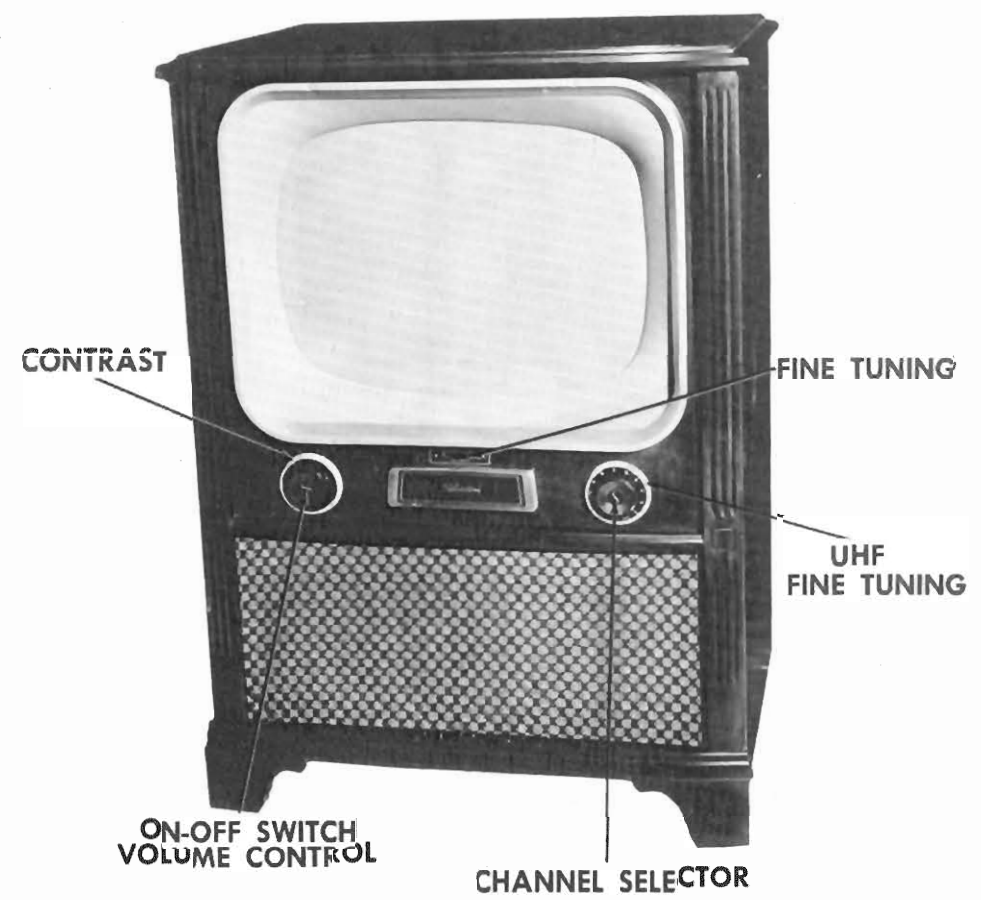


RESISTOR IDENTIFICATION



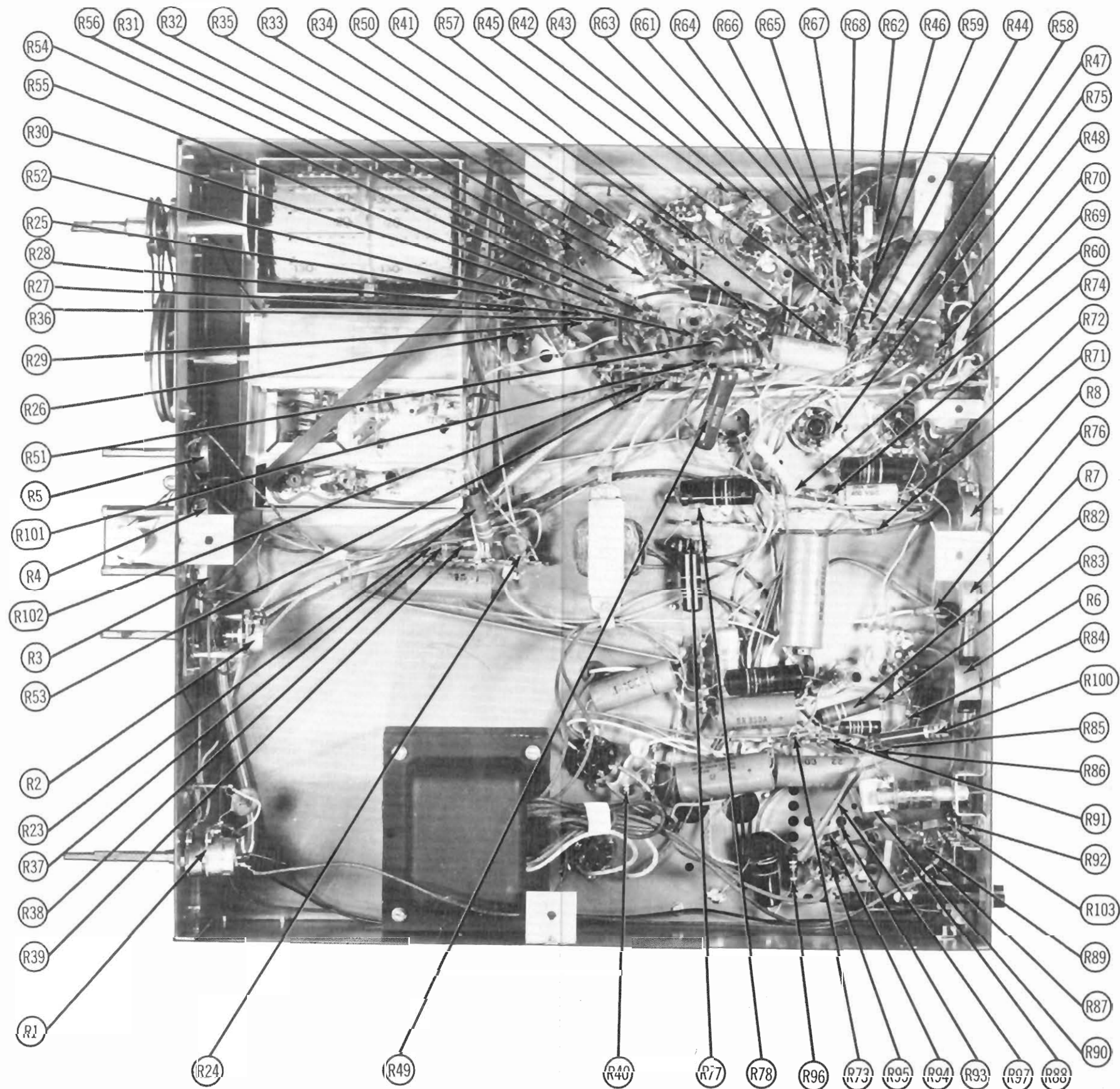
SILVERTONE MODEL 3171A	
TRADE NAME	Silvertone Models 3171A, 4140, 4143, 4145, 4150, 4153, 4155 (Ch. 528.247, -1)
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Ill.
TYPE SET	Television Receiver
TUBES	Twenty-three
POWER SUPPLY	110-120 Volts AC-60 Cycles
TUNING RANGE-	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 26.25MC. Sound IF 21.75MC (Inter-carrier)
RATING 2 Adp. @ 117 Volts AC	
INDEX	
Alignment Instructions	6, 7
Drive Cord String (UHF)	13
Disassembly Instructions	18
Horizontal Sweep Circuit Adjustments	11
Parts List and Descriptions.....	14, 15, 16
Photographs	
Cabinet-Rear View	11
Capacitor Identification	4, 9
Chassis-Top View	3
RF Tuner (UHF)	13
RF Tuner (VHF)	10
Photographs (Cont)	
Resistor Identification	10, 20
Trans. Inductor and Alignment Identification	7
Resistance Measurements	8
Servicing in the Field	18
Schematic	2
Trouble Shooting Aids	12, 17
Tube Failure Check Chart	5
Tube Placement Chart (Bottom View)	8
Tube Placement Chart (Top View)	5

HOWARD W. SAMS & CO., INC. • Indianapolis 5, 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 the particular type of replacement part listed."

"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1953 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

SILVERTONE MODELS 3171A, 4140, 4143, 4145, 4150, 4153, 4155 (Ch. 528.247, -1)



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

CONTRAST

ON-O
VOLUM

TRADE NAME	Silvertone Mo
SUPPLIER	Sears, Roebu
TYPE SET	Television Re
TUBES	Twenty-three

POWER SUPPLY	110-120 Volts
TUNING RANGE-	Channels 2 th

Alignment Instructions

Drive Cord String (UHF)

