



DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 6 push on type control knobs from the side.
2. Remove 8 metal screws and the rear cover.
3. Remove 2 speaker leads.
4. Remove 4 metal screws and remove the top of the cabinet by sliding back and lifting up.
5. Remove the picture tube socket, yoke plug and HV lead.
6. Remove the 2 metal screws holding the chassis to the sides of the cabinet.
7. Remove 2 chassis bolts from the bottom.
8. Remove the chassis.
9. Remove 2 speaker nuts and the speaker.



MODEL 1710 (Ch. 72916)

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.

MODELS	CHASSIS
1700, 1710	72916
1710U	73016

SERVICING IN THE FIELD

TUNE OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

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

FOCUS

Adjust the Ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary

to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the Horizontal Frequency slug B1 until the picture synchronizes horizontally. (For location see tube placement chart.)

FUSES

A 5.6Ω fusible resistor R66 is used for LV power supply protection. (For location see tube placement chart.)

CENTERING

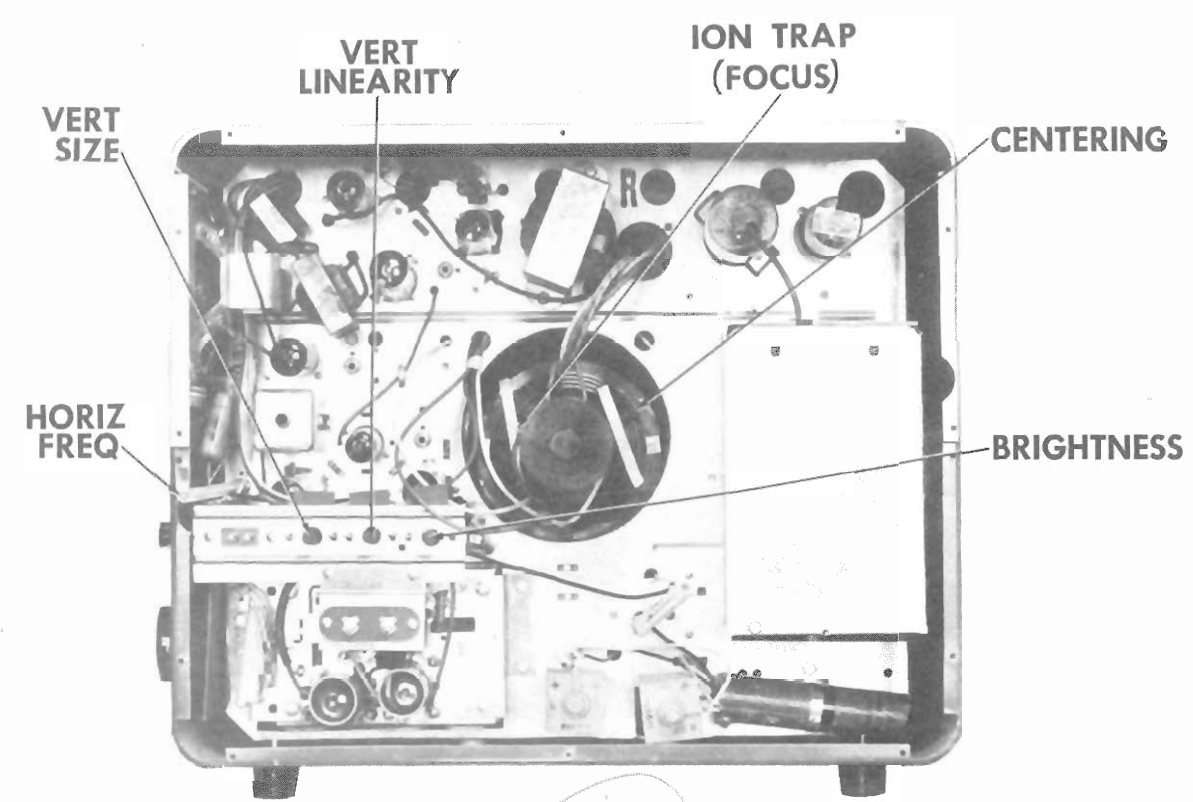
Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

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

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TRAV-LER MODELS 1700, 1710, U
(Ch. 72916, 73016)



Submitted 12/14/59

CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the Horizontal Frequency slug B1 until the picture synchronizes horizontally.

*check C14 for iono discharge adj
C14 is adjustable! See FSM.*

DISASS

CHASSIS RE

1. Remove 6
2. Remove 6
3. Remove 2
4. Remove 4 by sliding br
5. Remove t
6. Remove t sides of the
7. Remove 2
8. Remove t
9. Remove 2

