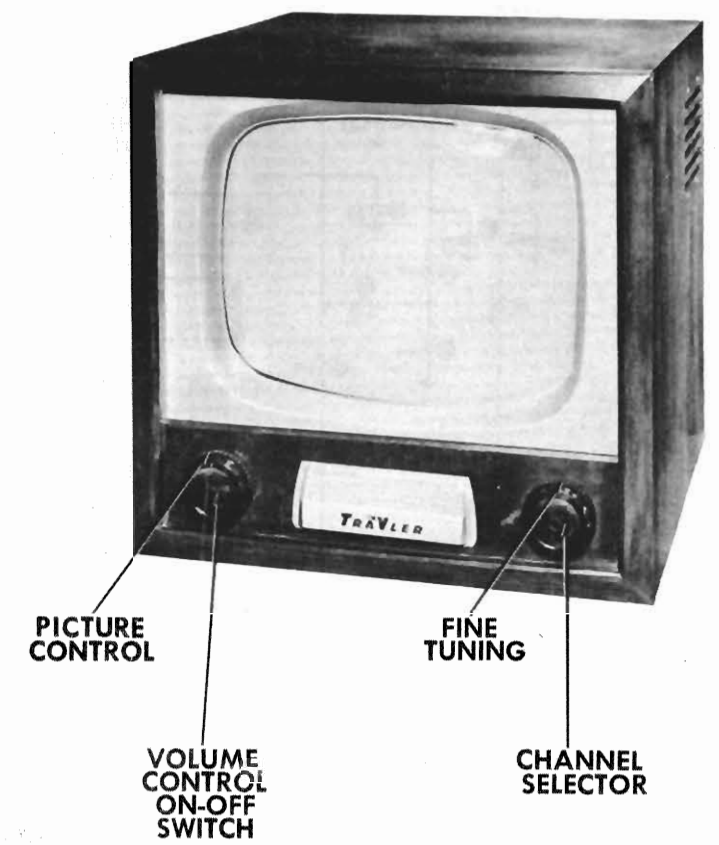


RESISTOR IDENTIFICATION



TRAV-LER MODEL 317-47

TRADE NAME	Trav-Ler Models 317-44, A (Ch. 46B3), 317-47, 321-46, 321-48 (Ch. 46A3)
MANUFACTURER	Trav-Ler Radio & Television Corp., 571 W. Jackson Blvd., Chicago, Ill.
TYPE SET	Television Receiver
TUBES	Twenty-one
POWER SUPPLY	110-120 Volts AC-60 Cycle
TUNING RANGE	Channels 2 thru 13, Video IF 26.25MC, Sound IF 21.25MC (Inter-carrier)
	RATING 1.74 Amp. @ 117 Volts AC
INDEX	
Alignment Instructions	6, 7
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	10
Resistor Identification.....	19, 20
Photographs (Cont)	
Trans., Inductor & Alignment Identification	13
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."

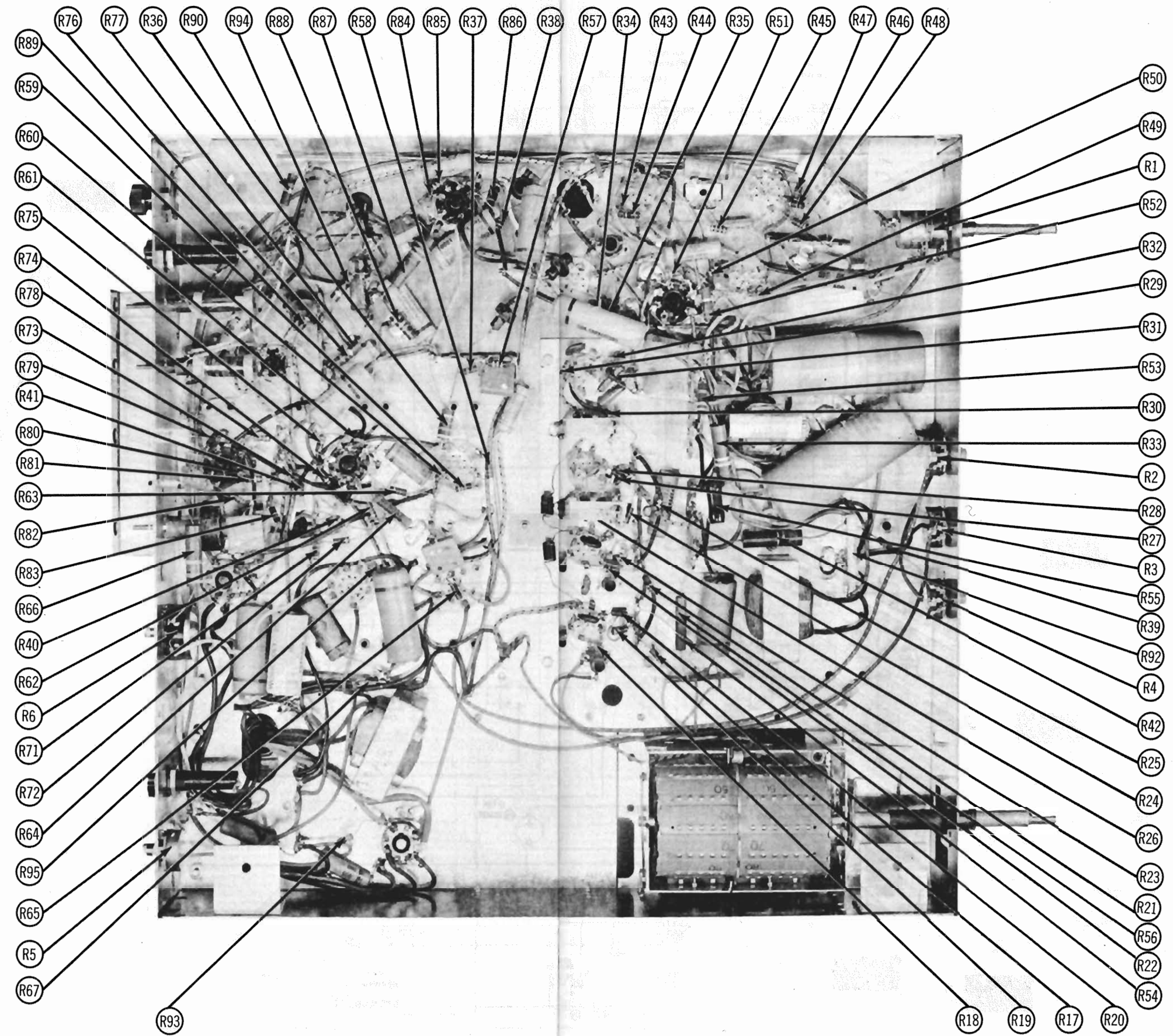
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DATE 5-54

SET 240

FOLDER 10

TRAVLER MODELS 317-44, A (Ch. 46B3),
317-47, 321-46, 321-48 (Ch. 46A3)