Disassembly Instructions

Horizontal Sweep Circuit Adjust

Parts List and Descriptions

Photographs

Cabinet-Rear View

Capacitor Identification

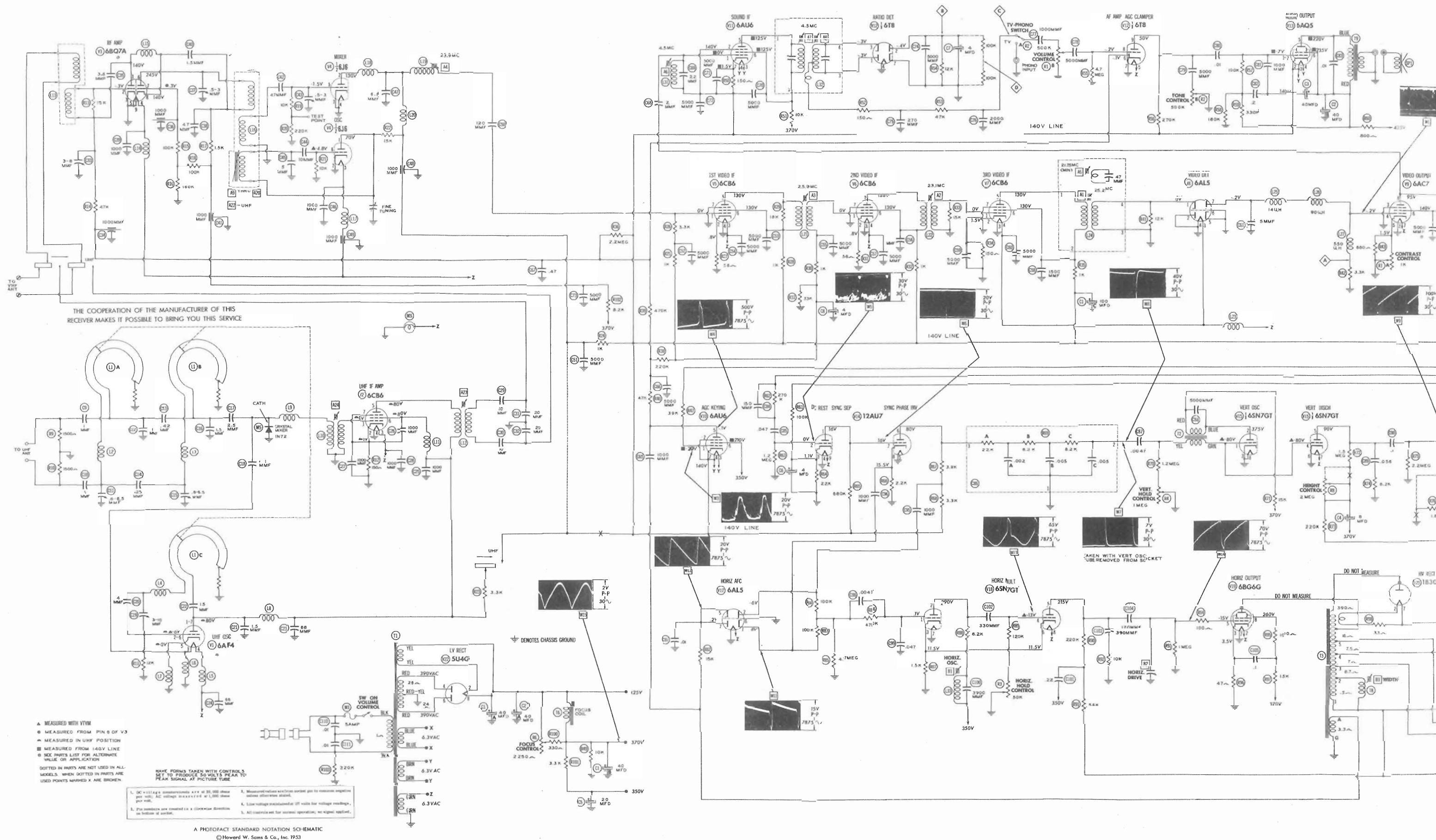
Chassis-Top View

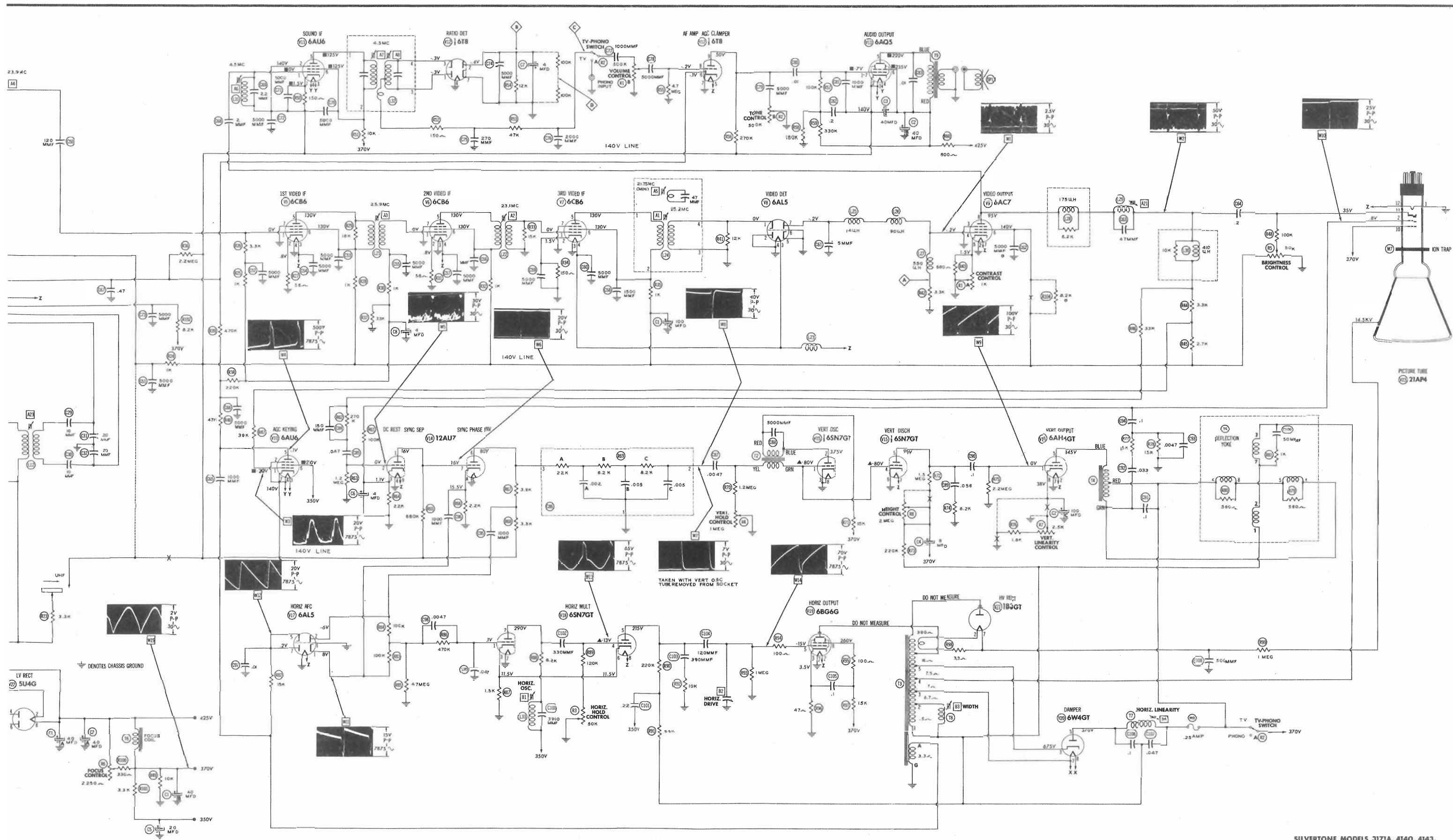
RF Tuner (UHF)

RF Tuner (VHF)

HOWARI

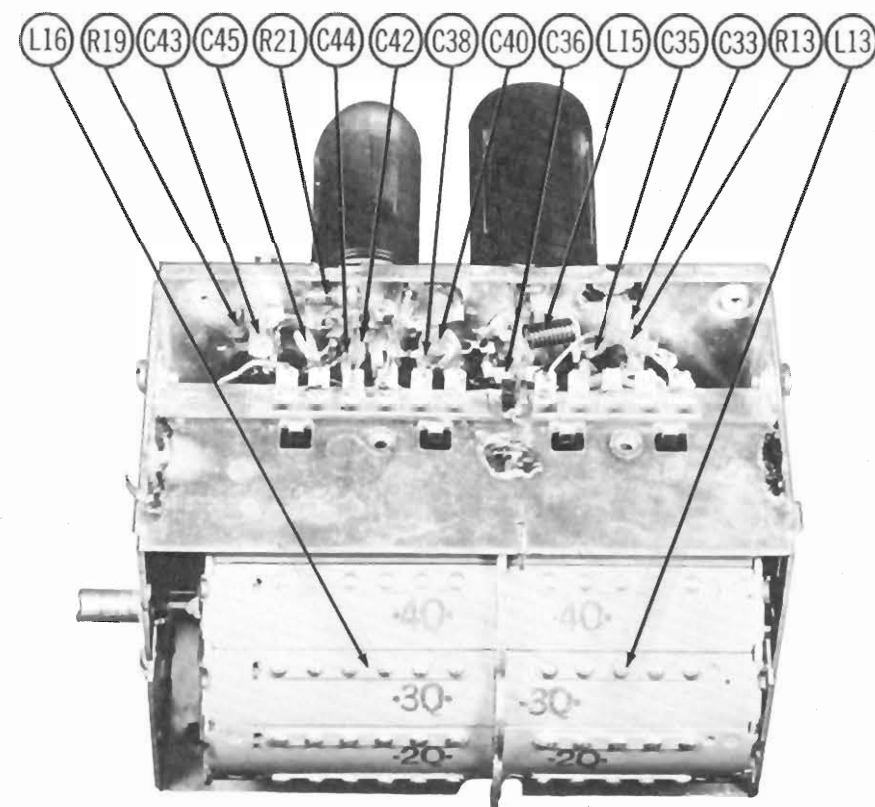
"The listing of any available replacement parts is made as a recommendation, warranty or guarantee as to the quality and suitability of such replacement parts have been compiled from information furnished by the manufacturers of the particular parts." "Reproduction or use, without express permission, is prohibited."



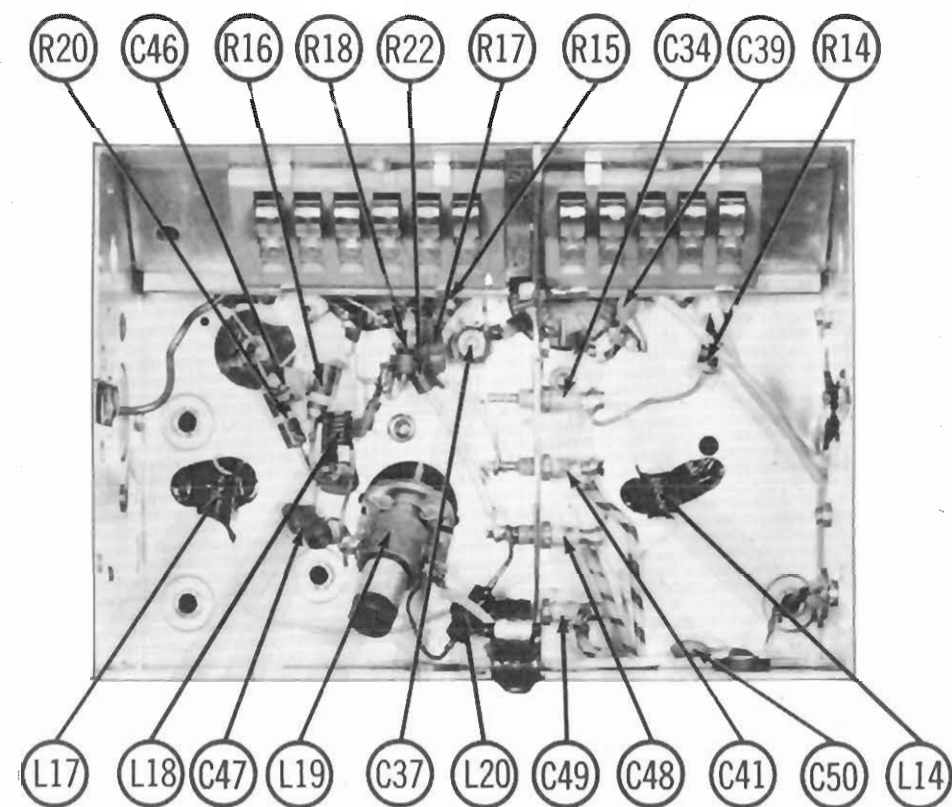


SILVERTONE MODELS 3171A, 4140, 4143, 4145, 4150, 4153, 4155 (Ch. 528.247,-1)

