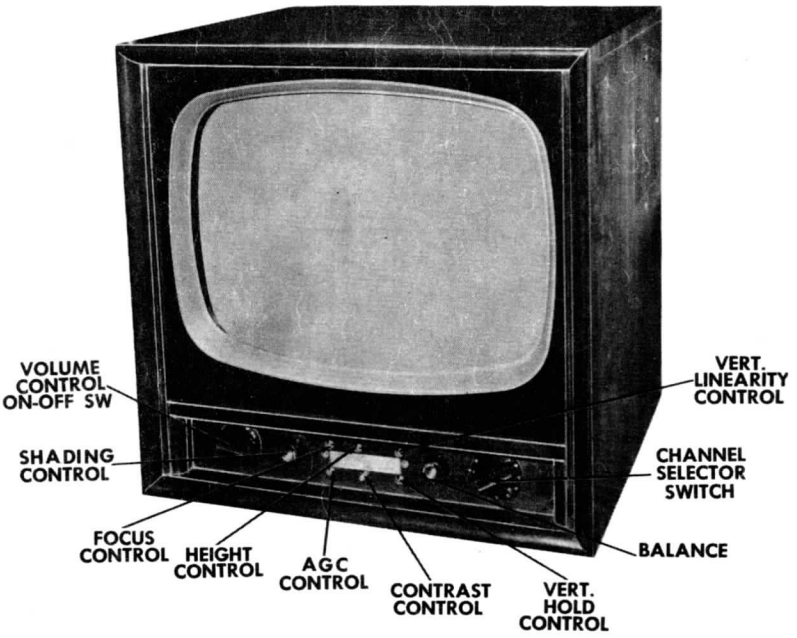
CAPEHART CHASSIS
CT-27, CT-38, CT-45 (Ch. Series CX-33DX



Capehart Model 331MX

TRADE NAME	CAPEHART: The CX-33DX chassis has 6 production run versions. The production chassis and production run or "Series" numbers are stamped on both the front and rear aprons of the chassis. Example: A chassis stamped "CT-27-3" is the CT-27 version of the CX-33DX chassis-Production run "3". There have been two production runs of this chassis, those coded with a "-2" are the original production. The chassis are classified as follows.

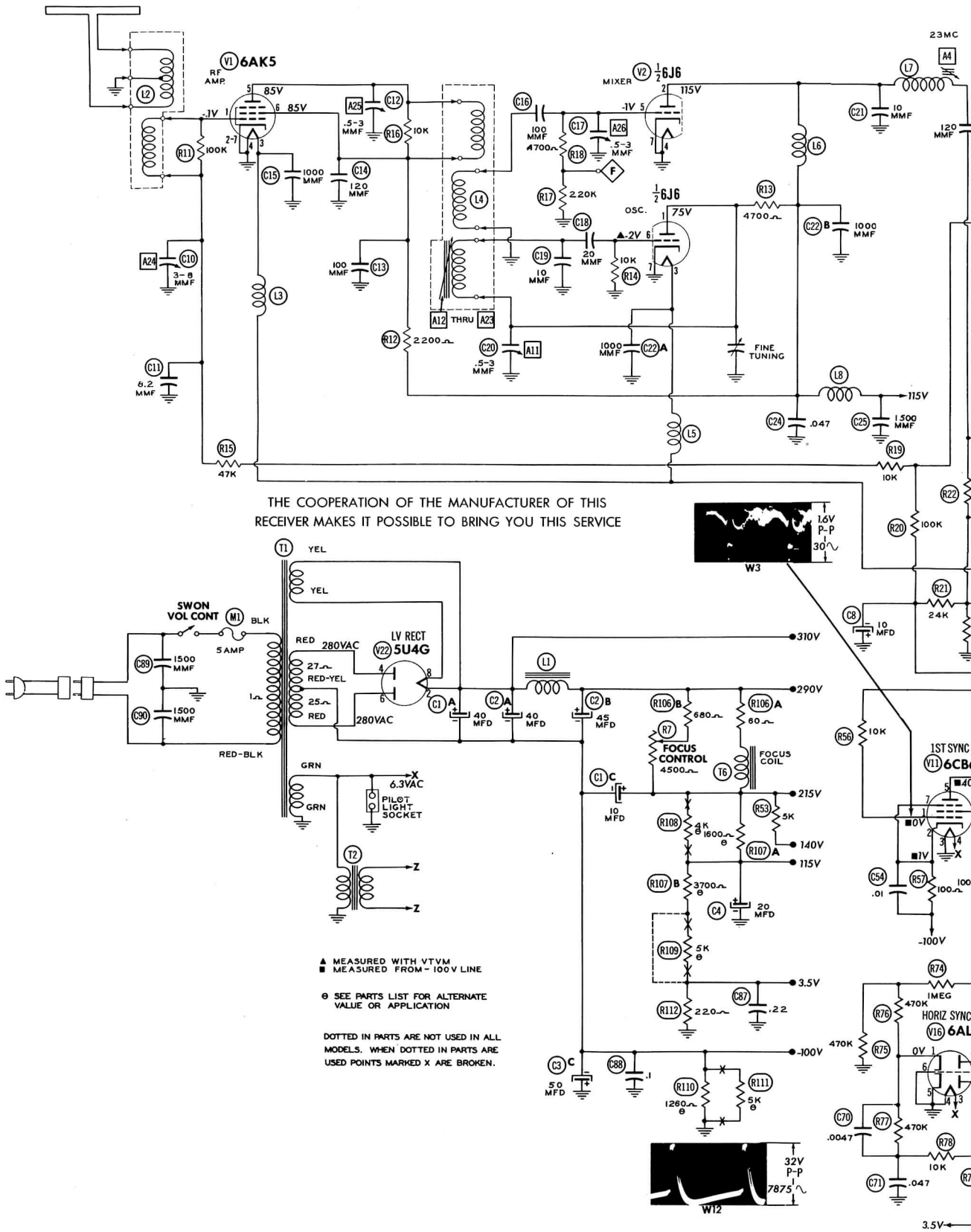
MODEL	CHASSIS
1T17MX	CT-27
2T20MX	CT-38
3C17MX, 319MX, BX, 320MX, BX,	CT-27
321AMX, ABX, 322RAMX, RABX	CT-27
324BX, 325AFX, 326MX	CT-27
331MX, BX,	CT-38
335MX, BX, 336CX, FX	CT-38
338MX	CT-45
339MX	CT-38
340X	CT-45
341X	CT-45

MANUFACTURER	Capehart - Farnsworth Corp., Fort Wayne Ind.
TYPE SET	Television Receiver
TUBES	Twenty Three
POWER SUPPLY	110-120 Volts AC-60 Cycle — RATING 2.3Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13

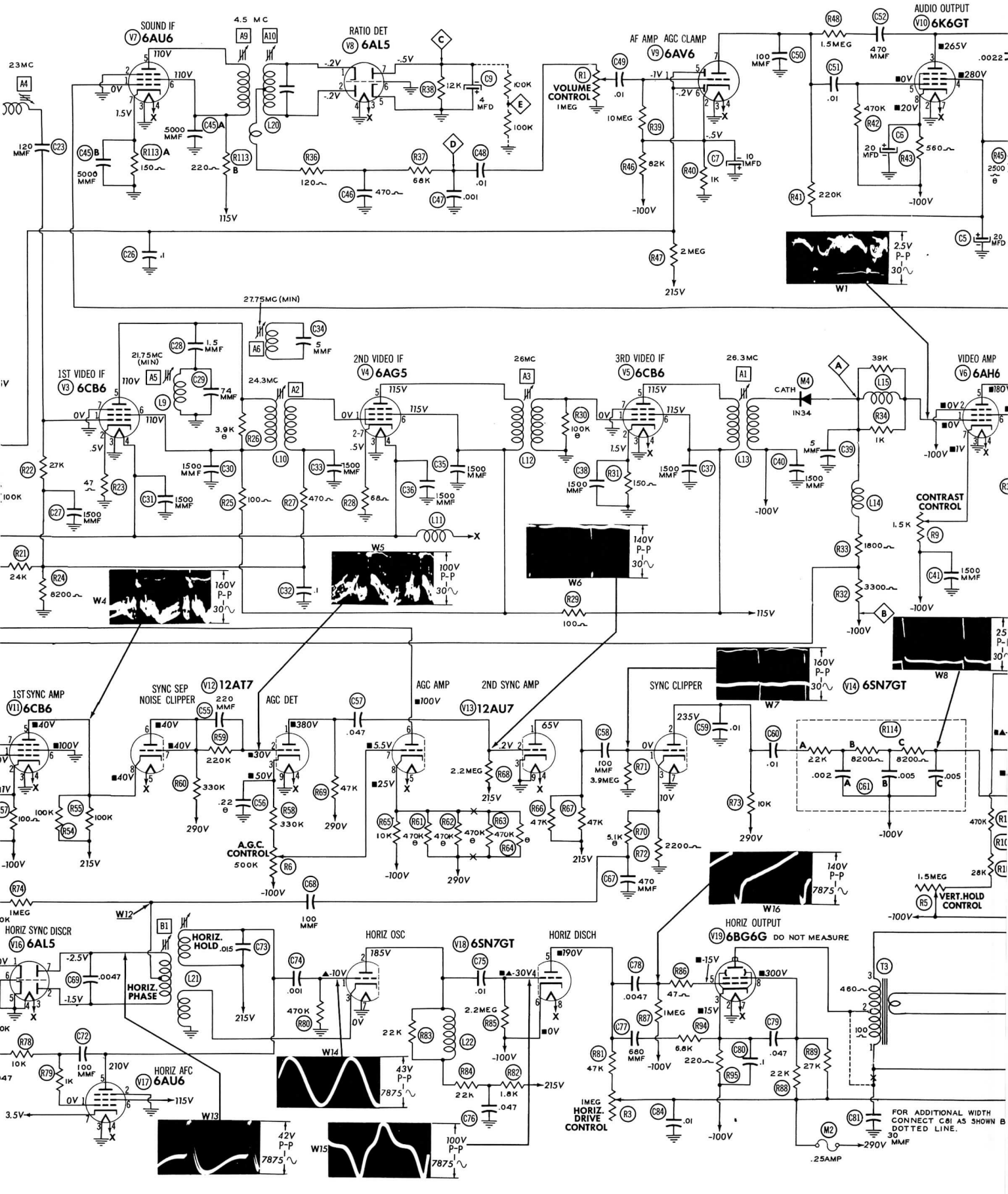
INDEX

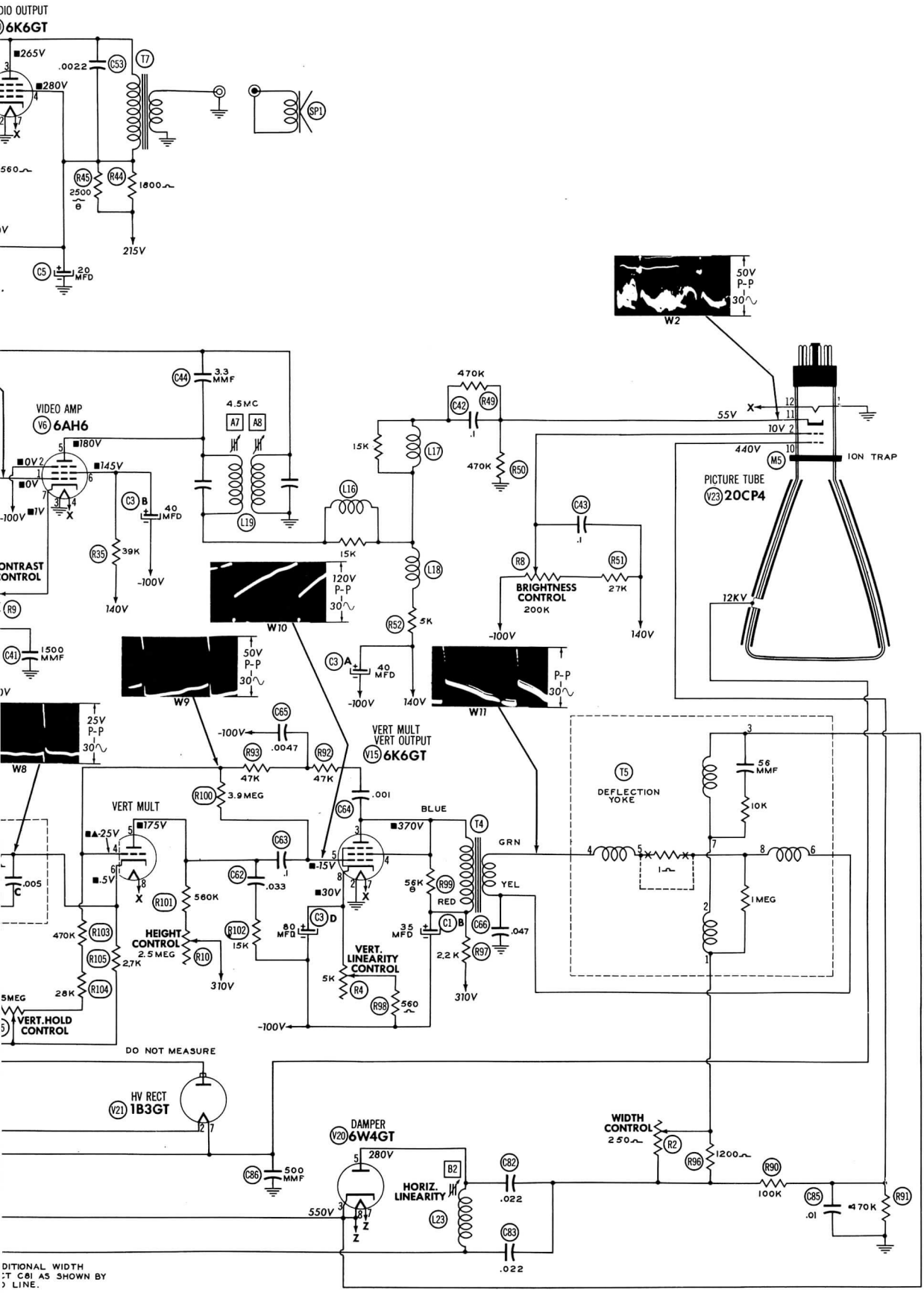
HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

