


PHOTOFACT* Folder

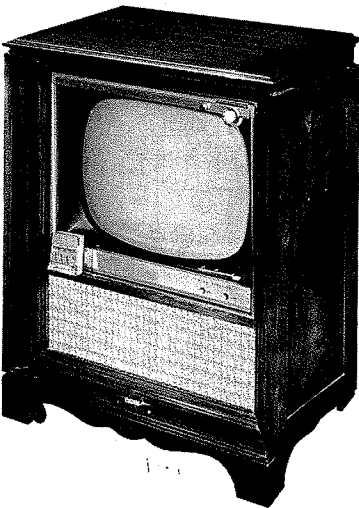


ZENITH CHASSIS 18C20,
Q, U, 18C24Q

DISASSEMBLY INSTRUCTIONS

DISASSEMBLY INSTRUCTIONS MODEL C3014R

1. Remove 5 push-on type knobs from front and one push-on type knob from the rear.
2. Remove 7 wood screws holding rear cover. Remove rear cover.
3. Remove Remote Control plug, Tone control plug, speaker leads and tuner leads.
4. Remove 2 screws holding On-Off Volume control.
5. Remove 2 screws at top left rear of cabinet holding tuner.
6. Remove tuner.
7. Remove 4 chassis.
8. Remove chassis.
9. Remove 3 chassis bolts holding remote control chassis. Remove chassis.



MODEL C3014R (Ch. 18C20Q)

TRADE NAME	Zenith	MODELS	CHASSIS
		C2330E, R, C2358E, R, W, C2359E, W, C2360M, R	18C20
		C2330EU, RU, C2358EU, RU, WU, C2359EU, WU, C2360MU, RU	18C20U
		C3010E, H, R, C3011E, W, Y, C3012H, R, C3013H, C3014H, R	18C20Q
		C4007E, R, C4012H, R	18C24Q
		Remote Control	S-45834
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Avenue, Chicago 39, Illinois		
TYPE SET	Television Receiver with Remote Control		
TUBES	TV: VHF-Eighteen, UHF-Nineteen, Remote Control-Eight		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING	210 Watts, 1.9 Amp. @ 117 Volts AC (While Tuning) 240 Watts, 2.2 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

SAFETY GLASS REMOVAL

Remove 2 screws holding the trim strip at the bottom edge of the safety glass.
Remove "Space Command" control box bracket by pulling straight out.
Tilt glass out and remove.

FUSE

One fuse is used for low voltage power supply protection. (For location, see "Tube Placement Chart".) The Remote Control low voltage power supply also protected by a fuse.

TUNER OSCILLATOR ADJUSTMENTS

To touch-up the VHF Oscillator, it is necessary to remove the rear cover. The adjustments are accessible thru a hole in the rear of the tuner.

AGC

The AGC may be varied by means of an AGC control. (For location, see "Tube Placement Chart".)

FOCUS

The focus may be varied by means of a Focus control. (For location, see "Tube Placement Chart".)

SYNC STABILITY

Sync stability may be varied by means of a Fringe Lock control. (For location, see "Tube Placement Chart".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

The Horizontal Frequency slug is used for the Horizontal Hold. (For location, see "Tube Placement Chart".)

WIDTH

The width may be varied by adjusting a metallic sleeve, located between the yoke and the picture tube neck, in or out of the yoke.

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Buzz control for MINIMUM buzz and maximum sound. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

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.

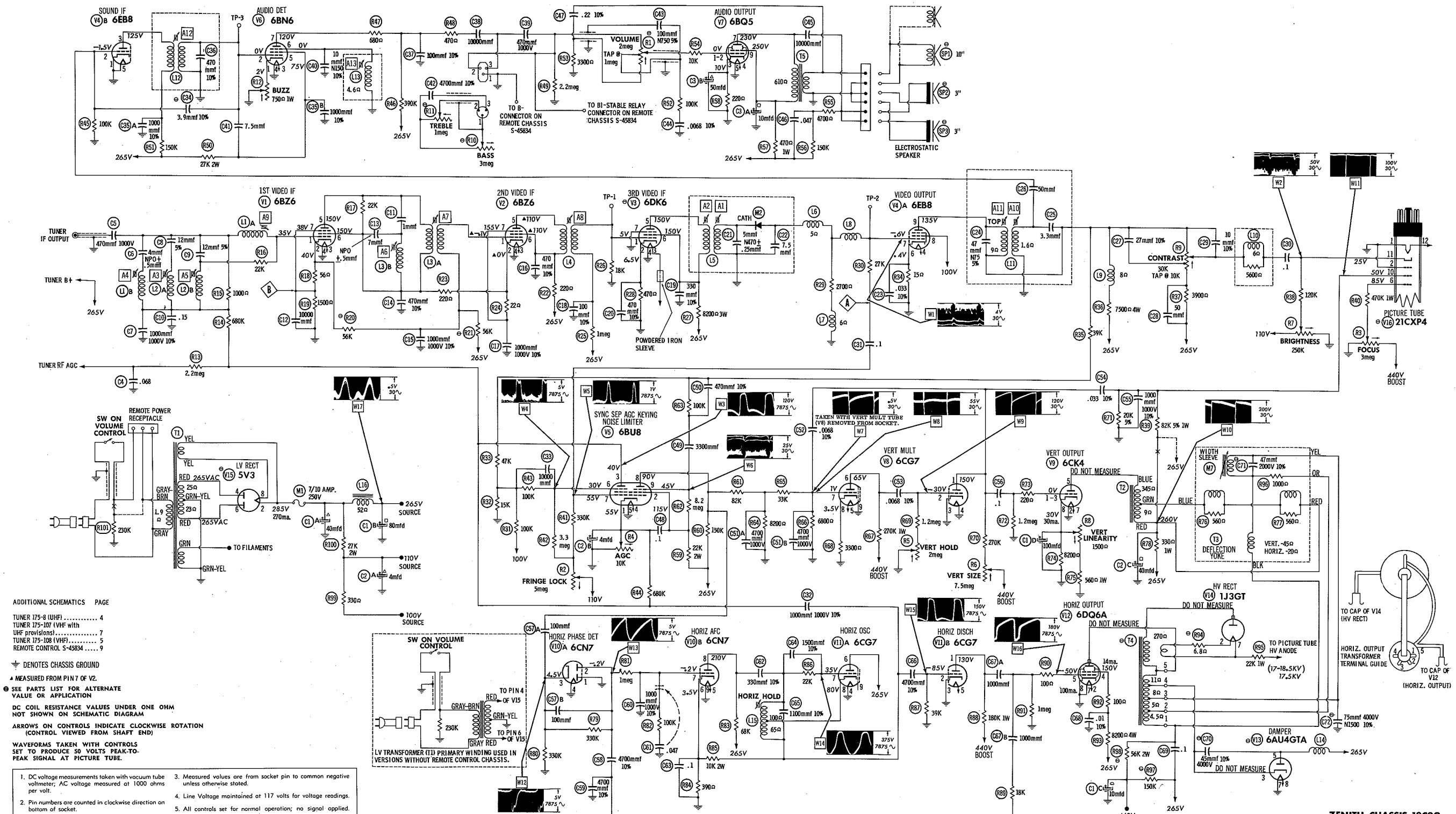
HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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ZENITH CHASSIS 18C20,
Q, U, 18C24Q

FOLDER 2



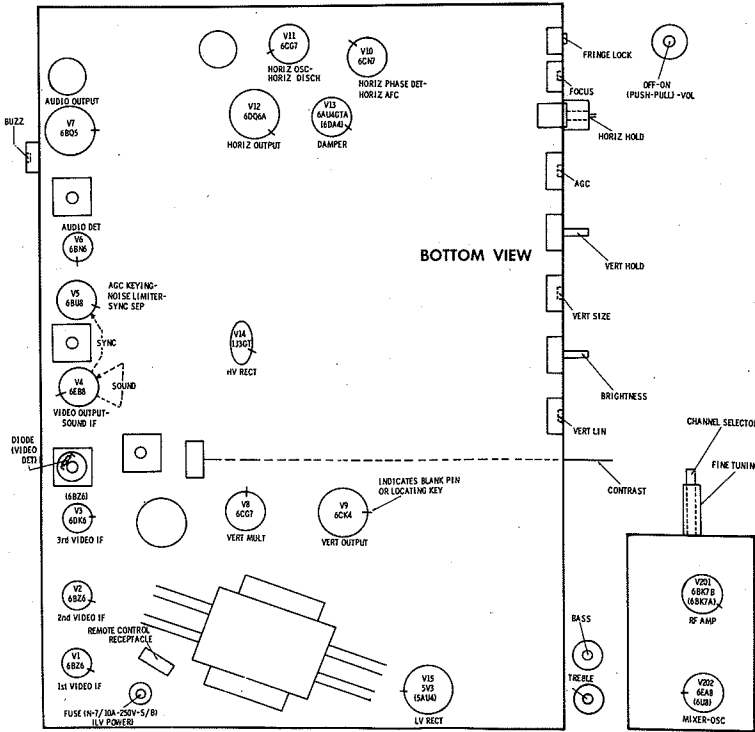
ZENITH CHASSIS 18C20,
Q, U, 18C24Q

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	1500Ω		
V2	6BZ6	35K	▲ 22Ω	.1Ω	0Ω	† 220Ω	† 220Ω	1NF		
V3	6DK6	18K	470Ω	.1Ω	0Ω	† 8200Ω	† 8200Ω	0Ω		
V4	6EB8	0Ω	100K	† 150K	.1Ω	0Ω	15Ω	2700Ω	† 27K	† 6000Ω
V5	6BU8	● 7500Ω	† 22K	680K	.1Ω	0Ω	90K	● † 500K	† 80K	† 8.2meg
V6	6BN6	● 100Ω	.2Ω	.1Ω	0Ω	† 27K	4.6Ω	† 390K		
V7	6BQ5	13K	13K	220Ω	.1Ω	0Ω	NC	† 1100Ω	NC	† 470Ω
V8	6CG7	● † 2.2meg	● 2.5meg	0Ω	0Ω	.1Ω	† 325K	6000Ω	3300Ω	NC
V9	6CK4	1.2meg	0Ω	1.2meg	NC	† 650Ω	NC	.1Ω	● 1000Ω	
V10	6CN7	0Ω	660K	330K	0Ω	.1Ω	390Ω	1.6meg	† 68K	0Ω
V11	6CG7	† 235K	39K	0Ω	0Ω	.1Ω	† 0Ω	32K	10K	NC
V12	6DQ6A	NC	.1Ω	TP	† 8300Ω	1meg	TP	0Ω	0Ω	TOP CAP † 11Ω
V13	6AU4GT	NC	NC	† 250K	NC	† .8Ω	NC	0Ω	.1Ω	
V14	1J3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP † 280Ω
V15	5V3	NC	†	TP	25Ω	NC	23Ω	TP	†	
V16	21CX4	.1Ω	0Ω	PIN 6 ● † 1.2meg	PIN 10 16K	PIN 11 ● 160K	PIN 12 0Ω			
V201	6BK7B	† 950Ω	120K	130K	0Ω	.1Ω	130K	3meg	0Ω	0Ω
V202	6EA8	† 10K	68K	† 68K	.1Ω	0Ω	† 470Ω	0Ω	2200Ω	12K