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TUNER OSC

Touch-up ad removing the the fine tuner are accessit rotated. Ad

PICTURE TI

For picture to remove th

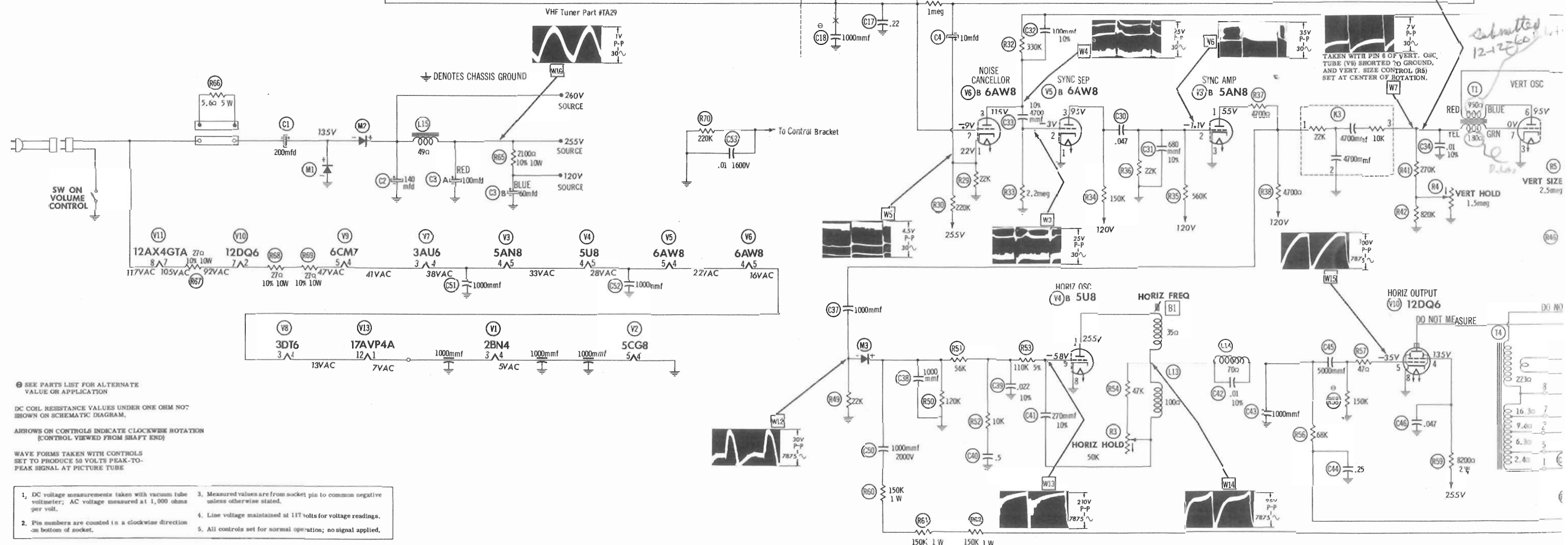
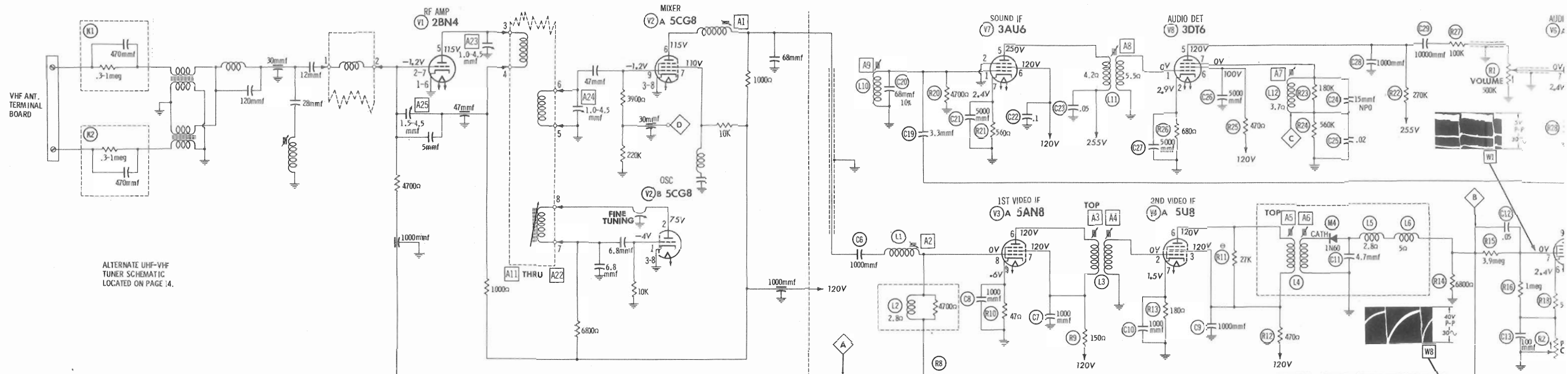
FOCUS