CAPEHART CHASSIS
CT-27, CT-38, CT-45 (Ch. Series CX-33DX)

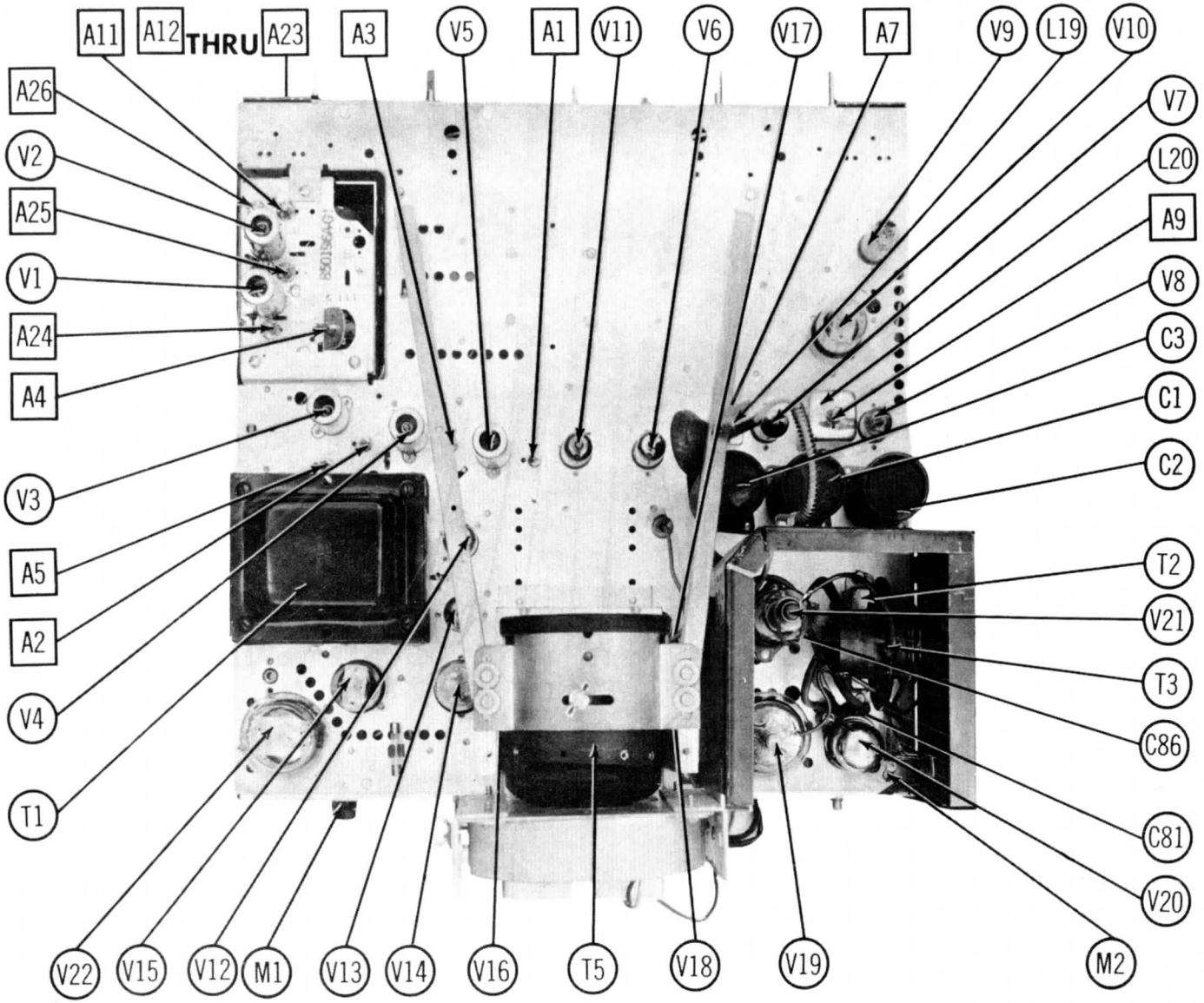


A PHOTOFACT STANDARD NOTATION SCHEMATIC

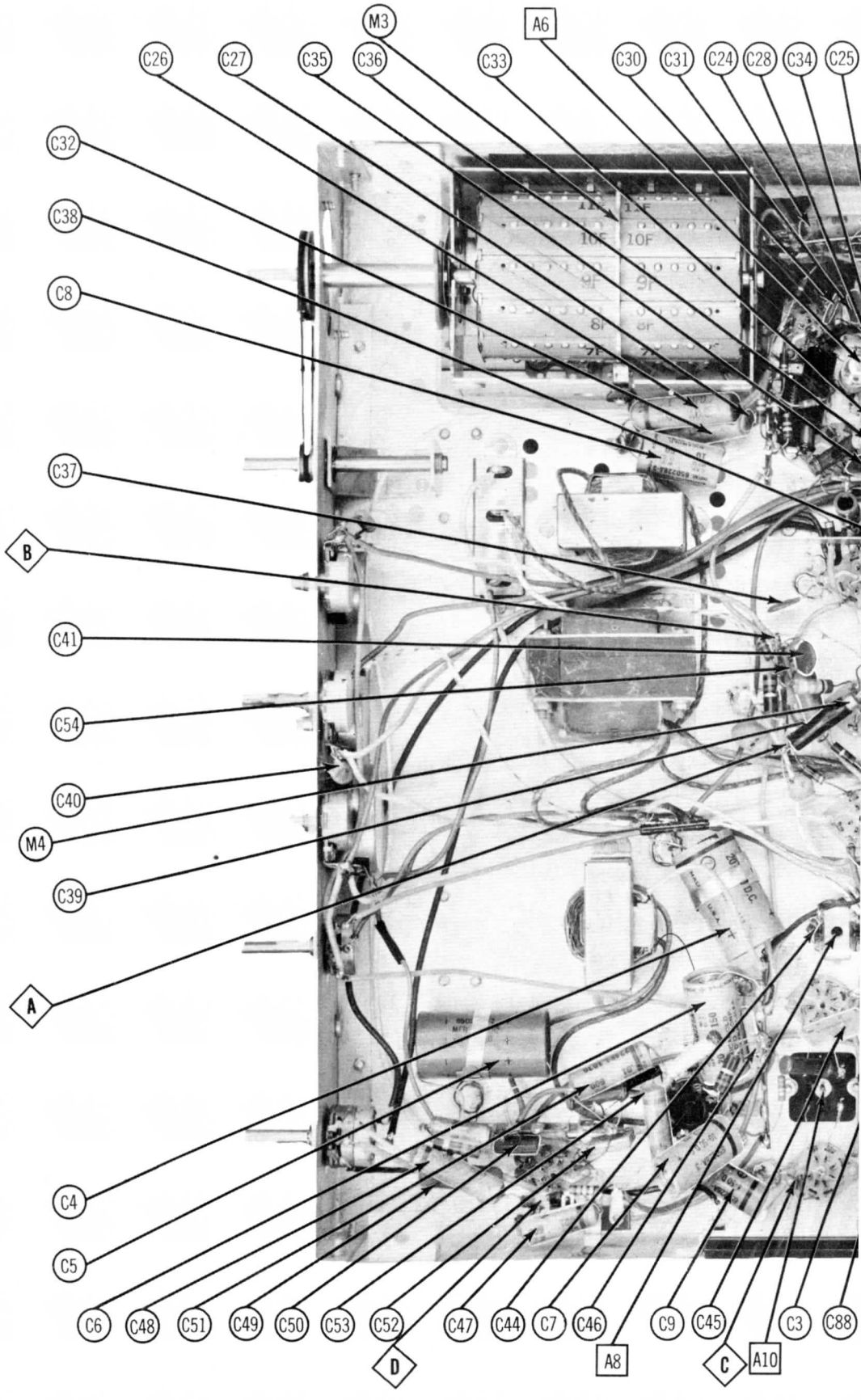

SOUND IF
V7 6AU6
4.5 MC
RATIO DET
V8 6AL5
AF AMP AGC CLAMP
V9 6AV6
AUDIO OUTPUT
V10 6K6GT
VOLUME CONTROL
1MEG
1ST VIDEO IF
V3 6CB6
2ND VIDEO IF
V4 6AG5
3RD VIDEO IF
V5 6CB6
VIDEO AMP
V6 6AH6
IN34
CONTRAST CONTROL
1ST SYNC AMP
V11 6CB6
SYNC SEP NOISE CLIPPER
V12 12AT7
AGC DET
AGC AMP
2ND SYNC AMP
V13 12AU7
SYNC CLIPPER
V14 6SN7GT
A.G.C. CONTROL
500K
HORIZ SYNC DISCR
V16 6AL5
HORIZ. HOLD
HORIZ. PHASE
HORIZ OSC
V18 6SN7GT
HORIZ DISCH
HORIZ OUTPUT
V19 6BG6G DO NOT MEASURE
HORIZ AFC
V17 6AU6
HORIZ. DRIVE CONTROL
VERT. HOLD CONTROL
FOR ADDITIONAL WIDTH CONNECT C81 AS SHOWN BY DOTTED LINE.
.25AMP
W1
W2
W3
W4
W5
W6
W7
W8
W12
W13
W14
W15
W16