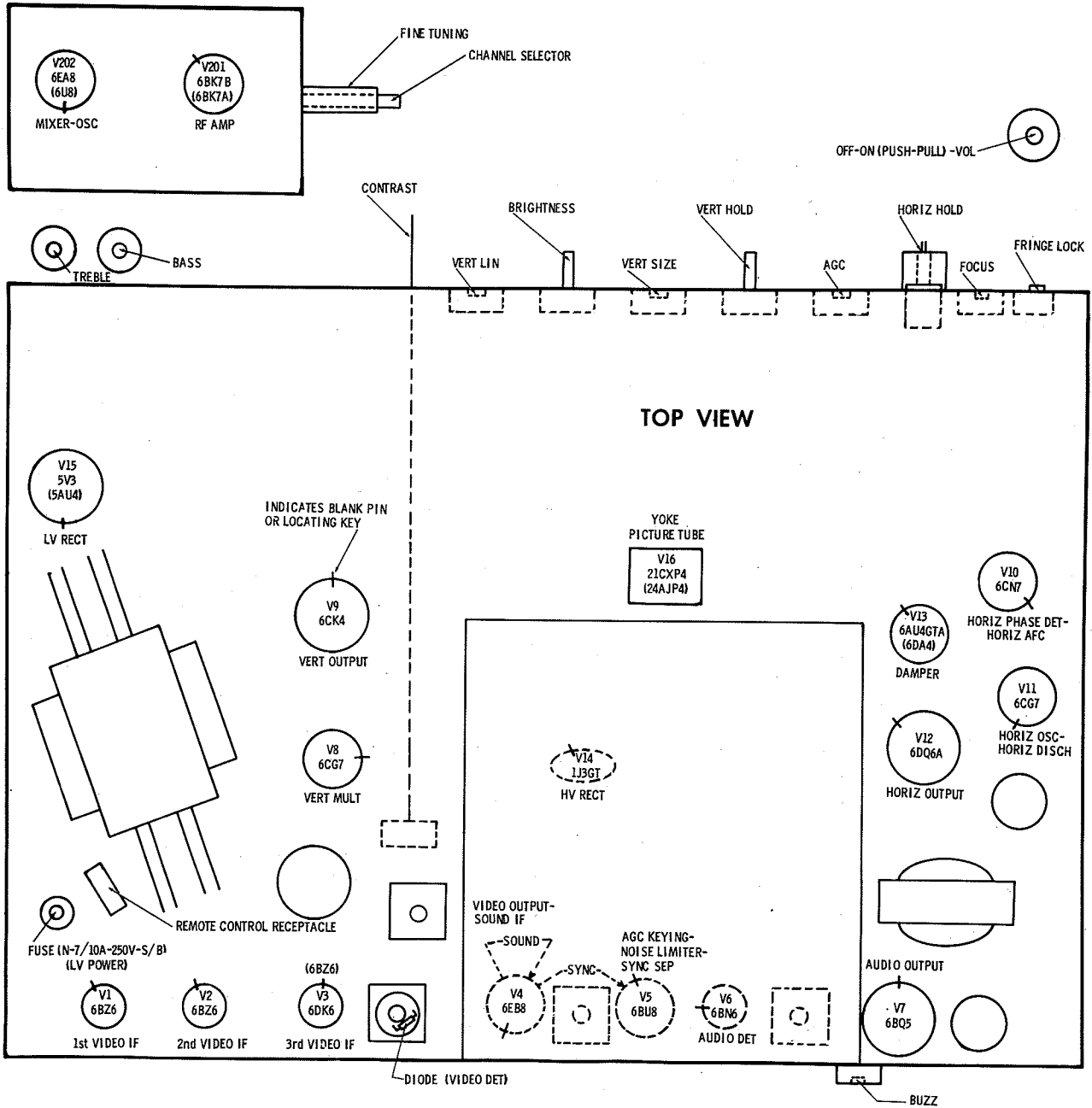
† THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 260V SOURCE.
† MEASURED FROM PIN 3 OF V13.
▲ MEASURED FROM PIN 7 OF V2.

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 indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse (B+), V15

SWEEP FAILURE
No raster, has sound V10, V11, V12, V13, V14, V18
No vertical deflection V8, V9
Poor vert. linearity or foldover V8, V9
Poor horiz. linearity or foldover V11, V12, V13
Narrow picture V11, V12, V13, V15
Vert. off freq. V8
Horiz. off freq. V10, V11

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
No pic, has sound, has raster V4, V16
Has pic, no sound V4, V6, V7
Overloaded picture V5

SYNC FAILURE
No vert. sync V5
No horiz. sync V5, V10
No vert. or horiz. sync V5

ZENITH CHASSIS 18C20,
Q, U, 18C24Q

FOLDER 2

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested alignment tools: Al thru A13... General Cement #8606, 8606L, 8682, 9295
Walsco #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.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1. 470mmf	High side to TP1. Low side to chassis. Connect a 56Ω carbon resistor across sweep output.	44MC (10MC Swp)	39.75MC 41.25MC 45.75MC	Between any two channels	Vert. Amp. thru 10K to TP2. 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 ±.5MC 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 the coils.
2. Direct	High side to ungrounded tube shield floating over Mixer-Osc. 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 TP3 to point B. Use high scope again 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 control the 47.25MC marker.
3. "	"	"	41.25MC 42.75MC 45.0MC 45.75MC	"	"	A7, A8, A9, & Mixer Plate Coil	Remove 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 the high side. Remove clip leads.

SOUND IF ALIGNMENT

Connect an adjustable attenuator between the antenna and the receiver antenna terminals. Tune in a TV station and adjust the attenuator until the signal is below the limiting level of the 6BN6 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 for MINIMUM buzz. If the hiss disappears during alignment, further reduce the signal until the hiss returns.

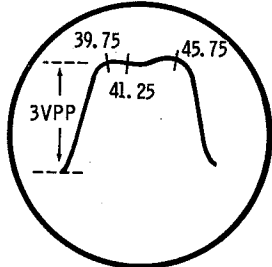


FIG. 1

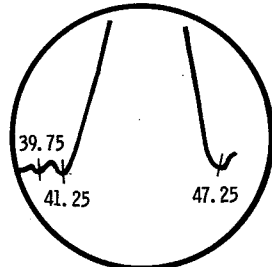


FIG. 2

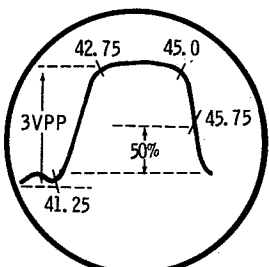
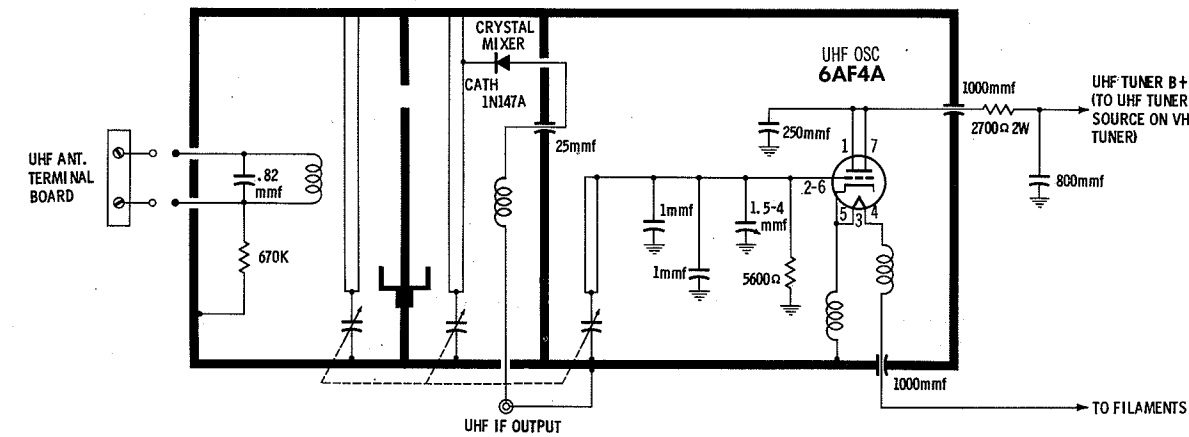
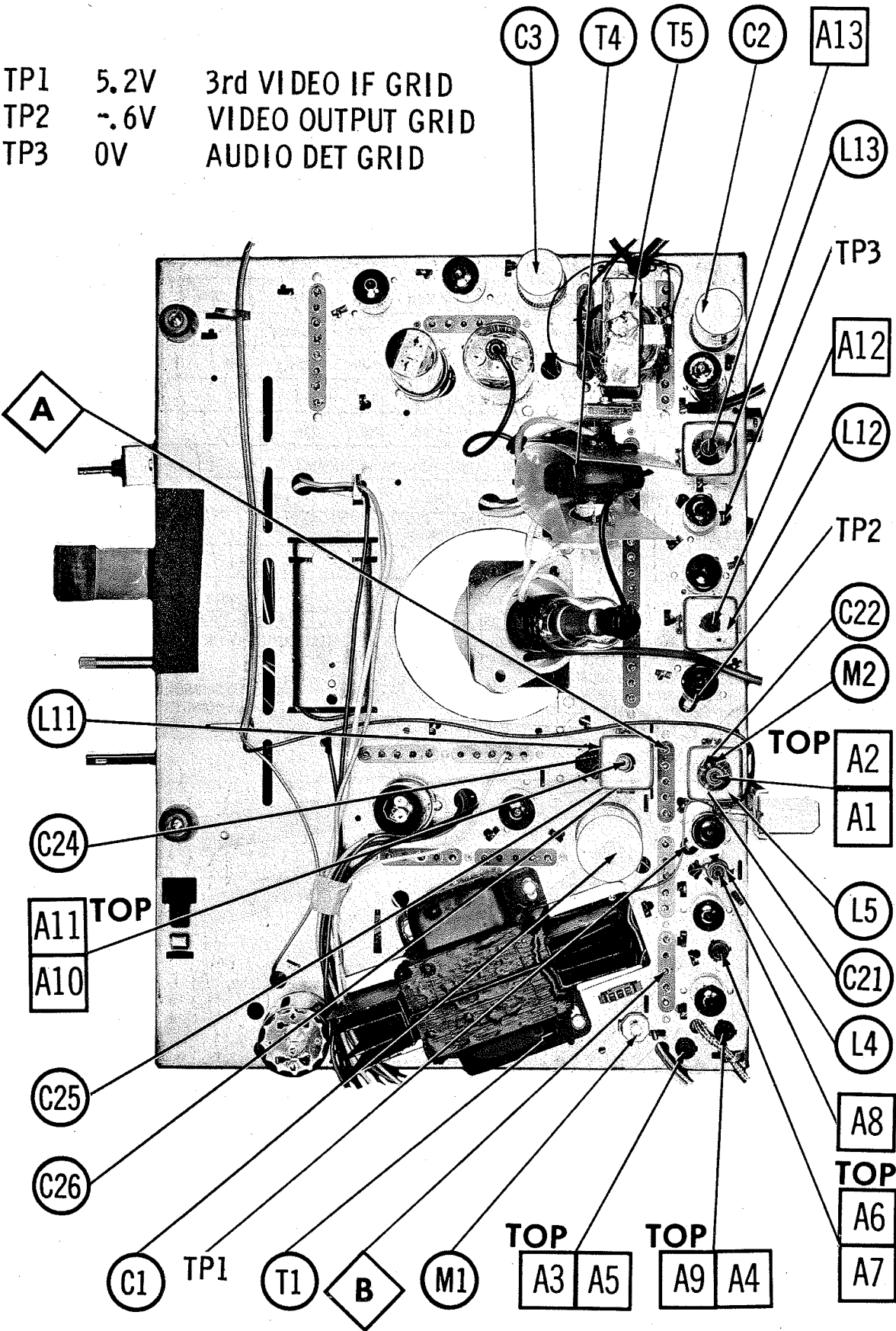