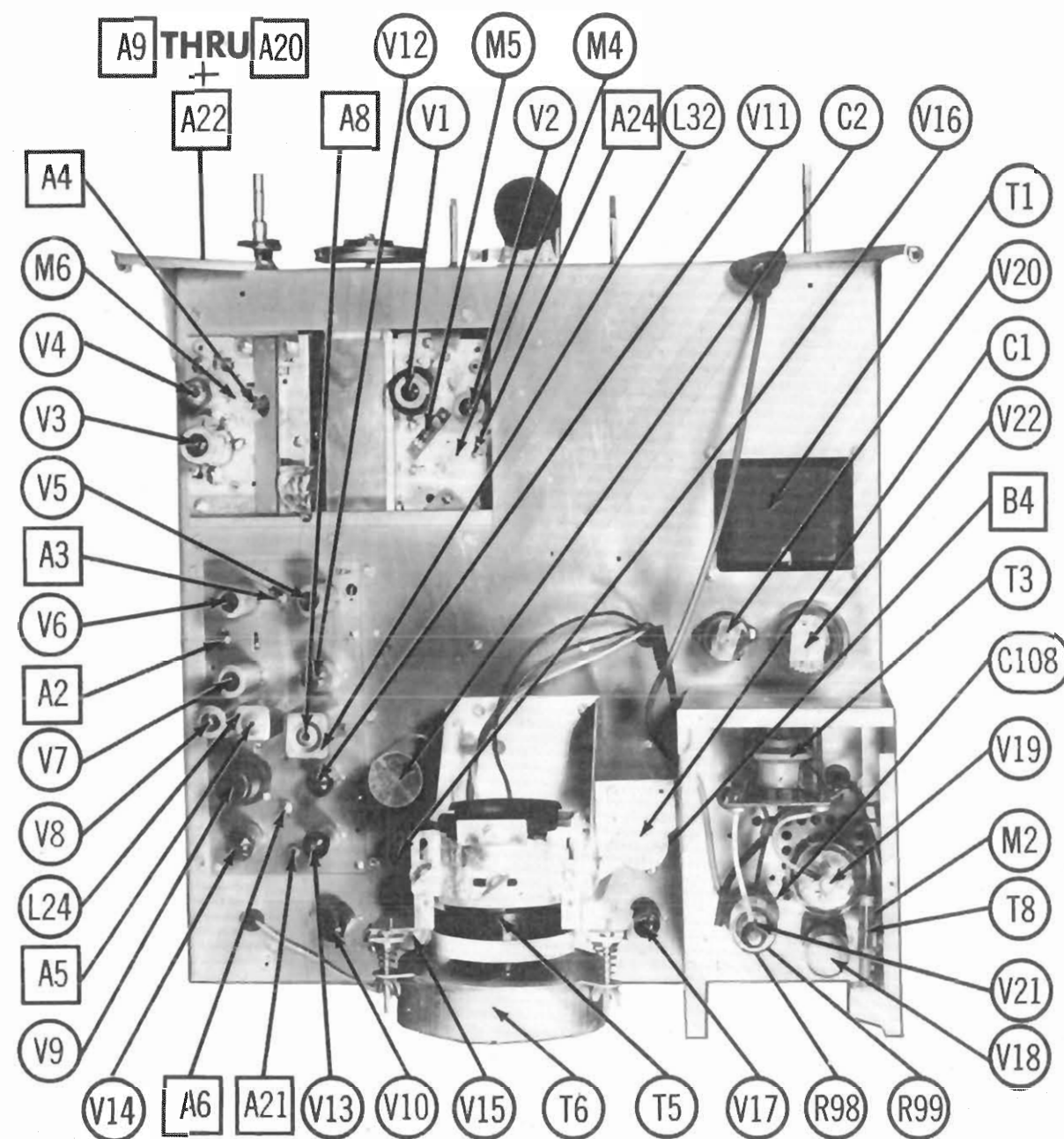
4145, 4150, 4153, 4155 (Ch. 528.247,-1)



RF TUNER-RIGHT SIDE

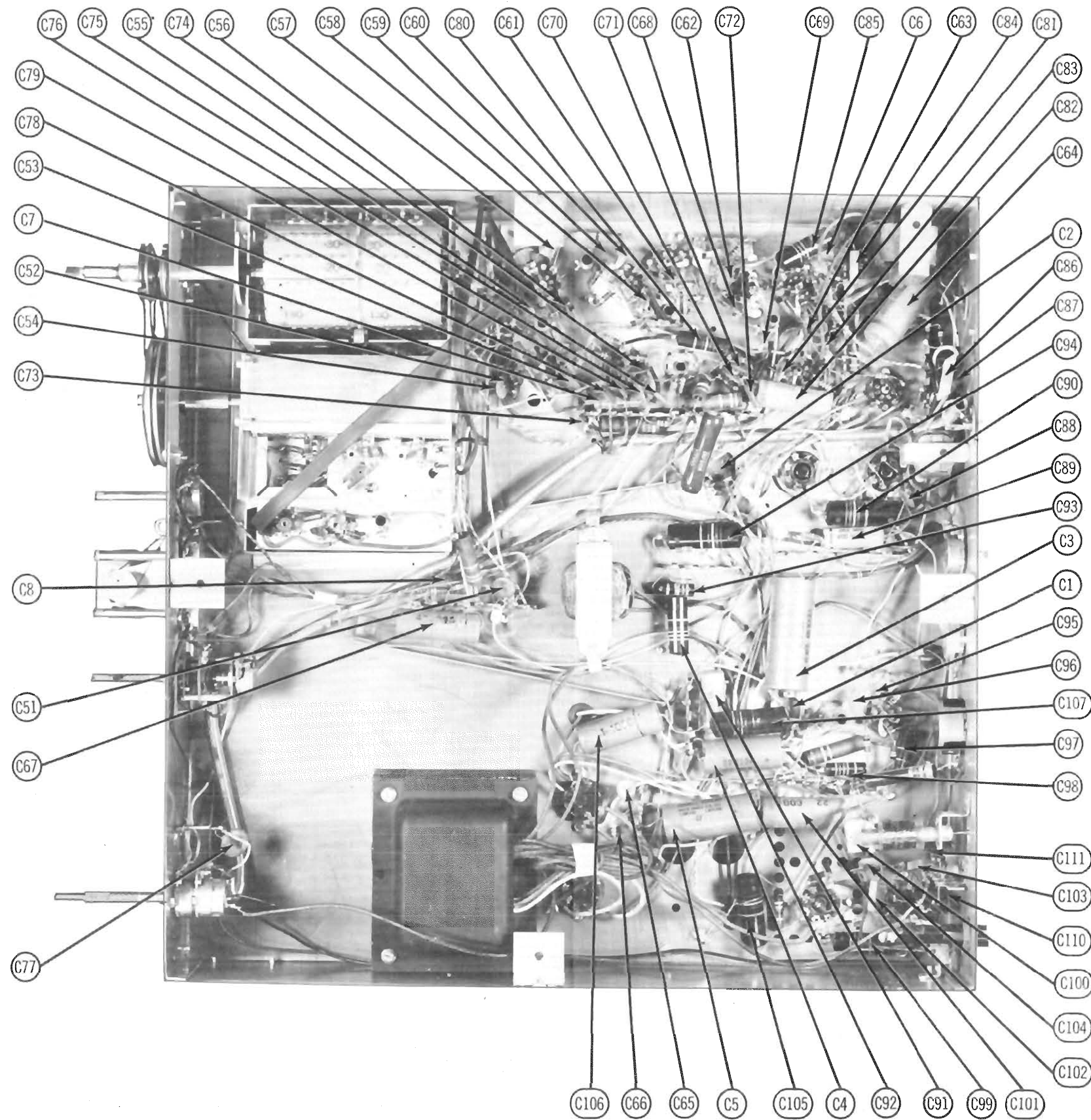


RF TUNER-BOTTOM VIEW



CHASSIS TOP VIEW

SILVERTONE MODELS 3171A, 4140, 4143,
4145, 4150, 4153, 4155 (Ch. 528.247, -1)



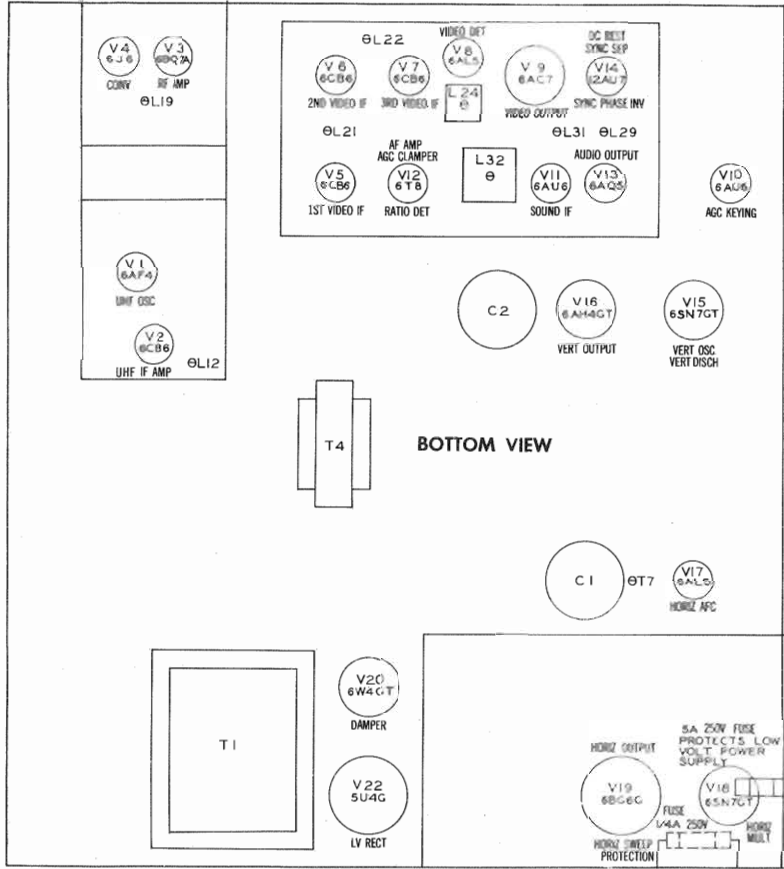
CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

SILVERTONE MODELS 3171A, 4140, 4143,
4145, 4150, 4153, 4155 (Ch. 528.247, -1)