Adjust the Ic maximum br

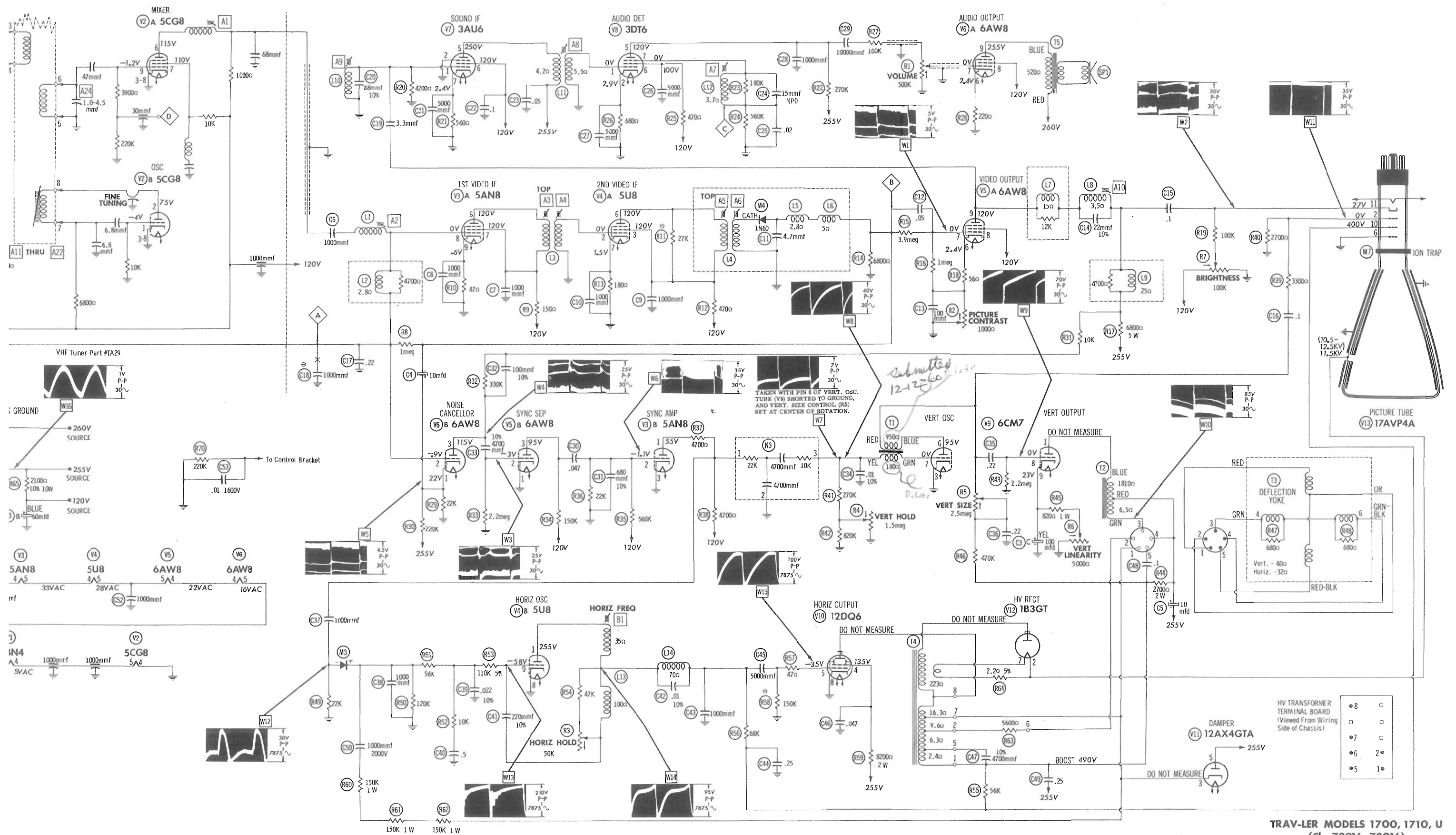
HORIZONTAL

For adjustm

The listing of not constitute guaranty by Ho and suitability these parts ha to Howard W. G967



A PHOTOFAC STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

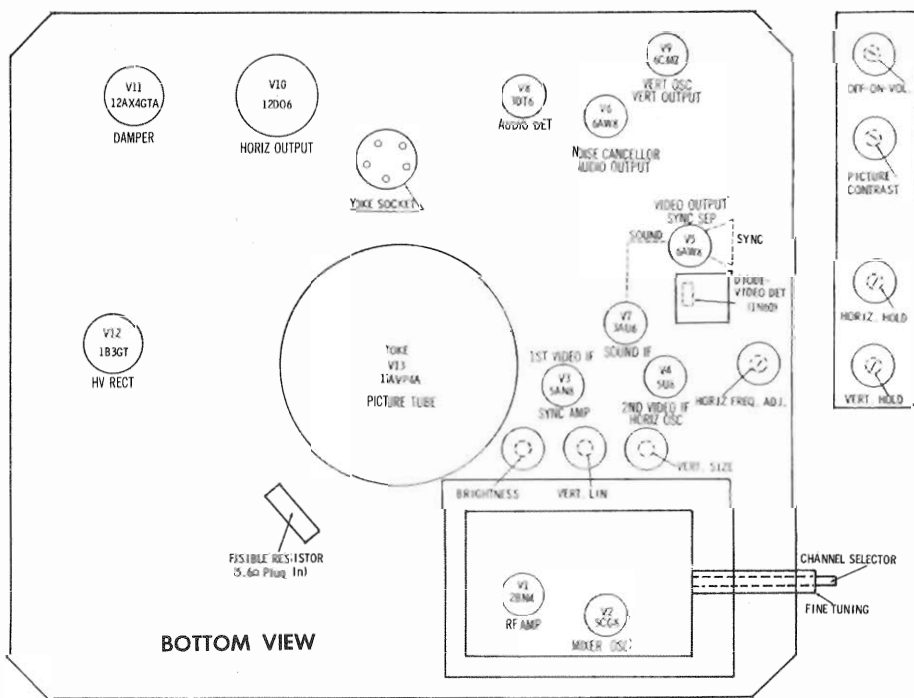


TRAV-LER MODELS 1700, 1710, U
(Ch. 72916, 73016)