FIG. 3



A PHOTOFAC STANDARD NOTATION SCHEMATIC
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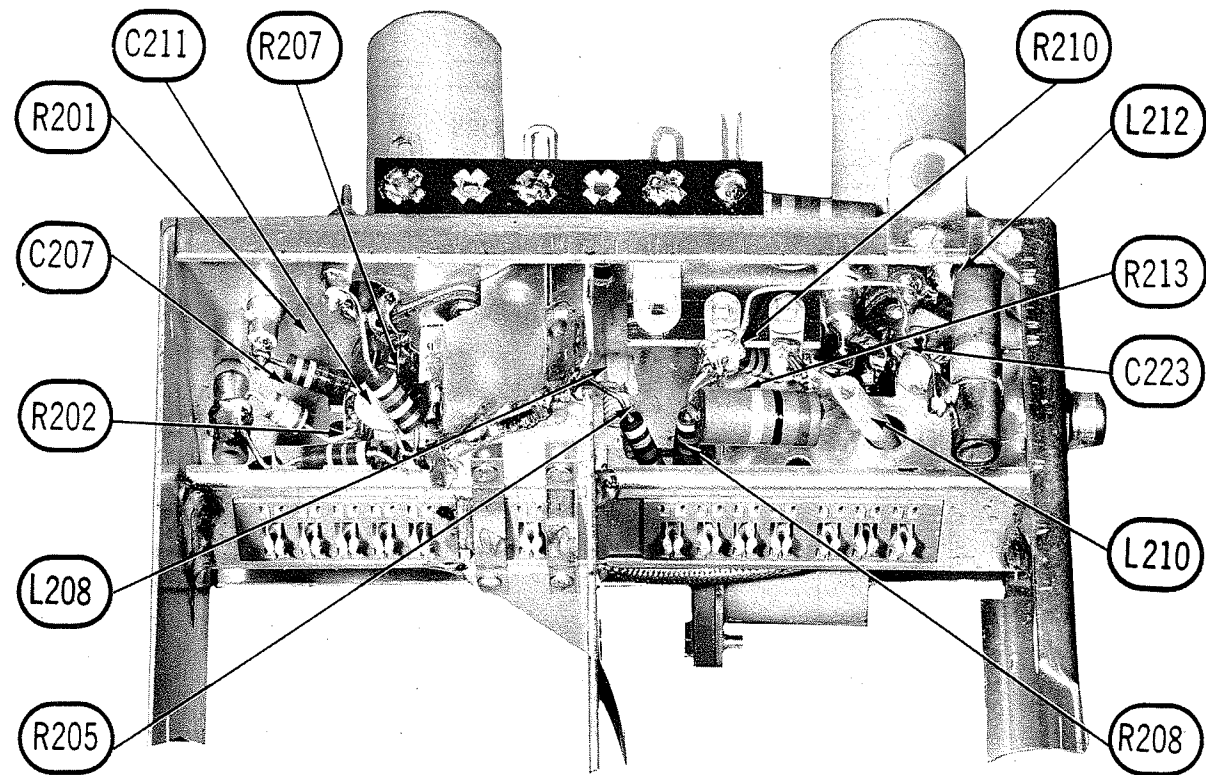
UHF TUNER 175-8



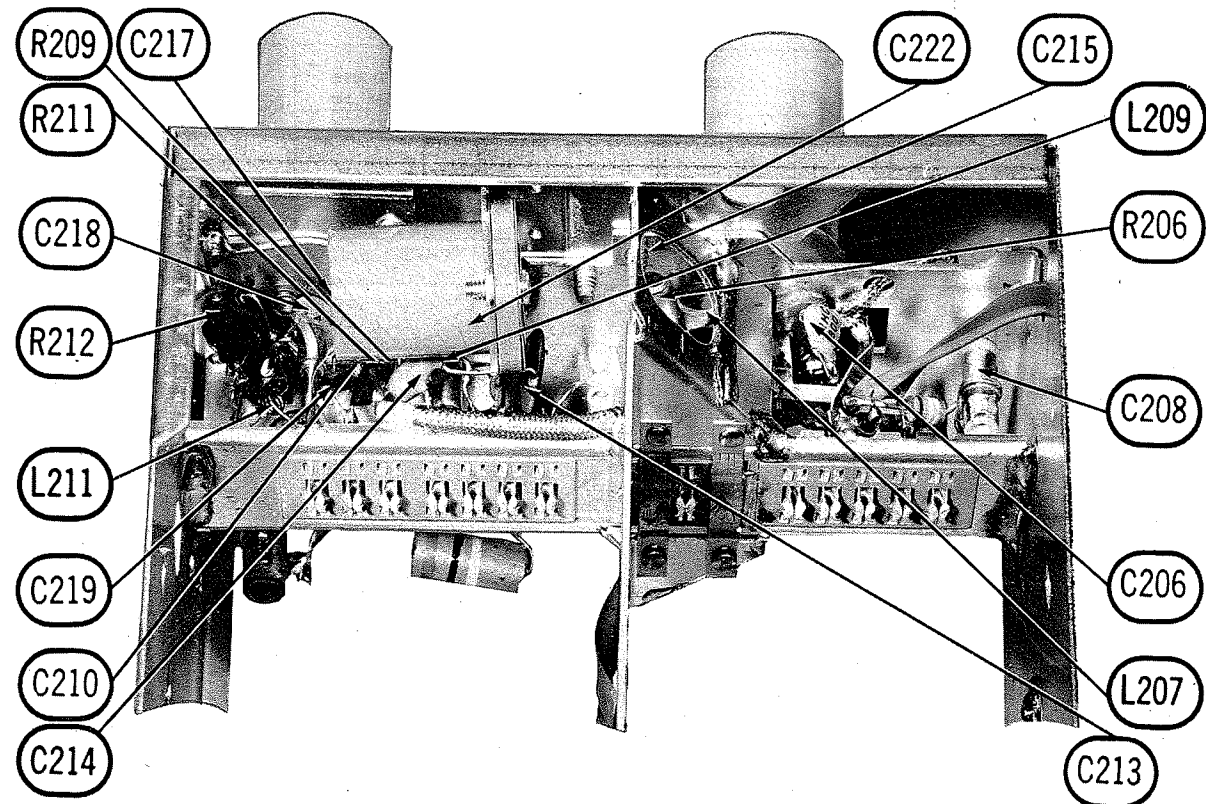
CHASSIS TOP VIEW

ZENITH CHASSIS 18C20,
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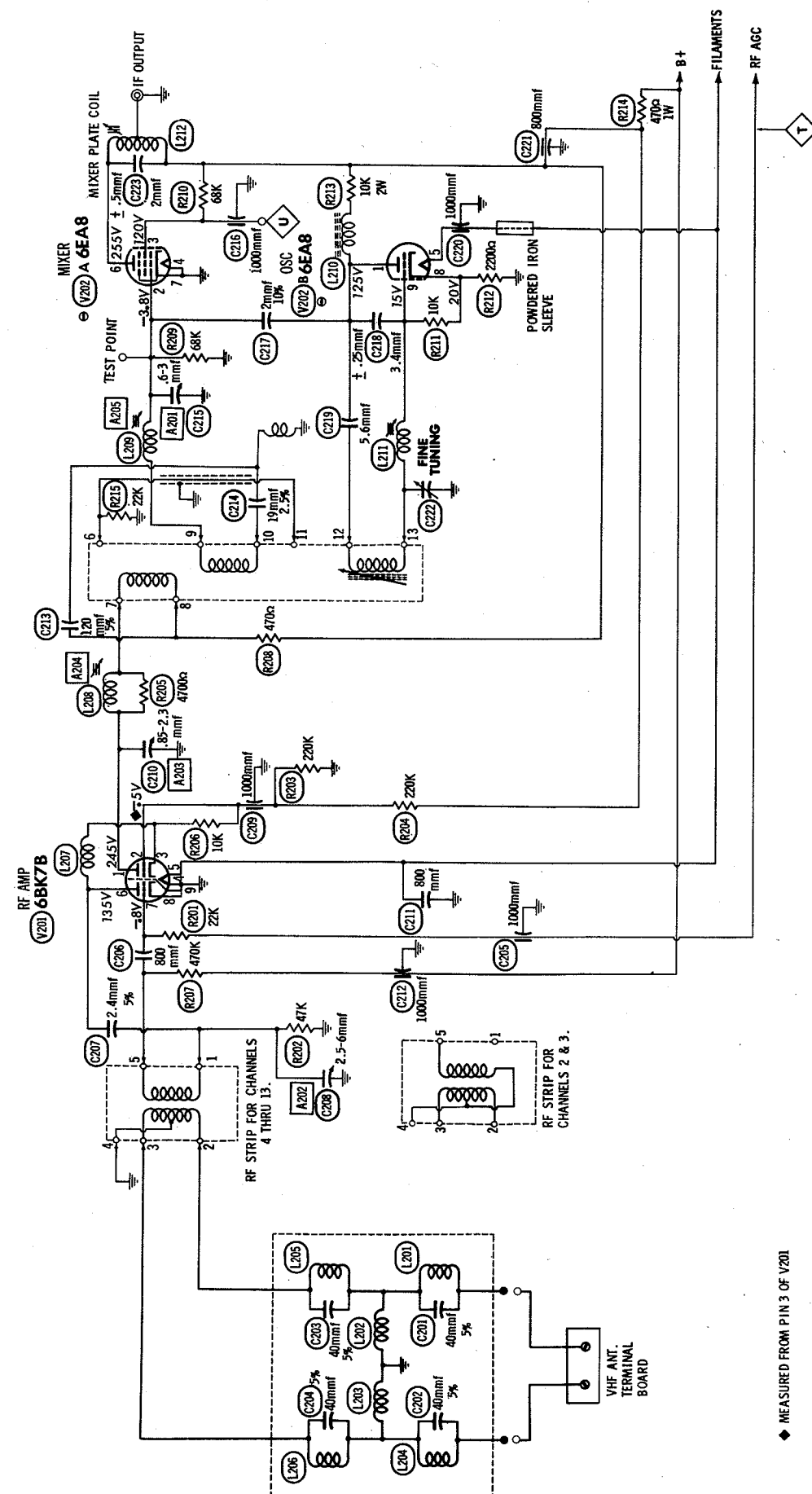
FOLDER 2



TUNER 175-108 - LEFT SIDE



TUNER 175-108 - RIGHT SIDE



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. 50-300 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 1F 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.					