RESISTANCE MEASUREMENTS

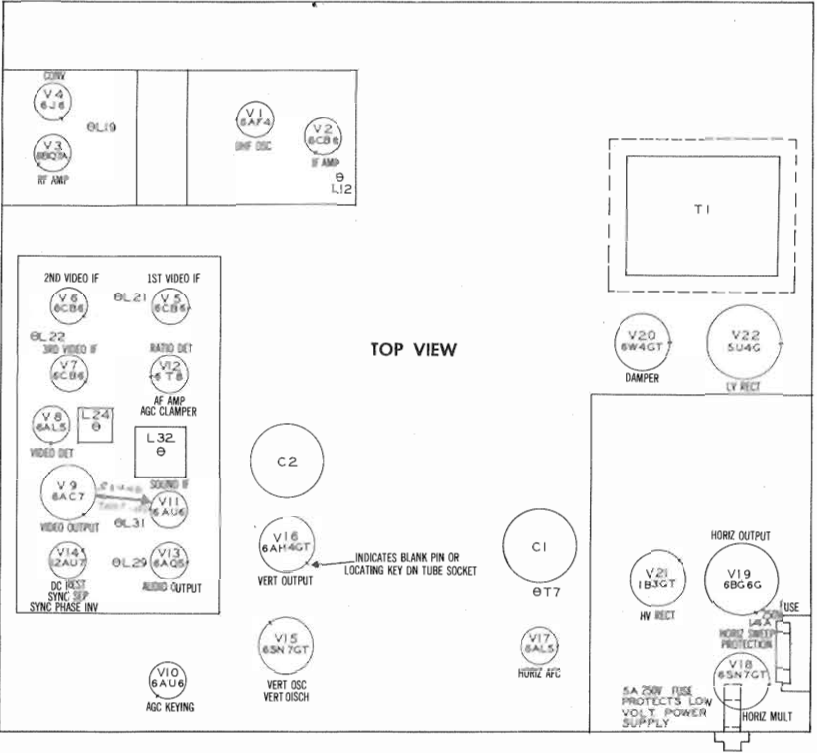
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AF4	±3.3KΩ	12KΩ	.1Ω	.2Ω	0Ω	12KΩ	±3.3KΩ		
V 2	6CB6	0Ω	150Ω	.1Ω	0Ω	±3.3KΩ	±3.3KΩ	150Ω		
V 3	6BQ7A	INF	870KΩ	0Ω	.1Ω	0Ω	†10KΩ	†160KΩ	INF	0Ω
V 4	6J6	†16KΩ	†1KΩ	.1Ω	0Ω	230KΩ	10KΩ	0Ω		
V 5	6CB6	37KΩ	56Ω	.1Ω	0Ω	†1KΩ	†1KΩ	0Ω		
V 6	6CB6	34KΩ	56Ω	0Ω	.1Ω	†1KΩ	†1KΩ	0Ω		
V 7	6CB6	.3Ω	150Ω	0Ω	.1Ω	†1KΩ	†1KΩ	0Ω		
V 8	6AL5	.7Ω	0Ω	.1Ω	0Ω	0Ω	0Ω	3.3KΩ		
V 9	6AC7	0Ω	0Ω	0Ω	3.3KΩ	155Ω	±0Ω	.1Ω	±6KΩ	
V 10	6AU6	±41KΩ	±0Ω	±0Ω	±.1Ω	300KΩ	†3.6KΩ	±0Ω		
V 11	6AU6	±0Ω	±0Ω	±0Ω	±.1Ω	†10.3KΩ	†10.3KΩ	±150Ω		
V 12	6T8	INF	12KΩ	INF	0Ω	.1Ω	±620KΩ	0Ω	4.7Meg	±270KΩ
V 13	6AQ5	230KΩ	40KΩ	±0Ω	±.1Ω	†1.4KΩ	†1.1KΩ	230KΩ		
V 14	12AU7	±680KΩ	1.2Meg	22KΩ	0Ω	0Ω	†7.2KΩ	±680KΩ	2.2KΩ	.1Ω
V 15	6SN7GT	1.5Meg	†15.5KΩ	0Ω	1.5Meg	±2.7Meg	0Ω	.1Ω	0Ω	
V 16	6AH4GT	2.2Meg	.1Ω	INF	INF	†1.4KΩ	INF	0Ω		
V 17	6AL5	4.8Meg	4.8Meg	0Ω	.1Ω	15KΩ	0Ω	15KΩ		
V 18	6SN7GT	5.1Meg	†12KΩ	1.5KΩ	135KΩ	±275KΩ	1.5KΩ	0Ω	.1Ω	
V 19	6BG6G	INF	.1Ω	47Ω	†15.3KΩ	1Meg	1Meg	0Ω	†15.4KΩ	Top Cap ±16Ω
V 20	6W4GT	INF	INF	INF	†340Ω	†355Ω	INF	±14.5Ω	±14.5Ω	
V 21	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								Top Cap ±405Ω
V 22	5U4G	INF	10.3KΩ	INF	25.6Ω	INF	23.8Ω	INF	10.3KΩ	
V 23	21AP4	0Ω	120KΩ	PIN 10 †340Ω	PIN 11 115KΩ	PIN 12 .1Ω				

ALL MEASUREMENTS TAKEN IN "VHF" POSITION UNLESS OTHERWISE SPECIFIED.
• MEASURED IN "UHF" POSITION
† MEASURED FROM PIN 8 OF V22.
‡ MEASURED FROM 140V LINE
■ MEASURED FROM PIN 3 OF V20.



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 - V22, Fuse (M1)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V4, V5, V6, V7, V8, V13 (V1 UHF Only)
No pic, no sound, has snow - V3, V4, V5
No pic, has sound, has raster - V9, V23
Has pic, no sound - V11, V12, V13
Overloaded picture - V19

SYNC FAILURE
No vert. sync - V14, V15, V16
No horiz. sync - V14, V17, V18
No vert. or horiz. sync - V14

SWEEP FAILURE
No raster, has sound - V18, V19, V20, V21, V23, Fuse (M2)
No vertical deflection - V15, V16
Poor vert. linearity or foldover - V15, V16
Poor horiz. linearity or foldover - V18, V19, V20
Narrow picture - V18, V19, V20, V21, V22, V23
Vert. off freq. - V14, V15, V16
Horiz. off freq. - V14, V17, V18

SILVERTONE MODELS 3171A, 4140, 4143, 4145, 4150, 4153, 4155 (Ch. 528.247, -1)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube (V4) from its socket and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
Direct	High side to ungrounded tube shield floating over dummy converter tube. Low side to chassis.	25.2 MC (Unmod.)	Any	DC probe to point A. Common to chassis.	A1	Adjust for maximum deflection.
"	"	23.1 MC	"	"	A2	"
"	"	25.9 MC	"	"	A3	"
"	"	23.9 MC	"	"	A4	"
"	"	21.75 MC	"	"	A5	Adjust for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
Direct	High side to ungrounded tube shield floating over dummy converter tube. Low side to chassis.	24 MC (10 MC Swp)	21.75 MC 26.25 MC	Any	Vert. Amp. to point A. Low side to chassis.		Check for response curve similar to Fig. 1. If necessary, retouch A1 thru A4 for desired response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from point B to chassis. The junction of these two resistors is alignment point C as shown on the schematic.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
.01MFD	High side to point A. Low side to chassis.	4.5 MC (Unmod.)	Any	DC probe to point B. Common to chassis.	A6, A7	Adjust for maximum deflection.
"	"	"	"	DC probe to point C. Common to point B.	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
.01MFD	High side to point A. Low side to chassis.	4.5 MC (450KC Swp)	4.5 MC	Any	Vert. Amp. to point B. Low side to chassis.	A6, A7	Disconnect stabilizer capacitor (C7). Adjust for maximum amplitude and symmetry as in Fig. 2.
"	"	"	"	"	Vert. Amp. to point C. Low side to chassis.	A8	Reconnect stabilizer capacitor (C7). Adjust so that 4.5 MC occurs at center of crossover lines as in Fig. 3. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace original 6J6 in its socket.

The channel oscillator adjustment screws are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

Set the fine tuning control to the mid-position of its range.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213 MC (10 MC Swp)	211.25 MC 215.75 MC	13	Vert. Amp. to point A. Low side to chassis.	A9	Adjust to place sound marker in trap notch as in Fig. 4. Video marker should be at 50%.
		207 MC (10 MC Swp)	205.25 MC 209.75 MC	12		A10	
		201 MC (10 MC Swp)	199.25 MC 203.75 MC	11		A11	
		195 MC (10 MC Swp)	193.25 MC 197.75 MC	10		A12	
		189 MC (10 MC Swp)	187.25 MC 191.75 MC	9		A13	
		183 MC (10 MC Swp)	181.25 MC 185.75 MC	8		A14	
		177 MC (10 MC Swp)	175.25 MC 179.75 MC	7		A15	
		171 MC (10 MC Swp)	169.25 MC 173.75 MC	6		A16	
		165 MC (10 MC Swp)	163.25 MC 167.75 MC	5		A17	
		159 MC (10 MC Swp)	157.25 MC 161.75 MC	4		A18	
		153 MC (10 MC Swp)	151.25 MC 155.75 MC	3		A19	
		147 MC (10 MC Swp)	145.25 MC 149.75 MC	2		A20	
		141 MC (10 MC Swp)	139.25 MC 143.75 MC				
		135 MC (10 MC Swp)	133.25 MC 137.75 MC				
		129 MC (10 MC Swp)	127.25 MC 131.75 MC				
		123 MC (10 MC Swp)	121.25 MC 125.75 MC				
		117 MC (10 MC Swp)	115.25 MC 119.75 MC				
		111 MC (10 MC Swp)	109.25 MC 113.75 MC				
		105 MC (10 MC Swp)	103.25 MC 107.75 MC				

VHF, RF AND MIXER ALIGNMENT

The RF and Mixer portion of this receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

4.5 MC TRAP ALIGNMENT

Tune in a TV station and examine picture for evidence of 4.5 MC interference. If any is noted adjust A21 to minimize it.

ALIGNMENT INSTRUCTIONS (cont)

UHF TUNER ALIGNMENT						
Remove UHF oscillator tube 6AL4 (V1) from its socket. Set channel switch to UHF position. UHF oscillator slug is accessible through same hole as VHF oscillator slugs.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10. Two 120Ω Carbon Resistors	Across UHF antenna terminals with 120Ω in each lead.	124 MC (Unmod.)	UHF	DC probe to point A. Common to chassis.	A22	Adjust for maximum deflection. Replace 6AL4.
11. "	"	See remarks	See remarks		A23, A24	Set generator to center frequency of highest UHF channel in service area. Tune UHF fine tuning to generator signal. Adjust A23, A24 for maximum deflection.
FIELD ADJUSTMENT						
Tune UHF receiver to a UHF station and adjust A23 and A24 for best sound and picture.						