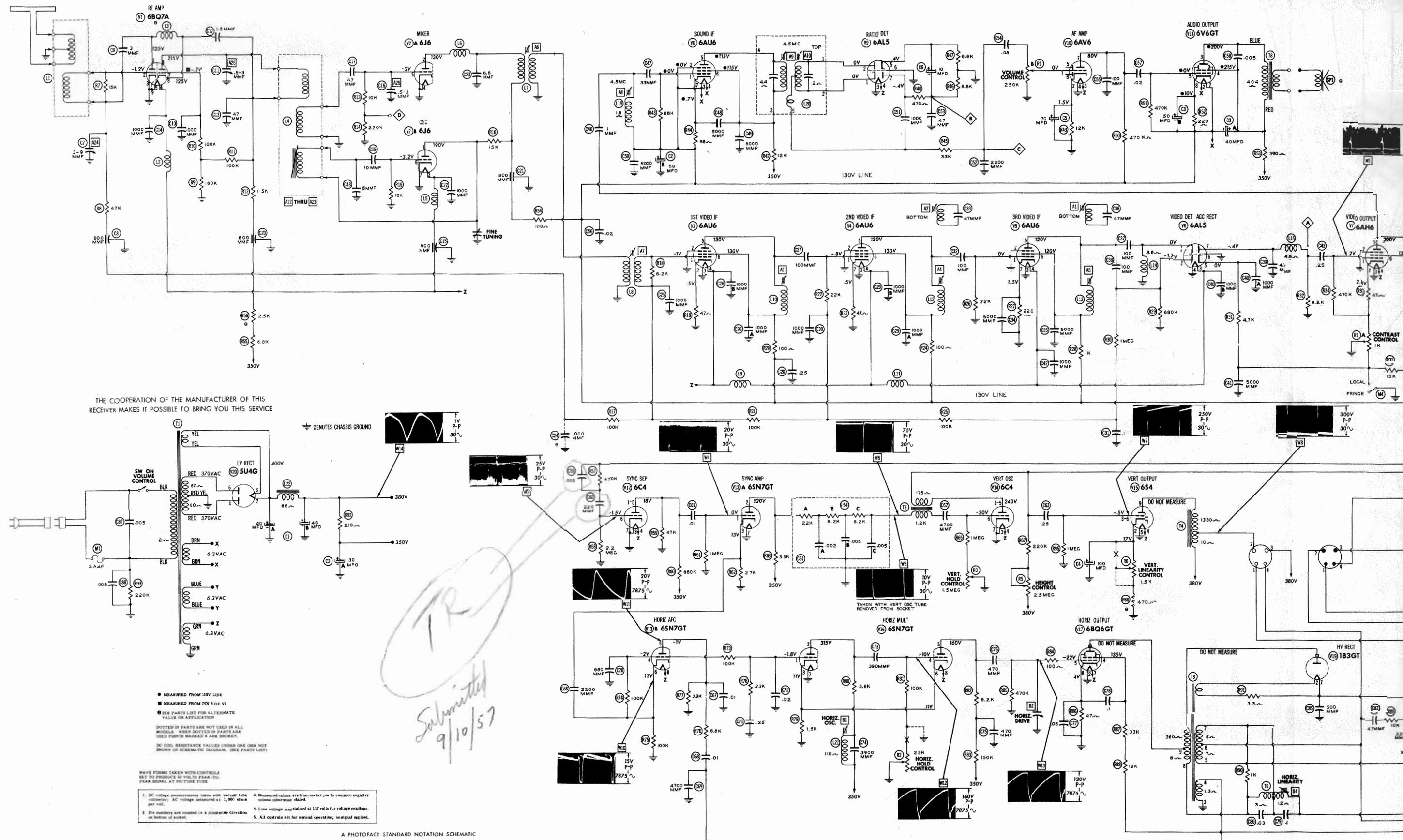


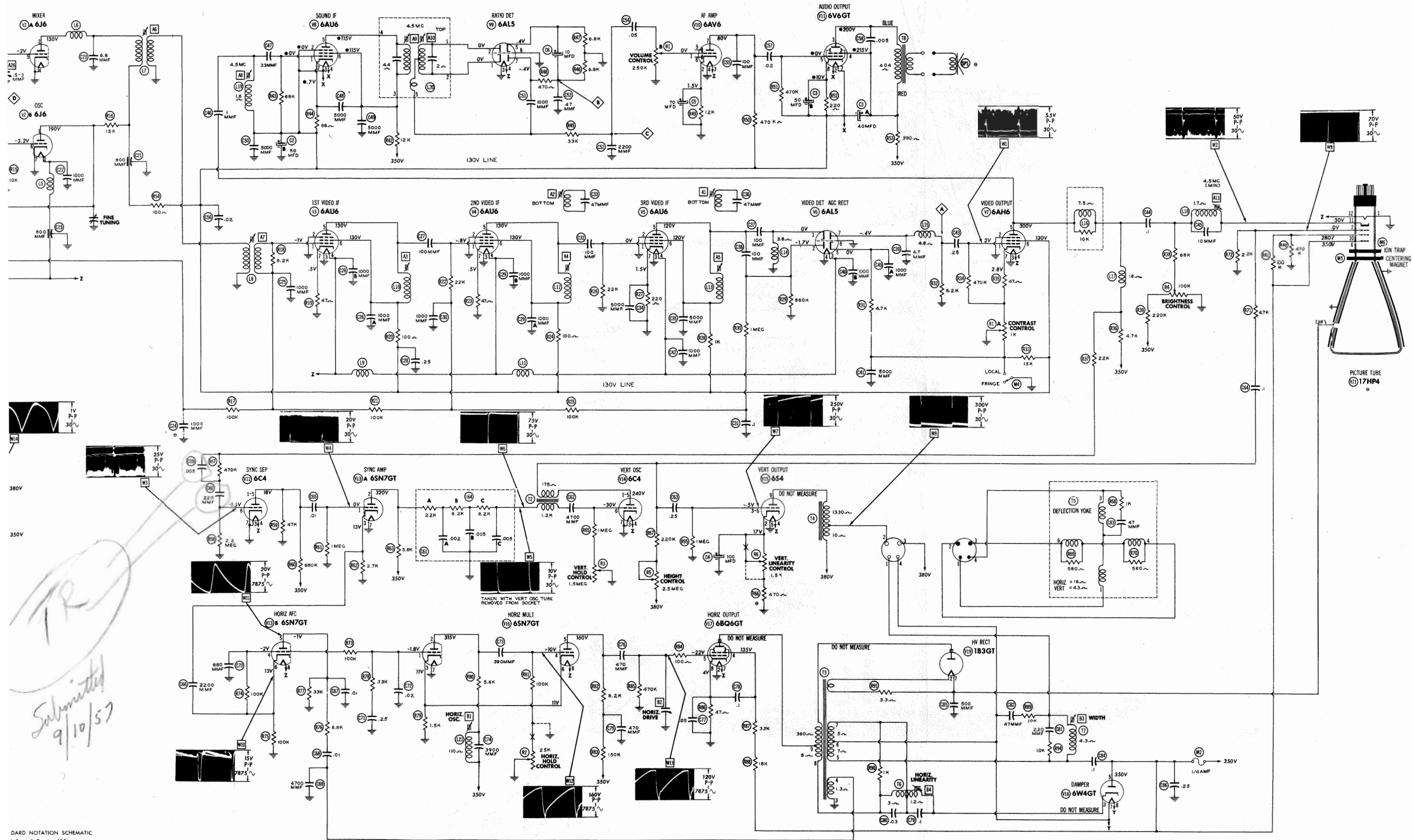
CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

TRADE NAME	Trav.
MANUFACTURER	Trav.
TYPE SET	Telev.
TUBES	Twen
POWER SUPPLY	110-12
TUNING RANGE—	Chan
Alignment Instructions	
Disassembly Instructio	
Horizontal Sweep Circu	
Parts List and Descrip	
Photographs	
Cabinet-Rear View	
Capacitor Identific	
Chassis-Top View	
RF Tuner	
Resistor Identifica	

HC

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case a recommendation, warrant
as to the quality and suitability o
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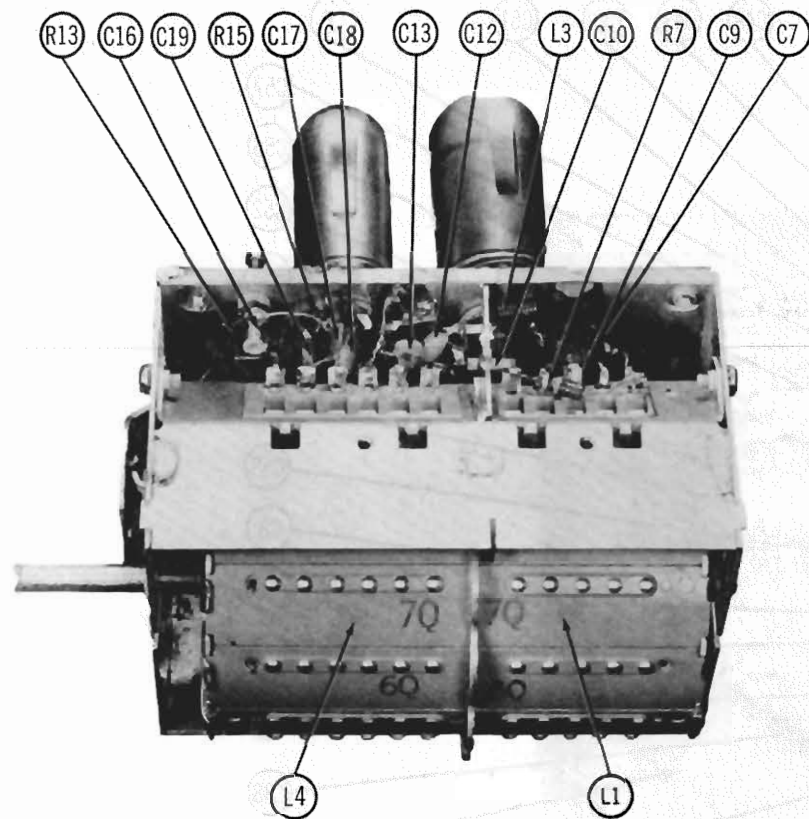




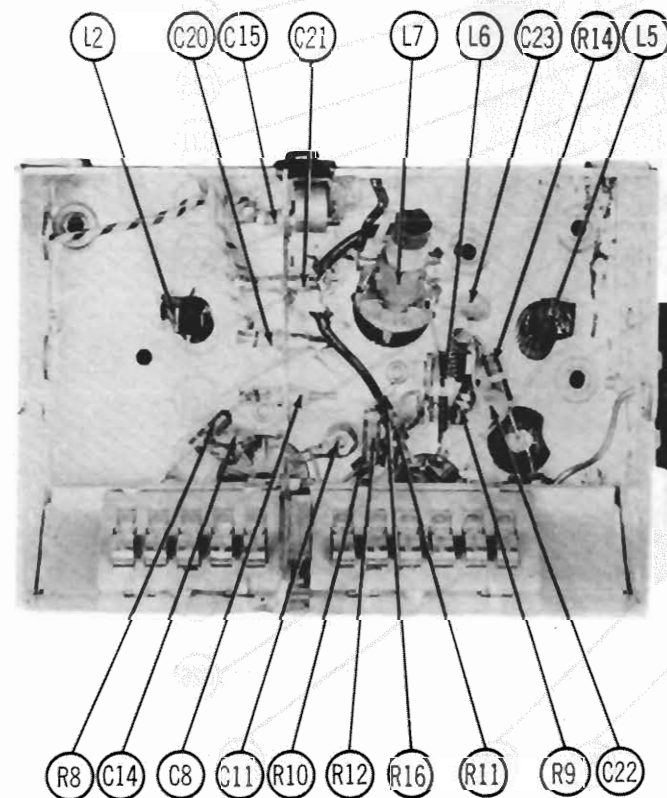
TRAYLER MODELS 317-44, A (Ch. 46B3),
317-47, 321-46, 321-48 (Ch. 46A3)