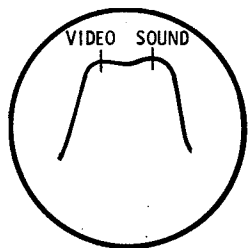


FIG. 201

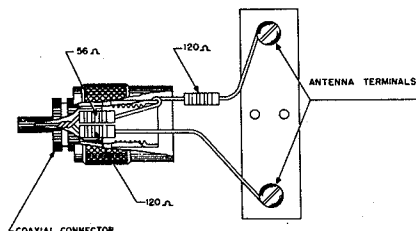


FIG. 202

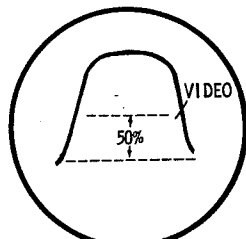


FIG. 203

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		ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
	CAP.	VOLT							
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			503C-D1	
C206	800		22-2331	BPD-0008	DD-801	L10T8		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						$\pm .25\text{mmf}$
C219	5.6		22-2499						$\pm .25\text{mmf}$
C220	1000		22-3018	EF-001	MFT-1000			503C-D1	
C221	800		22-2577						
C222									
C223	2		22-2585						$\pm .5\text{mmf}$

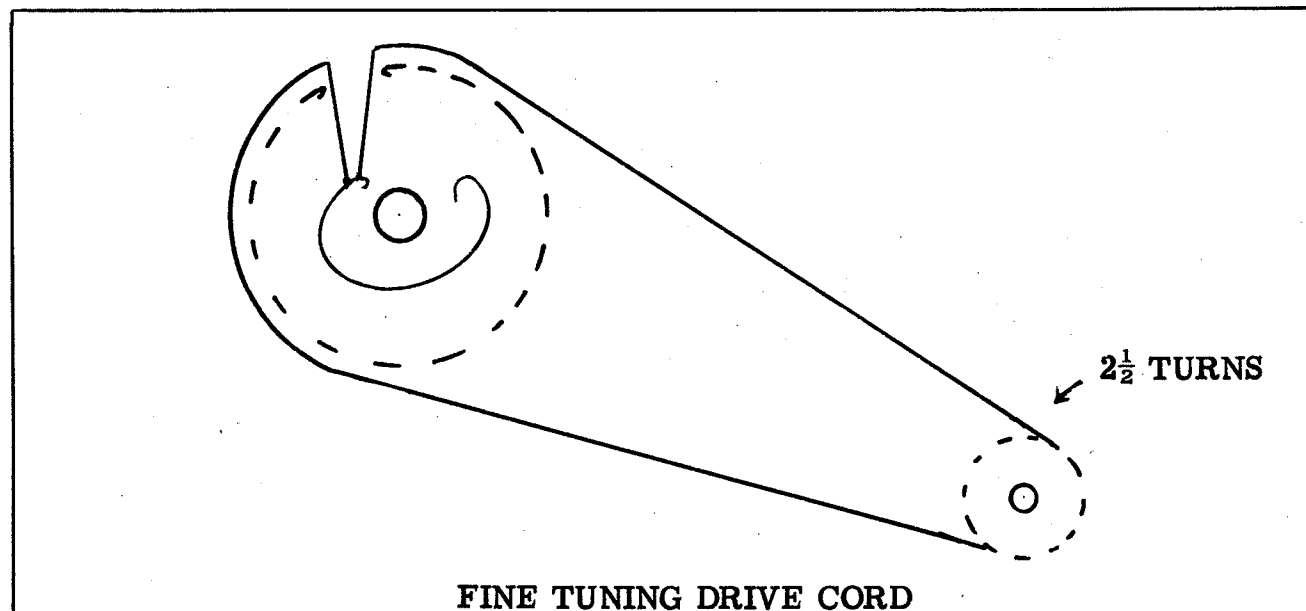
RESISTORS

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)

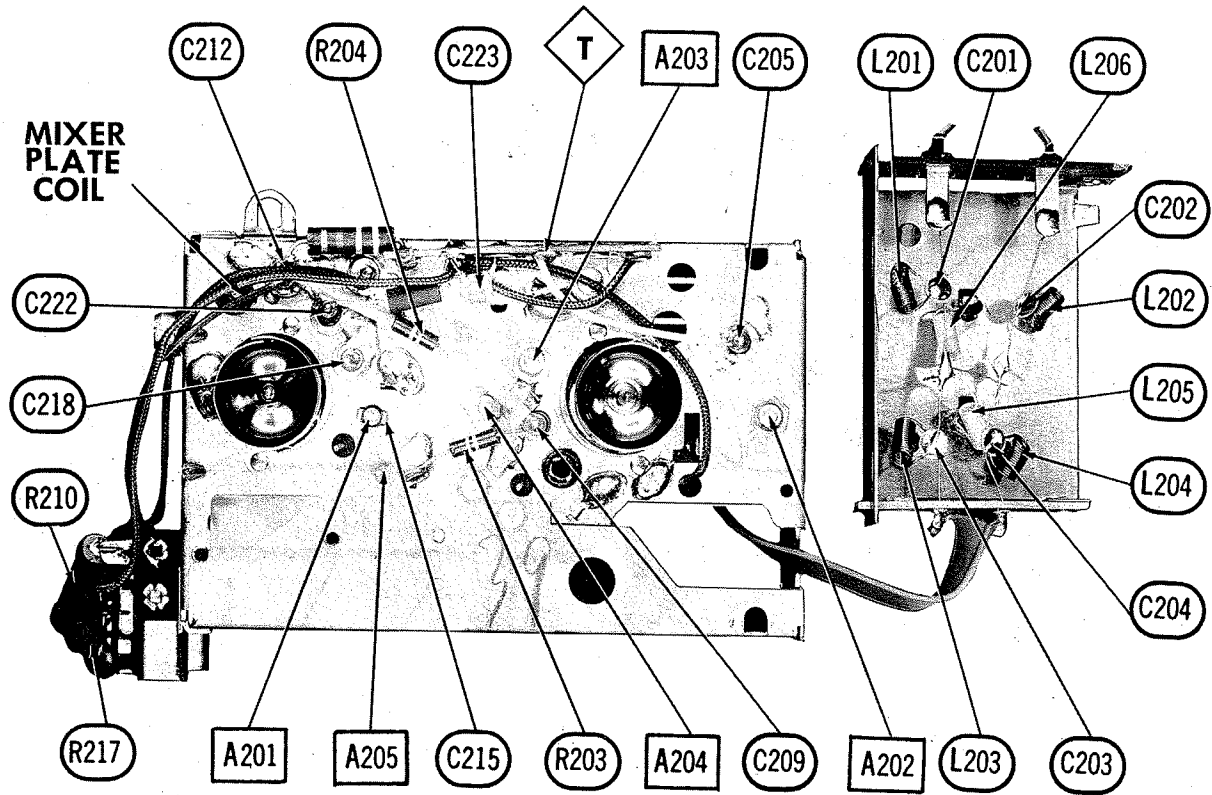
ITEM No.	USE	ZENITH PART No.	NOTES	ITEM No.	USE	ZENITH PART No.	NOTES
L201	IF Trap Coil	20-490		L208	RF Coil	20-537	
L202	IF Trap Coil	20-505		L209	Mixer Grid Coil	20-538	
L203	IF Trap Coil	20-505		L210	RF Choke	S-18859	
L204	IF Trap Coil	20-490		L211	Osc. Coil	20-541	
L205	IF Trap Coil	20-490		L212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