RESISTANCE MEASUREMENTS

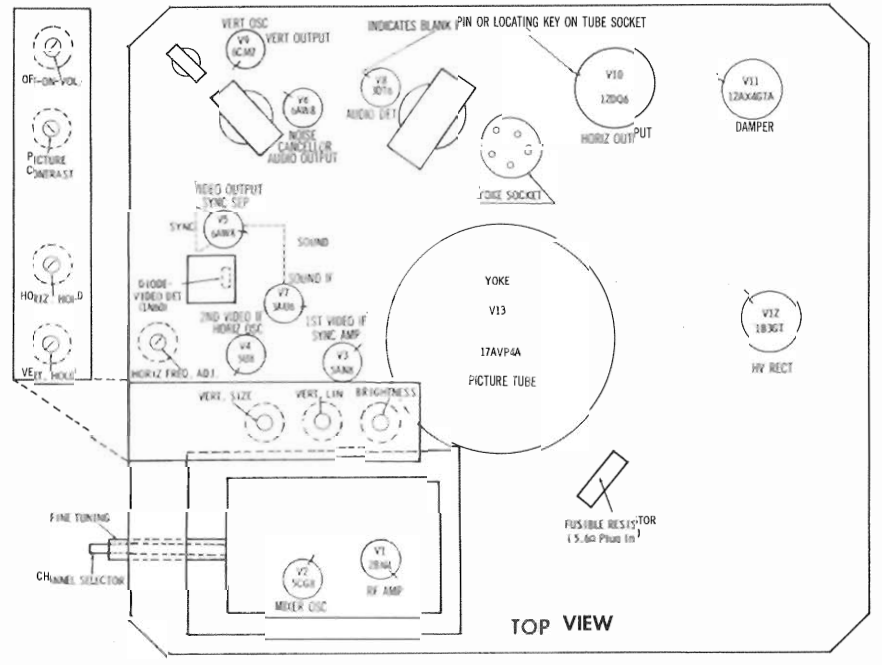
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	2BN4	0Ω	1Meg	1.5Ω	1Ω	†3100Ω	0Ω	1Meg		
V2	5CG8	10K	†8900Ω	0Ω	0Ω	1Ω	†3100Ω	†12K	0Ω	220K
V3	5AN8	†11.5K	22K	0Ω	9.5Ω	8.5Ω	†2300Ω	†2300Ω	1Meg	47Ω
V4	5U8	†125K	.1Ω	†2600Ω	8.5Ω	7.5Ω	†2600Ω	180Ω	0Ω	200K
V5	6AW8	0Ω	2.2Meg	†150K	5.5Ω	7.5Ω	•210Ω	750K	†2100Ω	†6800Ω
V6	6AW8	17K	1Meg	†350K	5.5Ω	4Ω	220Ω	0Ω	†2100Ω	†520Ω
V7	3AU6	.9Ω	0Ω	10.5Ω	9.5Ω	†49Ω	†2100Ω	560Ω		
V8	3DT6	5.5Ω	680Ω	4Ω	3.5Ω	†270K	†2600Ω	560K		
V9	6CM7	†4500Ω	NC	0Ω	10.5Ω	12Ω	•†1.6Meg	•480K	•2.5Meg	•2100Ω
V10	12DQ6	NC	66Ω	TP	†8200Ω	150K	NC	68Ω	0Ω	TOP CAP †15Ω
V11	12AX4GTA	NC	NC	‡	NC	†49Ω	NC	95Ω	98Ω	
V12	1B3GT		PINS 1 THRU 8	HAVE	INFINITE	RESISTANCE				TOP CAP †239Ω
V13	17AVP4A	1.5Ω	2700Ω	PIN 6 0Ω	PIN 10 †56K	PIN 11 •120K	PIN 12 3.5Ω			

† MEASURED FROM OUTPUT OF M2.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
‡ MEASURED FROM PIN 3 OF V11.
‡ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
NC NO CONNECTION.
TP TIE POINT



TUBE PLACEMENT CHART

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

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

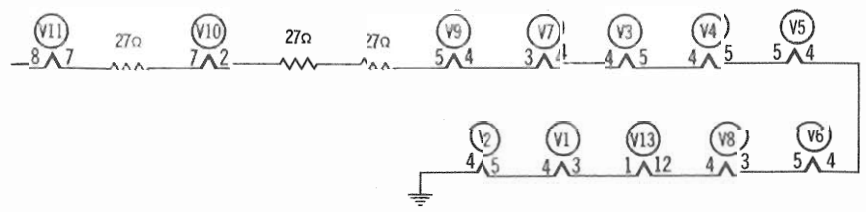
POWER SUPPLY FAILURE
No raster, no sound - Fusible Resistor (R66), Rectifier (M1, M2)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V3, V4, Diode (M4), V5
No pic, no sound, has snow - V1, V2
No pic, has sound, has raster - V5, V13
Has pic, no sound - V7, V8, V9