DARD NOTATION SCHEMATIC
1. Sams & Co., Inc. 1954

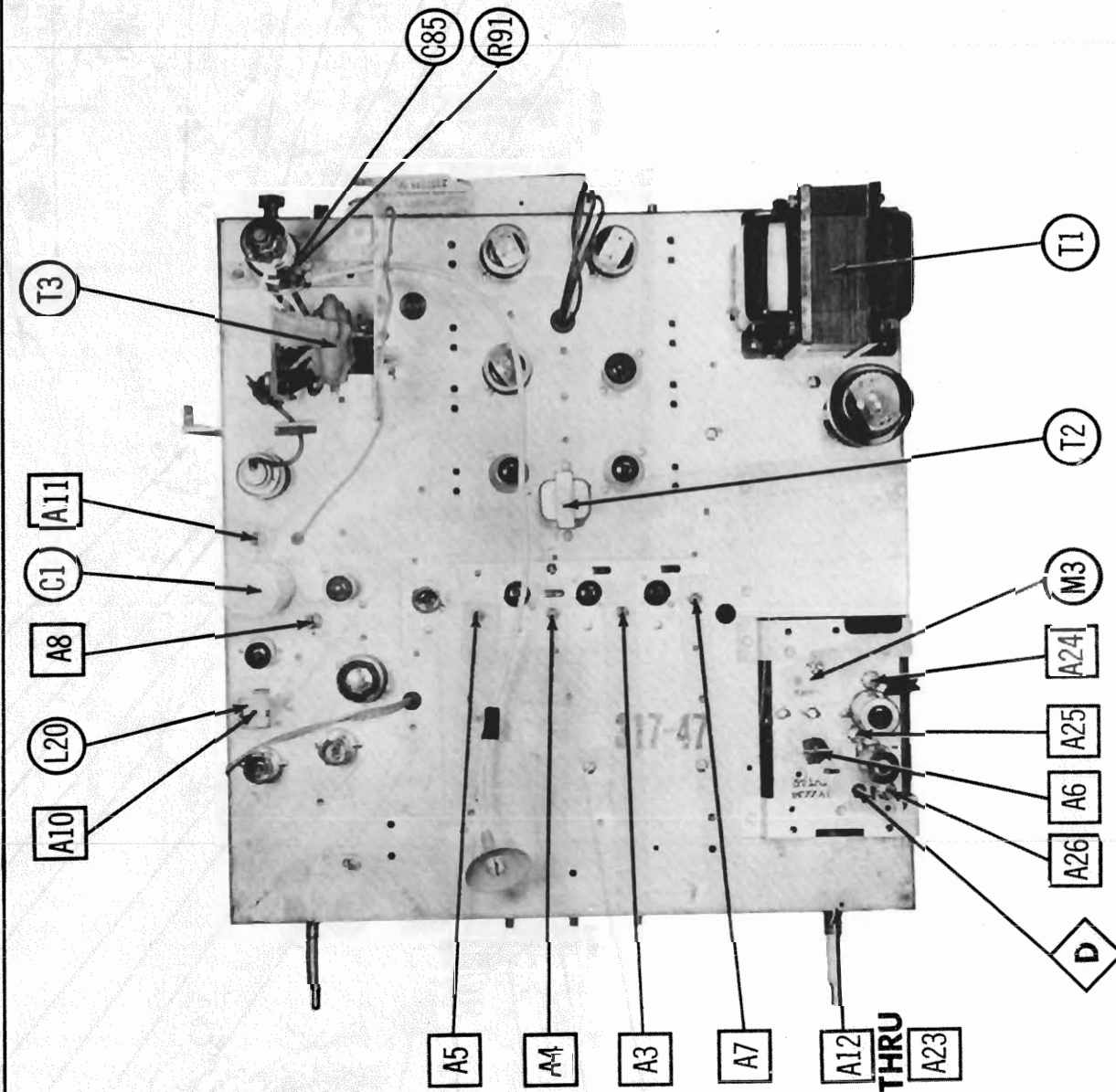
Submitted
9/10/57



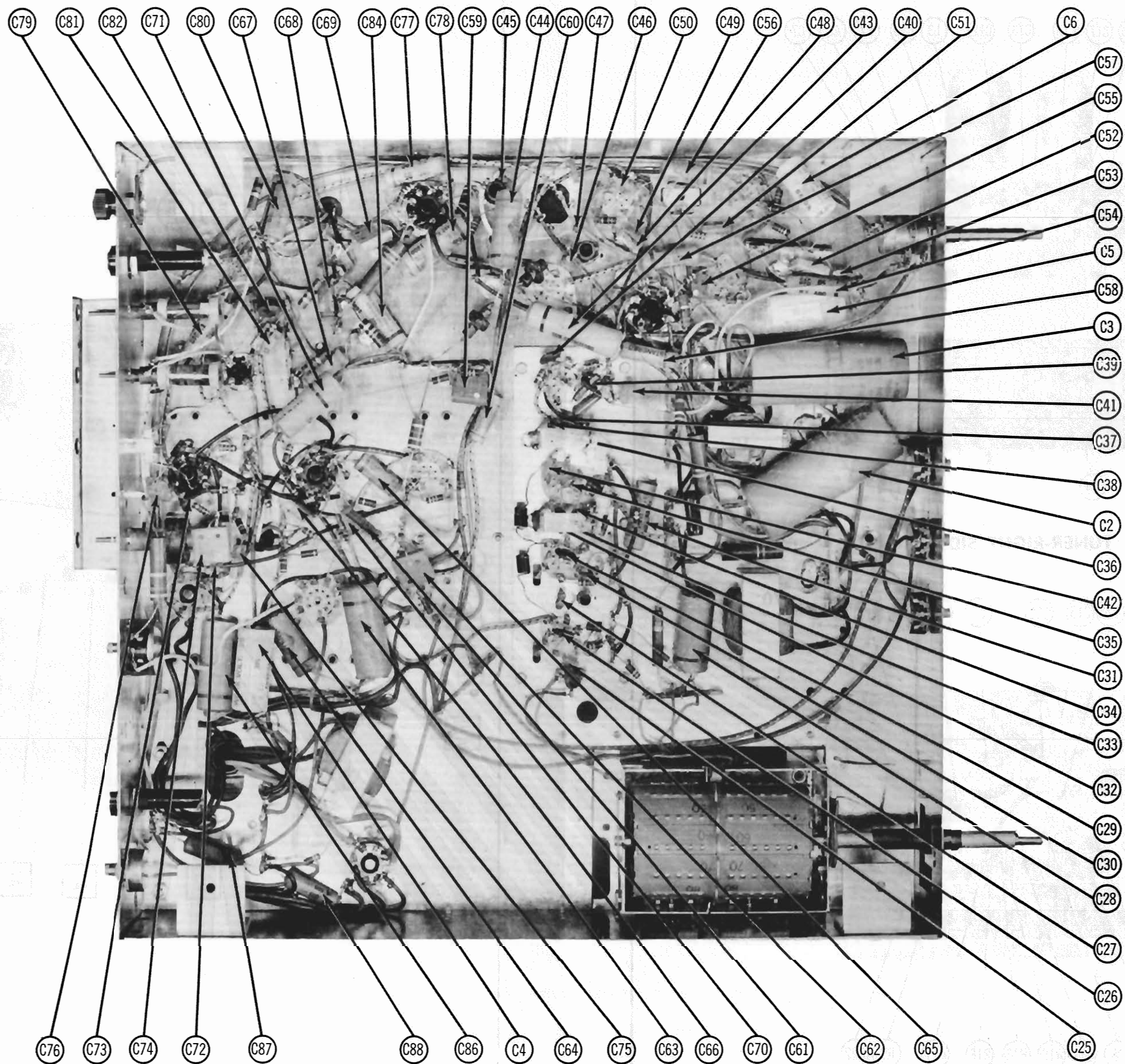
RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