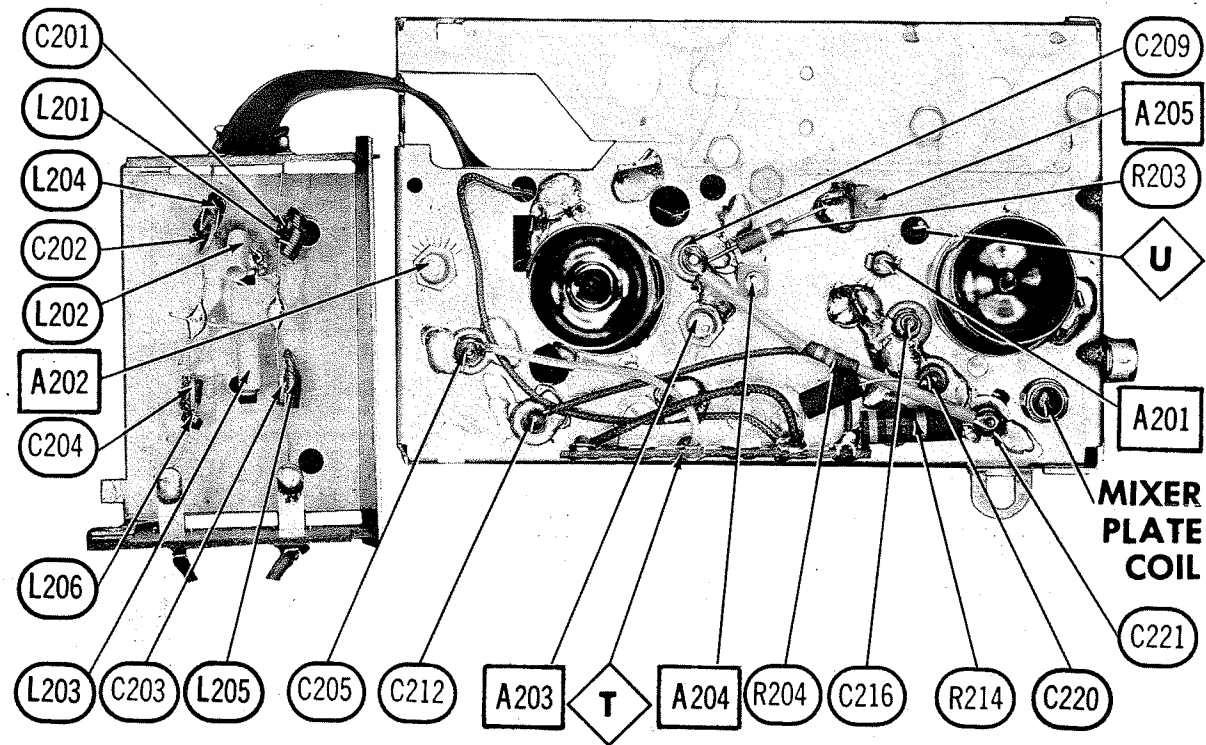
FINE TUNING DRIVE CORD

ZENITH CHASSIS 18C20, Q, U, 18C24Q

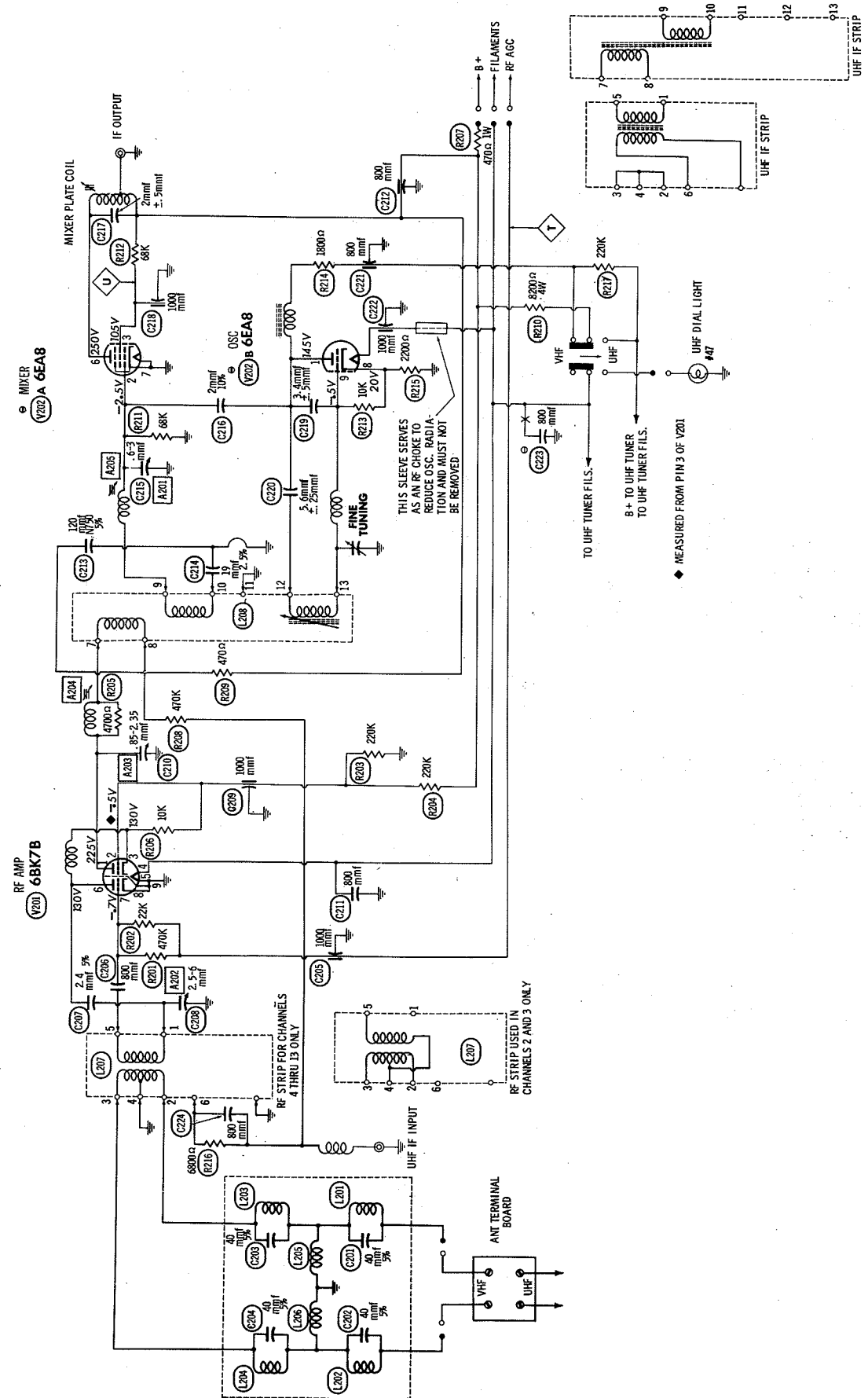
FOLDER 2



TUNER 175-107 - TOP VIEW



TUNER 175-108 - TOP VIEW



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ZENITH CHASSIS 18C20,
Q, U, 18C24Q
VHF TUNER WITH UHF PROVISIONS 101-107

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 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.	MALLORY 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	L10T8	B-382	503C-D1
C206	800		22-2331	BPD-0008	DD-801			5GA-T8
C207	2.4		22-2596					5%
C208	2.5-50		22-2221					
C209	1000		22-3018	EF-001	MFT-1000			503C-D1
C210	.85-		22-2453					
C211	2.35		22-2331	BPD-0008	DD-801	L10T8	B-382	5GA-T8
C212	800		22-2577	EF-001	MFT-1000			503C-D1
C213	120		22-2591			L10T12	CNO-312	5TCU-T12
C214	19		22-2406					N750 5%
C215	.6-3.0		22-2504					2.5%
C216	2		22-2434	NPO-SI 2.2		C10V22C		10%
C217	2		22-2585			C10V22C		±.5mmf
C218	1000		22-3018	EF-001	MFT-1000			503C-D1
C219	3.4		22-2592					±.25mmf
C220	5.6		22-2499					±.25mmf
C221	800		22-2577	EF-001	MFT-1000			503C-D1
C222	1000		22-3018	EF-001	MFT-1000			503C-D1
C223	800		22-2331	BPD-0008	DD-801	L10T8	B-382	5GA-T8
C224	800		22-2331	BPD-0008	DD-801	L10T8	B-382	5GA-T8

① Not used in some versions.