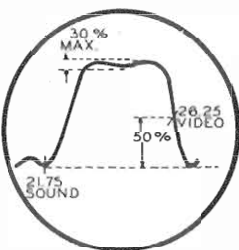


FIG. 1

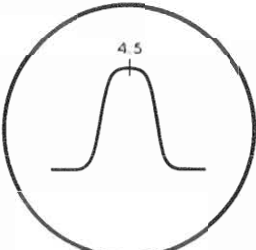


FIG. 2

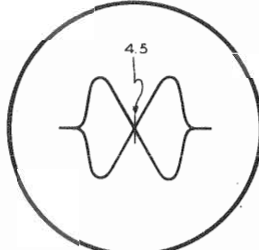


FIG. 3

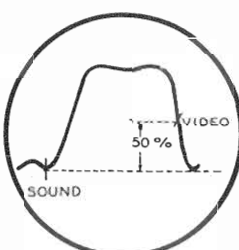
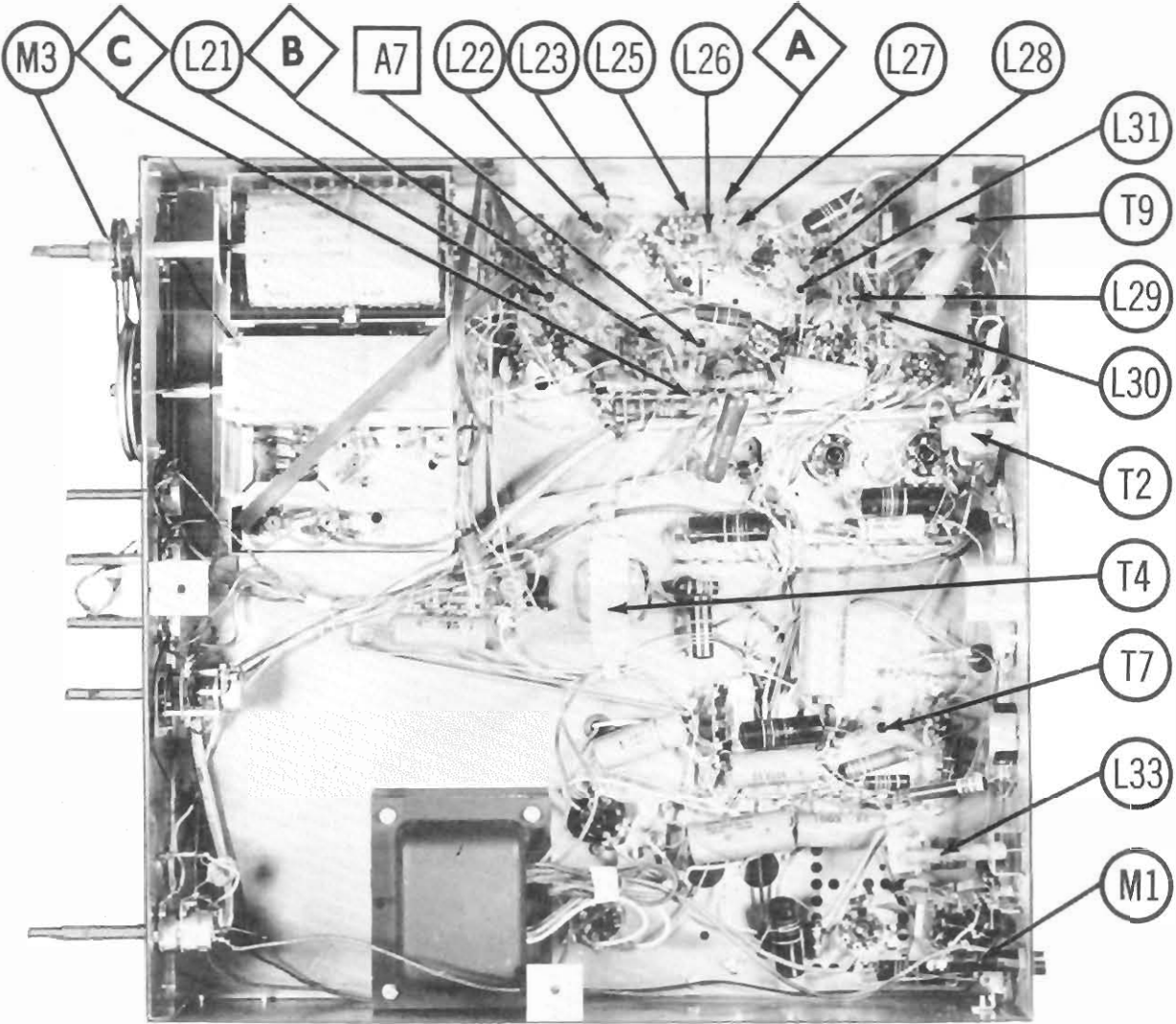


FIG. 4



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR & ALIGN. IDENTIFICATION

SILVERTONE MODELS 3171A, 4140, 4143, 4145, 4150, 4153, 4155 (Ch. 528.247,-1)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the RF tuner oscillator circuit may be accomplished by removal of the channel selector and fine tuning knobs. The adjustments are accessible, one at a time, through the small hole in the cabinet to the right of the channel selector shaft. Also, remove UHF channel selector knob.

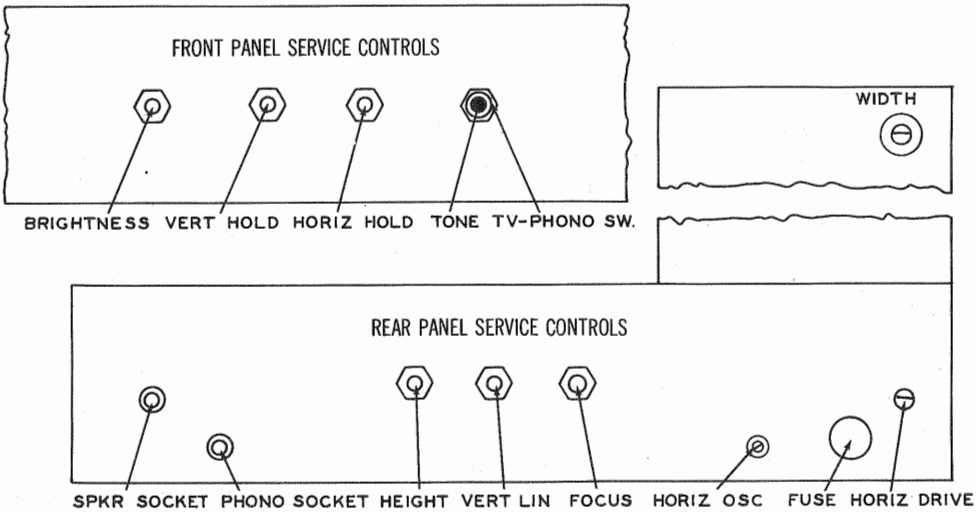
PICTURE TUBE SAFETY GLASS CLEANING

To clean safety glass, remove 6 metal screws holding bezel. Remove bezel and safety glass. Use extreme caution when removing safety glass.

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions).

SERVICE ADJUSTMENT LOCATION



HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjustment of the horizontal oscillator circuit may be made from the rear panel of the chassis. Set the horizontal hold control at the mid-position of its range and adjust the horizontal oscillator slug (L33) until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (L32) located on top of chassis. (See tube placement chart).

FUSES

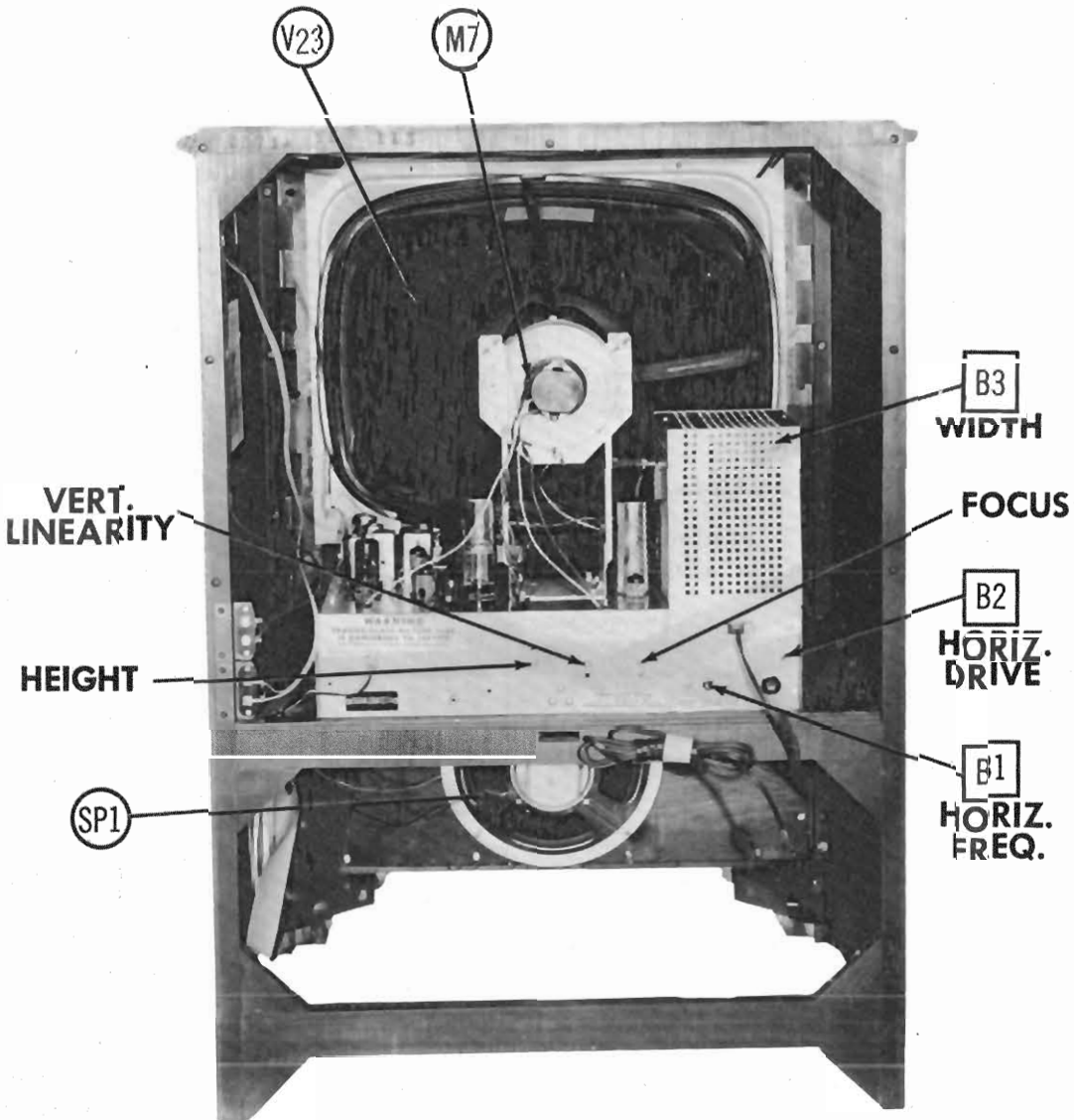
Two fuses are used. One for horizontal sweep circuit protection and one for LV power supply protection. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by positioning the focus coil. Adjust the three wing nuts located on the focus coil bracket until picture is properly centered.

DISASSEMBLY INSTRUCTIONS

1. Remove 4 push on type control knobs from front panel.
2. Loosen 7 wood screws. Raise rear cover and remove.
3. Disconnect VHF and UHF built-in antenna.
4. Remove 4 wood screws. Remove VHF and UHF antenna brackets.
5. Disconnect speaker. Remove 4 speaker nuts. Remove speaker.
6. Remove 4 chassis bolts. Remove chassis.



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

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

Set horizontal hold control at mid-range and adjust horizontal oscillator slug (B1) until the picture synchronizes horizontally. Make slight readjustments of B1 if necessary for best overall sync on all channels.

Adjust the horizontal drive trimmer (B2) counter clockwise as far as possible without the presence of vertical white lines or compression of the center of the picture.

Adjust width slug (B3) for a picture slightly wider than is necessary to fill the mask horizontally.

Adjust horizontal linearity control (B4) for a picture that is symmetrical from left to right.