TRAVLER MODELS 317-44, A (Ch. 46B3),
317-47, 321-46, 321-48 (Ch. 46A3)
MAIN POL SISSVHD

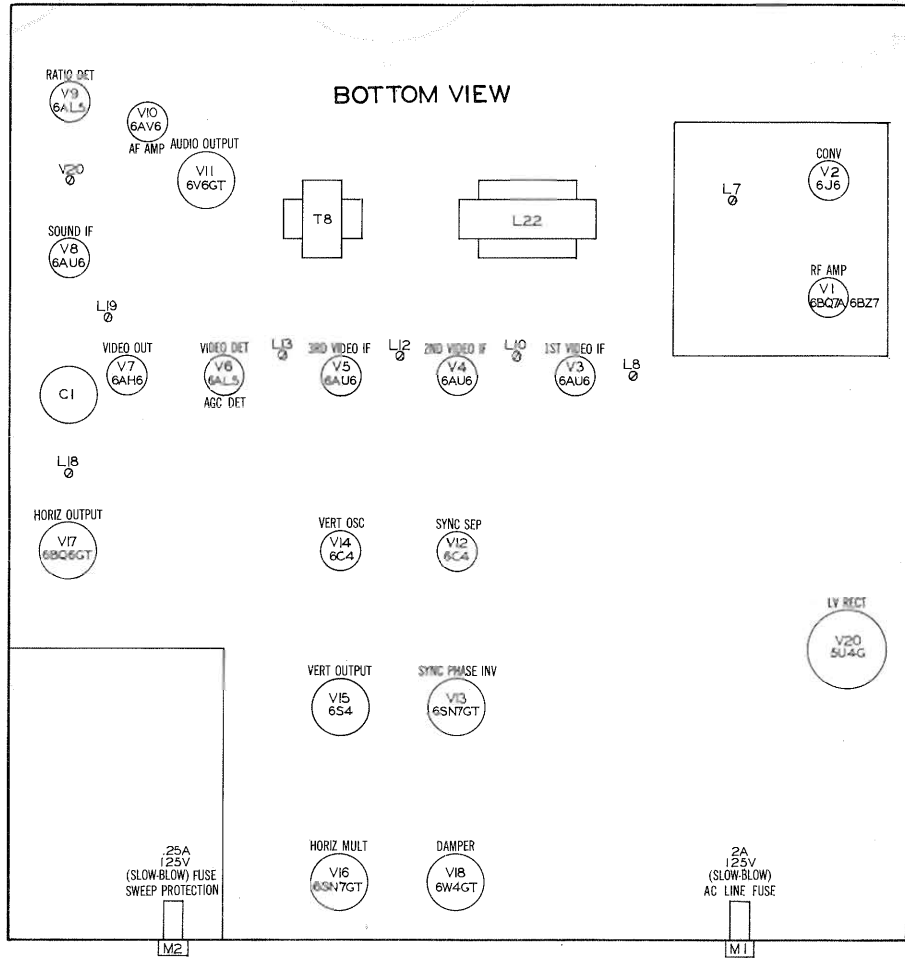


CHASSIS-BOTTOM VIEW-CAPACITOR IDENTIFICATION

RESISTANCE MEASUREMENTS

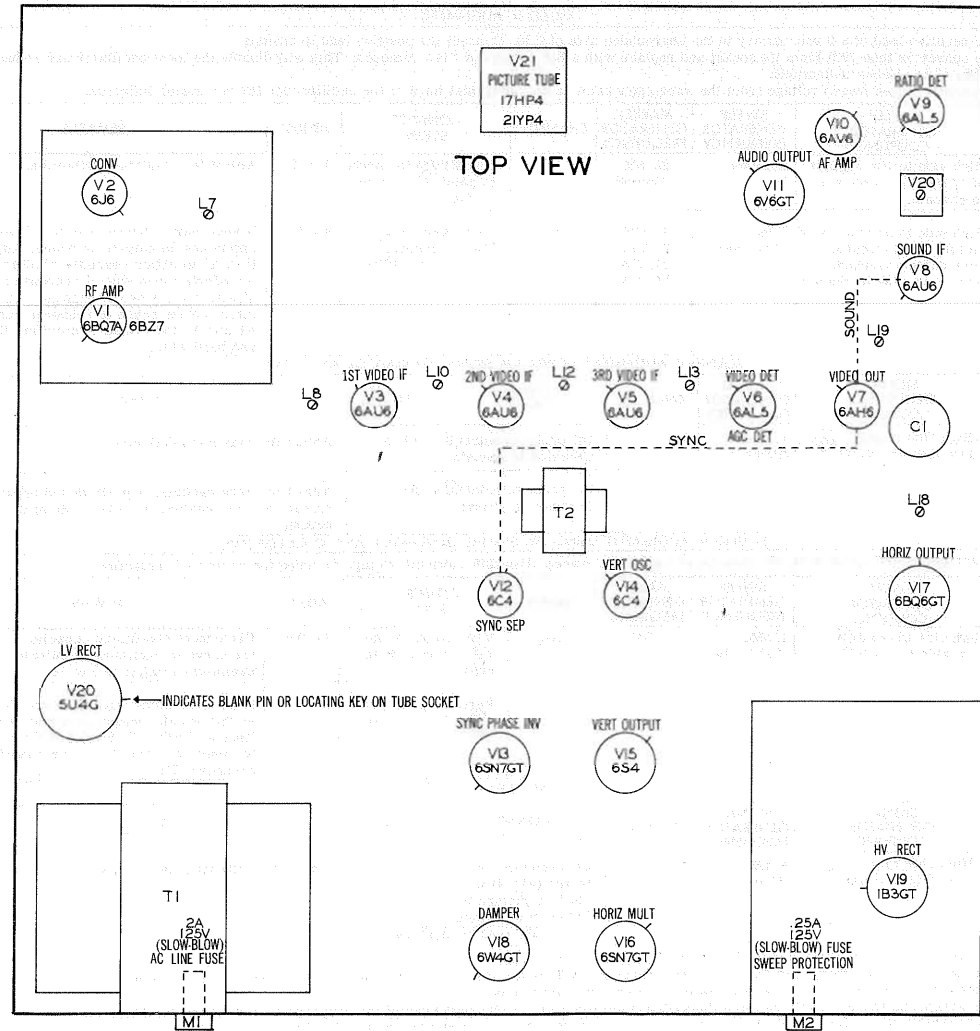
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BQ7	INF	2Meg	0Ω	.1Ω	0Ω	†11KΩ	†80KΩ	INF	0Ω
V 2	6J6	▲15KΩ	▲100Ω	.1Ω	0Ω	230KΩ	10KΩ	0Ω		
V 3	6AU6	1.9Meg	0Ω	0Ω	.1Ω	▲100Ω	▲100Ω	47Ω		
V 4	6AU6	1.8Meg	0Ω	0Ω	.1Ω	▲100Ω	▲100Ω	47Ω		
V 5	6AU6	22KΩ	0Ω	0Ω	.1Ω	▲1KΩ	▲1KΩ	220Ω		
V 6	6AL5	3.5Ω	680KΩ	.1Ω	0Ω	6.5KΩ	0Ω	8.2KΩ		
V 7	6AH6	470KΩ	0Ω	0Ω	.1Ω	†4.9KΩ	15KΩ	160Ω		
V 8	6AU6	▲68KΩ	▲0Ω	▲.1Ω	▲.1Ω	†12.3KΩ	▲0Ω	▲68Ω		
V 9	6AL5	INF	INF	0Ω	.1Ω	7.2KΩ	0Ω	7.2KΩ		
V 10	6AV6	250KΩ	12KΩ	.1Ω	0Ω	INF	INF	▲470KΩ		
V 11	6V6GT	INF	▲.1Ω	†1KΩ	†650Ω	▲470KΩ	▲0Ω	▲0Ω		
V 12	6C4	45KΩ	INF	0Ω	.1Ω	45KΩ	2.2Meg	0Ω		
V 13	6SN7GT	1Meg	†5.9KΩ	2.7KΩ	200KΩ	33KΩ	100KΩ	0Ω	.1Ω	
V 14	6C4	†550KΩ	800KΩ	0Ω	.1Ω	550KΩ	1.8Meg	0Ω		
V 15	6S4	INF	1KΩ	1Meg	.1Ω	0Ω	1Meg	INF	INF	†1.4KΩ
V 16	6SN7GT	300KΩ	†6KΩ	1.5KΩ	120KΩ	160KΩ	1.5KΩ	0Ω	.1Ω	
V 17	6BQ6GT	INF	0Ω	INF	†51KΩ	470KΩ	470KΩ	.1Ω	47Ω	TOP CAP ▲11Ω
V 18	6W4GT	INF	INF	INF	INF	†280Ω	INF	▲1KΩ	▲1KΩ	
V 19	1B3GT		PINS	1 - 8	HAVE	INF	RESISTANCE			TOP CAP ▲370Ω
V 20	5U4G	INF	70KΩ	INF	60Ω	INF	60Ω	INF	70KΩ	
V 21	17HP4	0Ω	2.2KΩ	PIN 6 †280Ω	PIN 10 †100KΩ	PIN 11 110KΩ	PIN 12 .1Ω			

▲ MEASURED FROM 130V LINE
† MEASURED FROM PIN 2 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 - V20, Fuse (M1)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V2, V3, V4, V5, V6, V7, V11
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V7, V21
Has pic, no sound - V8, V9, V10, V11

SYNC FAILURE
No vert. sync - V13, V14
No horiz. sync - V13, V16
No vert. or horiz. sync - V12, V13

SWEEP FAILURE
No raster, has sound - V16, V17, V18, V19, V21, Fuse (M2)
No vertical deflection - V14, V15
Poor vert. linearity or foldover - V14, V15
Poor horiz. linearity or foldover - V16, V17, V18
Narrow picture - V16, V17, V18, V19, V20
Vert. off freq. - V13, V14
Horiz. off freq. - V13, V16

TRAVLER MODELS 317-44, A (Ch. 46B3),
317-47, 321-46, 321-48 (Ch. 46A3)

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 (V16) to disable the high voltage.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt battery to the ungrounded side of C30. Connect the positive lead to chassis. Remove the converter tube (V2) 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. 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. Direct	High side to Pin 1 (grid) of 6AU6 (V3). Low side to chassis.	Not used	20.6MC (Unmod)	13	Use VTVM DC probe to point (A). Common to chassis.	A1, A2	Adjust for maximum deflection.
2. "	High side to any ungrounded tube shield floating over dummy converter tube. Low side to chassis.	24MC (10MC Swp)	20.6MC 21.75MC 22.75MC 26.25MC	Any	Vert. amp. thru 10KΩ to point (A). Low side to chassis.	A3, A4 A5, A6 A7	If necessary, reduce bias to 1.5 volts to obtain usable pattern on scope. Adjust A3 thru A7 to obtain response similar to Fig. 1. A3 affects video side of response and A4 affects audio side of response. A5 affects intermediate range of response curve. Adjust A6 and A7 for proper symmetry, flatness, and band width.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
3. Direct	High side to point (A). Low side to chassis.	4.5MC (Unmod)	Any	DC probe to point (B). Common to chassis.	A8, A9	Adjust for maximum deflection.
4. "	"	"	"	DC probe to point (C). Common to chassis.	A10	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 120V sawtooth voltage in scope for horizontal deflection.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3. Direct	High side to point (A). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. amp. to point (B). Low side to chassis.	A8, A9	Disconnect stabilizing capacitor C6. Adjust for curve of maximum amplitude and symmetry similar to Fig. 2.
4. "	"	"	"	"	Vert. amp. to point (C). Low side to chassis.	A10	Reconnect stabilizing capacitor C6. Adjust so that 4.5MC occurs at center of crossover lines as in Fig. 3. SLIGHTLY retouch A9 for for maximum amplitude and straightness of crossover lines.

4.5MC TRAP ALIGNMENT

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5. Direct	High side to point (A). Low side to chassis.	4.5MC (Unmod)	Any	DC probe thru detector (Fig. 4) to pin 11 of picture tube. Common to chassis.	A-11	Adjust for MINIMUM deflection.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the 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.