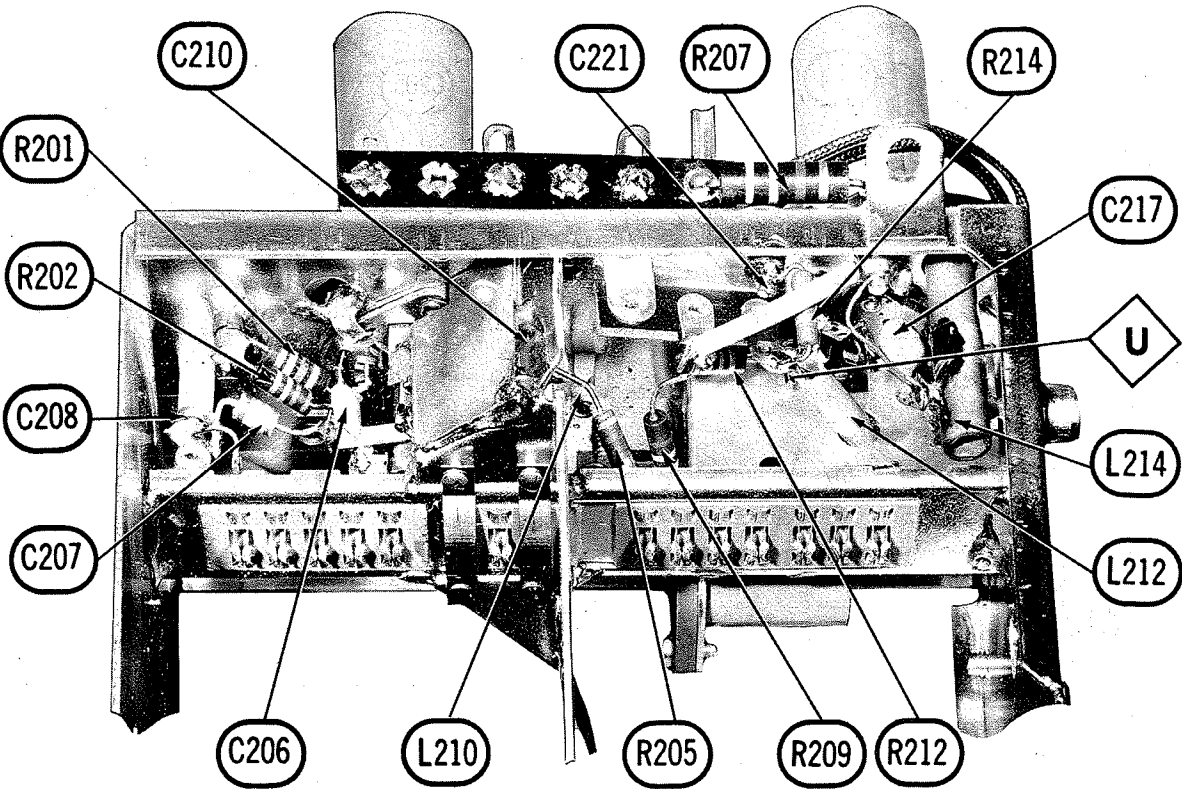
RESISTORS

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

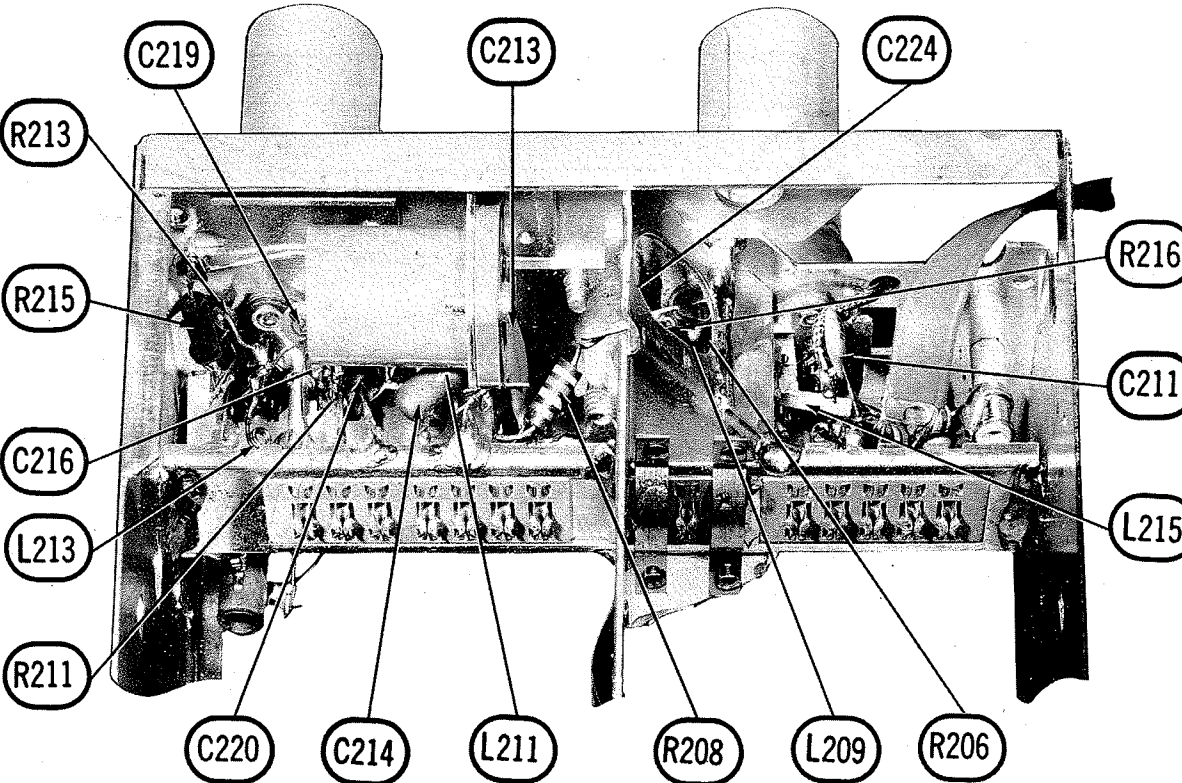
ITEM No.	RATING		ZENITH PART No.	NOTES	ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT				OHMS	WATT		
R201	470K				R210	8200Ω	4	63-3217	
R202	22K				R211	68K			
R203	220K				R212	68K			
R204	220K				R213	10K			
R205	4700Ω				R214	1800Ω			
R206	10K				R215	2200Ω			
R207	470Ω	1	63-2398		R216	6800Ω			
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. Coil	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. Coil	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	M	UHF IF	S-20992	
F	"	S-19847	Channel 7	L209	RF Choke	20-431	
G	"	S-19848	Channel 8	L210	Trap Coil	20-537	
H	"	S-19849	Channel 9	L211	Trap Coil	20-538	
I	"	S-19850	Channel 10	L212	RF Choke	S-18859	
J	"	S-19851	Channel 11	L213	RF Choke	20-541	
K	"	S-19852	Channel 12	L214	Mixer Plate	S-22152	
L	"	S-19853	Channel 13	L215	RF Choke	20-722	
M	UHF IF Input	S-20990					
L208A	RF, Mixer Grid & Osc. Coils	S-21702	Channel 2				
B	"	S-21703	Channel 3				



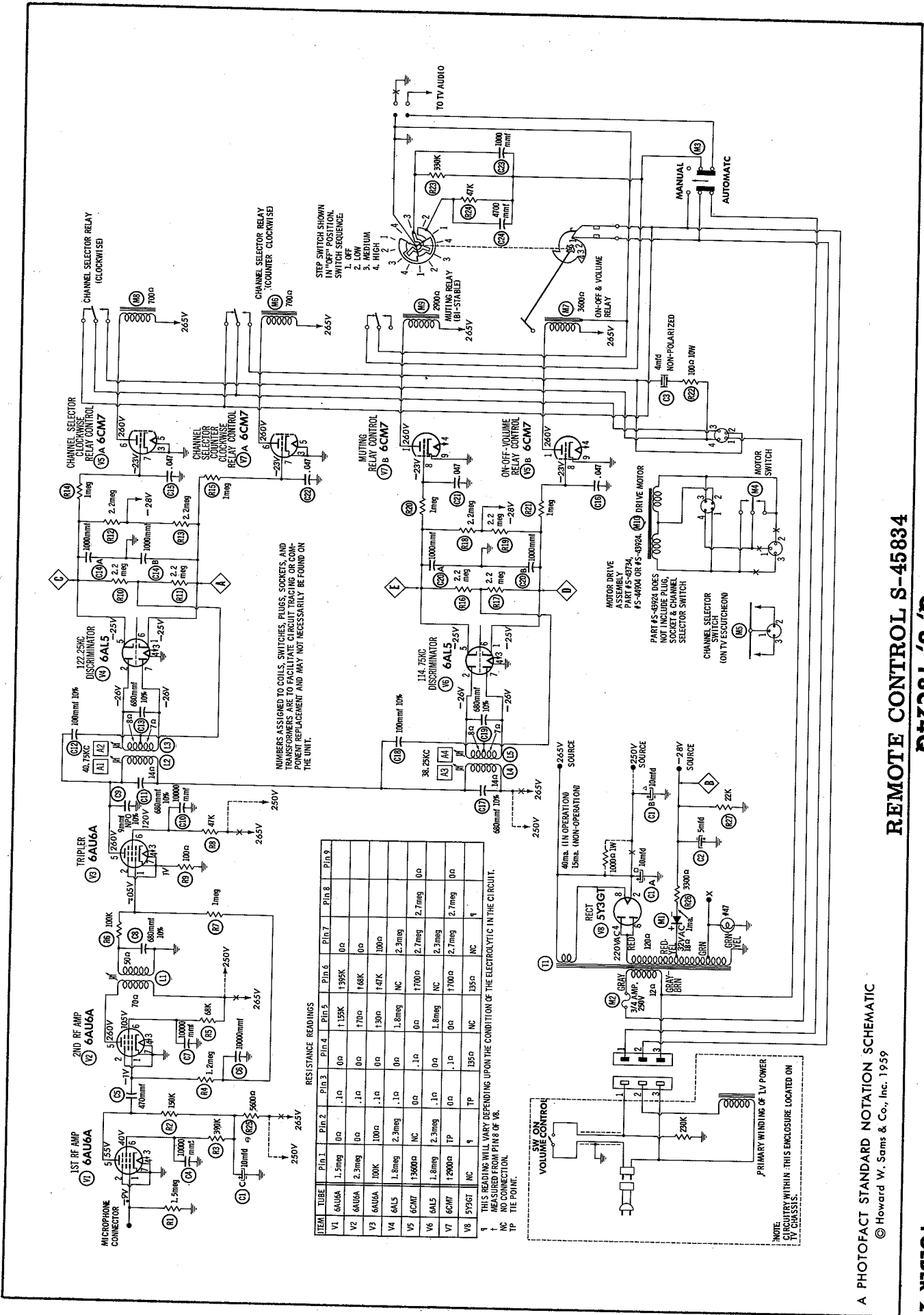
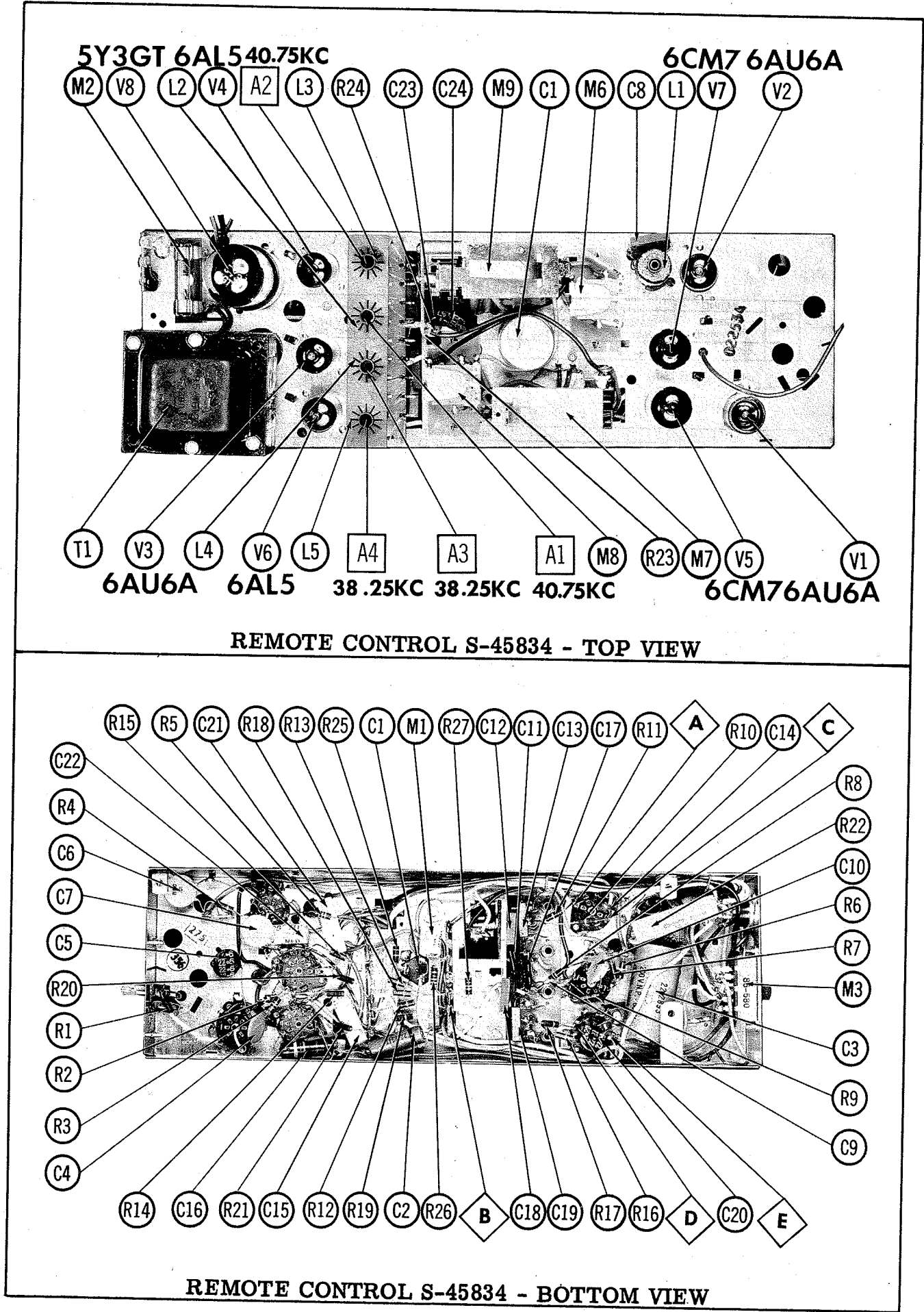
TUNER 175-107 - LEFT SIDE



TUNER 175-107 - RIGHT SIDE

ZENITH CHASSIS 18C20, Q, U, 18C24Q

FOLDER 2



REMOTE CONTROL S-45834
PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	1st RF Amp.	6AU6A	
V2	2nd RF Amp.	6AU6A	
V3	Tripler	6AU6A	
V4	122.25KC Discriminator	6AL5	
V5	On-Off-Volume Relay Control-Channel Selector (CW) Relay Control	6CM7	

ITEM No.	USE	TYPE	NOTES
V6	114.75KC Discriminator	6AL5	
V7	Muting Relay Control-Channel Selector (CCW) Relay Control	6CM7	
V8	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	10	350	22-3074	AFH3-27	C0210	FP330.5	TMT-27	TVL-3690	
B	10	350							
C	10	350							
C2	5	50	22-2941	PRS50V5	BBR5-50	TT50X5	TD-5-50	TVA-1303	
C3	4	200NP	22-2893	NP-PRS450V4	BR845	TC50X		TVAS-1436 *	

† Connect negative leads together.