SILVERTONE MODELS 3171A, 4140, 4143,
4145, 4150, 4153, 4155 (Ch. 528.247, -1)

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL	VERTICAL												
<u>LOSS OF SWEEP</u> See "LOSS OF HIGH VOLTAGE". <u>INSUFFICIENT SWEEP</u> Check by substitution V18, V19, V20 and V22. Check waveform at W14. <table><tr><td>If Satisfactory</td><td>If Unsatisfactory</td></tr><tr><td>Check C105, C106, C107, R95, R96, R97, T3, T5A, T7, T8 and other associated circuit components.</td><td>Check C103, C104, R92, R93, E94, horiz. drive trimmer (B2), and other associated circuit components.</td></tr></table> <u>DRIVE LINES</u> Check by substitution V18, V19 and V20. Check adjustment of horizontal drive trimmer (B2). Check waveform at W14. <table><tr><td>If Satisfactory</td><td>If Unsatisfactory</td></tr><tr><td>Check T3, T5A, C106, C107, T7, T8 and other associated circuit components.</td><td>Check components associated with V18 and V19.</td></tr></table> <u>COMPRESSED LEFT SIDE</u> Check by substitution V18, V19 and V20. Check adjustment of width (B3) and horizontal linearity (B4). Check T3, T5A, T7, T8, C106, C107, C105 and other associated components. <u>FOLDS</u> Check by substitution V18, V19, and V20. Check C105, C106, C107, R95, R96, R97, T3, T5A, T7, T8 and other associated components. <u>XMAS TREE EFFECT</u> Substitute V18. Check L33 for shorted turns. Check C100 and C102.	If Satisfactory	If Unsatisfactory	Check C105, C106, C107, R95, R96, R97, T3, T5A, T7, T8 and other associated circuit components.	Check C103, C104, R92, R93, E94, horiz. drive trimmer (B2), and other associated circuit components.	If Satisfactory	If Unsatisfactory	Check T3, T5A, C106, C107, T7, T8 and other associated circuit components.	Check components associated with V18 and V19.	<u>LOSS OF SWEEP</u> Check by substitution V15 and V16. Check waveform at W9. <table><tr><td>If Satisfactory</td><td>If Unsatisfactory</td></tr><tr><td>Check T4, T5B, R76, R7, C2C and other associated components.</td><td>Check C89, C90, C97, C88, R8, R71, R72, R73 and other associated components.</td></tr></table> <u>INSUFFICIENT SWEEP</u> Check by substitution V15, V16 and V22. Proceed as outlined under "LOSS OF SWEEP". <u>COMPRESSED AT BOTTOM</u> Check by substitution V15 and V16. Check C2C, T4, T5B and other associated components. <u>COMPRESSED AT TOP</u> Check by substitution V15 and V16. Check C89, C90 and other associated components. <u>FOLDS</u> Check by substitution V15 and V16. Check C89, C90, T2, T4, T5b and other components associated with V15 and V16.	If Satisfactory	If Unsatisfactory	Check T4, T5B, R76, R7, C2C and other associated components.	Check C89, C90, C97, C88, R8, R71, R72, R73 and other associated components.
If Satisfactory	If Unsatisfactory												
Check C105, C106, C107, R95, R96, R97, T3, T5A, T7, T8 and other associated circuit components.	Check C103, C104, R92, R93, E94, horiz. drive trimmer (B2), and other associated circuit components.												
If Satisfactory	If Unsatisfactory												
Check T3, T5A, C106, C107, T7, T8 and other associated circuit components.	Check components associated with V18 and V19.												
If Satisfactory	If Unsatisfactory												
Check T4, T5B, R76, R7, C2C and other associated components.	Check C89, C90, C97, C88, R8, R71, R72, R73 and other associated components.												

SYNC

HORIZONTAL	VERTICAL								
<u>LOSS OF SYNC</u> Check by substitution V17 and V18. Check setting of horizontal hold control. Check adjustment of horizontal frequency (B1). Check waveform at W12. <table><tr><td>If Satisfactory</td><td>If Unsatisfactory</td></tr><tr><td>Check C95, C96, C98 and other associated components.</td><td>Check C97, R82, T3 and other associated components.</td></tr></table> <u>CRITICAL HOLD</u> Check by substitution V14, V17 and V18. Proceed as outlined under "LOSS OF SYNC". <u>PULLING PICTURE</u> Check by substitution V17, V18, V19 and V14. Check horizontal AFC network. Check video IF, amplifier, and detector stages for 60 cycle modulation do to heater to cathode leakage. Check signal at W5 for sync compression and/or signal overload.	If Satisfactory	If Unsatisfactory	Check C95, C96, C98 and other associated components.	Check C97, R82, T3 and other associated components.	<u>LOSS OF SYNC</u> Check by substitution V14 and V15. Check waveform W7. <table><tr><td>If Satisfactory</td><td>If Unsatisfactory</td></tr><tr><td>Check C87, R70, R4, T2 and other associated components.</td><td>Check vertical integrator network and other components associated with V14.</td></tr></table> <u>CRITICAL HOLD</u> Check by substitution V14 and V15. Proceed as outlined under "LOSS OF SYNC". <u>TRIGGERING</u> Check by substitution V14, V15 and V16. Check to see that all filament leads are dressed away from these stages.	If Satisfactory	If Unsatisfactory	Check C87, R70, R4, T2 and other associated components.	Check vertical integrator network and other components associated with V14.
If Satisfactory	If Unsatisfactory								
Check C95, C96, C98 and other associated components.	Check C97, R82, T3 and other associated components.								
If Satisfactory	If Unsatisfactory								
Check C87, R70, R4, T2 and other associated components.	Check vertical integrator network and other components associated with V14.								

VIDEO

<u>LOSS OF VIDEO</u> Check C64, R5, R48 and picture tube (V23) and other associated components. <u>SOUND BARS</u> Check adjustment of fine tuning and local oscillator. Check 4.1MC trap adjustment (A21). <u>POOR RESOLUTION</u> Substitute V9. Check all bypass and coupling capacitors associated with V9. Check video IF alignment. Check components associated with the video IF stages. <u>POOR CONTRAST</u> Check by substitution V8 and V9. Check components associated with these stages. Check picture tube.	<u>NEGATIVE PICTURE</u> Check by substitution V10, V9 and V8. Check components associated with these stages. <u>SMEAR</u> Check by substitution V8 and V9. Check L28 and L30 for open. Check C61 and C64 for leaky. Check R44, R45, R46, and R48. for change of value. Check picture tube and other associated components. <u>ONE WIDE BLACK BAR ACROSS PICTURE</u> Check tuner, video IF, video detector and video amplifier tubes for heater to cathode leakage.
---	---

TROUBLE SHOOTING AIDS (cont)

AUDIO

<u>WEAK OR NO SOUND</u> Check by substitution V11, V12 and V13. Check stages of V12b and V13 by applying audio signal to control grid pin 7. <table><tr><td>If Satisfactory</td><td>If Unsatisfactory</td></tr><tr><td>Check adjustment of ratio detector. Check components associated with V11 and V12A.</td><td>Check components associated with V12b and V13 especially T9 and SP1.</td></tr></table>	If Satisfactory	If Unsatisfactory	Check adjustment of ratio detector. Check components associated with V11 and V12A.	Check components associated with V12b and V13 especially T9 and SP1.	<u>BUZZ</u> Readjust ratio detector secondary for minimum buzz. Check audio IF alignment. If buzz is still objectionable substitute V12 and readjust A8. <u>DISTORTED</u> Check stages of V12b and V13 using audio signal generator and scope. <table><tr><td>If Distorted</td><td>If Undistorted</td></tr><tr><td>Check components associated with these stages especially coupling and bypass capacitors.</td><td>Check alignment and components of the audio IF amplifier and ratio detector stages.</td></tr></table>	If Distorted	If Undistorted	Check components associated with these stages especially coupling and bypass capacitors.	Check alignment and components of the audio IF amplifier and ratio detector stages.
If Satisfactory	If Unsatisfactory								
Check adjustment of ratio detector. Check components associated with V11 and V12A.	Check components associated with V12b and V13 especially T9 and SP1.								
If Distorted	If Undistorted								
Check components associated with these stages especially coupling and bypass capacitors.	Check alignment and components of the audio IF amplifier and ratio detector stages.								

POWER

<u>DEAD SET</u> Check fuse M1. Check A/C interlock assembly. Check switch on volume control. Check T1. <u>SMALL AND/OR DIM RASTER</u> Substitute V22. Check B+ filter and decoupling network.	<u>DIM PICTURE WEAK SOUND</u> Substitute V22. Check B+ network.
--	--

HIGH VOLTAGE

<u>LOSS OF HIGH VOLTAGE</u> Check 1/4 Amp fuse (M2). Check by substitution V18, V19, V20, V21 and V22. Check waveform W14. <table><tr><td>If Satisfactory</td><td>If Unsatisfactory</td></tr><tr><td>Check R98, R99, C108, T3, T5A and other associated components.</td><td>Check C102, C103, C104 and other associated components.</td></tr></table>	If Satisfactory	If Unsatisfactory	Check R98, R99, C108, T3, T5A and other associated components.	Check C102, C103, C104 and other associated components.	<u>INSUFFICIENT HIGH VOLTAGE</u> Check by substitution V18, V19, V20, V21 and V22. Proceed as outlined under "LOSS OF HIGH VOLTAGE". <u>BLOOMING</u> Check V19, V20 and V21 by substitution. Check R98, R99, C108, T3, T5A and other components associated with the high voltage section. Check picture tube for gassy condition or low emission.
If Satisfactory	If Unsatisfactory				
Check R98, R99, C108, T3, T5A and other associated components.	Check C102, C103, C104 and other associated components.				

GENERAL

<u>RASTER SOUND NO PICTURE</u> See "LOSS OF VIDEO". <u>TOTAL LOSS OF SYNC</u> Check by substitution V14. Check components associated with this stage. <u>INTERMITTENT STREAKS</u> Check high voltage section for corona discharge and arcing. <u>SNOWY PICTURE POOR SOUND</u> Check by substitution V3, V4, V5, V6, V7 and V8. Check associated circuit components.	<u>SNOWY PICTURE ON UHF (GOOD ON VHF).</u> Check V1 and V2. It may be necessary to try several tubes to find one that will operate satisfactory. <u>RASTER NO SOUND NO PICTURE</u> Check V3, V4, V5, V6, V7, V8, V9 and V13. Check associated circuit components.
--	--

Symptoms shown are assumed and are not indicative of the quality and workmanship of this receiving equipment.

SILVERTONE MODELS 3171A, 4140, 4143, 4145, 4150, 4153, 4155 (Ch. 528,247,-1)

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	SILVERTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1A	UHF Ant. Coil	0Ω						
B	UHF Mixer Coil	0Ω						
C	UHF Osc. Coil	0Ω						
L2	UHF Ant. Coil End Inductor	0Ω						
L3	UHF Mixer Coil End Inductor	0Ω						
L4	UHF Osc. Coil End Inductor	0Ω						
L5	Fil. Choke	.1Ω						
L6	Fil. Choke	.1Ω						
L7	Cathode Choke	0Ω						
L8	RF Choke	0Ω						.38 Microhenry
L9	UHF IF Coupling	0Ω						.38 Microhenry
L10	UHF IF Input Trans.	0Ω	0Ω					
L11	RF Choke	0Ω						
L12	UHF IF Output Trans.	0Ω	0Ω					
L13	Ant. Coils	0ΩCT	0Ω					
L14	Fil. Choke	0Ω						
L15	Neutr. Coil	0Ω						
L16	RF Mixer Grid & Osc. Coils	0Ω						
L17	Fil. Choke	0Ω						
L18	RF Choke	0Ω						
L19	1st. Video IF	1Ω						
L20	RF Choke	1.3Ω						
L21	2nd. Video IF	.3Ω	.3Ω	T10-541	17-1062		6250	
L22	3rd. Video IF	.3Ω	.3Ω	T10-542	17-1063		6249	
L23	Fil. Choke	.41Ω		T33-236	19-3001	TV-189	4602	
L24	4th. Video IF	.6Ω	.7Ω	T10-588				1 Microhenry (IRC part #CL-1) Includes trap
L25	Series Peak-ing Coil	1Ω		T33-226			4624	14 Microhenries
L26	Series Peak-ing Coil	6Ω		T10-557	19-3093	TV-181	6177	80 Microhenries
L27	Shunt Peak-ing Coil	13Ω		T10-579	19-3500	TV-188	6174	550 Microhenries
L28	Series Peak-ing Coil	6Ω		T10-580	19-3180 *	TV-184 *	6180 *	175 Microhenries, wound on 8.2KΩ resistor
L29	4.5MC Trap	3.2Ω		T10-581	20-1004	TV-151	1469	
L30	Shunt Peak-ing Coil	11Ω		T10-578	19-4412		4648	410 Microhenries Wound on 10KΩ resistor
L31	Sound IF	2.7Ω		T10-587	20-1005	TV-151	1469	
L32	Ratio Det.	3.8Ω	.3ΩCT	T10-552	17-1033 †	TV-110 †	1469 †	Tertiary winding-.95Ω Silvertone part number includes C100
L33	Horiz. Osc.	65Ω		T10-583	19-1576	TV-163	6210	