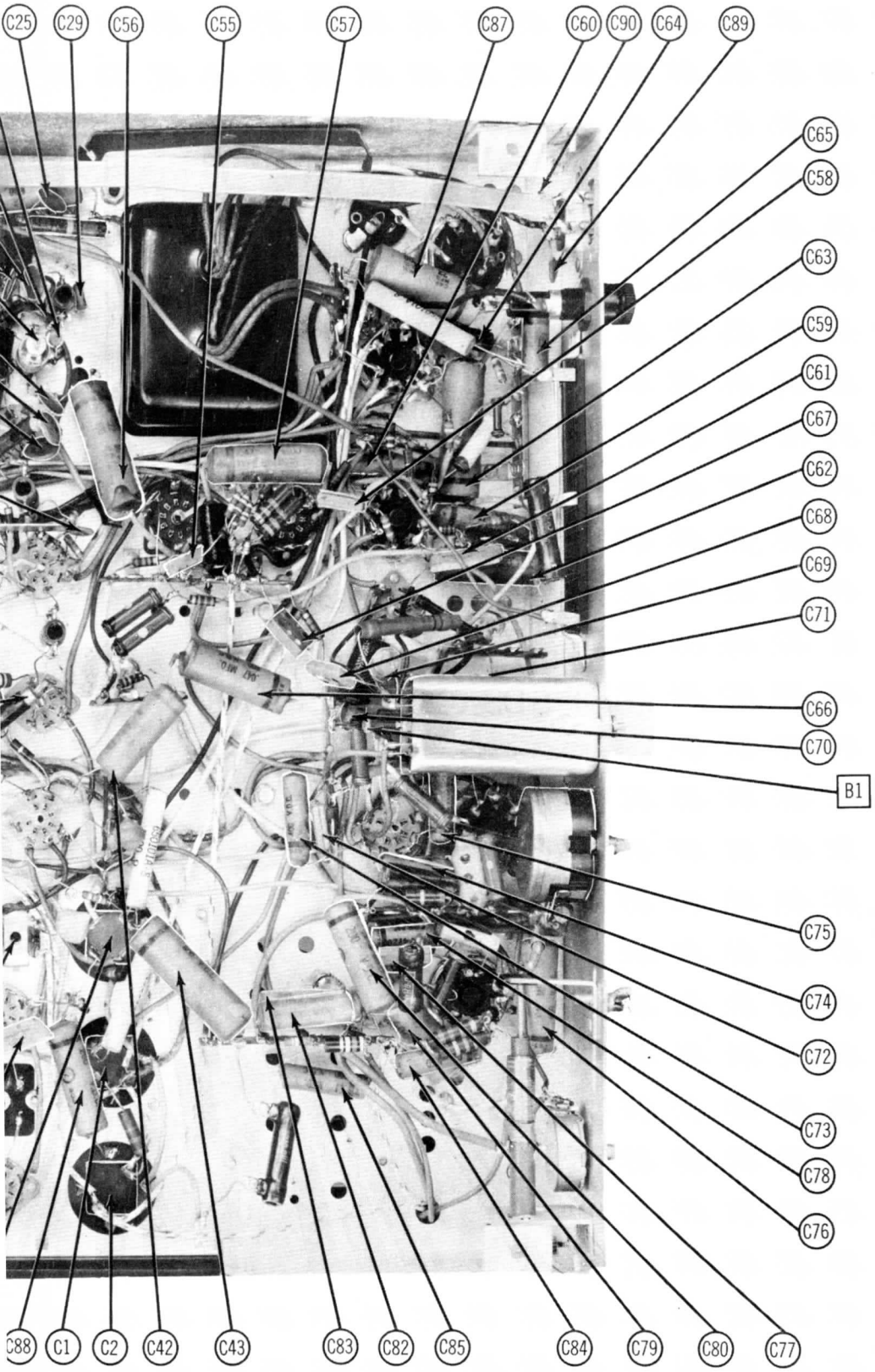
CAPEHART CHASSIS
CT-27, CT-38, CT-45 (Ch. Series CX-33DX)



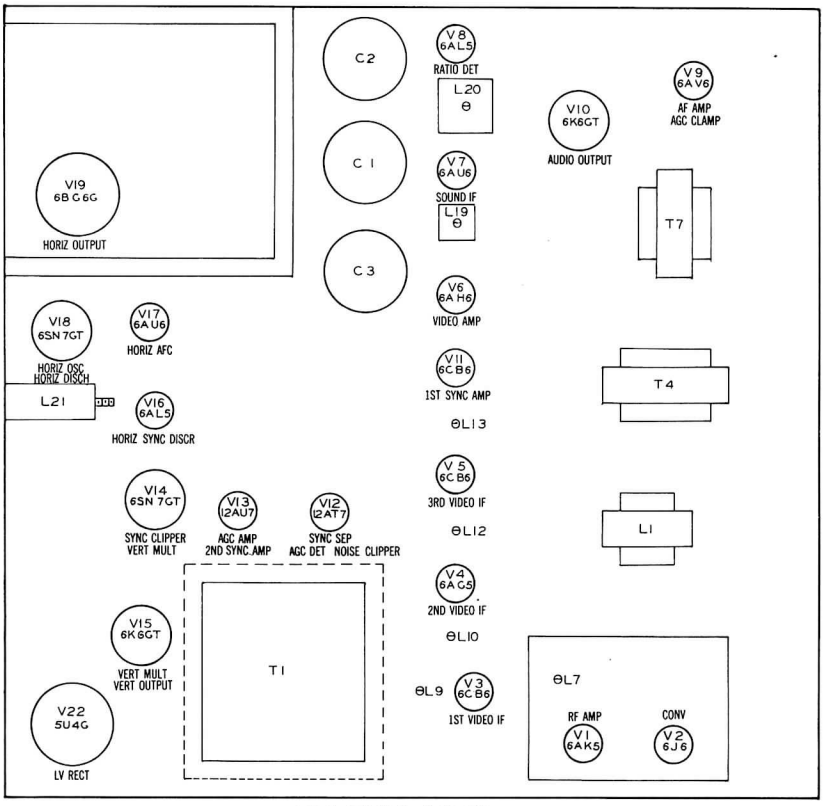
CHASSIS TOP VIEW



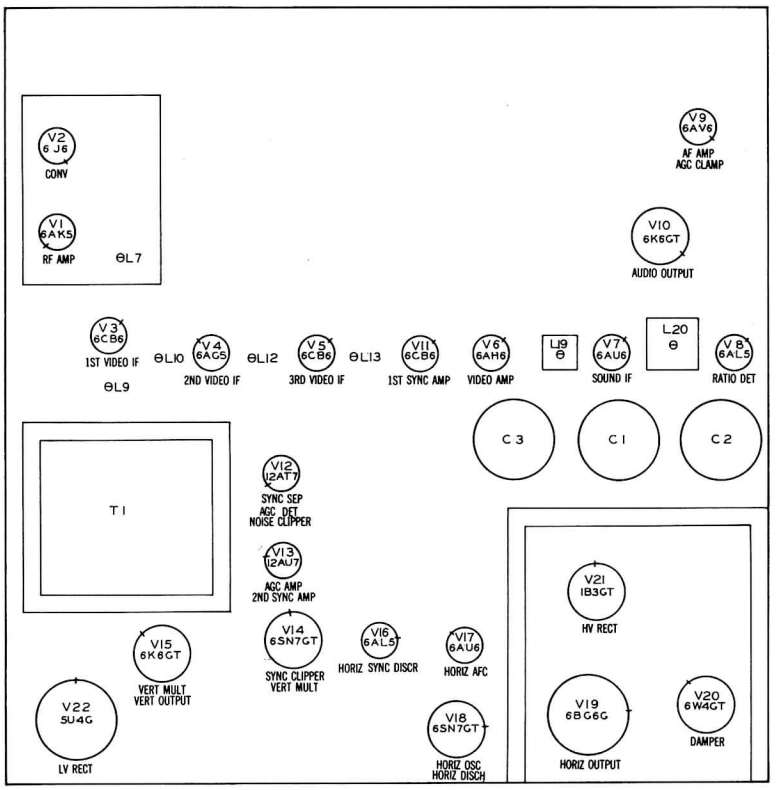
CHASSIS BOTTOM VIEW- CAPACITOR



AND ALIGNMENT IDENTIFICATION



BOTTOM VIEW



TOP VIEW

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube, (V18), from its socket.

VIDEO IF ALIGNMENT

Remove the converter tube, (V2), and replace it with a 6J6 which has pin 1 removed. This will disable the local oscillator and prevent the possibility of erroneous indications.
Turn the AGC control to fully clockwise.
Connect the negative lead of a 3 volt battery to the ungrounded lead of C8, and connect the positive lead to chassis.
During video IF alignment the common lead of the VTVM is connected to approximately 100 volts with respect to chassis. Avoid touching or grounding the VTVM case.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	26.3MC (unmod)	Any	DC probe to point (A). Common to point (B).	A1	Adjust for maximum deflection.
2.	"	"	24.3MC	"	"	A2	"
3.	"	"	26MC	"	"	A3	"
4.	"	"	23MC	"	"	A4	"
5.	"	"	21.75MC	"	"	A5	Adjust for MINIMUM deflection.
6.	"	"	27.75MC	"	"	A6	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal 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
7.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	25MC (10MC swp.)	21.75MC 22.75MC 25.5MC 26.25MC	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 proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

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

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	1500MMF	High side to pin 1, (grid) of 6AH6, (V6). Low side to chassis.	4.5MC (unmod)	Any	DC probe to point (C). Common to chassis.	A7, A8, A9	Adjust for maximum deflection.
9.	"	"	"	"	DC probe to point (D). Common to point (E).	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 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	1500MMF	High side to Pin 1, (grid) of 6AH6, (V6). Low side to chassis.	4.5MC (450KC swp)	4.5MC	Any	Vert. amp. to Point (C). Low side to chassis.	A7, A8 A9	Disconnect stabilizor capacitor C9. Adjust for maximum amplitude and symmetry as per Fig. 2.
9.	"	"	"	"	"	Vert. amp. to Point (D). Low side to chassis.	A10	Reconnect C9. Adjust A10 so 4.5MC occurs at center of crossover lines as per Fig. 3. SLIGHTLY retouch A9 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Complete oscillator alignment may not be necessary.
If the oscillator seems to be off frequency approximately the same amount for a majority of the channels, it may be possible to correct them in one step using A11. It should be noted that this is an all channel oscillator circuit adjustment and should not be adjusted for any individual channel.
If adjustment of A11 will not bring all channels well within the range of the fine tuning control, it will be necessary to adjust the channel strip adjustment for each channel that is off frequency. The channel strip adjustments 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 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
10.	See Fig. 5	Across antenna terminals.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. amp. to Point (A). Low side to chassis.	A12	Adjust to place sound marker in trap "notch" as shown in Fig. 4. The video marker should fall between 45 & 60%.
			207MC (10MC swp)	205.25MC 209.75MC	12		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.)

AGC ADJUSTMENT

Turn the set on and tune in the strongest available TV station. Turn the contrast control to maximum, (fully clockwise). If the signal is strong turn the AGC control clockwise until the picture begins to bend at the top, then counter-clockwise just enough to remove the sync. distortion. If intercarrier buzz is objectional reduce the control just enough to remove the buzz. If the signal is weak, turn the AGC control counter-clockwise until the picture begins to appear washed out, then rotate the control clockwise until the picture returns to normal. If more than one station is available in the area it may be necessary to make a compromise adjustment to obtain best results on all stations.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	See Fig. 5	Across antenna terminals.	207MC (10MC swp)	205.25MC 209.75MC	12	Vert. amp. thru 10KΩ to Point F. Low side to chassis.	A24, A25 A26	Adjust for response curve similar to Fig. 6 with markers above 90%
12.	"	"	213MC (10MC swp)	211.25MC 215.75MC	13	"		Check all channels for response curve similar to Fig. 6. If markers fall below 70% on any channel, make compromise adjustment of A24, A25 and A26 with channel switch set for that channel. Recheck all channels to see that they have not been seriously effected.
			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			

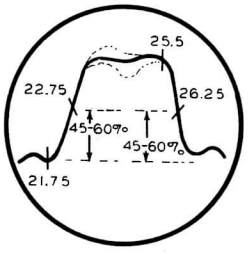


FIG. 1

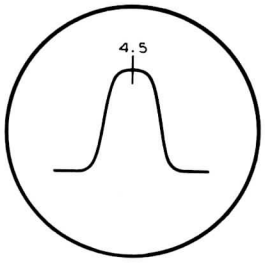


FIG. 2

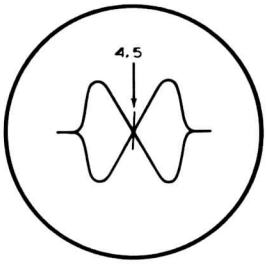


FIG. 3

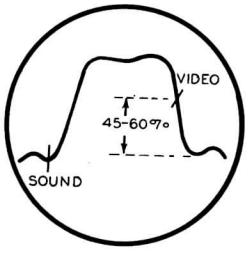
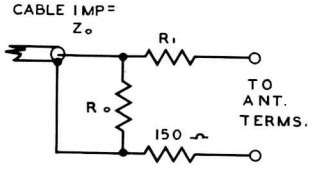