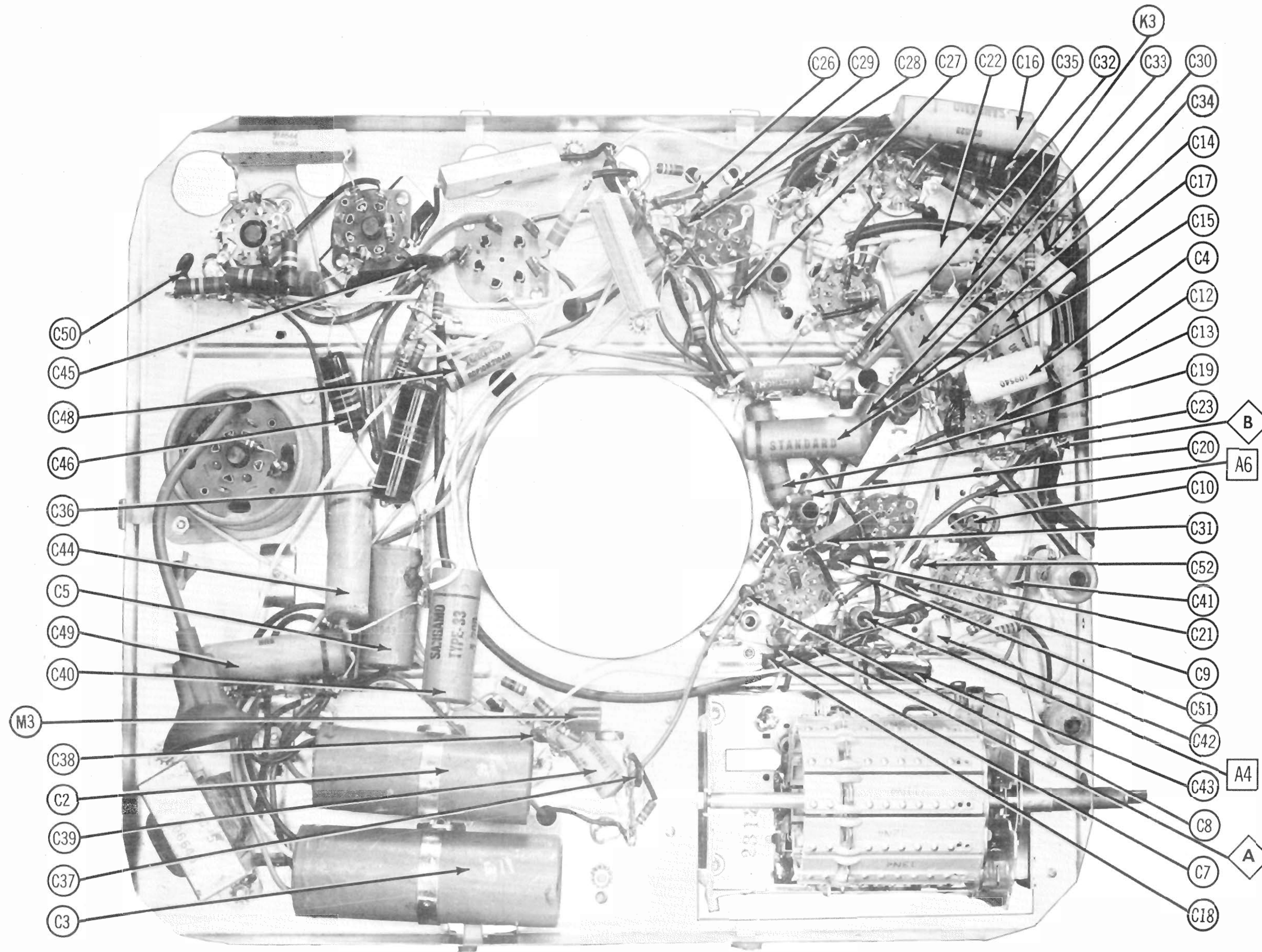
SYNC FAILURE
No vert. sync - V6, V5, V3
No horiz. sync - V6, V5, V3, Diode (M3)
No vert. or horiz. sync - V6, V5, V3

SWEEP FAILURE
No raster, has sound - M3, V4, V10, V11, V12, V13
No vertical deflection - V9
Poor vert. linearity or foldover - V9
Poor horiz. linearity or foldover - V4, V10, V11
Narrow picture - V4, V10, V11, M1, M2
Vert. off freq. - V9
Horiz. off freq. - V4