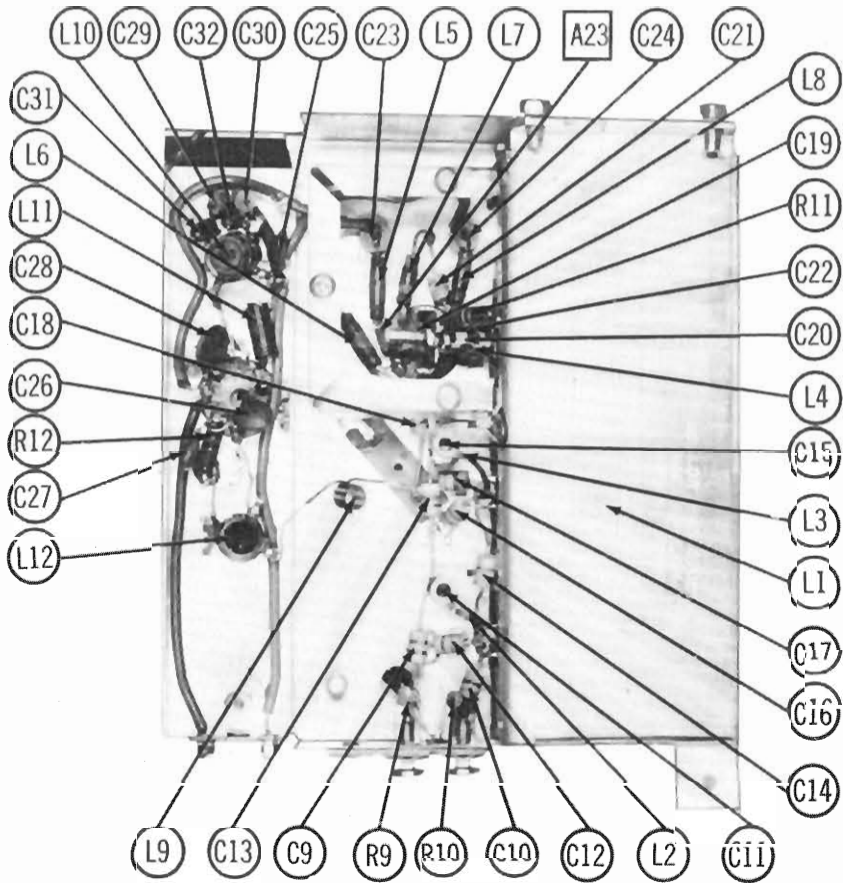
* Parallel with 8.2KΩ resistor.
† Drill mounting holes.

FUSES

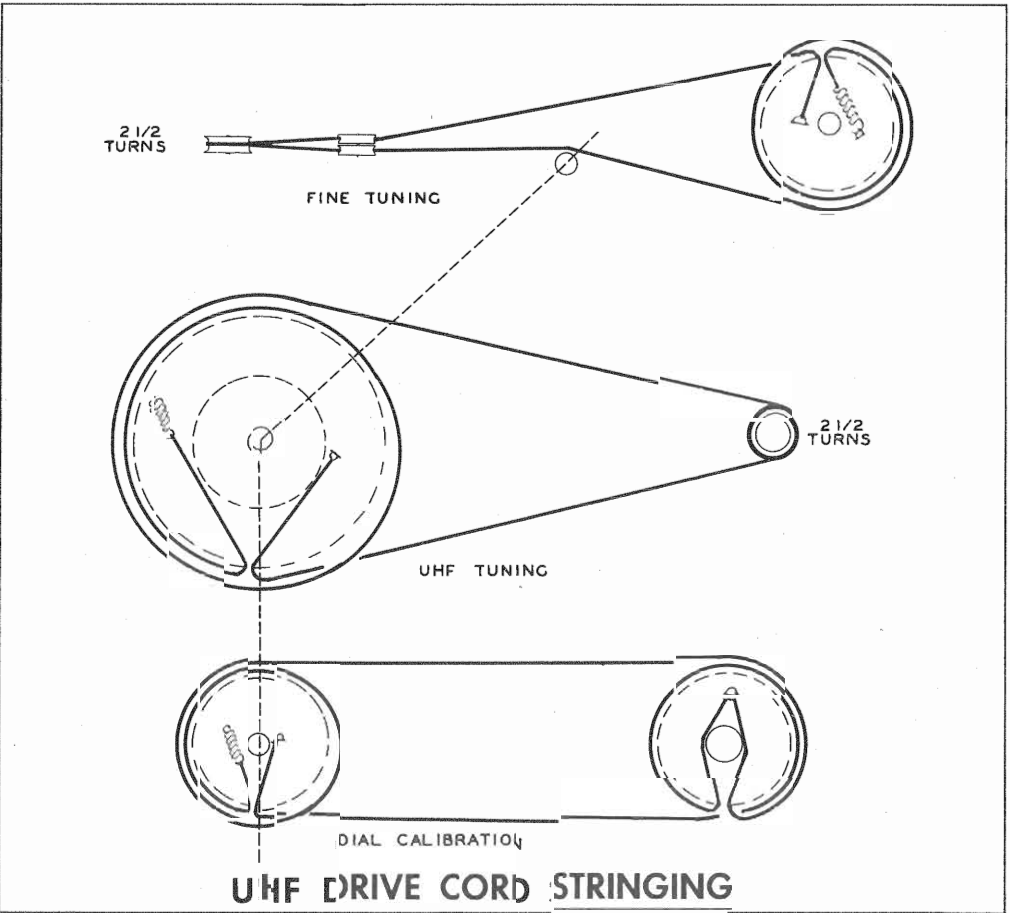
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			SILVERTONE PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	5 Amp. 250V.	T43-2	T87-44	312005 (3AG/5A)	341001	MTH5	HKP
M2	3AG (P/T)	1/4 A. 250V.	T43-13		318.250 (3AG 1/4A P/T)		GJV 1/4	

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M3	Pilot Light	T89-7	Type #47
M4	RF Tuner	T95-32	UHF
M5	Crystal Diode		UHF Mixer (Type 1N72)
M6	RF Tuner	T95-31	VHF
M7	Ion Trap	T81-684	
B2	Trimmer Cap.	T21-145	Horiz. Drive
	Cabinet	T41-558	Model 3171A
	Cabinet	T 42-575	Model 4140
	Cabinet	T 42-584	Model 4143
	Cabinet	T 42-579	Model 4145
	Cabinet	T 42-577	Model 4150
	Cabinet	T 42-585	Model 4153
	Cabinet	T 42-578	Model 4155
	Back Cover	T 32-21	Model 3171A
	Back Cover	T 32-21	Models 4140, 4143, 4145, 4150, 4153, 4155
	Mask Plate	T31-209	
	Mask Plate	T31-226	Models 4140, 4143, 4145, 4150, 4153, 4155
	Safety glass	T48-68	Models 4140, 4143, 4145, 4150, 4153, 4155
	Control Cover Assy.	T84-717	
	Knob	T52-390	TV-Phono Selector
	Knob	T52-403	Channel Selector
	Knob	T52-402	Fine Tuning
	Knob	T52-404	Contrast
	Knob	T52-405	Off-On-Volume



UHF TUNER



SILVERTONE MODELS 3171A, 4140, 4143, 4145, 4150, 4153, 4155 (Ch. 528.2, 47, -1)

TUBES (SYLVANIA, GENERAL ELECTRIC or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RTMA BASE TYPE	NOTES
		SILVERTONE PART No.	STANDARD REPLACEMENT		
V1A	UHF Oscillator	6AF4	6AF4	7DK	
B	UHF Oscillator	6T4	6T4	7DK	
V2	IF Amplifier	6CB6	6CB6	7CM	
V3A	RF Amplifier	6BQ7A	6BQ7A	9AJ	
B	RF Amplifier	6BZ7	6BZ7	9AJ	
V4	Converter	6J6	6J6	7BF	
V5	1st. Video IF Amp.	6CB6	6CB6	7CM	
V6	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V7	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V8	Video Detector	6AL5	6AL5	6BT	
V9	Video Output	6AC7	6AC7	8N	
V10	AGC Keying	6AU6	6AU6	7BK	
V11	Sound IF Amp.	6AU6	6AU6	7BK	
V12	Ratio Detector- AF Amplifier- AGC Clamper	6T8	6T8	9E	
V13	Audio Output	6AQ5	6AQ5	7BZ	
V14	DC Restorer- Sync Separator- Sync Phase Int. Vert. Osc. Vert. Discharge	12AU7	12AU7	9A	
V15	Vert. Output	6SN7GT	6SN7GT	6BD	
V16	Horiz. AFC	6AL5	6AL5	6BT	
V17	Horiz. Mult.	6SN7GT	6SN7GT	6BD	
V18	Horiz. Output	6BG6G	6BG6G	5BT	
V19	Damper	6W4GT	6W4GT	4CG	
V20	HV Rectifier	1B3GT	1B3GT	3C	
V21	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA			RTMA BASE TYPE	NOTES
	SILVERTONE PART No.	SYLVANIA PART No.	GENERAL ELECTRIC PART No.		
V23	21AP4	21AP4	21AP4	12D	

CAPACITORS

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

ITEM No.	RATING	REPLACEMENT DATA				NOTES
		SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	
C1A	40	T18-295	AFH3-159		C118	FP375 TVL-3764
B	40					
C	40					
C2A	40	T18-295	AFH3-159		C118	FP375 TVL-3764
B	40					
C	40					
C3	40	T18-308	PRS450/40		BR4045A	TC78 TVA-1712
C4	8	T18-298	PRS500/8		BR850A	TC81 TVA-1902
C5	20	T18-296	PRS450/20		BR2045	TC75 TVA-1709
C6	4	T18-272	PRS150/4		BR415	TC30 TVA-1402
C7	4	T18-292	PRS150/4		BR415	TC30 TVA-1402
C8	4	T18-292	PRS150/4		BR415	TC30 TVA-1402
C9	1					
C10	1					
C11	1					
C12	1					
C13	1					
C14	1					
C15	1					
C16	1					
C17	1					
C18	1					
C19	1					
C20	1					
C21	1					
C22	1					
C23	1					
C24	1					
C25	1					
C26	1					
C27	1					
C28	1					
C29	1					
C30	1					
C31	1					
C32	1					
C33	1					
C34	1					
C35	1					
C36	1					
C37	1					
C38	1					
C39	1					
C40	1					
C41	1					
C42	1					
C43	1					
C44	1					
C45	1					
C46	1					
C47	1					
C48	1					
C49	1					
C50	1					
C51	1					
C52	1					
C53	1					
C54	1					
C55	1					
C56	1					