FIG. 4



Z_o	R_o	R_1
50Ω	56Ω	120Ω
72Ω	82Ω	110Ω
92Ω	110Ω	100Ω

FIG. 5

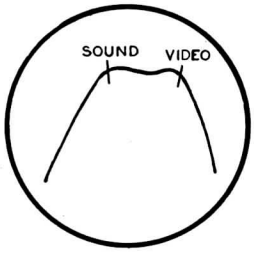
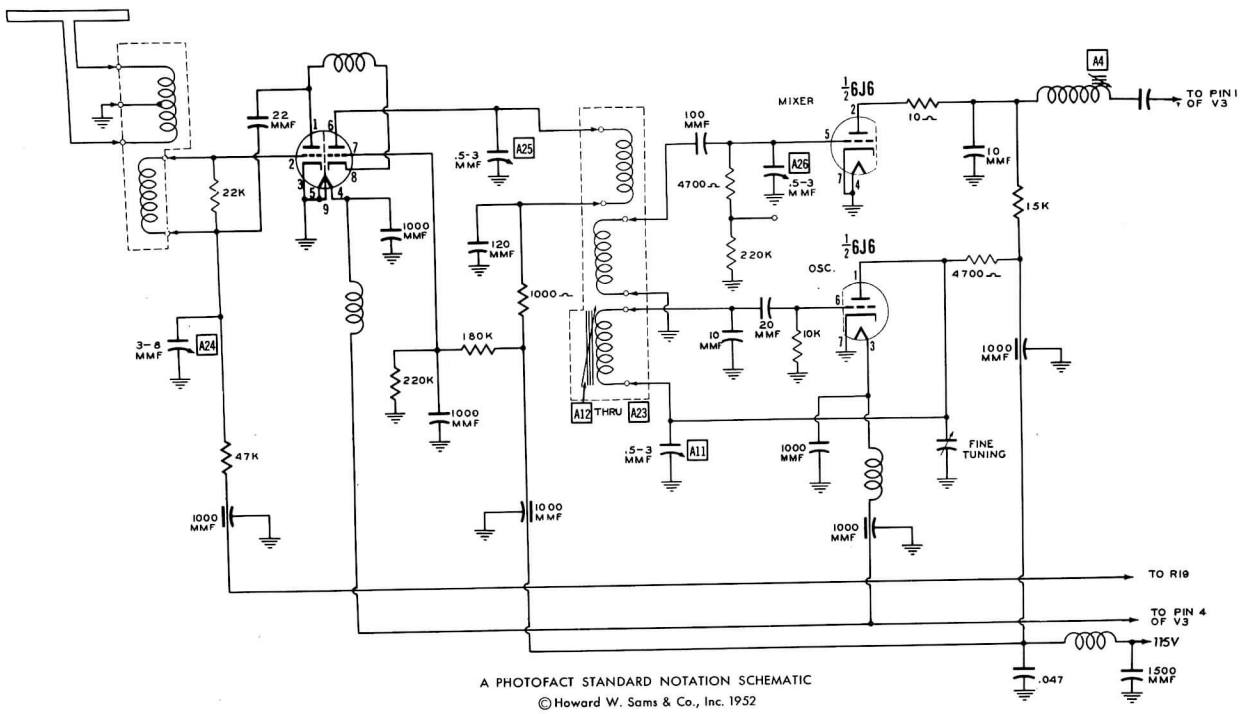


FIG. 6

RESISTANCE MEASUREMENTS

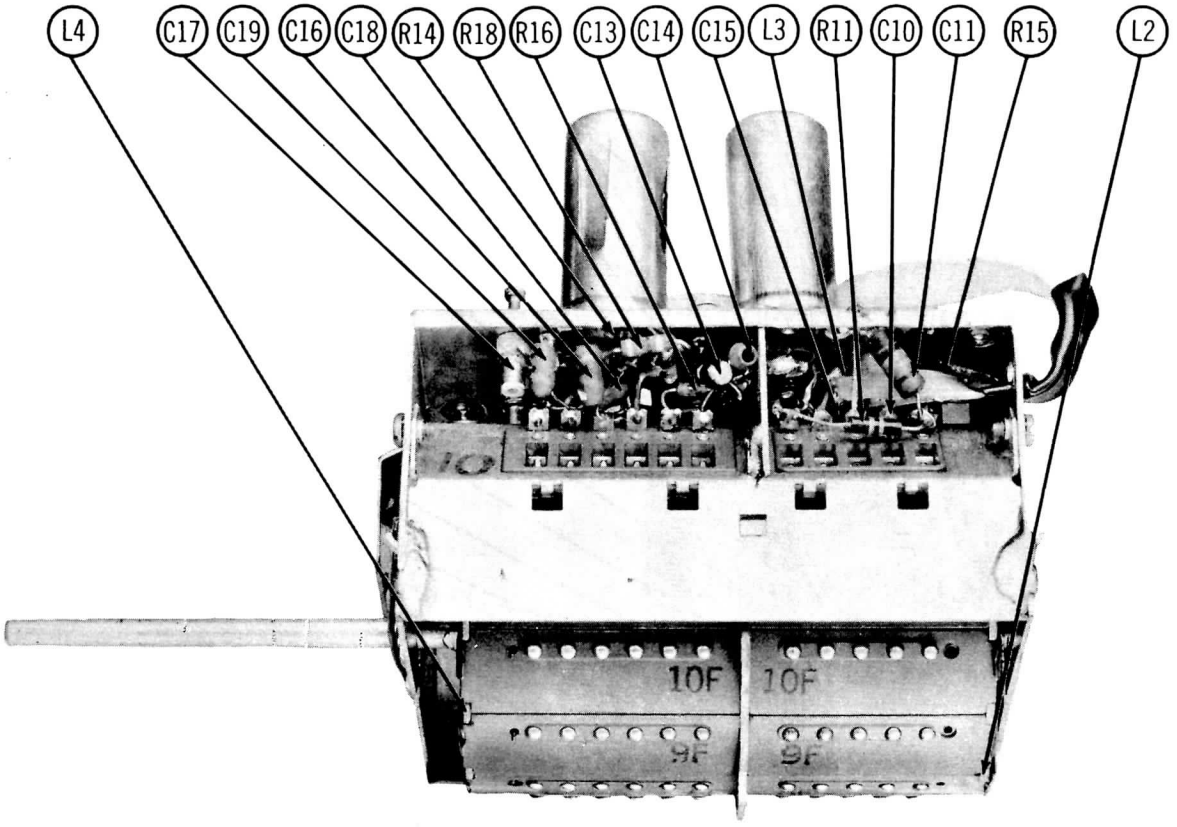
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AK5	190KΩ	0Ω	.1Ω	0Ω	†3.8KΩ	†3.8KΩ	0Ω		
V 2	6J6	†6.3KΩ	†1.6KΩ	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6BC6	35KΩ	47Ω	0Ω	.1Ω	†1.8KΩ	†1.8KΩ	0Ω		
V 4	6AG5	8.7KΩ	68Ω	0Ω	.1Ω	†1.7KΩ	†1.7KΩ	68Ω		
V 5	6CB6	.5Ω	150Ω	0Ω	.1Ω	†1.6KΩ	†1.6KΩ	0Ω		
V 6	6AH6	■5KΩ	■0Ω	0Ω	.1Ω	†10KΩ	†44KΩ	■75Ω		
V 7	6AU6	2Ω	0Ω	0Ω	.1Ω	†1.9KΩ	†1.9KΩ	150Ω		
V 8	6AL5	INF	INF	.1Ω	0Ω	0Ω	0Ω	12KΩ		
V 9	6AV6	10Meg	1KΩ	0Ω	.1Ω	130KΩ	130KΩ	†220KΩ		
V 10	6K6GT	INF	0Ω	†2KΩ	†1.5KΩ	■470KΩ	INF	.1Ω	■560Ω	
V 11	6CB6	■13KΩ	■100Ω	0Ω	.1Ω	†50KΩ	0Ω	■100Ω		
V 12	12AT7	†47KΩ	†550KΩ	■830KΩ	.1Ω	.1Ω	†330KΩ	†330KΩ	†50KΩ	0Ω
V 13	12AU7	†24KΩ	†2.2Meg	0Ω	.1Ω	.1Ω	32KΩ	■130KΩ	■8KΩ	0Ω
V 14	6SN7GT	3.9Meg	†10KΩ	2.2KΩ	■1.5Meg	†650KΩ	■2.7KΩ	0Ω	.1Ω	
V 15	6K6GT	INF	0Ω	†2.6KΩ	†2.6KΩ	■5.3Meg	†63Ω	.1Ω	■2.2KΩ	
V 16	6AL5	940KΩ	1.5Meg	.1Ω	0Ω	0Ω	0Ω	1.5Meg		
V 17	6AU6	1.4Meg	0Ω	0Ω	.1Ω	†600Ω	†1.6KΩ	220Ω		
V 18	6SN7GT	470KΩ	†4.5KΩ	11Ω 1Meg	■2.2Meg	†210K	■0Ω	0Ω	.1Ω	
V 19	6BG6G	INF	0Ω	■220Ω	■7KΩ	■1Meg	†500Ω	.1Ω	†11KΩ	Top Cap #100Ω
V 20	6W4GT	INF	INF	600KΩ	INF	†100Ω	INF	#.3Ω	#0Ω	
V 21	1B3GT	PINS 1 THRU 8 HAVE INF RESISTANCE								Top Cap #560Ω
V 22	5U4G	INF	8KΩ	INF	■27Ω	INF	■25Ω	INF	8KΩ	
V 23	20CP4	0Ω	■55KΩ	Pin 10 #100KΩ	Pin 11 250KΩ	Pin 12 .1Ω				

ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PIN 2 OF V22
# MEASURED FROM PIN 3 OF V20
■ MEASURED FROM -100VDC LINE

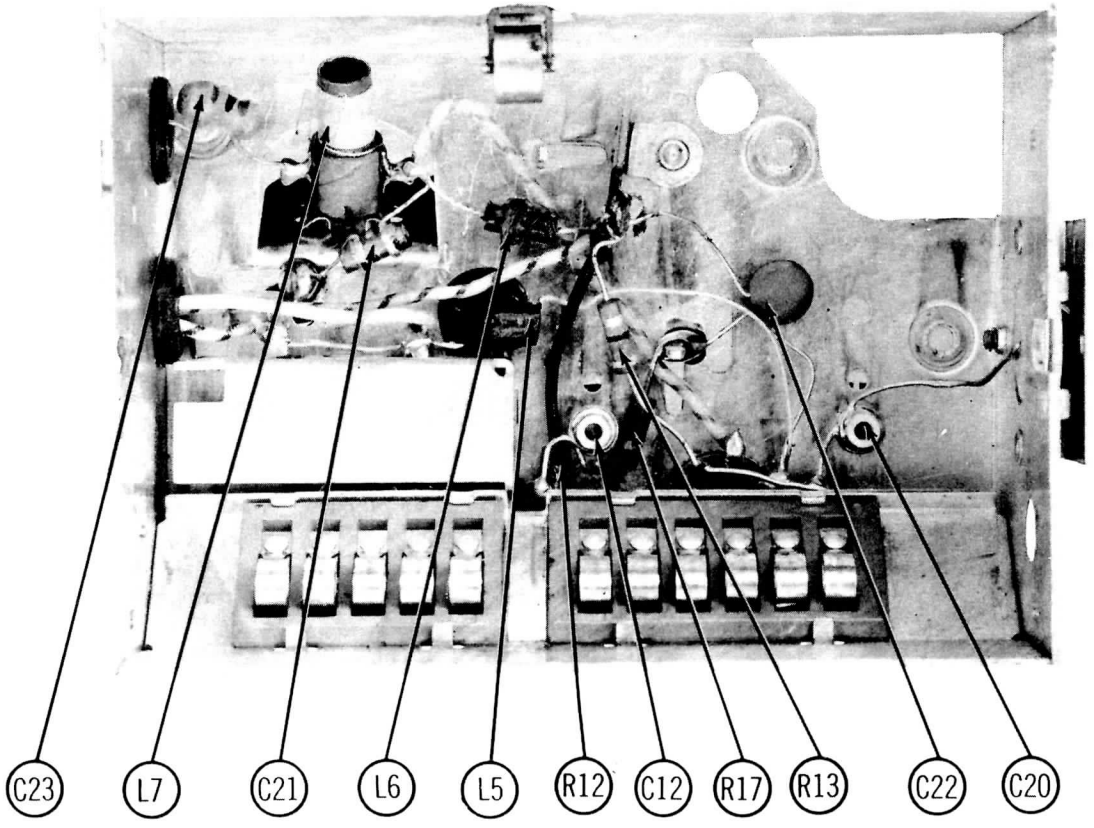


A PHOTOFACT STANDARD NOTATION SCHEMATIC

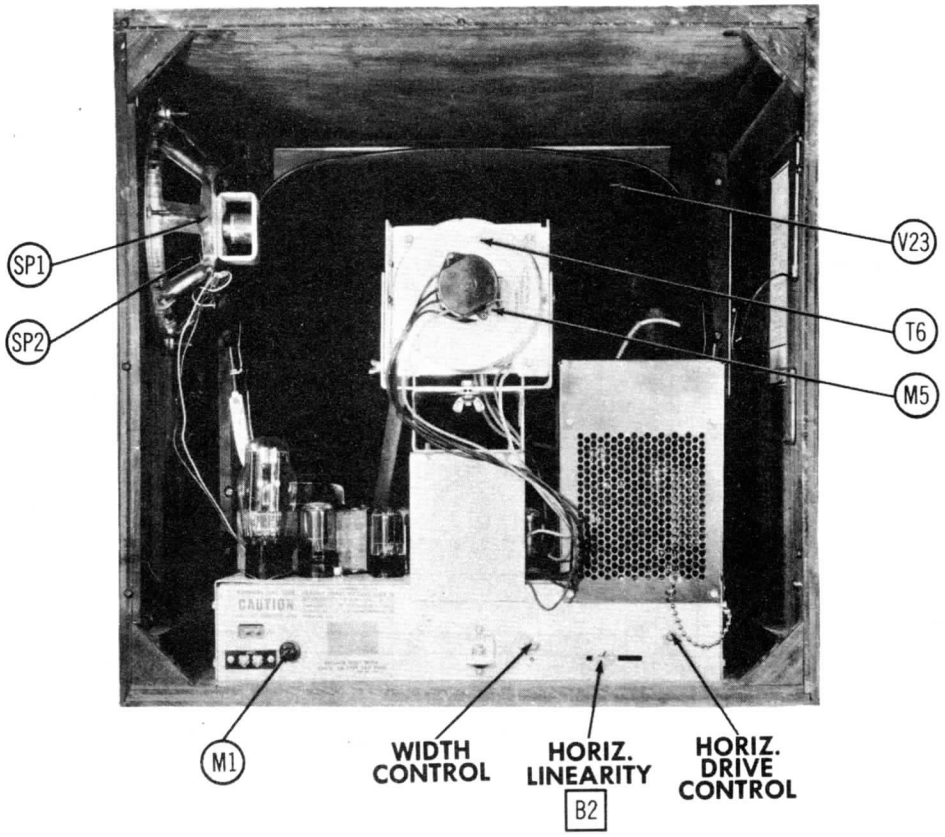
ALTERNATE TUNER SCHEMATIC



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

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

Adjust the horizontal hold slug until the picture synchronizes horizontally.