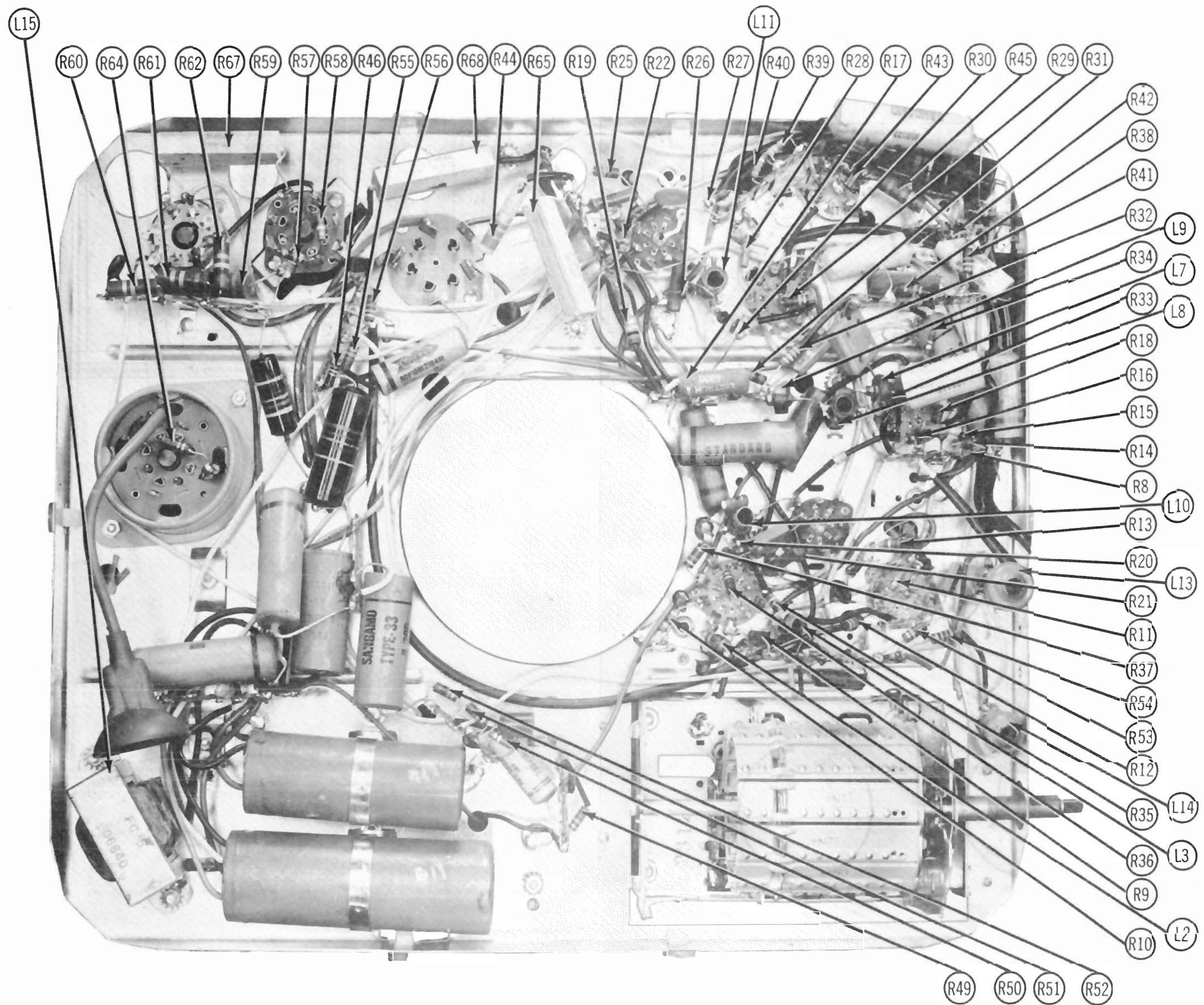
This receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below.)



TRAVLER MCDELS 1700, 1710, U
(Ch. 72916, 73016)



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

SET 371 FOLDER 13

TRAV-LER MODELS 1700, 1710, U
(Ch. 72916, 73016)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT						
USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT. The High Voltage lead should be securely taped and kept away from the chassis.						
VIDEO IF ALIGNMENT						
Connect the negative lead of a 3 volt bias supply to point \odot . Positive to chassis. Set picture contrast control fully counter clockwise. 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 usable pattern on scope.						
DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST
1. Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V2). Low side to chassis.	44.0MC (10MC Swp.)	41.25MC 45.75MC	12	Vert. amp. thru 10K to point \odot . Low side to chassis.	A1, A2, A3, A4, A5, A6

REMARKS						
Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. The High frequency side of the curve is controlled by adjusting A2 and A3. The Low frequency side of the curve is controlled by adjusting A1 and A4. The Top of the curve is controlled by adjusting A5 & A6.						

SOUND IF ALIGNMENT

1. Tune in a strong TV signal and adjust A7 for maximum undistorted sound output. If two peaks occur during this adjustment, connect the DC probe of a VTVM to point \odot and common to chassis. Adjust for the peak producing the highest deflection on the VTVM.
2. Reduce the signal strength applied to the receiver (by disconnecting the antenna or connecting an attenuator in series with the antenna) until noise is heard in the sound.
3. Adjust A8 and A9 for maximum undistorted sound output.
4. Reduce the signal strength still further and retouch A8 and A9 for maximum undistorted sound output.
5. If necessary, repeat steps 1 through 4.

4.5MC TRAP ALIGNMENT						
Tune in a TV station and advance the picture contrast control. Adjust A10 for MINIMUM 4.5MC beat interference pattern in the picture.						

VHF OSCILLATOR ALIGNMENT						
Connect bias as under "Video IF Alignment". Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms. Set the fine tuning control to the center of its range. Use only enough sweep generator output to provide usable pattern on scope.						

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
2. Two 120 Ω Carbon Resistors	Across antenna terminals with 120 Ω in each lead.	213 MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 47K to point \odot . Low side to chassis.	A11	Adjust to place sound marker in trap notch as in Fig. 2. Video marker should fall at 50%.
		207MC (10MC Swp)	205.25MC 209.75MC	12		A12	
		201MC (10MC Swp)	199.25MC 203.75MC	11		A13	
		195MC (10MC Swp)	193.25MC 197.75MC	10		A14	
		189MC (10MC Swp)	187.25MC 191.75MC	9		A15	
		183MC (10MC Swp)	181.25MC 185.75MC	8		A16	
		177MC (10MC Swp)	175.25MC 179.75MC	7		A17	
		171MC (10MC Swp)	169.25MC 173.75MC	6		A18	
		165MC (10MC Swp)	163.25MC 167.75MC	5		A19	
		159MC (10MC Swp)	157.25MC 161.75MC	4		A20	
		153MC (10MC Swp)	151.25MC 155.75MC	3		A21	
		147MC (10MC Swp)	145.25MC 149.75MC	2		A22	
		141MC (10MC Swp)	139.25MC 143.75MC				
		135MC (10MC Swp)	133.25MC 137.75MC				
		129MC (10MC Swp)	127.25MC 131.75MC				
		123MC (10MC Swp)	121.25MC 125.75MC				