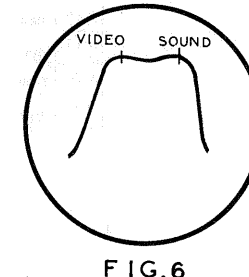
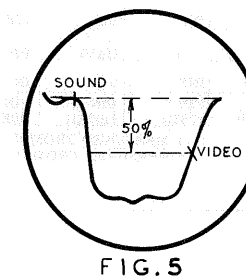
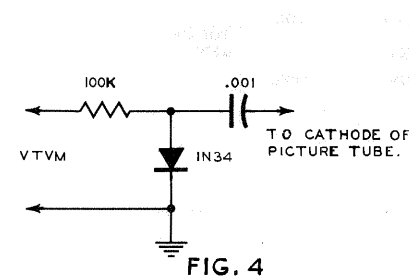
DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6. Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.25MC 209.75MC	12	Vert. amp. thru 10KΩ to point (A). Low side to chassis.	A12	Adjust to place video marker at 50% on response curve with sound marker as shown in Fig. 5.
		213MC (10MC Swp)	211.25MC 215.75MC	13		A13	
		201MC (10MC Swp)	199.25MC 203.75MC	11		A14	
		195MC (10MC Swp)	193.25MC 197.75MC	10		A15	
		189MC (10MC Swp)	187.25MC 191.75MC	9		A16	
		183MC (10MC Swp)	181.25MC 185.75MC	8		A17	
		177MC (10MC Swp)	175.25MC 179.75MC	7		A18	
		85MC (10MC Swp)	83.25MC 87.75MC	6		A19	
		79MC (10MC Swp)	77.25MC 81.75MC	5		A20	
		69MC (10MC Swp)	67.25MC 71.75MC	4		A21	
		63MC (10MC Swp)	61.25MC 65.75MC	3		A22	
		57MC (10MC Swp)	55.25MC 59.75MC	2		A23	

ALIGNMENT INSTRUCTIONS (cont)

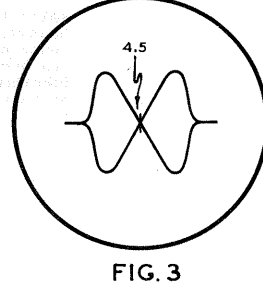
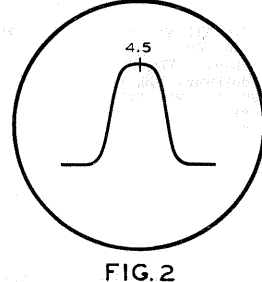
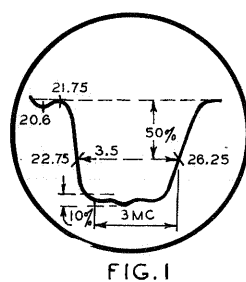
RF AND MIXER ALIGNMENT

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
7. Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.25MC 209.75MC	12	Vert. amp. thru 10KΩ to point (A). Low side to chassis.	A24, A25 A26	Adjust for response curve similar to Fig. 6. with markers above 90%.
8. "	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"	"	If markers fall below 90% on any channel make compromise adjustment of A24, A25 and A26 with channel switch set to that channel then check all other channels to see that they have not been seriously affected.
		201MC (10MC Swp)	199.25MC 203.75MC	11			
		195MC (10MC Swp)	193.25MC 197.75MC	10			
		189MC (10MC Swp)	187.25MC 191.75MC	9			
		183MC (10MC Swp)	181.25MC 185.75MC	8			
		177MC (10MC Swp)	175.25MC 179.75MC	7			
		85MC (10MC Swp)	83.25MC 87.75MC	6			
		79MC (10MC Swp)	77.25MC 81.75MC	5			
		69MC (10MC Swp)	67.25MC 71.75MC	4			
		63MC (10MC Swp)	61.25MC 65.75MC	3			
		57MC (10MC Swp)	55.25MC 59.75MC	2			



TRAVLER MODELS 317-44, A (Ch. 46B3),
317-47, 321-46, 321-48 (Ch. 46A3)



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, thru the small hole in the cabinet to the right of the channel selector shaft.

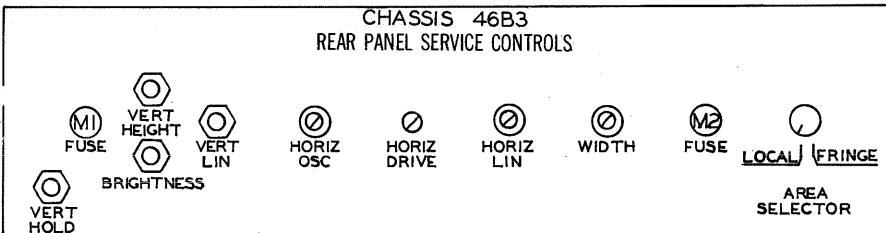
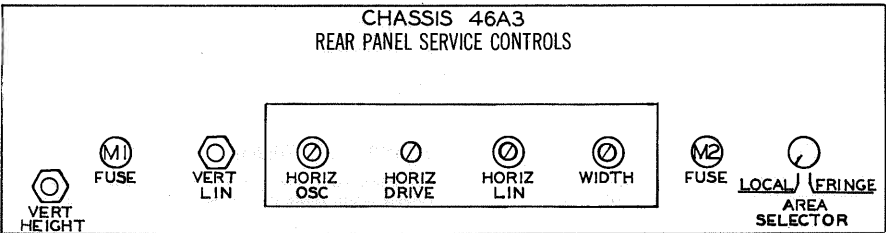
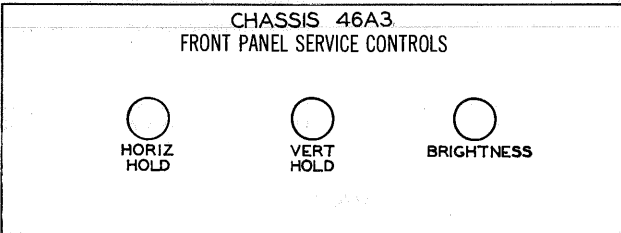
PICTURE TUBE SAFETY GLASS CLEANING

For picture tube safety glass cleaning, it is necessary to remove chassis. (See disassembly instructions).

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 can 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 (L21) until the picture synchronizes horizontally. For chassis 46B3 adjustment of the horizontal oscillator circuit can be made from rear panel of chassis, adjust the horizontal oscillator slug (L21) until picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (L20) located on top of chassis. (See tube placement chart).

FUSES

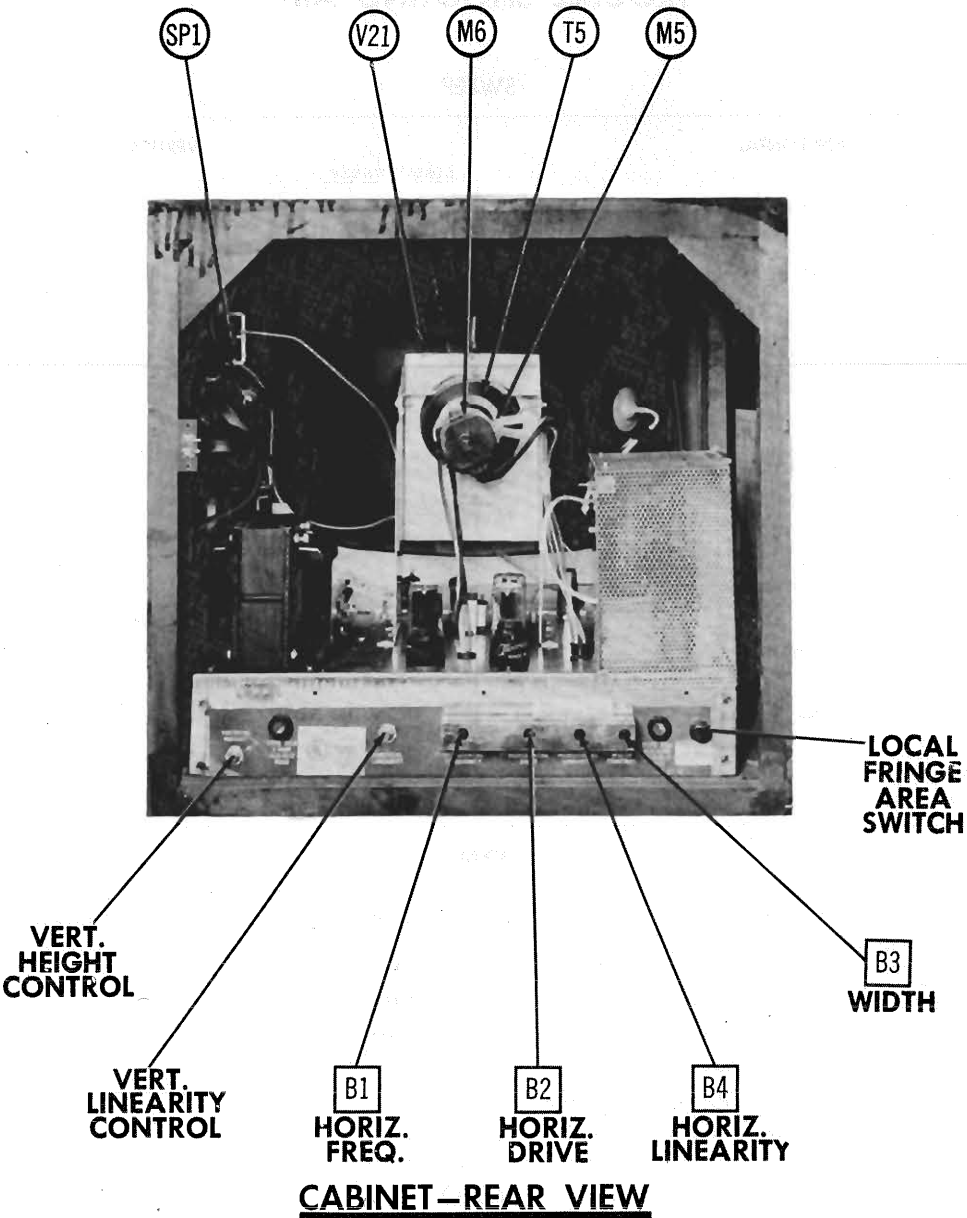
Two fuses are used. One for horizontal sweep circuit protection and one for LV power supply protection. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

DISASSEMBLY INSTRUCTIONS

1. Remove 4 push on type control knob from front panel.
2. Disconnect built-in antenna and speaker plug.
3. Remove 5 wood screws, and 3 metal screws. Remove rear cover.
4. Remove 2 wood screws. Remove transmission line.
5. Remove 4 chassis bolts. Remove chassis.
6. Remove 4 speaker nuts. Remove speaker.



HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

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

Set the horizontal hold control to its mid-range position and adjust the horizontal oscillator slug (B1) until the picture synchronizes horizontally. Momentarily remove the signal by switching off channel and back again. If picture does not pull into sync slightly retouch B1. Repeat this procedure until proper sync action is obtained.

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

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

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

TRAVLER MODELS 317-44, A (Ch. 46B3),
317-47, 321-46, 321-48 (Ch. 46A3)

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL	VERTICAL								
<p><u>LOSS OF SWEEP</u></p> <p>Follow procedure outlined under "Loss of High Voltage".</p> <p><u>INSUFFICIENT SWEEP</u></p> <p>Check by substitution V16, V17, V18 and V20. Check adjustments B2, B3, and B4. Check waveform W13.</p> <table> <tr> <td>If Satisfactory</td><td>If Unsatisfactory</td></tr> <tr> <td>Check C78, C79, C80, C84, R87, R88, R90, T3, T5A, and other associated circuit components.</td><td>Check C73, C78, R82, R83, R85 and other associated circuit components.</td></tr> </table> <p><u>DRIVE LINES</u></p> <p>Check adjustment B2. Check by substitution V16, V17 and V18. Check C73, C76, C75, C79, C80, R82, R83, R85, T3, T5A and other associated circuit components.</p> <p><u>COMPRESSED AT LEFT SIDE</u></p> <p>Check by substitution V16, V17 and V18. Check adjustments B2, B3 and B4. Check components associated with the horizontal output and damper stages especially T3 and T5A for failure or change of value.</p> <p><u>FOLDS</u></p> <p>Follow procedure outlined under "Drive Lines".</p> <p><u>PIE CRUST EFFECT</u></p> <p>Check by substitution V17 and V18. Check T3, T5A, T6 and T7. Check C72 for open.</p> <p><u>XMAS TREE EFFECT</u></p> <p>Substitute V16. Check C73, C74, L21 and other associated components.</p>	If Satisfactory	If Unsatisfactory	Check C78, C79, C80, C84, R87, R88, R90, T3, T5A, and other associated circuit components.	Check C73, C78, R82, R83, R85 and other associated circuit components.	<p><u>LOSS OF SWEEP</u></p> <p>Check by substitution V14 and V15. Check waveform W7.</p> <table> <tr> <td>If Satisfactory</td><td>If Unsatisfactory</td></tr> <tr> <td>Check T4, T5B, R6, R66 and other associated circuit components.</td><td>Check T2, C63, R95 and other associated circuit components.</td></tr> </table> <p><u>INSUFFICIENT SWEEP</u></p> <p>Check adjustment of height and vertical linearity controls. Proceed as outlined under "Loss of Sweep".</p> <p><u>COMPRESSED AT BOTTOM</u></p> <p>Check by substitution V14 and V15. Check T4, T5B, C4 and other associated components.</p> <p><u>COMPRESSED AT TOP</u></p> <p>Check by substitution V14 and V15. Check T2, C63, R95 and other associated components.</p> <p><u>FOLDS</u></p> <p>Check by substitution V14 and V15. Check associated components for failure or change of value.</p>	If Satisfactory	If Unsatisfactory	Check T4, T5B, R6, R66 and other associated circuit components.	Check T2, C63, R95 and other associated circuit components.
If Satisfactory	If Unsatisfactory								
Check C78, C79, C80, C84, R87, R88, R90, T3, T5A, and other associated circuit components.	Check C73, C78, R82, R83, R85 and other associated circuit components.								
If Satisfactory	If Unsatisfactory								
Check T4, T5B, R6, R66 and other associated circuit components.	Check T2, C63, R95 and other associated circuit components.								

SYNC

<p><u>LOSS OF VERTICAL AND HORIZONTAL SYNC</u></p> <p>Check by substitution V12 and V13. Check components associated with V12 and V13A especially C60, C65, R58, R59, R60 and R61.</p> <p><u>LOSS OF VERTICAL SYNC-HORIZONTAL SYNC SATISFACTORY</u></p> <p>Check by substitution V12, V13 and V14. Check waveform W5.</p> <table> <tr> <td>If Satisfactory</td><td>If Unsatisfactory</td></tr> <tr> <td>Check components associated with V14 especially T2, R65, and C62.</td><td>Check vertical integrator and other associated components. Check video IF stages for overloading.</td></tr> </table>	If Satisfactory	If Unsatisfactory	Check components associated with V14 especially T2, R65, and C62.	Check vertical integrator and other associated components. Check video IF stages for overloading.	<p><u>LOSS OF HORIZONTAL SYNC-VERTICAL SYNC SATISFACTORY</u></p> <p>Check by substitution V13 and V16. Check associated components especially C73, C74 and L21.</p> <p><u>HORIZONTAL BENDING</u></p> <p>Check by substitution V13, V16 and V17. Check the horizontal AFC filter network (C70, C71, C72, R73 and R78) for failure or change of value.</p>
If Satisfactory	If Unsatisfactory				
Check components associated with V14 especially T2, R65, and C62.	Check vertical integrator and other associated components. Check video IF stages for overloading.				

VIDEO

<p><u>LOSS OF VIDEO</u></p> <p>Check by substitution V6 and V7. Check C44, picture tube, R38, R4 and other associated circuit components.</p> <p><u>SOUND BARS (4.5MC BEAT)</u></p> <p>Adjust tuner fine tuning for best picture and sound. Check adjustment A11. Check video IF alignment.</p> <p><u>POOR CONTRAST</u></p> <p>Check by substitution V6 and V7. Check contrast control, picture tube and other associated components for failure or change of value.</p>	<p><u>NEGATIVE PICTURE</u></p> <p>Check by substitution V7, V6, V5, V4, V3, and V1. Check AGC network components. Check picture tube and other associated components.</p> <p><u>SMEAR</u></p> <p>Check by substitution V7, V6, V1, V3, V4 and V5. Check L15, L17, R34, R36, C43, C44, picture tube and other associated circuit components.</p> <p><u>WIDE BLACK BAR ACROSS PICTURE</u></p> <p>Check V1, V3, V4, V5, V6 and V7 for heater to cathode leakage.</p>
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AUDIO

<p><u>WEAK OR NO SOUND</u></p> <p>Check by substitution V8, V9, V10 and V11. Check stages V10 and V11 using audio signal generator. Apply audio signal across R1B.</p> <table> <tr> <td>If Satisfactory</td><td>If Unsatisfactory</td></tr> <tr> <td>Check ratio detector and audio IF alignment and components.</td><td>Check components associated with V10 and V11 especially C57 and T8.</td></tr> </table>	If Satisfactory	If Unsatisfactory	Check ratio detector and audio IF alignment and components.	Check components associated with V10 and V11 especially C57 and T8.	<p><u>BUZZ</u></p> <p>Adjust tuner fine tuning for best picture and sound. Adjust A10 for minimum buzz. If still unsatisfactory, substitute V9 and realign audio IF and detector stages.</p> <p><u>DISTORTED</u></p> <p>Follow procedure outlined under "Weak or No Sound".</p>
If Satisfactory	If Unsatisfactory				
Check ratio detector and audio IF alignment and components.	Check components associated with V10 and V11 especially C57 and T8.				

TROUBLE SHOOTING AIDS (cont)

POWER

<p><u>DEAD SET</u></p> <p>If filaments fail to light, check fuse M1, AC interlock assembly, switch on volume control and T1. If filaments light, substitute V20, Check B+ filter and decoupling network components.</p>	<p><u>SMALL AND/OR DIM PICTURE</u></p> <p>Check by substitution V20 and V11. Check B+ filter and decoupling network components.</p>
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HIGH VOLTAGE

<p><u>LOSS OF HIGH VOLTAGE</u></p> <p>Check by substitution V16, V17, V18 and V19. Check fuse M2. Check waveform W13.</p> <table> <tr> <td>If Satisfactory</td><td>If Unsatisfactory</td></tr> <tr> <td>Check R91, C85, T3, T5A, and other associated circuit components.</td><td>Check C73, C76, R83, R85 and other associated circuit components.</td></tr> </table>	If Satisfactory	If Unsatisfactory	Check R91, C85, T3, T5A, and other associated circuit components.	Check C73, C76, R83, R85 and other associated circuit components.	<p><u>INSUFFICIENT HIGH VOLTAGE</u></p> <p>Check by substitution V16, V17, V18, V19 and V20. Check picture tube. Proceed as outlined under "Loss of High Voltage".</p> <p><u>BLOOMING</u></p> <p>Check by substitution V16, V17, V18, V19 and V20. Check R91, C85, T3, T5A, R87, R88, C78 and other associated components for failure or change of value.</p>
If Satisfactory	If Unsatisfactory				
Check R91, C85, T3, T5A, and other associated circuit components.	Check C73, C76, R83, R85 and other associated circuit components.				