Decrease the contrast and increase the shading until the normally blanked edges of the raster are visible. If necessary adjust the centering until the right hand edge of the raster is visible. Adjust the horizontal phasing slug, (B1), until one quarter inch on 17 in. tubes, three-eighths in. on 19 in. tube, of raster is visible beyond the right edge fof the picture. If B1 requires considerable adjustment repeat the adjustment of the horizontal hold slug.

Turn the horizontal drive control clockwise until white vertical lines appear in the picture. If the white lines do not appear leave the control at maximum clockwise.

Adjust the width control until the picture is slightly wider than necessary to fill the mask horizontally.

Adjust the horizontal linearity slug, (B2), until the picture is symmetrical from left to right.

Since both width and horizontal linearity are effected by the drive it may be necessary to adjust them alternately for best results.

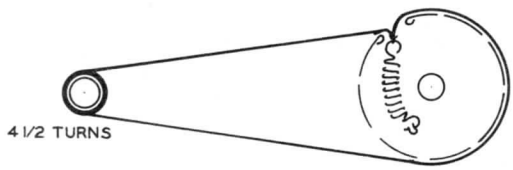
DISASSEMBLY INSTRUCTIONS

1. Remove 8 wood screws and antenna leads from rear cover. Remove cover.
2. Disconnect and remove speaker.
3. Remove 5 push-on type control knobs.
4. Remove 4 chassis bolts and remove chassis.

Note: For picture tube removal it is necessary to remove chassis as outlined above

DRIVE CORD STRINGING

TUNING GANG FULLY CLOSED



PARTS LIST AND

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: CAPEHART PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.	6AK5	6AK5	7BD	
V2	Converter	6J6	6J6	7BF	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6AG5	6AG5	7BD	
V5	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Amp.	6AH6	6AH6	7BK	
V7	Sound IF Amp.	6AU6	6AU6	7BK	
V8	Ratio Det.	6AL5	6AL5	6BT	
V9	AF Amp.-AGC Clamper	6AV6	6AV6	7BT	
V10	Audio Output	6K6GT	6K6GT	7S	
V11	1st. Sync. Amp.	6CB6	6CB6	7CM	
V12	Sync. Sep.-AGC Det.-Noise Clipper	12AT7	12AT7	9A	
V13	AGC Amp.-2nd. Sync. Amp.	12AU7	12AU7	9A	
V14	Sync. Clipper Vert. Mult.	6SN7GT	6SN7GT	8BD	
V15	Vert. Mult.-Vert. Output.	6K6GT	6K6GT	7S	
V16	Horiz. Sync. Discr.	6AL5	6AL5	6BT	
V17	Horiz. AFC	6AU6	6AU6	7BK	
V18	Horiz. Osc. Horiz. Disch.	6SN7GT	6SN7GT	8BD	
V19	Horiz. Output	6BG6G	6BG6G	5BT	
V20	Damper	6W4GT	6W4GT	4CG	
V21	HV Rect.	1B3GT	1B3GT	3C	
V22	LV Rect.	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: CAPEHART PART No.	SYLVANIA PART No.	THOMAS PART No.	RTMA BASE TYPE	NOTES
V23	20CP4	20CP4	20CP4	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: CAP.	RATING: VOLT	REPLACEMENT DATA: CAPEHART PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	475	750090B-12	AFH3-54		UP44150		TVL-4840	▲ Filter
B	35	475							■ Vert. Output Dec.
C	10	475							▲ Decoupling
C2A	40	475	750090B-14	AFH2-72		UPT44150		TVL-2830	▲ Filter
B	45	475							▲ Filter
C3A	40	475	750090B-13	AFH3-102		UPT303			▲ Decoupling
B	40	250		PRS150/50		BR5015A			■ Video Amp. Screen
C	50	150							▲ Bias Filter
D	80	50							Vert. Output Cathode
C4	20	450	650228A-2	PRS450/20		BR2045A		TVA-1709	Decoupling
C5	20	450	650228A-2	PRS450/20		BR2045A		TVA-1709	Audio Output Dec.
C6	20	150	650228A-1	PRS150/20		BR2015A		TVA-1402	Audio Output Cathode
C7	10	50	650228A-3	PRS50/10		BR105		TVA-1304	Bias Filter
C8	10	50	650228A-3	PRS50/10		BR105		TVA-1304	AGC Filter
C9	4	50	650228A-4	PRS150/4		BR550		TVA-1303	Stabilizing Cap.
C10	3-9		451245A-1		829-10				Variable Trimmer
C11	8.2		650030A-13				NP0K-8R2		Fixed Trimmer
C12	.5-3		451216A-1		829-3				Variable Trimmer
C13	100		451065A-1	SI100	D6-101		GP1K-101	5GA-T1	RF Amp. Dec.
C14	120		451064A-1	SI120	D6-121		GP2K-121	5GA-T12	RF Amp. Dec.
C15	1000		451061A-1	SI1000	D6-102		GP2L-102	5HK-D1	RF Amp. Fil.
C16	100		451065A-1	SI100	D6-101		GP1K-101	5GA-T1	RF Coupling
C17	.5-3		451216A-1		829-3				Variable Trimmer
C18	20		451062A-1	SI20NP0	TCZ-20		NP0K-200		Osc. Grid Cap.
C19	10		451063A-1	SI10N750	TCN-10		N750K-100	5TCU-Q1	Fixed Trimmer
C20	.5-3		451216A-1		829-3				Variable Trimmer
C21	10		451063A-1	SI10NP0	TCZ-10		NP0K-100	5TCC-Q1	Fixed Trimmer
C22A	1000			BPD-2X001	DD-2-102		812-001	5HK-2D1	Conv. Fil.
B	1000								RF Bypass
C23	120		451064A-1	SI120	D6-121		GP2K-121	5GA-T12	IF Coupling
C24	.047	600	2248-4730	P688-047	DF-503	PTE6S5		6TM-S47	RF Bypass
C25	1500		450469A-2	BPD-0015	DD-152	1W5D15	801-0015	5HK-D15	RF Bypass
C26	.1	200	2246-1040	P288-1	DF-104	PTE4P1		2TM-P1	AGC Filter
C27	1500		450469A-2	BPD-0015	DD-152	1W5D15	801-0015	5HK-D15	AGC Filter
C28	1.5		650030A-9	SI1.5NP0	TCZ-1.5		NP0K-1R5		Sound Trap Coupling
C29	74						N080-338-740		Fixed Trimmer
C30	1500		450469A-2	BPD-0015	DD-152	1W5D15	801-0015	5HK-D15	1st Video IF Dec.
C31	1500		450469A-2	BPD-0015	DD-152	1W5D15	801-0015	5HK-D15	1st Video IF Fil.
C32	.1	200	2246-1040	P288-1	DF-104	PTE4P1		2TM-P1	AGC Filter
C33	1500		450469A-2	BPD-0015	DD-152	1W5D15	801-0015	5HK-D15	AGC Filter
C34	5			SI5NP0	TCZ-4.7		NP0K-050		Fixed Trimmer
C35	1500		450469A-2	BPD-0015	DD-152	1W5D15	801-0015	5HK-D15	2nd. Video IF Dec.
C36	1500		450469A-2	BPD-0015	DD-152	1W5D15	801-0015	5HK-D15	2nd. Video IF Fil.
C37	1500		450469A-2	BPD-0015	DD-152	1W5D15	801-0015	5HK-D15	3rd. Video IF Dec.
C38	1500		450469A-2	BPD-0015	DD-152	1W5D15	801-0015	5HK-D15	3rd. Video IF Cathode
C39	5		650030A-1	SI5NP0	TCZ-4.7		NP0K-050		Video Det. Filter
C40	1500		450469A-2	BPD-0015	DD-152	1W5D15	801-0015	5HK-D15	Bias Filter
C41	1500		450469A-2	BPD-0015	DD-152	1W5D15	801-0015	5HK-D15	Bias Filter
C42	.1	200	2246-1040	P288-1	DF-104	PTE4P1		2TM-P1	Video Coupling
C43	.1	600	2248-1040	P688-1	DF-104	PTE6P1		6TM-P1	Bias Filter
C44	3.3		650030A-9	SI3.3NP0	TCZ-3.3		NP0K-3R3		Sound IF Coupling
C45A	5000		† 452268A-1	BPD-005	DD-502	1D5D5	811-005	5HK-D5	Sound IF Decoupling
B	5000			BPD-005	DD-502	1D5D5	811-005	5HK-D5	Sound IF Cathode
C46	470	500	750272A-12	1468-0005	D6-471	5W5T1	GP2K-471	1FM-35	Diode Load Cap.
C47	.001	600	2248-1020	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	De-emphasis
C48	.01	600	2248-1030	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Audio Coupling
C49	.01	600	2248-1030	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Audio Coupling
C50	100	500	750272A-11	1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	AF Amp. Plate
C51	.01	600	2248-1030	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Audio Coupling
C52	470	500	750272A-12	1468-0005	D6-471	5W5T1	GP2K-471	1FM- 35	Tone Comp.
C53	.0022	600	2248-2220	P688-0022	D6-222	PTE6D2	GP2-333-222	6TM-D22	Audio Output Plate
C54	.01	600	2248-1030	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	1st. Sync.Amp. Cathode
C55	220	500	750272A-33	1468-00025	D6-220	5W5T25	GP2K-221	1FM-325	Sync. Coupling
C56	.22	400	2247-2240	P488-22		PTE4S2		4TM-S22	Sync. Sep. Cathode ¶
C57	.047	600	2248-4730	P688-047	DF-503	PTE6S5		6TM-S47	Sync. Coupling

CAPACITOR

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMEN: CAPEHART PART No.	AEROVOX PART No.	CENTRALAB PART No.
C58	100	500	720272A-11	1468-0001	D6-101
C59	.01	600	2248-1030	P688-01	D6-103
C60	.01	600	2248-1030	P688-01	D6-103
C61A	.002			P688-002	
B	.005		• 452265A-1	P688-005	• PC-100
C	.005			P688-005	
C62	.033	600	2248-3335	P688-033	
C63	.1	600	2248-1040	P688-1	DF-104
C64	.001	1000	2249-1020	P1088-001	
C65	.0047	600	2248-4725	P688-0047	D6-472
C66	.047	600	2248-4730	P688-047	DF-503
C67	470	500	750272A-12	1469-0005	
C68	100	500	750272A-11	1468-0001	D6-101
C69	.0047	600	2248-4725	P688-0047	D6-472
C70	.0047	600	2248-4725	P688-0047	D6-472
C71	.047	600	2248-4730	P688-047	DF-503
C72	100	500	750272A-11	1468-0001	D6-101
C73	.015	400	2247-1535	P488-015	
C74	.001	600	2248-1020	P688-001	D6-102
C75	.01	600	2248-1030	P688-01	D6-103
C76	.047	600	2248-4730	P688-047	DF-503
C77	680	500	750272A-32	1479-0007	
C78	.0047	600	2248-4725	P688-0047	D6-472
C79	.047	600	2248-4730	P688-047	DF-503
C80	.1	200	2246-1040	P288-1	DF-104
C81	30	6000	452310A-1		
C82	.022	600	2248-2230	P688-022	DF-203
C83	.022	600	2248-2230	P688-022	DF-203
C84	.01	600	2248-1030	P688-01	D6-103
C85	.01	600	2248-1030	P688-01	D6-103
C86	500	20000	650153B-2	HV20C	TV3-502
C87	.22	200	2246-2240	P488-22	
C88	.1	200	2246-1040	P288-1	DF-104
C89	1500		450469A-2	BPD-0015	DD-152
C90	1500		450469A-2	BPD-0015	DD-152