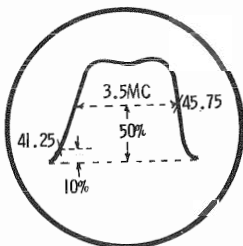


FIG. 1

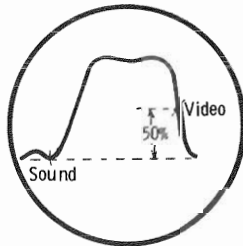


FIG. 2

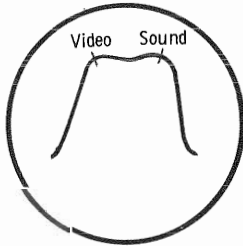


FIG. 3

ALIGNMENT INSTRUCTIONS (cont)

VHF RF AND MIXER ALIGNMENT

Connect bias as under "Video IF Alignment". Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms. Use only enough sweep generator output to provide usable pattern on scope.						
DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST
3. Two 120 Ω Carbon Resistors	Across antenna terminals with 120 Ω in each lead.	195MC (10MC Swp)	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point \odot . Low side to chassis.	A23, A24
4. "	"	"	"	"	"	A25
5. "	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"	Check for response similar to Fig. 3. If markers fall below 70% on any channel, make compromise adjustment of A23 and A24 with channel switch set to that channel. Check all other channels to see that they have not been seriously affected.
		207MC (10MC Swp)	205.25MC 209.75MC	12		
		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		
		171MC (10MC Swp)	169.25MC 173.75MC	6		
		165MC (10MC Swp)	163.25MC 167.75MC	5		
		159MC (10MC Swp)	157.25MC 161.75MC	4		
		153MC (10MC Swp)	151.25MC 155.75MC	3		
		147MC (10MC Swp)	145.25MC 149.75MC	2		
		141MC (10MC Swp)	139.25MC 143.75MC			
		135MC (10MC Swp)	133.25MC 137.75MC			
		129MC (10MC Swp)	127.25MC 131.75MC			
		123MC (10MC Swp)	121.25MC 125.75MC			

UHF TUNER ALIGNMENT

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

TRAY-LER MODELS 1700, 1710, U
(Ch. 72916, 73016)

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	2BN4	
V2	Mixer-Oscillator	5CG8	
V3	1st. Video IF Amp. - Sync Amp.	5AN8	
V4	2nd. Video IF Amp. - Horiz. Osc.	5U8	
V5	Video Output-Sync Sep.	6AW8	

PICTURE TUBE

ITEM No.	REPLACEMENT DATA	NOTES
V13	17AVP4A 17AVP4A ① 17ATP4A/ 17AVP1A/② 17AVP4	① Aluminized ② Silver Screen "B5"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA
C1	200	EC-54
C2	140	EC-55
C3A	100	EC-56
B	60	
C	100	
C4	10	EC-11
C5	10	EC-57

* Non-catalog item.

FIXED CAPACITORS

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

ITEM No.	RATING	REPLACEMENT DATA	NOTES
C6	1000	CC-52	
C7	1000	CC-52	
C8	1000	CC-52	
C9	1000	CC-52	
C10	1000	CC-52	
C11	4.7	NP0-SI 4.7	
C12	.05	NP0-SI 22	
C13	100	NP0-SI 100	
C14	22	NP0-SI 22	
C15	.1	NP0-SI 100	
C16	.1	NP0-SI 100	
C17	.22	NP0-SI 22	
C18	1000	NP0-SI 1000	
C19	3.3	NP0-SI 3.3	
C20	68	NP0-SI 68	
C21	5000	NP0-SI 5000	
C22	.1	NP0-SI 100	
C23	.05	NP0-SI 100	
C24	15	NP0-SI 15	
C25	.02	NP0-SI 22	
C26	5000	NP0-SI 5000	
C27	5000	NP0-SI 5000	
C28	1000	NP0-SI 1000	
C29	10000	NP0-SI 10000	
C30	.047	NP0-SI 100	
C31	680	NP0-SI 680	
C32	100	NP0-SI 100	
C33	4700	NP0-SI 4700	
C34	.01	NP0-SI 100	
C35	.22	NP0-SI 22	
C36	.22	NP0-SI 22	
C37	1000	NP0-SI 1000	
C38	1000	NP0-SI 1000	
C39	.022	NP0-SI 22	
C40	.5	NP0-SI 5	
C41	270	NP0-SI 270	
C42	.01	NP0-SI 100	
C43	1000	NP0-SI 1000	
C44	.25	NP0-SI 25	
C45	5000	NP0-SI 5000	
C46	.047	NP0-SI 100	
C47	4700	NP0-SI 4700	
C48	.1	NP0-SI 100	
C49	.25	NP0-SI 25	
C50	1000	NP0-SI 1000	
C51	1000	NP0-SI 1000	
C52	1000	NP0-SI 1000	
C53	.01	NP0-SI 100	

Note 1. Not used in some versions.

