
				AK-1	FKS-1/4	SK-2	Not Req.	
				AB-89	A47-7.5meg-S	Q11-142	PTA855L	
		</						

Note 1. Alternate Part #63-4013 may be used in Models B2329R, B2330E, R, B2335, E, R, B3012, H, R, B3013H, B4012H, R.

Note 2. Alternate Part #63-4014 may be used in Models B2329R, B2330E, R, B2335, E, R, B3012H, R, B3013H, B4012H, R.

RESISTORS

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

ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R13	2.2meg		63-1926	
R14	680K		63-1911	
R15	1meg		63-1785	
R16	1000K		63-2848	
R17	22K		63-2848	
R18	22K		63-1792	
R19	1500K		63-1733	
R20	56K		63-1873	
R21	120K		63-1873	
R22	120K		63-4008	
R23	33K		63-1715	
R24	22K		63-1757	
R25	220K		63-1757	
R26	3200K	3	63-4098	
R27	120K		63-1747	
R28	120K		63-1803	
R29	2700K		63-1862	
R30	68K		63-4055	
R31	7500K	4	63-1765	
R32	330K		63-4403	
R33	22K	2	63-1918	
R34	1.5meg		63-1889	
R35	100K		63-1855	
R36	47K		63-1852	
R37	39K		63-1708	
R38	15K		63-1810	
R39	3900K		63-1876	
R40	150K		63-1884	
R41	220K		63-1880	
R42	180K		63-1858	
R43	56K 5%		63-1845	
R44	27K	1	63-2149	
R45	470K		63-1890	
R46	330K		63-4080	
R47	3.3meg		63-1869	
R48	100K		63-1884	
R49	15K		63-1884	
R50	22K	2	63-1586	
R51	100K		63-1869	
R52	10K		63-1827	
R53	390K		63-1894	
R54	680K		63-1779	
R55	470K		63-1772	
R56	27K	2	63-4093	
R57	2.2meg		63-1926	
R58	100K		63-1869	
R59	10K		63-1827	
R60	3300K		63-1806	

Note 1. Some versions may use a 1.2meg in this application.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		ZENITH PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1A	1st Video IF	S-43892					
L2A	41.25MC Trap	S-41883					
L3A	47.25MC Trap	S-43443					
L4	2nd Video IF	S-41891	17-4523 *	TV-130 *	6224 *	VF-3 *	
L5	3rd Video IF	S-41898					
L6	Series Peaking Coil	S-41879	19-3075	TV-186	6172		Includes M2
L7	Shunt Peaking Coil	S-43619	19-3180	TV-184	6180	VP-5	81 Microhenries
L8	RF Choke	S-21888	19-1004	BC-565	4810		6.7 Microhenries
L9	Shunt Peaking Coil	S-16011	19-3250	TV-185	6181	VP-8	250 Microhenries
L10	Series Peaking Coil	S-43618	19-3180 *	TV-184 *	6180 *	VP-5 *	170 Microhenries, wound on 5600K resistor
L11	1st Sound IF	S-42153			TV-120		
L12	2nd Sound IF	S-42054			TV-149 *		
L13	Quadrature Coil	S-19020	20-1005 *	TV-121 *	1480 *		
L14	RF Choke	S-22777	19-1005	BC-566	4612		10.4 Microhenries

* Parallel with 5600K resistor. * Remove 470mmf capacitor (C35) from circuit. * Drill new mounting hole.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.	REPLACEMENT DATA					NOTES
		ZENITH PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L15	165K	S-19743		TV-169	6324		Horiz. Freq. tapped @ 65K

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				
	CURRENT (Measured)	DC RES.	INDUCTANCE (0.1 CURR 1000 μ H)	ZENITH PART No.	Holldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.
L16	.280A	52K	1.4 Hy.	95-1559	C5087	C-2996		C-2326