†Items C45A, C45B, R113A, R113B are combined in one unit.
• Items C61A, C61B, C61C, R114A, R114B, R114C are combined in
¶ Some models use .047MFD in this application (Part No. 224

CONTI

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CAPEHART PART No.	IRC PART No.	CLAROST/ PART No
R1A	1Meg	½	450896B-1	Q13-137	AG-63-Z
B	Shaft			Not Req.	FS-3
C	Switch			76-1	SWB
R2A	250Ω	3	450966A-1		RTV-60
B	Shaft				Not Req.
R3A	1Meg	½	450894A-1	Q11-137	AM-61-S
B	Shaft			Not Req.	FKS-1/4
R4A	5KΩ	½	450893A-1	Q11-114	AM-19-S
B	Shaft			Not Req.	FKS-1/4
R5A	1.5Meg	½	450892A-1	Q11-138	AG-83-S
B	Shaft			Not Req.	FKS-1/4
R6A	500KΩ	½	450897A-1	Q11-133	AG-58-S
B	Shaft			Not Req.	FKS-1/4
R7A	4500Ω	½	450891A-1		RTV-10
B	Shaft				Not Req.
R8A	200KΩ	½	452226A-1		AG-52-S
B	Shaft				FS-3
R9A	1.5KΩ	½	750266A-2		AG-11-S
B	Shaft				KSS-3
R10A	2.5Meg	½	452733A-1	Q11-239	AG-84-S
B	Shaft			Not Req.	FKS-1/4

RESIST

ITEM No.	RATING: RESISTANCE		RATING: WATTS	REPLACEMENT DATA: CAPEHART PART No.	IRC PART No.	A
R11	100KΩ		½			A
R12	2200Ω		½	3229-222	BTS-2200	R
R13	4700Ω	10%	½	3229-472	BTS-4700	O
R14	10KΩ		½	3229-103	BTS-10K	O
R15	47KΩ		½	3229-473		R
R16	10KΩ		½	3229-103		R
R17	220KΩ		½	3229-224		M
R18	4700Ω		½	3229-472	BTS-4700	M
R19	10KΩ		½	3229-104		A
R20	100KΩ		½	3229-273		A
R21	24KΩ	5%	½	3228-243		A
R22	27KΩ	10%	½	3229-273		Is
R23	47Ω		½	3229-470		Is
R24	8200Ω		½	3229-822		A
R25	100Ω		½	3229-392	BTS-100	Is
R26	3900Ω	10%	½	3229-392		Is
R27	470Ω	10%	½	3229-471	BTS-470	A
R28	68Ω		½	3229-680		2r
R29	100Ω	10%	½	3229-392	BTS-100	D
R30	100KΩ	10%	½	3229-103		2r
R31	150Ω	10%	½	3229-151	BTS-150	3r
R32	3300Ω	10%	½	3229-332	BTS-3300	V
R33	1800Ω	10%	½	3229-182	BTS-1800	V
R34	1000Ω	10%	1	3229-102	BTA-1000	P
R35	39KΩ	10%	½	3229-393	BTS-39K	Vi
R36	120Ω		½	3229-121		Ba
R37	68KΩ	10%	½	3229-683		D
R38	12KΩ	10%	½	3229-121	BTS-12K	Ra
R39	10Meg		½	3229-106	BTS-10Meg	A
R40	1KΩ		½	3229-105	BTS-1K	A
R41	220KΩ		½	3229-224	BTS-220K	A
R42	470KΩ		½	3229-224	BTS-470K	Ou
R43	560Ω	10%	1	3232-561	BTA-560	Ou
R44	1800Ω	10%	½	3232-182	BTS-1800	O
R45	2500Ω	10%	1	3232-222	BTA-700	Ou
R46	82KΩ	10%	½	3229-823	BTS-82K	Bi
R47	2Meg	5%	½	3228-205	BTS-2Meg 5%	AC
R48	1.5Meg		½	3228-155	BTS-1.5Meg	Fe

PARTS LIST AND DESCRIPTIONS

CAPACITORS (CONT.)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA CAPEHART PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C58	100	500	720272A-11	1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	Sync. Coupling
C59	.01	600	2248-1030	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Sync. Clipper Plate
C60	.01	600	2248-1030	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Vert.Sync. Coupling
C61A	.002			P688-002		PTE6D2	GP2-333-202		Vert. Integrator Net
B	.005		♦ 452265A-1	P688-005	♦ PC-100	PTE6D5	GP2-333-502	♦ 101C1	Vert. Integrator Net
C	.005			P688-005		PTE6D5	GP2-333-502		Vert. Integrator Net
C62	.033	600	2248-3335	P688-033		PTE6S3		6TM-S3	Vert. Discharge
C63	.1	600	2248-1040	P688-1	DF-104	PTE6P1		6TM-P1	Vert. Sweep Coupling
C64	.001	1000	2249-1020	P1088-001		PTE16D1		MB-D1	Vert. Feedback
C65	.0047	600	2248-4725	P688-0047	D6-472	PTE6D5	GP2-333-472	6TM-D47	Voltage Divider
C66	.047	600	2248-4730	P688-047	DF-503	PTE6S5		6TM-S47	Fixed Trimmer
C67	470	500	750272A-12	1469-0005		5R5T5		MS-35	Voltage Divider
C68	100	500	750272A-11	1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	Horiz. Sync. Coupling
C69	.0047	600	2248-4725	P688-0047	D6-472	PTE6D5	GP2-333-472	6TM-D47	Fixed Trimmer
C70	.0047	600	2248-4725	P688-0047	D6-472	PTE6D5	GP2-333-472	6TM-D47	AFC Filter
C71	.047	600	2248-4730	P688-047	DF-503	PTE6S5		6TM-S47	AFC Filter
C72	100	500	750272A-11	1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	AFC Filter
C73	.015	400	2247-1535	P488-015					Fixed Trimmer
C74	.001	600	2248-1020	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	Horiz. Osc. Grid Cap.
C75	.01	600	2248-1030	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Horiz. Sweep Coupling
C76	.047	600	2248-4730	P688-047	DF-503	PTE6S5		6TM-S47	RF Bypass
C77	680	500	750272A-32	1479-0007		2R5T7		MS-37	Horiz. Discharge
C78	.0047	600	2248-4725	P688-0047	D6-472	PTE6D5	GP2-333-472	6TM-D47	Horiz. Sweep Coupling
C79	.047	600	2248-4730	P688-047	DF-503	PTE6S5		6TM-S47	Horiz. Output Screen
C80	.1	200	2246-1040	P288-1	DF-104	PTE4P1		2TM-P1	Horiz. Output Cathode
C81	30	6000	452310A-1						Fixed Trimmer
C82	.022	600	2248-2230	P688-022	DF-203	PTF6S2		6TM-D22	Damper Filter
C83	.022	600	2248-2230	P688-022	DF-203	PTE6S2		6TM-D22	Damper Filter
C84	.01	600	2248-1030	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Damper Filter
C85	.01	600	2248-1030	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	RF Bypass
C86	500	20000	650153B-2	HV20C	TV3-502				HV Filter
C87	.22	200	2246-2240	P488-22		GT2P25		2TM-P22	RF Bypass
C88	.1	200	2246-1040	P288-1	DF-104	PTE4P1		2TM-P1	Bias Filter
C89	1500		450469A-2	BPD-0015	DD-152	1W5D15	801-0015	5HK-D15	Line Filter
C90	1500		450469A-2	BPD-0015	DD-152	1W5D15	801-0015	5HK-D15	Line Filter

†Items C45A, C45B, R113A, R113B are combined in one unit.
♦ Items C61A, C61B, C61C, R114A, R114B, R114C are combined in one unit.
¶ Some models use .047MFD in this application (Part No. 2248-4730).

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA CAPEHART PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1Meg	1/2	450896B-1	Q13-137	AG-63-Z	B-70-S	Volume Control
B	Shaft			Not Req.	FS-3		Attach to R1A per instructions
C	Switch			76-1	SWB		Attach to R1A per instructions
R2A	250Ω	3	450966A-1		RTV-60	VK125	Width Control - Wire Wound
B	Shaft				Not Req.	Not Req.	Attach to R2A per instructions
R3A	1Meg	1/2	450894A-1	Q11-137	AM-61-S	AN-69	Horizontal Drive Control
B	Shaft			Not Req.	FKS-1/4	AK-1	Attach to R3A per instructions
R4A	5KΩ	1/2	450893A-1	Q11-114	AM-19-S	AN-10	Vertical Linearity Control
B	Shaft			Not Req.	FKS-1/4	AK-1	Attach to 4A per instructions
R5A	1.5Meg	1/2	450892A-1	Q11-138	AG-83-S		Vertical Hold Control
B	Shaft			Not Req.	FKS-1/4		Attach to R5A per instructions
R6A	500KΩ	1/2	450897A-1	Q11-133	AG-58-S	B-59	AGC Set Control
B	Shaft			Not Req.	FKS-1/4		Attach to R6A per instructions
R7A	4500Ω	1/2	450891A-1		RTV-10	AN10	Focus Control
B	Shaft				Not Req.	AK-1	Attach to R7A per instructions
R8A	200KΩ	1/2	452226A-1		AG-52-S	B-46	Brightness Control
B	Shaft				FS-3		Attach to R8A per instructions
R9A	1.5KΩ	1/2	750266A-2		AG-11-S		Contrast Control
B	Shaft				KSS-3		Attach to R9A per instructions
R10A	2.5Meg	1/2	452733A-1	Q11-239	AG-84-S	B-83	Height Control
B	Shaft			Not Req.	FKS-1/4		Attach to R10A per instructions

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA CAPEHART PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 20% UNLESS OTHERWISE SPECIFIED
R11	100KΩ	1/2			Antenna Coil Shunt
R12	2200Ω	1/2	3229-222	BTS-2200	RF Amp. Decoupling
R13	4700Ω 10%	1/2	3229-472	BTS-4700	Osc. Plate
R14	10KΩ	1/2	3229-103	BTS-10K	Osc. Grid
R15	47KΩ	1/2	3229-473		RF Amp. Grid
R16	10KΩ	1/2	3229-103		RF Coil Shunt
R17	220KΩ	1/2	3229-224		Mixer Grid
R18	4700Ω	1/2	3229-472	BTS-4700	Mixer Grid
R19	10KΩ	1/2	3229-104		AGC Network
R20	100KΩ	1/2	3229-273		AGC Network
R21	24KΩ 5%	1/2	3228-243		AGC Network
R22	27KΩ 10%	1/2	3229-273		1st. Video IF Grid
R23	47Ω	1/2	3229-470		1st. Video IF Cathode
R24	8200Ω	1/2	3229-822		AGC Network
R25	100Ω	1/2	3229-392	BTS-100	1st. Video IF Decoupling
R26	3900Ω 10%	1/2	3229-392		1st. Video IF Coil Shunt - See Note 1
R27	470Ω 10%	1/2	3229-471	BTS-470	AGC Network
R28	68Ω	1/2	3229-680		2nd. Video IF Cathode
R29	100Ω 10%	1/2	3229-392	BTS-100	Decoupling
R30	100KΩ 10%	1/2	3229-103		2nd. Video IF Coil Shunt - See Note 2
R31	150Ω 10%	1/2	3229-151	BTS-150	3rd. Video IF Cathode
R32	3300Ω 10%	1/2	3229-332	BTS-3300	Video Detector Diode Load
R33	1800Ω 10%	1/2	3229-182	BTS-1800	Video Detector Diode Load
R34	1000Ω 10%	1	3229-102	BTA-1000	Peaking Coil Shunt
R35	39KΩ 10%	1/2	3229-393	BTS-39K	Video Amp. Screen
R36	120Ω	1/2	3229-121		Balancing
R37	68KΩ 10%	1/2	3229-683		De-emphasis
R38	12KΩ 10%	1/2	3229-121	BTS-12K	Ratio Detector Diode Load
R39	10Meg	1/2	3229-106	BTS-10Meg	AF Amp. Grid
R40	1KΩ	1/2	3229-105	BTS-1K	AF Amp. Cathode
R41	220KΩ	1/2	3229-224	BTS-220K	AF Amp. Plate
R42	470KΩ	1/2	3229-224	BTS-470K	Output Grid
R43	560Ω 10%	1	3232-561	BTA-560	Output Cathode
R44	1800Ω 10%	1/2	3232-182	BTS-1800	Output Decoupling
R45	2500Ω 10%	1	3232-222	BTA-700	Output Decoupling See Note 3
R46	82KΩ 10%	1/2	3229-823	BTS-82K	Bias Network
R47	2Meg 5%	1/2	3228-205	BTS-2Meg 5%	AGC Network
R48	1.5Meg	1/2	3229-155	BTS-1.5Meg	Feedback