GENERAL

<p><u>RASTER SOUND NO PICTURE</u></p> <p>Follow procedure outlined under "Loss of Video".</p> <p><u>RASTER PICTURE NO SOUND</u></p> <p>Follow procedure outlined under "Weak or No Sound".</p> <p><u>RASTER NO SOUND NO PICTURE</u></p> <p>Check by substitution V1, V2, V3, V4, V5, V6 and V7. Check components associated with the video IF and tuner stages including the AGC network.</p>	<p><u>NO RASTER NO SOUND</u></p> <p>Follow procedure outlined under "Dead Set".</p> <p><u>KEystone EFFECT</u></p> <p>Check T5, C83, R68, R69 and R70.</p> <p><u>INTERMITTENT STREAKS</u></p> <p>Check high voltage section for corona discharge and arcing. Check for outside interference sources such as auto ignition etc.</p>
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Symptoms shown are assumed and are not indicative of the quality and workmanship of this equipment.

TRAVLER MODELS 317-44, A (Ch. 46B3),
317-47, 321-46, 321-48 (Ch. 46A3)

PARTS LIST & DESCRIPTION (continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 C)	TRAV-LER PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
L22	.190ADC	65.8Ω	2.4 Hy.	TV-FC-1	C-2325①	C-2991①	C-17X①	C5030①	T-26C43

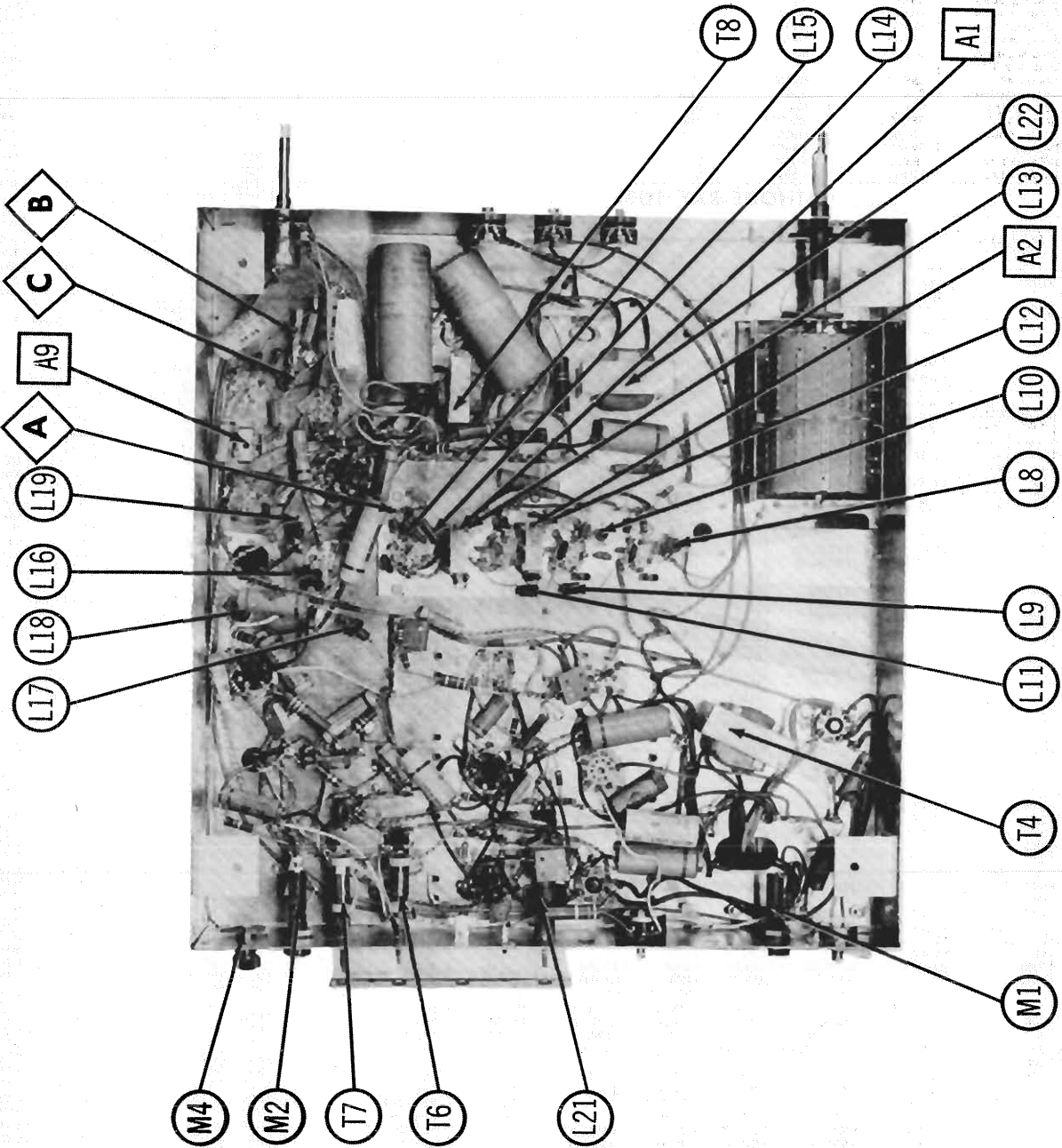
① Drill one new mounting hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			TRAV-LER PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG S/B	2A 125V.	TV-F-4	TV-F-2	313002 (3AG S/B-2A)	341001	MDL2	HKP
M2	3AG S/B	1/4A 125V.	TV-F-2	TV-F-2	313.250 (3AG S/B 1/4A)	341001	MDL 1/4	HKP

MISCELLANEOUS

ITEM No.	PART NAME	TRAV-LER PART No.	NOTES
M3	Tuner	TV-TA-9	VHF
M4	Switch	TV-SW-16	Local-fringe (AGC)
M5	Centering Magnet	TV-MA-8	
M6	Ion Trap	TV-MA-7	
B2	Trimmer Cap.	TV-TC-11	Horiz. Drive
	Safety Glass	TV-DW-47	Model 317-44
	Safety Glass	TV-DW-49	Model 317-44A
	Safety Glass	TV-DW-45	Model 317-47
	Safety Glass	TV-DW-46	Model 321-46
	Safety Glass	TV-DW-44	Model 321-48
	Knob	TV-K-135	Channel Selector
	Knob	TV-K-136	Volume
	Knob	TV-K-120	Picture Control
	Knob	TV-K-124	Fine Tuning
	Knob	TV-K-137	Brass (317-44 & 317-44A only)
	IF Strip	TV-X-133	21MC Sub-assembly



IDENTIFICATION

TRAVLER MODELS 317-44, A (Ch. 46B3),
317-47, 321-46, 321-48 (Ch. 46A3)

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETNIA BASE TYPE	NOTES
		TRAV-LER PART No.	STANDARD REPLACEMENT		
V1A	RF Amplifier	6BQ7A	6BQ7A	9AJ	
V2	RF Amplifier-Converter	6BZ7	6BZ7	9AJ	
V3	1st. Video IF Amp.	6AU6	6AU6	7BF	
V4	2nd. Video IF Amp.	6AU6	6AU6	7BK	
V5	3rd. Video IF Amp.	6AU6	6AU6	7BK	
V6	Video Detector	6AL5	6AL5	6BT	
V7	AGC Rectifier	6AH6	6AH6	7BK	
V8	Video Output	6AU6	6AU6	7BK	
V9	Sound IF Amp.	6AL5	6AL5	6BT	
V10	Ratio Detector	6AV6	6AV6	7BT	
V11	Audio Output	6V6GT	6V6GT	7S	
V12	Sync Separator	6C4	6C4	6BG	
V13	Sync Amplifier-Horiz. AFC	6SN7GT	6SN7GT	8BD	
V14	Vert. Oscillator	6C4	6C4	6BG	
V15	Vert. Output	6S4	6S4	9AC	
V16	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V17	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V18	Damper	6W4GT	6W4GT	7CG	
V19	HV Rectifier	1B3GT	1B3GT	3C	
V20	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	TRAV-LER PART No.	REPLACEMENT DATA		RETNIA TYPE	NOTES
		SYLVANIA PART No.	GENERAL ELECTRIC PART No.		
V21A	17HP4	17HP4	17HP4	12L	
B	21YP4	21YP4	21YP4	12L	