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	8"	PM	6-8K	49-827 ①②	8A21Z6.4 ②	① Two used in Models B2330E, EU, EUD, R, RU, RUD, B2335, E, EU, EUD, R, RU, RUD, U, UD. One used in Models B2329R, EU, EUD, R, RU, RUD. ② Parallel and phase. ③ Used in Model B2329R, EU, EUD, R, RU, RUD. ④ Used in Models B2358E, EU, EUD, R, RU, RUD, B3010E, H, R, B3014H, R. ⑤ Two used in Models B2359, E, EU, EUD, U, UD, B2360M, MU, MUD, R, RU, RUD, B3011, E, Y, B4007E, R. ⑥ Two used in Models B2358E, EU, EUD, R, RU, RUD, B2359, E, EU, EUD, U, UD, B2360M, MU, MUD, R, RU, RUD, B3010E, H, R, B3011, E, Y, B3012H, R, B3013H, B4007E, R, B4012H, R.
SP2	8"	PM	6-8K	49-827 ①②	8A21Z6.4 ②	
	5 1/4"	PM	6-8K	49-831 ③		
		PM		49-832 ④		
		PM		49-831 ⑤		
		PM		49-830 ⑥		
	3" x 4"	Electrostatic		S-23829 ⑦		

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	ZENITH PART No.	Holldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordorson PART No.	Triod PART No.
T1	117V @ 2.05A	580VCT @ .280A	5V @ 3.8A	95-1561						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @ 10.4A									

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA						
		ZENITH PART No.	Holldorson PART No.	Merit PART No.	Ram PART No.	Rogers PART No.	Stancor PART No.	Thordorson PART No.
T2	Vert. Output	95-1558	Z1900 ①	A-2823	V316 ②		A-8146 ③	A-117X
T3	Yoke-Horiz. (13MH) (90°)-Vert. (42MH)	95-1560	DF606 ③ ④ ⑤	MDF-91 ③ ④ ⑤	Y90F12/47 ③ ④ ⑤		DY-13A ③ ④ ⑤	Y-40 & NW4 ④
	Rear Cover & Centering Device	S-43091						YC-1 & CL-1
T4	Alt. Rear Cover & Centering Device	S-23237						
	Horiz. Output	S-41988				HO-269 ⑤ *		

① Connect as autotransformer. Use 7:1 turns ratio.

② Cut and tape blanking lead.

③ 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.

④ Connect yoke terminal #3 to terminal #3 of T4, yoke terminal #7 to R102, yoke terminal #1 to terminal #1 of T4.

⑤ Connect damping capacitor across yoke terminals #3 and #7.

⑥ Use original rear cover and centering device, and width sleeve.

⑦ Use original mounting bracket.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Holldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordorson Replacement Connections	Triod Replacement Connections
	5					7		
	4					6		
	3					5		
	2					4		
	1					1		
Special Notes						⑦		

⑦ If insufficient width, connect approximately 50mmf @ 4KV MINIMUM across capacitor (C72).

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ZENITH PART No.	Holldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordorson PART No.	
T5	7500K	3-4K	95-1613	Z1112	A-3020 ①	AU-804 ①	A-3849 ①	26S48 ①	S-9X ① Drill new mounting hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			ZENITH PART No.	LITTELFUSE PART No.	BUSS PART No.	FUSE	HOLDER	FUSE
M1	N	7/10A 250V S/B	136-38	62-19	333.600 (N 6/10A-125V-S/B)	348010	N 7/10	HN 1/2 to 3/4

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		ZENITH PART No.	CBS PART No.	SYLVANIA PART No.	
M2	1N64	103-23	1N64	1N295	Video Detector (Pigtall)

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M3	Lamp		#39 VHF Indicator
M4	Lamp		#47 UHF Indicator (UHF Models only)
M5	Tuner	175-107	VHF, With UHF Provisions Ch. 19B20U, UD
M6	Tuner	175-108	VHF Ch. 19B20, Q
M7	Tuner	175-2	UHF Ch. 19B20UD
M8	Width Sleeve Magnet	S-41993	UHF Ch. 19B20U

CABINETS & CABINET PARTS

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

NAME	PART NO.	DESCRIPTION
Safety Glass	192-239	Models B2329R, RU, RUD, B2330E, EU, EUD, B2330R, RU, RUD, B2335, E, EU, EUD, R, RU, RUD, U, UD, B2358E, EU, EUD, RU, RUD, Models B3010E, H, R, B3011, E, Y, B3012H, R, B3013H, B3014H, R, B2359, E, EU, EUD, B2360M, MU, MUD, R, RU, RUD
Safety Glass	192-263	Models B4007E, R, B4012H, R
Safety Glass	192-244	Channel Selector, Models B2329R, RU, RUD, B2330E, EU, EUD, R, RU, RUD, B2335, E, EU, EUD, R, RU, RUD, U, UD, B2358E, EU, EUD, R, RU, RUD, B2359, E, EU, EUD, B2360M, MU, MUD, R, RU, R