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

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.	TOL.	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	10000			22-3	BPD-01	DD-103	BYA10SI	B-110	5HK-SI	
C5	470			22-6	BPD-00047	DD-471	BYA10T47	B-347	5GA-T47	
C6	10000			22-3	BPD-01	DD-103	BYA10SI	B-110	5HK-SI	
C7	10000			22-3	BPD-01	DD-103	BYA10SI	B-110	5HK-SI	
C8	680		10% NPO 10%	22-2901	1469-00068	D6-681	IR5T68		MS-368	
C9	9			22-3131						
C10	10000			22-3	BPD-01	DD-103	BYA10SI	B-110	5HK-SI	
C11	680		10%	22-2901	1469-00068	D6-681	IR5T68		MS-368	
C12	100		10%	22-1442	1469-00001	DD-101	22R5T1	MCB235	MS-31	
C13	680		10%	22-2901	1469-00068	D6-681	IR5T68		MS-368	
C14A	1000			22-21	BPD-2X001	DD2-102	BYC6DD1	B-210	5HK-2D1	
B	1000									
C15	.047	200		22-1778	P288N-047	DF-503	CUB2847	GEM-4147	2TM-S47	
C16	.047	200		22-1778	P288N-047	DF-503	CUB2847	GEM-4147	2TM-S47	
C17	680		10%	22-2901	1469-00068	D6-681	IR5T68		MS-368	
C18	100		10%	22-1442	1469-00001	DD-101	22R5T1	MCB235	MS-31	
C19	680		10%	22-2901	1469-00068	D6-681	IR5T68		MS-368	
C20A	1000			22-21	BPD-2X001	DD2-102	BYC6DD1	B-210	5HK-2D1	
B	1000									
C21	.047	200		22-1778	P288N-047	DF-503	CUB2847	GEM-4147	2TM-S47	
C22	.047	200		22-1778	P288N-047	DF-503	CUB2847	GEM-4147	2TM-S47	
C23	1000			22-17	BPD-001	DD-102	BYA10DI	B-210	5HK-D1	
C24	4700			22-14	BPD-0047	DD-472	BYA10D47M	B-247	5HK-D47	

RESISTORS

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

ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R1	1.5meg		63-1919	
R2	150K		63-1876	
R3	390K		63-1894	
R4	1.2meg		63-1915	
R5	68K		63-1862	
R6	100K		63-1870	
R7	1meg		63-1912	
R8	47K		63-1855	
R9	100Ω		63-1744	
R10	2.2meg		63-1925	
R11	2.2meg		63-1925	
R12	2.2meg		63-1925	
R13	2.2meg		63-1925	
R14	1meg		63-1912	

ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R15	1meg		63-1912	
R16	2.2meg		63-1925	
R17	2.2meg		63-1925	
R18	2.2meg		63-1925	
R19	2.2meg		63-1925	
R20	1meg		63-1912	
R21	1meg		63-1912	
R22	100Ω	10	63-3667	
R23	330K		63-1890	
R24	47K		63-1855	
R25	5600Ω			
R26	3300Ω		63-1806	
R27	22K		63-1841	

Note 1. Some versions may use a 2200Ω in this application (Part #63-1800).

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		ZENITH PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	39.5KC Trans.	S-43725						
L2	Discriminator	S-24788						
L3	Discriminator	S-24789						Tapped @ 7Ω
L4	Discriminator	S-24789						
L5	Discriminator	S-24789						Tapped @ 7Ω

REMOTE CONTROL S-45834
PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	ZENITH PART No.	Haldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .50A	220V @ .040A tap @ 32V @ .001A tap @ 6.3V @ 2.8A	5V @ 2A	95-1612						

RECTIFIERS

ITEM No.	RATING		REPLACEMENT DATA					NOTES
	CURRENT (Measured)		ZENITH PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.001A		212-21 ①					① Selenium Type.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			ZENITH PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	.750A 250V S/B	136-41	83-3027	312.750 (3AG-3/4A-250V-S/B)	356001	MDL 3/4	4406

MISCELLANEOUS

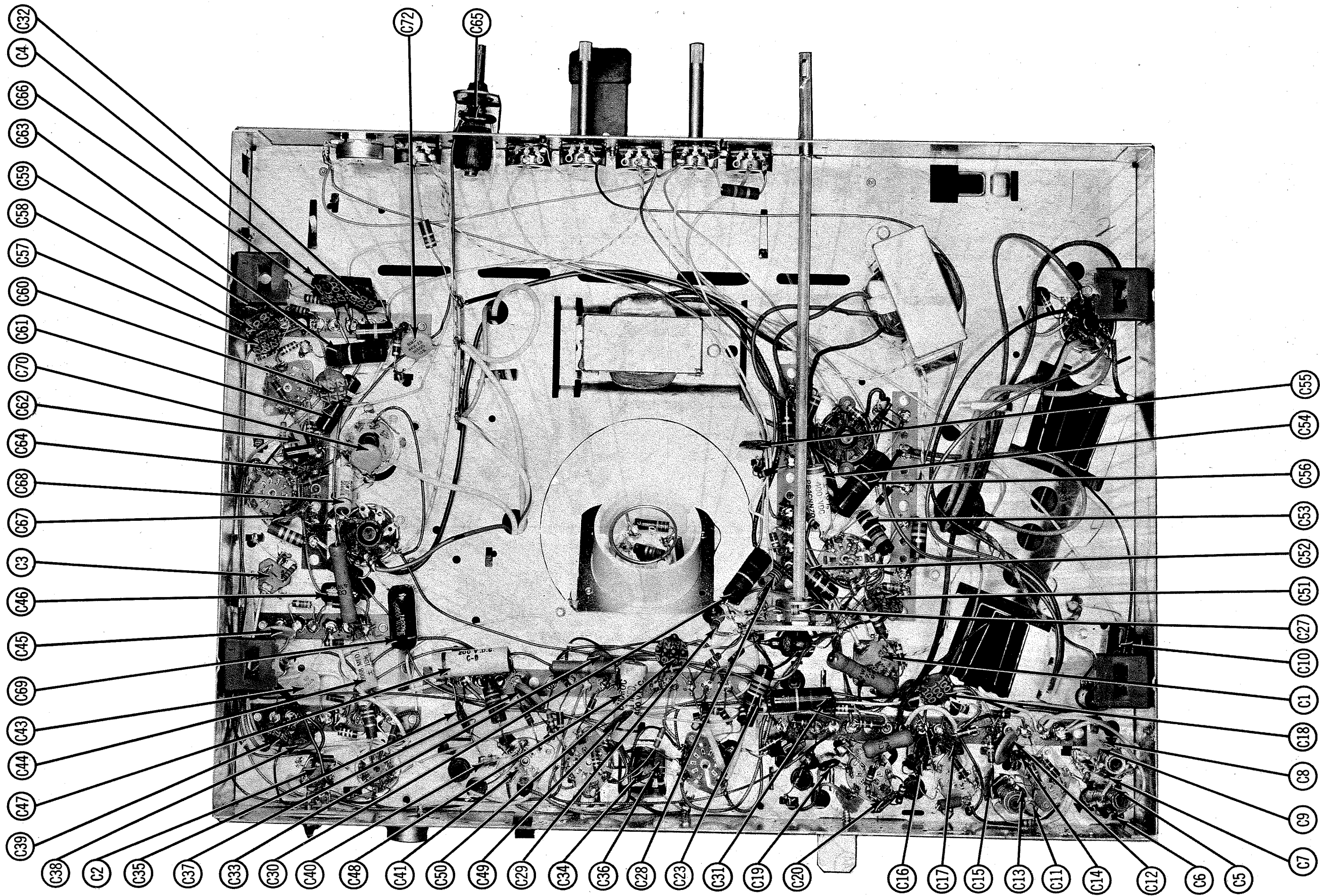
ITEM No.	PART NAME	ZENITH PART No.	NOTES
M3	Switch	85-580	Auto-Manual (DPDT Slide Type)
M4	Switch	S-41498	Motor
M5	Switch	S-44018	Channel Selector (On TV escutcheon)
M6	Relay	195-5	Channel Selector (CCW)
M7	Relay	S-43723	Off-On-Volume (Step, Includes Switches)
M8	Relay	195-5	Channel Selector (CW)
M9	Relay	S-42705	Muting (BI-Stable)
M10	Motor	141-148	
	Microphone Assy.	S-45443	