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 CAP. VOLT	REPLACEMENT DATA						NOTES
		TRAV-LER PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	
C1A	40 450	TV-EC-16	AFH2-57		B045		FP238	TVL-2764
C2A	30 450	TV-EC-25	PRS450/30		BR3045		2N535	TV-1711
C3A	50 200	TV-EC-17	PRS250/40		BR4025		2N533	TV-1712
C4	100 25	TV-EC-27	PRS50/50		BR505		TC2501	TV-1308
C5	70 10	TV-EC-6	SRE12/100		BRH251		TC442	TV-1307
C6	10 50	TV-EC-20	PRS50/10		BRH70-10T		TC32	TV-1304
C7	3-9 800		EF-001	829-10		3139-01-IR5		503C-D1
C8	3 3		SI3NP0	TCZ-3.3	Z007	NP0K-030	ZT-5533	5TCCB-V3
C9	1000		EF-001	MFT-1000		CT565A		503C-D1
C10	1000		EF-001	TCZ-1.5		NP0K-IR5	ZT-5515	5TCCB-V15
C11	1.5-3		SIL5NP0	BPD-000047	G033	801-470	UC-5447	5GA-Q47
C12	1.5		BPD-001	DD-102	K069	801-001	DC-521	5HK-D1
C13	47		EF-001	MFT-1000		3115-01-OR5	CT565A	5GA-Q47
C14	1000		BPD-001	DD-102	K069	801-001	DC-521	5HK-D1
C15	800		EF-001	MFT-1000		3115-01-OR5	CT565A	5GA-Q47
C16	1.5-3		BPD-000047	DD-102	K069	801-470	UC-5447	5GA-Q47
C17	47		SI3NP0	TCN-5	N011	NP0K-050	ZT-541	5TCCB-V5
C18	5		SI3NP0	TCZ-100	Z018	NP0K-100	ZT-541	5TCCB-V5
C19	10		EF-001	MFT-1000		3115-01-OR5	CT565A	5GA-Q47
C20	800		BPD-001	DD-102	K069	801-001	DC-521	5HK-D1
C21	800		EF-001	MFT-1000		3115-01-OR5	CT565A	5GA-Q47
C22	1000		BPD-001	DD-102	K069	801-001	DC-521	5HK-D1
C23	6.8		SI3NP0	TCZ-6.8	Z013	NP0K-6R8	ZT-5568	5TCCB-V68
C24	1000	TV-CC-2	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1
C25	1000	TV-CC-2	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1
C26A	1000	TV-CC-1	BPD-2X001	DD3-102	DK069	812-001	DCD-521	5HK-2D1
C27	100	TV-CC-5	SI100	D6-101	TP34	GPIK-101	UC-531	5GA-T1
C28	25	TV-PC-17	P688-25	CUB6P25		PT6025		6TM-P25
C29A	1000	TV-CC-1	3PD-2X001	DD3-102	DK069	812-001	DCD-521	5HK-2D1
C30	1000	TV-CC-2	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1
C31	1	TV-PC-3	P288-1	DF-104	CUB6P1		PT601	6TM-P1
C32	100	TV-CC-5	SI100	D6-101	TP34	GPIK-101	UC-531	5GA-T1
C33	47	TV-CC-12	SI47	D6-470	TP29	GPIK-470	UC-5447	5GA-Q47
C34	5000	TV-CC-3	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5
C35	5000	TV-CC-3	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5
C36	47	TV-CC-12	SI47	D6-470	TP29	GPIK-470	UC-5447	5GA-Q47
C37	100	TV-CC-5	SI100	D6-101	TP34	GPIK-101	UC-531	5GA-T1
C38	100	TV-CC-5	SI100	D6-101	TP34	GPIK-101	UC-531	5GA-T1
C39	4.7	TV-CC-15	SI4.7NP0	TCZ-4.7	TZ07	NP0K-4R7	ZT-555	5TCCB-V47
C40A	1000	TV-CC-1	BPD-2X001	DD2-102	DK069	812-001	DCD-521	5HK-2D1
C41	5000	TV-CC-3	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5
C42	1000	TV-CC-2	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1
C43	25	TV-PC-4	P288-25	DF-104	CUB6P25		PT4025	2TM-P25
C44	1	TV-PC-16	P688-1	DF-104	CUB6P1		PT601	6TM-P1
C45	10	TV-MC-6	SI10	D6-100	TP09	GPIK-100	UC-5441	5GA-Q1
C46	1	TV-CC-14	SI1NP0	TCZ-1	TZ03	NP0K-100	UC-5433	5TCCB-V1
C47	33	TV-CC-6	SI33	D6-330	TP27	GPIK-330	UC-5433	5GA-Q33
C48	5000	TV-CC-3	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5
C49	5000	TV-CC-3	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5
C50	5000	TV-CC-3	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5
C51	1000	TV-MC-16	1464-001	DF-104	DR5D1		MS-2	MS-2
C52	2200	TV-MC-11	1464-0025	DF-104	DR5D22		MS-2	MS-2
C53	47	TV-CC-12	SI47NP0	TCN-47	TN14		NT-5447	5TCU-Q47
C54	.05	TV-PC-5	P488-05	DF-503	CUB4S5		PT415	4TM-S5
C55	100	TV-MC-2	1468-0001	DF-203	5W5T1		MC235	1FM-31
C56	.02	TV-PC-14	P688-02	DF-203	CUB6S2		PT612	6TM-S2
C57	.02	TV-PC-14	P688-02	DF-203	CUB6S2		PT612	6TM-S2
C58	.005	600	P688-005	D6-502	CUB6D5	GP2-333-502	PT625	6TM-D5

PARTS LIST & DESCRIPTION

CAPACITORS (cont)

ITEM No.	RATING CAP. VOLT	REPLACEMENT DATA						NOTES
		TRAV-LER PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	
C59	.005	600	P688-005	D6-502	CUB6D5	GP2-333-502	PT625	6TM-D5
C60	.220	500	1468-00025	D6-221	5W5T22	GP2K-221	MC240	1FM-325
C61A	2000		*PA-110-1	*PC-100	*115TMI	*1405-01	DC-522	*101C1
C62	4700	500	TV-MC-10	1464-005	DR5D47		MCB405	MS-25
C63	.25	600	TV-PC-17	684-25	CUB6P25		PT6025	6TM-P25
C64	.1	600	TV-PC-16	P688-1	CUB6P1		PT601	6TM-P1
C65	.01	600	TV-PC-15	P688-01	CUB6S1	GP2-333-103	PT611	6TM-S1
C66	2200	500	TV-MC-11	1464-0025	DR5D22		MCB461	MS-22
C67	.01	600	TV-PC-15	P688-01	CUB6S1	GP2-333-103	PT611	6TM-S1
C68	.01	600	TV-PC-15	P688-01	CUB6S1	GP2-333-103	PT611	6TM-S1
C69	4700	500	TV-MC-10	1464-005	DR5D47		MCB465	MS-25
C70	680	500	TV-MC-15	1479-0007	5R5T68			
C71	.25	200	TV-PC-4	P288-25	CUB2P25		PT4025	2TM-P25
C72	.02	600	TV-PC-14	P688-02	CUB6S2	817-02	PT612	6TM-S2
C73	390	500	TV-MC-14	1479-0004	5R5T39		MCB243	MS-34
C74	3900	500	TV-MC-12	1464-004	DR5D39		MCB245	MS-34
C75	470	500	TV-MC-17	1469-0005	5R5T47		MCB245	MS-34
C76	470	500	TV-MC-17	1469-0005	5R5T47		MCB245	MS-34
C77	.05	400	TV-PC-15	P488-05	CUB4S5		PT415	4TM-S5
C78	.1	600	TV-PC-16	P688-1	CUB6P1		PT601	6TM-P1
C79	.1	200	TV-PC-3	P288-1	CUB2P1		PT601	2TM-P1
C80	.03	200	TV-PC-18	P288-03	CUB4S3		PT413	2TM-S3
C81	220	500	TV-MC-3	1479-00025	5R5T22		MCB240	
C82	47	1500	TV-CC-27	HVD30-000047	D30-470		20GA-Q47	20GA-Q47
C83	47	1500	TV-CC-25	HVD30-000047	D30-470		20GA-Q47	20GA-Q47
C84	.1	600	TV-PC-16	P688-1	CUB6P1		PT601	6TM-P1
C85	500	20000	TV-CC-22	HV20C	MMV20T5	413	HV20035B	20DK-T5
C86	.25	600	TV-PC-17	684-25	CUB6P25		PT6025	6TM-P25
C87	.005	600	TV-CC-3	P688-005	DD-502	CUB6D5	GP2-333-502	6TM-D5
C88	.005	600	TV-CC-3	P688-005	DD-502	CUB6D5	GP2-333-502	6TM-D5

Note 1. Not used in all Models.

* Items C60A, C60B, C60C, R64A, R64B, R64C are combined in one unit.

CONTROLS

ITEM No.	RATING RESISTANCE WATTS	REPLACEMENT DATA					INSTALLATION NOTES
		TRAV-LER PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	1000Ω	TV-VC-43	*QJ-544	RTV-454		UF13L	Contrast - Panel
B	250KΩ	Not Req.				UR254A	Volume - Rear
C	Switch	Not Req.				US-26	Attach to R1B
R2A	25KΩ	TV-VC-41	QJL-120	A47-25K-S	AB-26	U-29	Horiz. Hold
B	Shaft	Not Req.		FKS-1/4	AK-1	Not Req.	Attach to R2A
R3A	1.5Meg	TV-VC-39	QJL-138	A47-2Meg-S	AB-75	U-155	Vert. Hold
B	Shaft	Not Req.		FKS-1/4	AK-1	Not Req.	Attach to R3A
R4A	100KΩ	TV-VC-32	QJL-128	A47-100K-S	AB-40	U-41	Brightness Control
B	Shaft	Not Req.		FKS-1/4	AK-1	Not Req.	Attach to R4A
R5A	2.5Meg	TV-VC-28	QJL-239	A47-2.5Meg-S	AB-63	U-255	Height
B	Shaft	Not Req.		FKS-1/4	AK-1	Not Req.	Attach to R5A
R6A	1500Ω	TV-VC-35	WK-1500	AK-1	Not Req.	R1500L	Vert. Linearity-wire wound
B	Shaft	Not Req.		FKS-1/4	Not Req.		Attach to R6A - Note

Note. Some Models may use alternate control part # TV-VC-29.

* CONCENTRIK EQUIVALENT KIT K-2, BASE ELEMENTS & SHAFTS B11-108 & P1-204 (Panel)

B13-136 & R1-216 (Rear) & SWITCH 76-1.

RESISTORS

ITEM No.	RATING OHMS WATT	REPLACEMENT DATA		NOTES
		TRAV-LER PART No.	IRC PART No.	
R7	15KΩ		BTS-15K	
R8	47KΩ		BTS-47K	
R9	100KΩ		BTS-100K	
R10	100KΩ		BTS-100K	
R11	100KΩ		BTS-100K	
R12	1500Ω		BTS-1500	
R13	10KΩ		BTS-10K	
R14	220KΩ		BTS-220K	
R15	10KΩ		BTS-10K	
R16	15KΩ		BTS-15K	
R17	100KΩ		BTS-100K	
R18	8200Ω		BTS-8200	
R19	47Ω		BTS-47	
R20	100Ω		BTS-100	
R21	100KΩ		BTS-100K	
R22	22KΩ		BTS-22K	
R23	47Ω		BTS-47	
R24	100Ω		BTS-100	
R25	100KΩ		BTS-100K	</