PARTS LIST AND DESCRIPTIONS

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA	INSTALLATION NOTES
R1A	500K	VC-80	Volume
B	Shaft	B-60	
C	Switch	Not Req.	
R2A	1000Ω	VC-82	Picture Contrast
B	Shaft	B-5	
R3A	50K	VC-83	Horiz. Hold
B	Shaft	B-31	
R4A	1.5Meg	VC-84	Vert. Hold
B	Shaft	B-742	
R5A	2.5Meg	VC-78	Vert. Size
B	Shaft	AB-83	
R6A	5000Ω	VC-85	Vert. Lin.
B	Shaft	AK-19	
R7A	100K	VC-84	Brightness
B	Shaft	AB-10	

RESISTORS

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

ITEM No.	RATING	REPLACEMENT DATA	NOTES
R8	1Meg	BTS-47	
R9	150Ω	BTS-27K	Note 1
R10	47Ω	BTS-180	
R11	27K	BTS-6800	
R12	470Ω	BTS-3.9Meg	
R13	180Ω	BTS-1Meg	
R14	6800Ω	BTS-56	
R15	3.9Meg	BTS-100K	
R16	1Meg	BTS-4700	
R17	6800Ω	BTS-560	
R18	56Ω	BTS-270K	
R19	100K	BTS-180K	
R20	4700Ω	BTS-560K	
R21	560Ω	BTS-470	
R22	270K	BTS-680	
R23	180K	BTS-100K	
R24	560K	BTS-220	
R25	470Ω	BTS-22K	
R26	680Ω	BTS-220K	
R27	100K	BTS-10K	
R28	220Ω	BTS-330K	
R29	22K	BTS-2.2Meg	
R30	220K	BTS-150K	
R31	10K	BTS-8200	
R32	330K	BTA-150K	
R33	2.2Meg	BTA-150K	
R34	150K	BTS-560K	
R35	560K	BTS-22K	
R36	22K	BTS-4700	
R37	4700Ω	BTS-4700	
R38	4700Ω	BTS-3300	
R39	3300Ω		

Note 1. Some versions may use a 10K in this application.
Note 2. Some versions may use a 180K in this application.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA
T1	Vert. Osc.	TR-23
T2	Vert. Output	TR-25
T3A	Yoke-Horiz. (21MH)	L-III
T4	Horiz. Output	TR-24

① Drill new mounting holes.
② Use original yoke damping network.
③ Use original rear cover and centering device. Mount with leads out bottom and connect same as original.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA	NOTES
T5	16K 3-4Ω	AT-18	

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA	NOTES
SP1	4" PM	SPK-49	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA	NOTES
L1	1st. Video IF	L-82	
L2	RF Choke	L-86	
L3	2nd. Video IF	L-83	
L4	3rd. Video IF	L-84	
L5	RF Choke	L-85	
L6	Series Peaking Coil	L-87	
L7	Series Peaking Coil	L-88A	
L8	4. SMC Trap	L-89	
L9	Shunt Peaking Coil	L-88	
L10	1st. Sound IF	L-90	
L11	2nd. Sound IF	L-80A	
L12	Quadrature Coil	L-79	

* Parallel with 4700Ω Resistor.
▲ Crystal Det. not included.
♦ Parallel with 12K Resistor.
■ Parallel with 8200Ω Resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.	REPLACEMENT DATA	NOTES
L13	1350 *	L-93	
L14	70Ω	L-92	

* Tapped 100Ω

FILTER CHOKE

ITEM No.	RATINGS	REPLACEMENT DATA	NOTES
L15	TOTAL DIRECT CURRENT PRI. SEC.	INDUCTANCE (0 CURRENT 1000 Ω)	
	.210A 48Ω	1 Hy. FC-5	

① Drill one new mounting hole.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	TRAV-LER PART No.	REPLACEMENT DATA
K1	Antenna Isolation	.3-1Meg, 470MMF	CC-55	Centralab RC-47I
K2	Antenna Isolation	.3-1Meg, 470MMF	CC-55	Centralab RC-47I
K3	Vertical Integrator	4700MMF, 4700MMF, 22K, 10K	CC-51	Aerovox PA-383-2 Centralab PC-106 Sprague V-5

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA	NOTES
M1	CURRENT (Measured)	TRAV-LER PART No.	
M2	.210A	SR9 ①	
M3	.210A	SR9 ①	

① Selenium Type
② Germanium Type

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA	NOTES
M4	1N60	1N60	

MISCELLANEOUS

ITEM No.	PART NAME	TRAV-LER PART No.	NOTES
M5	Tuner	TA-29	VHF, Models: 1700, 1710
M6	Tuner	TA-30	UHF-VHF, Model: 1710U
M7	Centering Device		Includes Rear Yoke Cover
M8	Ion Trap		

CABINETS & CABINET PARTS

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

NAME	PART NO.	DESCRIPTION
Safety Glass	DW-65T	Tinted, Models: 1700, 1710U
Safety Glass	DW-65C	Clear, Model: 1700
Knobs	K-200	Channel Selector, Models: 1700, 1710
Knobs	K-190C	VHF Channel Selector, Model: 1710U
Knobs	K-191C	UHF Channel Selector, Model: 1710U
Knobs	K-201	Fine Tuning, Models: 1700, 1710
Knobs	K-189	Fine Tuning, Model: 1700U
Knobs	K-202	Control (4 used)