ALIGNMENT INSTRUCTIONS

REMOTE CONTROL S-45834

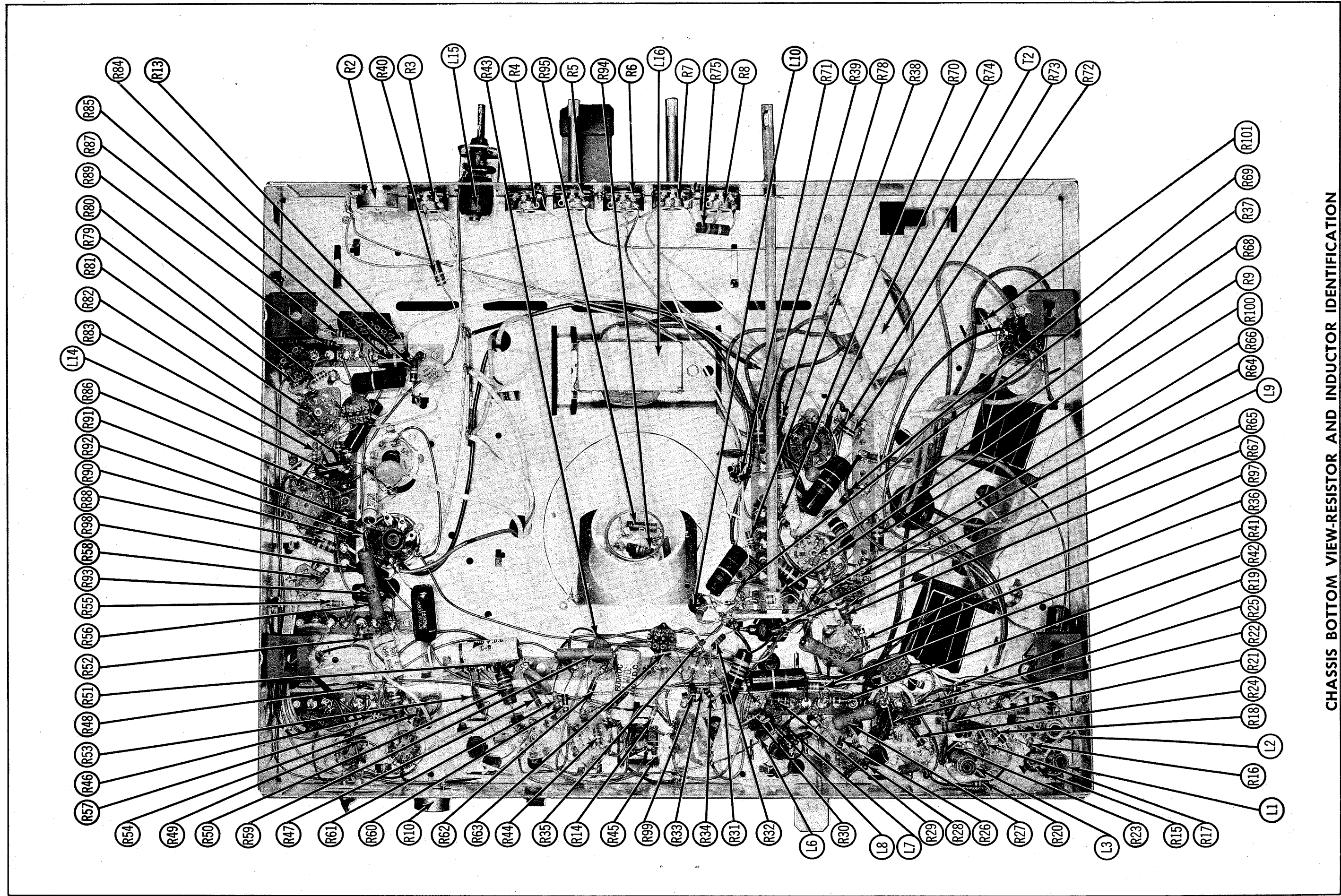
Remove the 2 Relay Control tubes.
Use only enough generator output to provide a usable indication on VTVM.
Suggested Alignment Tools: GENERAL CEMENT #8808, 8806L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1. .01mfd	High side to pin 1 (grid) of 1st RF Amp. Low side to chassis.	40.75KC (Unmod)		DC probe thru 1meg to point Ⓢ. Common to point Ⓢ.	A1	Adjust for maximum deflection.
2. "	"	"		DC probe thru 1meg to point Ⓢ. Common to point Ⓢ.	A2	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
3.	Use transmitter used with unit as signal source. Place approximately 4 inches in front of microphone and repeatedly depress corresponding key to provide the signal. Connect the negative lead of the VTVM to point Ⓢ. While depressing transmitter keep checking voltages at points Ⓢ and Ⓢ. If more than 25% difference retouch A2 SLIGHTLY to bring within tolerance.					
4. .01mfd	High side to pin 1 (grid) of 1st RF Amp. Low side to chassis.	38.25KC (Unmod)		DC probe thru 1meg to point Ⓢ. Common to point Ⓢ.	A3	Adjust for maximum deflection.
5. "	"	"		DC probe thru 1meg to point Ⓢ. Common to point Ⓢ.	A4	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
6.	Using transmitter used with unit as signal source. Place approximately 4 inches in front of microphone and repeatedly depress corresponding key to provide the signal. Connect the negative lead of the VTVM to point Ⓢ. While depressing transmitter keep checking voltages at points Ⓢ and Ⓢ. If more than 25% difference retouch A4 SLIGHTLY to bring within tolerance.					



ZENITH CHASSIS 18C20,
Q, U, 18C24Q
CHASSIS BOTTOM VIEW IDENTIFICATION

FOLDER 2



ZENITH CHASSIS 18C20,
Q, U, 18C24Q
CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	10"	PM	3-4Ω	49-832 ①	10A6A	① Used in Models C2358E, EU, R, RU, W, WU, C3010E, H, R, C3014H, R
SP2	3"	Electrostatic		S-23829 ②		② Two used in all models except C2330E, EU, R, RU, C3012H, R, C4012H, R
SP3	3"	Electrostatic		S-23829 ③		③ Two used in Models C3012H, R, C3013H, C4012H, R
	8"	PM	6-8Ω	49-827 ④	8A21Z6.4	④ Two used in Models C2359E, EU, W, WU, C2360M, MU, R, RU, C3011E, W, Y, C4007E, R
		PM		49-830 ⑤		
		PM		49-821 ⑥		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA			
			ZENITH PART No.		LITTELFUSE PART No.	
			FUSE	HOLDER	FUSE	HOLDER
M1	N	.7A 250V S/B	136-38	62-21	333.750 (N-7/10A- 250V-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		103-23	1N64	1N295	Video Det. (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M3	Tuner	175-108	VHF
	Tuner	175-107	VHF with UHF with UHF provisions
	Tuner	175-8	UHF
M4	Switch	S-41498	Motor Switch Assembly
M5	Switch	S-44018	Channel Selector (On TV Escutcheon)
M6	Motor	141-148	
M7	Width Sleeve		
M8	Magnet	S-46005	Anti-Pincushion (2 used)

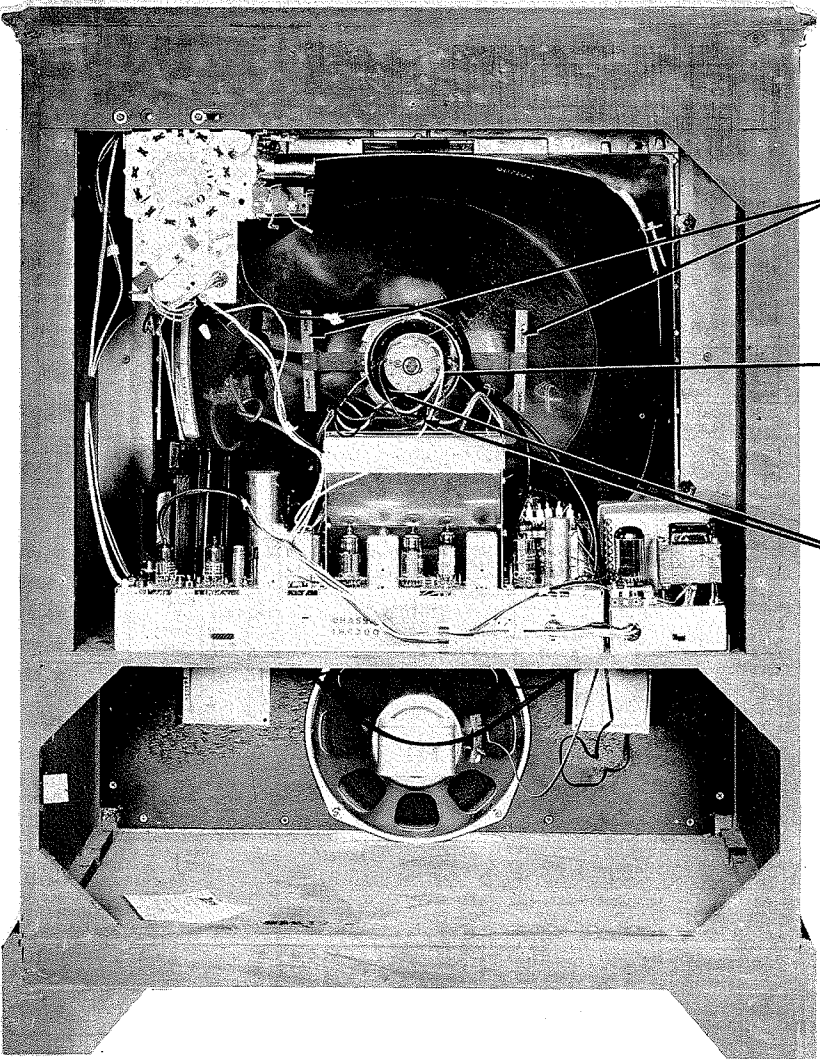
CABINETS & CABINET PARTS

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

NAME	PART NO.	DESCRIPTION
Safety Glass	192-275	Models C2330E, EU, R, RU, C2358E, EU, R, RU, W, WU, C2359E, EU, W, WU, C2360M, MU, R, RU
Safety Glass	192-263	Models C3010E, H, R, C3011E, W, Y, C3012H, R, C3013H, C3014H, R
Safety Glass	192-244	Models C4007E, R, C4012H, R
Knob	S-45712	VHF Channel Selector, Models C2330E, EU, R, RU, C2358E, EU, R, RU, W, WU, C2359E, EU, W, WU, C2360M, MU, R, RU
Knob	46-2003	VHF Channel Selector, Models C3010E, H, R, C3011E, W, Y, C3012H, R, C3013H, C3014H, R
Knob	S-43769	VHF Channel Selector, Models C4007E, R, C4012H, R
Knob	S-45733	UHF Channel Selector, Models C2330E, EU, R, RU, C2358E, EU, R, RU, W, WU, C2359E, EU, W, WU, C2360M, MU, R, RU
Knob	S-43768	VHF Fine Tuning, Models C2330E, EU, R, RU, C2359E, EU, W, WU, C2360M, MU, R, RU, C4007E, R, C4012H, R
Knob	S-43712	VHF Fine Tuning, Models C2358E, EU, R, RU, W, WU
Knob	46-2035	VHF Fine Tuning, Models C3010E, H, R, C3011E, W, Y, C3012H, R, C3013H, C3014H, R
Knob	S-45716	Volume, All Models except C4007E, R, C4012H, R
Knob	46-1970	Volume, Models C4007E, R, C4012H, R
Knob	S-43672	Brightness, Models C2330E, EU, C2360M, MU, R, RU, C3010E, H, R, C3011E, W, Y, C3012H, R, C3013H, C3014H, R, C4007E, R, C4012H, R
Knob	S-41482	Brightness, Models C2330R, RU, C2358E, EU, R, RU, W, WU, C2359E, EU, W, WU
Knob	S-41482	Contrast, All Models except C2330R, RU, C2358E, EU, R, RU, W, WU, C2359E, EU, W, WU
Knob	S-46154	Contrast, Models C2330R, RU, C2358E, EU, R, RU, W, WU, C2359E, EU, W, WU
Knob	S-43672	Vert. Hold
Knob	46-1116	Horiz. Hold
Knob	S-46154	Tone, All Models except C2330R, RU, C2358E, EU, R, RU, W, WU, C2359E, EU, W, WU
Knob	S-45708	Tone, Models C2330R, RU
Knob	S-45852	Tone, Models C2358E, EU, R, RU, W, WU
Knob	S-45809	Tone, Models C2359E, EU, W, WU

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (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



ANTI
PIN
CUSHION
MAGNETS

WIDTH
SLEEVE

CENTERING

CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

The Horizontal Hold knob is equipped with a stop which limits rotation to approximately 270 degrees with the knob on the shaft. To adjust, remove the knob and adjust by turning the shaft until the picture is synchronized to the point where it is virtually impossible to disrupt horizontal synchronization when switching from channel to channel. Install the knob with its pointer centered between the stops.

ZENITH CHASSIS 18C20,
Q, U, 18C24Q

FOLDER 2