PARTS LIST AND DESCRIPTIONS
CAPACITORS (cont)

ITEM No.	RATING	REPLACEMENT DATA				NOTES
		SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	
C57	5000	T16-177	BPD-005	MD-502	TM5D5	
C58	1500	T16-241	BPD-005	MD-502	TM5D5	
C59	5000	T16-177	BPD-005	MD-502	TM5D5	
C60	5000	T16-177	BPD-005	MD-502	TM5D5	
C61	5	T16-222	SINP0	TCZ-4.7		
C62	5	T16-177	BPD-005	MD-502	TM5D5	
C63	47		SI47NP0	TCZ-4.7		
C64	2	T16-212	BPD-001	DD-102	TM5D1	
C65	1000	T16-220	BPD-005	MD-502	TM5D5	
C66	5000	T16-177	BPD-005	MD-502	TM5D5	
C67	.47	T16-240	P288-47	SI2, 2NP0	PJ2P5	
C68	2		SI22	D6-220		
C69	22		BPD-005	MD-502	TM5D5	
C70	5000	T16-177	BPD-005	MD-502	TM5D5	
C71	5000	T16-177	BPD-005	MD-502	TM5D5	
C72	5000	T16-177	BPD-005	MD-502	TM5D5	
C73	5000	T16-177	BPD-005	MD-502	TM5D5	
C74	5000	T16-177	BPD-005	MD-502	TM5D5	
C75	270	T16-242	SI270	D6-271		
C76	2000	T16-228	BPD-002	DD-202	TM5D2	
C77	10000	T16-211	BPD-01	DD-101	TM5D1	
C78	5000	T16-177	BPD-005	MD-502	TM5D5	
C79	5000	T16-177	BPD-005	MD-502	TM5D5	
C80	.01	T16-237	P688-01	D6-103	PTE681	
C81	1000	T16-220	BPD-001	DD-102	TM5D1	
C82	.2	T16-188				
C83	.01	T16-237	P688-01	D6-103	PTE681	
C84	150	T16-235	1468-00015	D6-151	5W5T15	
C85	.047	T16-235	P688-047	DF-503	PTE6847	
C86A	.005		P688-005		PTE685	
B	.005		P688-005		PTE685	
C	.005		P688-005		PTE685	
C87	.0047	T16-233	BPD-005	MD-502	TM5D5	
C88	5000	T16-177	BPD-005	MD-502	TM5D5	
C89	.056	T16-236	P688-1	DF-104	PTE68P1	
C90	.1	T16-238	P688-033	DF-104	PTE68P1	
C91	.1	T16-187	P688-033	DF-104	PTE68P1	
C92	.033	T16-234	P688-033	DF-104	PTE68P1	
C93	.0047	T16-233	P688-0047	D6-472	PTE6847	
C94	.1	T16-238	P688-1	DF-104	PTE68P1	
C95	1000	T16-220	BPD-001	DD-102	TM5D1	
C96	1000	T16-220	BPD-001	DD-102	TM5D1	
C97	.01	T16-237	P688-01	D6-103	PTE681	
C98	.0047	T16-233	P688-0047	D6-472	PTE6847	
C99	.047	T16-235	P688-047	DF-503	PTE6847	
C100	3000	T16-218	P688-22	DF-503	PTE6847	
C101	.22	T16-226	P688-22	DF-503	PTE6847	
C102	330	T16-226	P688-22	DF-503	PTE6847	
C103	300	T16-226	P688-22	DF-503	PTE6847	
C104	120	T16-232	P688-120	DF-104	PTE68P1	
C105	.1	T16-238	P688-1	DF-104	PTE68P1	
C106	.1	T16-231	P1088-1	DF-104	PTE68P1	
C107	.047	T16-239	P1088-047	DF-104	PTE68P1	
C108	500	T16-239	HY20C	TV3-502	MM-C20T5	
C109	50	T16-237	6892X-01		PJ681	
C110	.01	T16-237	6892X-01		PJ681	
C111	.01	T16-237	6892X-01		PJ681	

* Items C86A, C86B, C86C, R89A, R89B, R89C are combined in one unit.

Note 1. Chassis 528.247-1 uses a .47 MFD capacitor in this application.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		SILVERTONE PART No.	IRC PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	10000	T24-208	QJ-482*		UF13L	Contrast-Panel
B	500KΩ				UR55A	Volume-Rear
C	Switch				US-26	Attach to R1B
R2A	500KΩ	T25-23	QJ-133	AG-58-S	AB-59	Phono Switch
B	Not Req.	Not Req.	RQ	FKS-1/4	AK-1	Tone
R3A	50KΩ	T25-21	QJ-123	AG-44-S	AB-31	Attach to R2B
B	Not Req.	Not Req.	Not Req.	KSS-3	AK-4	Horiz. Hold
R4A	1 Meg	T25-22	QJ-137	AG-61-S	AB-69	Attach to R3A
B	Not Req.	Not Req.	Not Req.	KSS-3	AK-4	Vert. Hold
R5A	50KΩ	T25-21	QJ-123	AG-44-S	AB-31	Attach to R4A
B	Not Req.	Not Req.	Not Req.	KSS-3	AK-4	Brightness
R6A	2250 Ω	T25-14	QJ-132	AG-132	AB-132	Attach to R5A
B	Not Req.	Not Req.	Not Req.	FKS-1/4	AK-1	Focus - Wire Wound
R7A	2500Ω	T25-13	QJ-112	AG-15-S	AB-7	Vert. Linearity
B	Not Req.	Not Req.	Not Req.	FKS-1/4	AK-1	Attach to R7A
R8A	2 Meg	T25-15	QJ-139	AG-83-S	AB-75	Height
B	Not Req.	Not Req.	Not Req.	FKS-1/4	AK-1	Attach to R8A

* CONCENTRIT EQUIVALENT - KIT K-2, BASE ELEMENTS & SHAFTS B17-108 & P1-200 (Panel)

B13-133 & R1-223 (Rear) & SWITCH 78-1.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		NOTES
		SILVERTONE PART No.	IRC PART No.	
R9	100KΩ	BTS-1500		
R10	100KΩ	BTS-1500		
R11	100KΩ	BTS-1500		
R12	100KΩ	BTS-1500		
R13	100KΩ	BTS-1500		
R14	100KΩ	BTS-1500		
R15	100KΩ	BTS-1500		
R16	100KΩ	BTS-1500		
R17	100KΩ	BTS-1500		
R18	100KΩ	BTS-1500		

RESISTORS (cont)

ITEM No.	RATING	REPLACEMENT DATA		NOTES
		SILVERTONE PART No.	IRC PART No.	
R29	18KΩ	T60-777		
R30	1000Ω	T60-703	BTS-1000	
R31	56Ω	T60-806	BTS-56	
R32	1000Ω	T60-703	BTS-1000	
R33	18KΩ	T60-783		
R34	150Ω	T60-767	BTS-150	
R35	1000Ω	T60-703	BTS-1000	
R36	2.2Meg	T60-898	BTS-2.2Meg	
R37	33KΩ	T60-748	BTS-33K	
R38	220KΩ	T60-672	BTS-220K	
R39	470KΩ	T60-902	BTS-470K	
R40	47KΩ	T60-730	BTS-47K	
R41	12KΩ	T60-811	BTS-12K	
R42	3300Ω	T60-882	BTS-3300	
R43	680Ω	T60-708	BTS-330	
R44	3300Ω	T60-724	BTA-3300	
R45	2700Ω	T60-892	BTA-2700	
R46	33KΩ	T60-748	BTS-33K	
R47	39KΩ 5%	T60-893	BTS-39K 5%	
R48	100KΩ	T60-801	BTS-100K	
R49	10KΩ	T60-897	2D-10K	
R50	150Ω	T60-767	BTS-150	
R51	10KΩ	T60-900	BTS-10K	
R52	150Ω	T60-767	BTS-150	
R53	47KΩ	T60-730	BTS-47K	
R54	12KΩ	T60-811	BTS-12K	
R55	4.7Meg	T60-779	BTS-4.7Meg	
R56	270KΩ	T60-747	BTS-270K	
R57	100KΩ	T60-801	BTS-100K	
R58	180KΩ 5%	T60-788	BTS-180K 5%	
R59	330KΩ 5%	T60-787	BTS-330K 5%	
R60	600Ω	T60-800	1 3/4A-500	
R61	100Ω	T60-801	BTS-100K	
R62	270KΩ	T60-747	BTS-270K	
R63	1.2Meg	T60-782	BTS-1.2Meg	
R64	22KΩ	T60-744	BTS-22K	
R65	680KΩ	T60-897	BTS-680K	
R66	2200Ω	T60-714	BTS-2200	
R67	3900Ω	T60-710	BTS-3900	

ITEM No.	RATING	REPLACEMENT DATA		NOTES
		SILVERTONE PART No.	IRC PART No.	
R68	3300Ω	T60-882	BTS-3300	
R69A B C	22KΩ	*T17-106	BTS-22K	
	8200Ω		BTS-8200	
	8200Ω		BTS-8200	
R70	1.2Meg	T60-782	BTS-1.2Meg	
R71	15KΩ	T60-783	BTS-15K	
R72	1.5Meg	T60-880	BTS-1.5Meg	
R73	220KΩ	T60-872	BTS-220K	
R74	2200Ω	T60-778	BTS-2200	
R75	2.2Meg	T60-898	BTS-2.2Meg	
R76	1600Ω	T60-899	BTA-1600	
R77	15KΩ	T60-783	BTS-15K	
R78	15KΩ	T60-783	BTS-15K	
R79	560Ω		BTS-560	
R80	560Ω		BTS-560	
R81	1000Ω		BTS-1000	
R82	15KΩ	T60-888	BTS-15K	
R83	100KΩ	T60-801	BTS-100K	
R84	100KΩ	T60-801	BTS-100K	
R85	4.7Meg	T60-779	BTS-4.7Meg	
R86	470KΩ	T60-731	BTS-470K	
R87	150Ω	T60-729	BTS-150Ω	
R88	8200Ω	T60-778	BTS-8200	
R89	120KΩ	T60-817	BTS-120K	
R90	220KΩ	T60-886	BTA-220K	
R91	56KΩ	T60-802	BTS-56K	
R92	10KΩ	T60-760	BTS-10K	
R93	1Meg	T60-688	BTS-1Meg	
R94	100Ω	T60-732		
R95	100Ω	T60-752		
R96	47Ω	T60-805	BW-1-47	
R97	15KΩ	T60-804	1 3/4A-15K	
R98	1.3Ω	T60-864		
R99	1Meg	T60-877		
R100	330Ω	T60-814	BTB-330	
R101	3300Ω	T60-816	BTB-3300	
R102	8200Ω	T60-878	BTB-8200	
R103	220KΩ	T60-672	BTS-220K	
R104	8200Ω	T60-778	BTS-8200	Note