ITEM No.	RATING RESISTANCE	RATING WATTS	CA... P...
R49	470KΩ 10%	1/2	3229
R50	470KΩ 10%	1/2	3229
R51	27KΩ 10%	1/2	322
R52	5KΩ	7	350
R53	5KΩ	7	650
R54	100KΩ	1	323
R55	100KΩ	1	323
R56	10KΩ 10%	1/2	322
R57	100Ω 10%	1/2	322
R58	330KΩ 10%	1/2	322
R59	220KΩ	1/2	322
R60	330KΩ 10%	1/2	322
R61	470KΩ	1/2	323
R62	470KΩ	1/2	323
R63	470KΩ	1/2	
R64	470KΩ	1/2	
R65	10KΩ 5%	1/2	322
R66	47KΩ	1	323
R67	47KΩ	1	323
R68	2.2Meg	1/2	322
R69	47KΩ	1/2	322
R70	5.1KΩ 10%	1/2	322
R71	3.9Meg 10%	1/2	322
R72	2200Ω 10%	1/2	322
R73	10KΩ 10%	1/2	322
R74	1Meg	1/2	322
R75	470KΩ	1/2	322
R76	470KΩ	1/2	322
R77	470KΩ	1/2	322
R78	10KΩ	1/2	322
R79	1KΩ	1/2	322
R80	470KΩ 10%	1/2	322
R81	47KΩ	1/2	322
R82	1.8KΩ	2	322
R83	22KΩ	1/2	322
R84	2200Ω	1/2	322
R85	2.2Meg 10%	1/2	322
R86	47Ω	1/2	322
R87	1Meg 10%	1/2	322
R88	22KΩ 10%	1	323
R89	27KΩ 10%	1	323
R90	100KΩ	1/2	322
R91	470KΩ	1	323
R92	47KΩ 10%	1/2	322
R93	47KΩ 10%	1/2	322
R94	6.8KΩ	1/2	322
R95	220Ω	4	650
R96	1200Ω	1	323
R97	2.2KΩ	1	323
R98	560Ω 10%	1	323
R99	56KΩ 5%	1/2	322
100	3.9Meg 10%	1/2	322
R101	560KΩ 10%	1/2	322
R102	15KΩ 10%	1/2	322
R103	470KΩ	1/2	322
R104	28KΩ	1/2	450
R105	2.7KΩ 5%	1/2	322
R106A	60Ω	2	650
B	680Ω	5	
R107A	1600Ω	12	650
B	3700Ω	5	
R108	4KΩ	5	
R109	5KΩ	7	
R110	1260Ω	20	
R111	5KΩ	5	
R112	220Ω	1/2	322
R113A	150Ω	1/2	† 45
B	220Ω	1/2	
R114A	22KΩ	1/2	♦ 45
B	8200Ω	1/2	
C	8200Ω	1/2	

Note 1 Some Models use 2 resist
Note 2 Some Models use a 15KΩ
Note 3 Some Models use a 2200Ω
Note 4 Some Models use a 220KΩ
Note 5 Some Models use a 4.7KΩ
Note 6 Some Models use a 68KΩ
Note 7 Some Models use 1140Ω ar
Note 8 Not used in all Models
Note 9 Some Models use a 1000Ω
† Items R113A, R113B, C45A,
♦ Items R114A, R114B, R114C,

ITEM No.	RATINGS FIELD RES.	RATINGS V. C. IMP.
SP1	P. M.	3.3Ω
	CONE DIA.	V. C. DIA.
SP2	8 in.	9/16 in.

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2
T1	117VAC	760VCT	5VAC
	ⓐ2.3A	.250ADC	ⓐ3A
T2	6.3VAC	6.3VAC	
	ⓐ1.2A	ⓐ1.2A	

NOTES

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RAGUE RT No.	IDENTIFICATION CODES AND INSTALLATION NOTES
/L-4840	▲ Filter
	■ Vert. Output Dec.
	▲ Deccupling
/L-2830	▲ Filter
	▲ Filter
	▲ Decoupling
	■ Video Amp. Screen
	▲ Bias Filter
	Vert. Output Cathode
/A-1709	Decoupling
/A-1709	Audio Output Dec.
/A-1402	Audio Output Cathode
/A-1304	Bias Filter
/A-1304	AGC Filter
/A-1303	Stabilizing Cap.
	Variable Trimmer
	Fixed Trimmer
	Variable Trimmer
A-T1	RF Amp. Dec.
A-T12	RF Amp. Dec.
K-D1	RF Amp. Fil.
A-T1	RF Coupling
	Variable Trimmer
	Osc. Grid Cap.
CU-Q1	Fixed Trimmer
	Variable Trimmer
CC-Q1	Fixed Trimmer
K-2D1	Conv. Fil.
	RF Bypass
A-T12	IF Coupling
M-S47	RF Bypass
K-D15	RF Bypass
M-P1	AGC Filter
K-D15	AGC Filter
	Sound Trap Coupling
	Fixed Trimmer
K-D15	1st Video IF Dec.
K-D15	1st Video IF Fil.
M-P1	AGC Filter
K-D15	AGC Filter
	Fixed Trimmer
K-D15	2nd. Video IF Dec.
K-D15	2nd. Video IF Fil.
K-D15	3rd. Video IF Dec.
K-D15	3rd. Video IF Cathode
	Video Det. Filter
K-D15	Bias Filter
K-D15	Bias Filter
M-P1	Video Coupling
M-P1	Bias Filter
	Sound IF Coupling
K-D5	Sound IF Decoupling
K-D5	Sound IF Cathode
M-35	Diode Load Cap.
M-D1	De-emphasis
M-S1	Audio Coupling
M-S1	Audio Coupling
M-31	AF Amp. Plate
M-S1	Audio Coupling
M- 35	Tone Comp.
M-D22	Audio Output Plate
M-S1	1st. Sync.Amp. Cathode
M-325	Sync. Coupling
M-S22	Sync. Sep. Cathode ¶
M-S47	Sync. Coupling

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(CONT.)

A INNELL-SILIER T No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
1	GP1K-101	1FM-31	Sync. Coupling
3S1	GP2-333-103	6TM-S1	Sync. Clipper Plate
3S1	GP2-333-103	6TM-S1	Vert.Sync. Coupling
3D2	GP2-333-202		Vert. Integrator Net
3D5	GP2-333-502	♦ 101C1	Vert. Integrator Net
3D5	GP2-333-502		Vert. Integrator Net
3S3		6TM-S3	Vert. Discharge
3P1		6TM-P1	Vert. Sweep Coupling
6D1		MB-D1	Vert. Feedback
3D5	GP2-333-472	6TM-D47	Voltage Divider
3S5		6TM-S47	Fixed Trimmer
'5		MS-35	Voltage Divider
1	GP1K-101	1FM-31	Horiz. Sync. Coupling
3D5	GP2-333-472	6TM-D47	Fixed Trimmer
6D5	GP2-333-472	6TM-D47	AFC Filter
E6S5		6TM-S47	AFC Filter
5T1	GP1K-101	1FM-31	AFC Filter Fixed Trimmer
E6D1	GP2L-102	6TM-D1	Horiz. Osc. Grid Cap.
E6S1	GP2-333-103	6TM-S1	Horiz. Sweep Coupling
E6S5		6TM-S47	RF Bypass
T7		MS-37	Horiz. Discharge
E6D5	GP2-333-472	6TM-D47	Horiz. Sweep Coupling
E6S5		6TM-S47	Horiz. Output Screen
E4P1		2TM-P1	Horiz. Output Cathode Fixed Trimmer
E6S2		6TM-D22	Damper Filter
E6S2		6TM-D22	Damper Filter
E6S1	GP2-333-103	6TM-S1	Damper Filter
E6S1	GP2-333-103	6TM-S1	RF Bypass HV Filter
2P25		2TM-P22	RF Bypass
E4P1		2TM-P1	Bias Filter
5D15	801-0015	5HK-D15	Line Filter
5D15	801-0015	5HK-D15	Line Filter

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CENTRALAB PART No.	INSTALLATION NOTES
B-70-S	Volume Control
	Attach to R1A per instructions
	Attach to R1A per instructions
VK125	Width Control - Wire Wound
Not Req.	Attach to R2A per instructions
AN-69	Horizontal Drive Control
AK-1	Attach to R3A per instructions
AN-10	Vertical Linearity Control
AK-1	Attach to 4A per instructions
	Vertical Hold Control
	Attach to R5A per instructions
B-59	AGC Set Control
	Attach to R6A per instructions
AN10	Focus Control
AK-1	Attach to R7A per instructions
B-46	Brightness Control
	Attach to R8A per instructions
	Contrast Control
	Attach to R9A per instructions
B-83	Height Control
	Attach to R10A per instructions

RS

IDENTIFICATION CODES RESISTORS ± 20% UNLESS OTHERWISE SPECIFIED
na Coil Shunt
mp. Decoupling
Plate
Grid
mp. Grid
oil Shunt
Grid
Grid
Network
Network
Network
Video IF Grid
ideo IF Cathode
Network
ideo IF Decoupling
i deo IF Coil Shunt - See Note 1
Network
Video IF Cathode
pling
Video IF Coil Shunt - See Note 2
Video IF Cathode
Detector Diode Load
Detector Diode Load
ng Coil Shunt
Amp. Screen
ing
phasis
Detector Diode Load
mp. Grid
mp. Cathode
mp. Plate
Grid
Cathode
Decoupling
Decoupling See Note 3
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RESISTORS (CONT.)

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA CAPEHART PART No.	REPLACEMENT DATA IRC PART No.	IDENTIFICATION CODES
R49	470KΩ 10%	½	3229-244	BTS-470K	Picture Tube Cathode
R50	470KΩ 10%	½	3229-474	BTS-470K	Picture Tube Cathode
R51	27KΩ 10%	½	3229-273	BTS-27K	Voltage Divider
R52	5KΩ	7	650101A-8		Video Output Plate Load- Wire Wound
R53	5KΩ	7	650101A-8		Video Output Decoupling- Wire Wound
R54	100KΩ	1	3232-104	BTA-100K	1st Sync. Amp. Plate
R55	100KΩ	1	3232-104	BTA-100K	1st Sync. Amp. Plate
R56	10KΩ 10%	½	3229-273	BTS-10K	1st Sync. Amp. Grid
R57	100Ω 10%	½	3229-101	BTS-100	1st Sync. Amp. Cathode
R58	330KΩ 10%	½	3229-334	BTS-330K	Sync. Separator Cathode
R59	220KΩ	½	3229-224	BTS-220K	Sync. Separator Grid
R60	330KΩ 10%	½	3229-334	BTS-330K	Noise Clipper Grid
R61	470KΩ	½	3232-224	BTS-470K	AGC Amp. Cathode See Note 4
R62	470KΩ	½	3232-224	BTS-470K	AGC Amp. Cathode See Note 4
R63	470KΩ	½		BTS-470K	AGC Amp. Cathode See Note 8
R64	470KΩ	½		BTS-470K	AGC Amp. Cathode See Note 8
R65	10KΩ 5%	½	3229-103	BTS-10K - 5%	Bias Network
R66	47KΩ	1	3232-473	BTA-47K	2nd Sync. Amp. Plate
R67	47KΩ	1	3232-473	BTA-47K	2nd Sync. Amp. Plate
R68	2.2Meg	½	3229-225	BTS-2.2Meg	2nd Sync. Amp. Grid
R69	47KΩ	½	3229-334	BTS-47K	AGC Det. Plate
R70	5.1KΩ 10%	½	3229-472	BTS-5.1K	Bias Network See note 5.
R71	3.9Meg 10%	½	3229-395	BTS-3.9Meg	Sync. Clipper Grid
R72	2200Ω 10%	½	3229-222	BTS-2200	Sync. Clipper Cathode
R73	10KΩ 10%	½	3229-273	BTS-10K	Sync. Clipper Plate
R74	1Meg	½	3229-105	BTS-1Meg	Horiz. Sync. Discriminator Load
R75	470KΩ	½	3229-224	BTS-470K	Horiz. Sync. Discriminator Load
R76	470KΩ	½	3229-224	BTS-470K	Horizontal Sync. Discriminator Load
R77	470KΩ	½	3229-224	BTS-470K	Horiz. Sync. Discriminator Filter
R78	10KΩ	½	3229-273	BTS-10K	Horiz. Sync. Discriminator Filter
R79	1KΩ	½	3229-105	BTS-1K	Horiz. AFC Grid
R80	470KΩ 10%	½	3229-474	BTS-470K	Horiz. Osc. Grid
R81	47KΩ	½	3229-473	BTS-47K	Horiz. Discharge Plate
R82	1.8KΩ	2	3229-182		Horiz. Osc. Decoupling - Wire Wound
R83	22KΩ	½	3329-223	BTS-22K	Horiz. Ringing Coil Shunt
R84	2200Ω	½	3229-222	BTS-2200	Horiz. Osc. Plate
R85	2.2Meg 10%	½	3229-225	BTS-2.2Meg	Horiz. Discharge Grid
R86	47Ω	½	3229-470		Parasitic Suppressor
R87	1Meg 10%	½	3229-105	BTS-1Meg	Horiz. Output Grid
R88	22KΩ 10%	1	3232-273	BTA-22K	Horiz. Output Screen
R89	27KΩ 10%	1	3232-223	BTA-27K	Horiz. Output Screen
R90	100KΩ	½	3229-104	BTS-100K	Voltage Divider
R91	470KΩ	1	3232-474	BTA-470K	Voltage Divider
R92	47KΩ 10%	½	3229-473	BTS-47K	Vertical MV Feedback
R93	47KΩ 10%	½	3229-334	BTS-47K	Vertical MV Feedback
R94	6.8KΩ	½	3229-682	BTS-6.8K	Horizontal Peaking
R95	220Ω	4	650101A-20		Horizontal Output Cathode - Wire Wound
R96	1200Ω	1	3232-122	BTA-1200	Width Control Shunt
R97	2.2KΩ	1	3232-222	BTA-2.2K	Vert. Output Decoupling
R98	560Ω 10%	1	3232-561	BTA-560	Vert. Output Cath.
R99	56KΩ 5%	½	3229-563	BTS-56K 5%	Vertical Output Trans. Shunt See Note 6
100	3.9Meg 10%	½	3229-395	BTS-3.9Meg	Vertical Output Grid
R101	560KΩ 10%	½	3229-564	BTS-560K	Vert. MV Plate
R102	15KΩ 10%	½	3229-153	BTS-15K	Vertical Peaking
R103	470KΩ	½	3229-224	BTS-470K	Vertical MV Grid
R104	28KΩ	½	450917A-1		Vertical MV Grid - Temperature Compensating
R105	2.7KΩ 5%	½	3229-272	BTS-2.7K	Vertical MV Cathode
R106A	60Ω	2	650211A-1		Voltage Divider - Wire Wound
B	680Ω	5			Focus Coil Shunt - Wire Wound
R107A	1600Ω	12	650466A-1		Filter Wire Wound See Note 7
B	3700Ω	5			Voltage Divider - Wire Wound
R108	4KΩ	5			Filter - Wire Wound See Note 8
R109	5KΩ	7			Voltage Divider - Wire Wound - See Note 8
R110	1260Ω	20			Bias Network - Wire Wound - See Note 9
R111	5KΩ	5			Bias Network - Wire Wound - See Note 8
R112	220Ω	½	3229-221	BTS-220	Voltage Divider
R113A	150Ω	½	† 452268A-1	BTS-150	Sound IF Cathode
B	220Ω	½		BTS-220	Sound IF Dec.
R114A	22KΩ	½	♦ 452265A-1	BTS-22K	Integrator Network
B	8200Ω	½		BTS-8200	Integrator Network
C	8200Ω	½		BTS-8200	Integrator Network

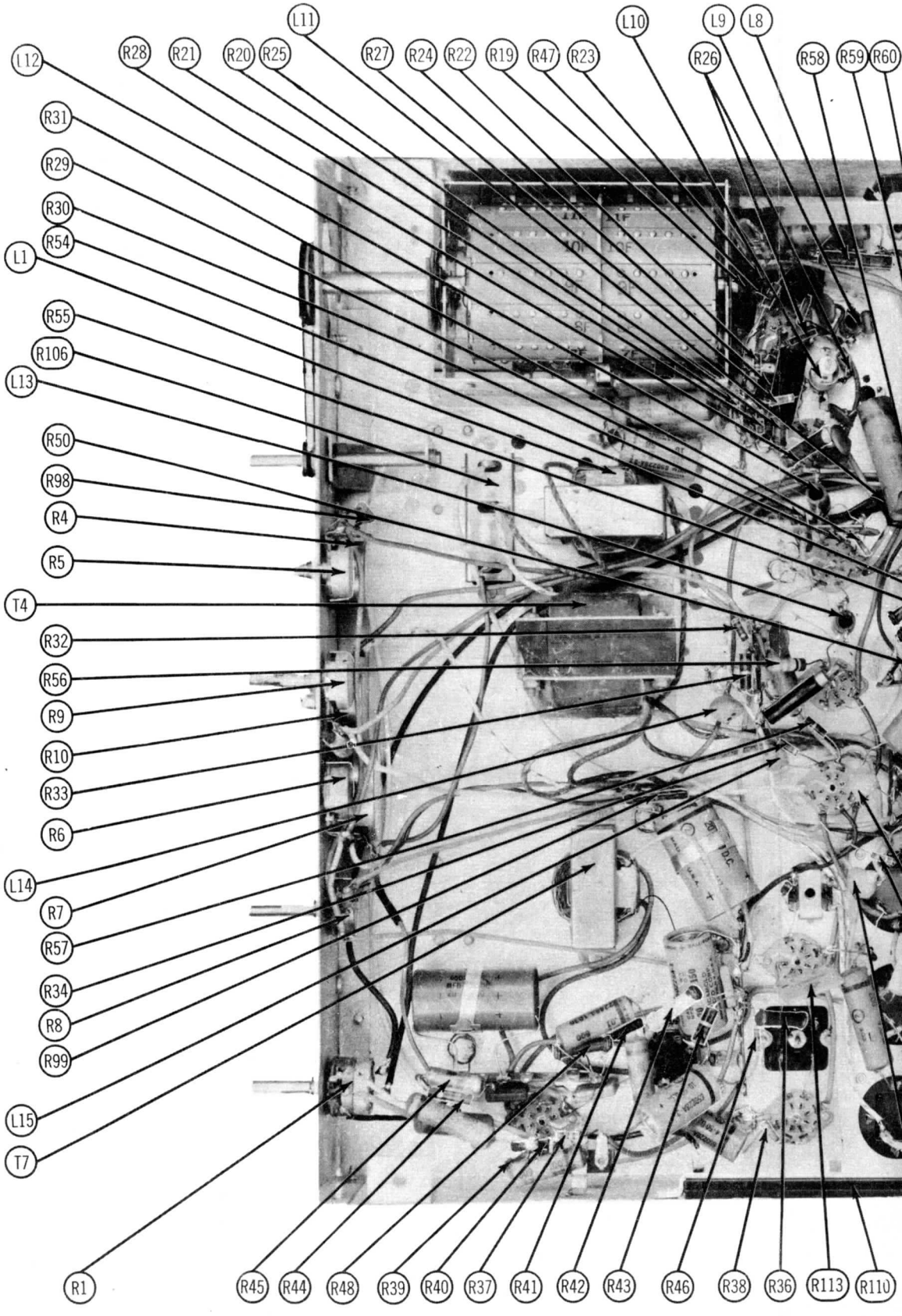
Note 1 Some Models use 2 resistors in parallel to obtain required resistance.
Note 2 Some Models use a 15KΩ Resistor in this application
Note 3 Some Models use a 2200Ω Resistor in this application
Note 4 Some Models use a 220KΩ Resistor in this application
Note 5 Some Models use a 4.7KΩ Resistor in this application
Note 6 Some Models use a 68KΩ Resistor in this application
Note 7 Some Models use 1140Ω and 8700Ω Resistor in this application
Note 8 Not used in all Models
Note 9 Some Models use a 1000Ω Resistor in this application
† Items R113A, R113B, C45A, C45B are combined in one unit
♦ Items R114A, R114B, R114C, C61A, C61B, C61C are combined in one unit

SPEAKER

ITEM No.	RATINGS FIELD RES.	RATINGS V. C. IMP.	REPLACEMENT DATA CAPEHART PART No.	REPLACEMENT DATA JENSEN PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	P. M.	3.3Ω	750151A-1	ST-115 Mod. P8-V	8A21	
	CONE DIA.	V. C. DIA.				
SP2	8 in.	9/16 in.				

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA CAPEHART PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA MERIT PART No.	REPLACEMENT DATA CHICAGO PART No.
T1	117VAC	760VCT	5VAC	6.3VAC	750144B-3	P-8159 ①	P-3059	TP-365
	⑫2.3A	.250ADC	⑫3A	⑫9.5A				
T2	6.3VAC	6.3VAC			650243A-1			
	⑫1.2A	①1.2A						



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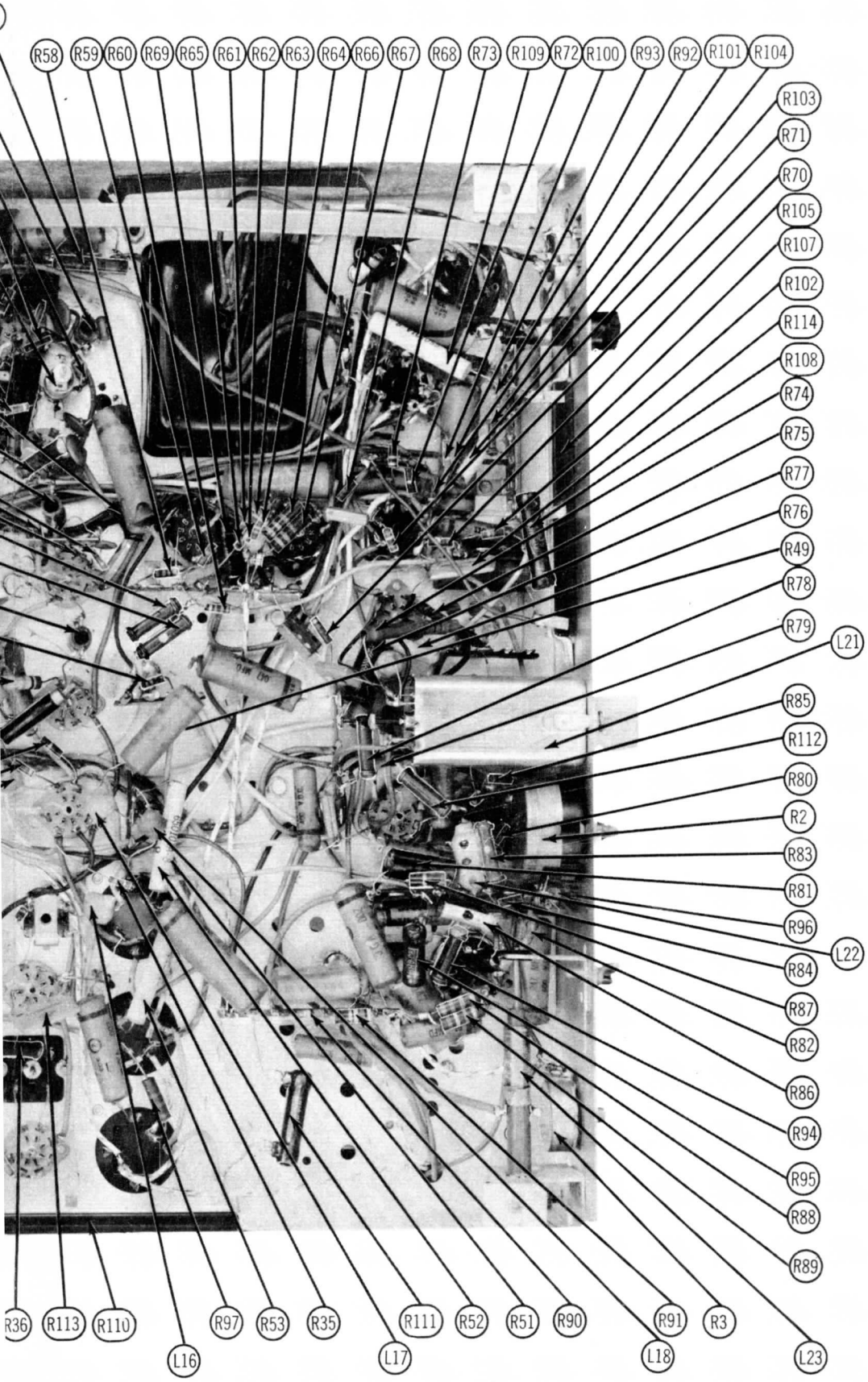

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