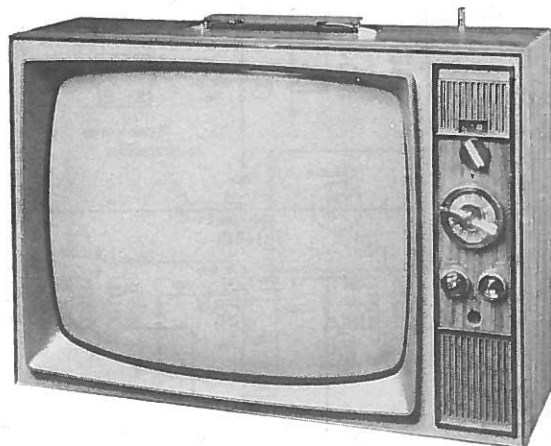


PHOTOFACT® Folder

PACKARD BELL
CHASSIS 88-21

MODEL MSQ-208

TRADE NAME	Packard Bell	Models	Chassis 88-21 - All Models
		MSQ-202, MSQ-204, MSQ-206 MSQ-208 (With Remote Control RM-52, Receiver WRR-17, Transmitter WRT-9) MSQ-302, MSQ-304, MSV-302, MSV-306, MSV-502	
SUPPLIER	For current address, see Annual Index.		
TYPE SET	Television Receiver		
TUBES	VHF: Fifteen, UHF: One Transistor		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	175 Watts @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

SAFETY GLASS

The safety glass is an integral part of the picture tube.

FUSE OR FUSE DEVICE

A Circuit Breaker is used for low voltage power supply protection and may be reset by depressing the reset button. (See photo "Cabinet - Rear View" for location.)

VHF OSCILLATOR ADJUSTMENT

The Fine Tuning mechanically engages oscillator slug for adjustment (one slug for each channel).

AGC

The AGC may be varied by means of an AGC control. (See photo "Cabinet - Rear View" for location.)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjustment of the horizontal hold is accomplished by the

proper setting of the Horizontal Stabilizer coil. (See photo "Cabinet - Rear View" for location.)

HORIZONTAL DRIVE

The horizontal drive may be varied by a Horizontal Drive control. (See photo "Cabinet - Rear View" for location.)

WIDTH

The width may be varied by a Width control. (See photo "Cabinet - Rear View" for location.)

FOCUS

The focus may be varied by means of a Focus control. (See photo "Cabinet - Rear View" for location.)

CENTERING

Centering is accomplished by 2 magnetic rings located on yoke rear cover.

PACKARD BELL
CHASSIS 88-21

IMPORTANT FILING NOTICE

Some models covered by this PHOTOFACT Folder employ chassis in addition to the TV chassis. PHOTOFACT Folders covering these additional chassis are packaged immediately behind this Folder and should be filed with this Folder in the yellow filing jacket provided. For specific coverage see index below.

INDEX

Remote Control RM-52,
Receiver WRR-17,
Transmitter WRT-9 SET 905, FOLDER 2-A

PACKARD BELL
CHASSIS 88-21

SET 905 FOLDER 2

HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

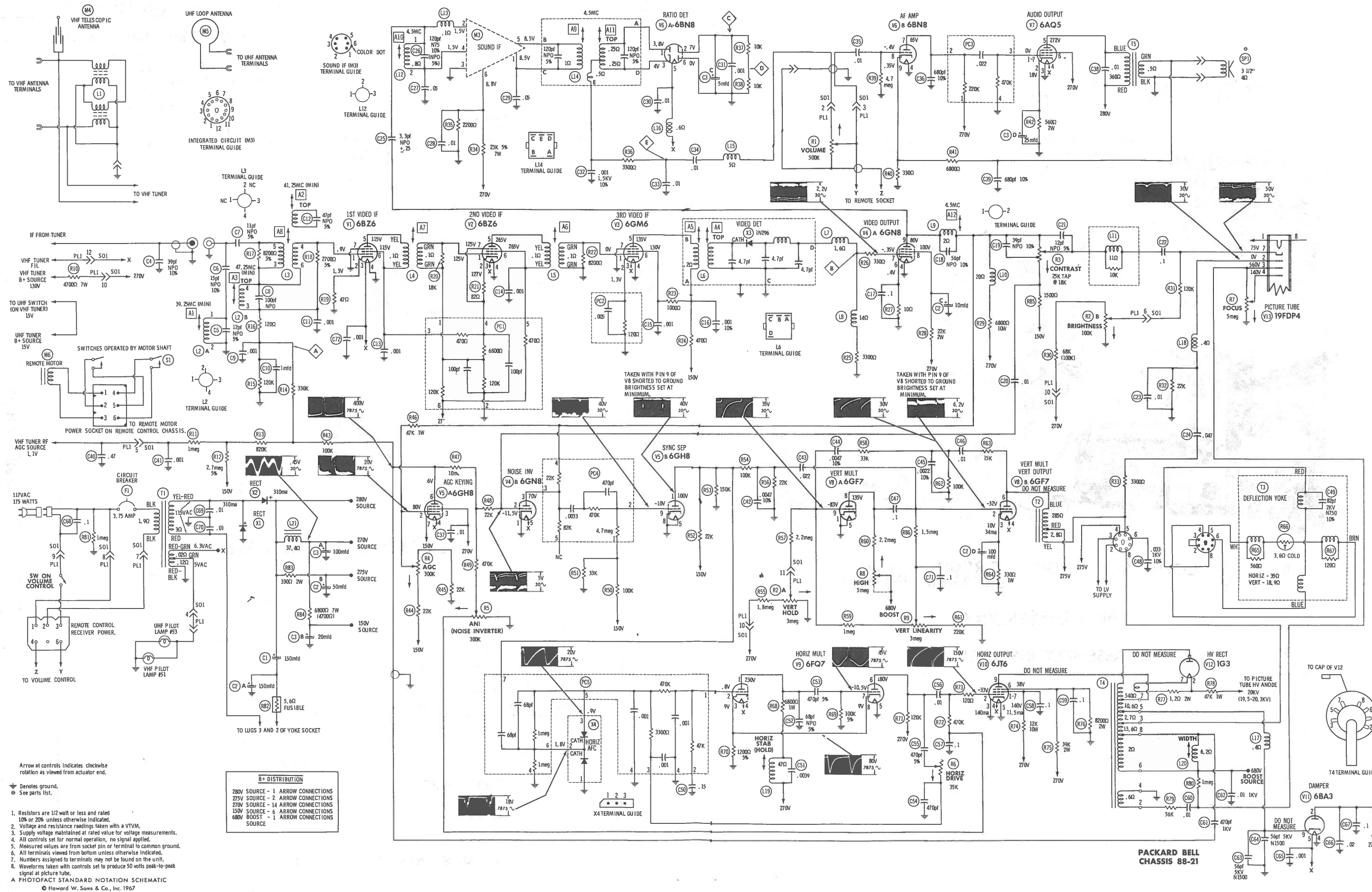
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. SA349



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DATE 8-67

SET 905 FOLDER 2

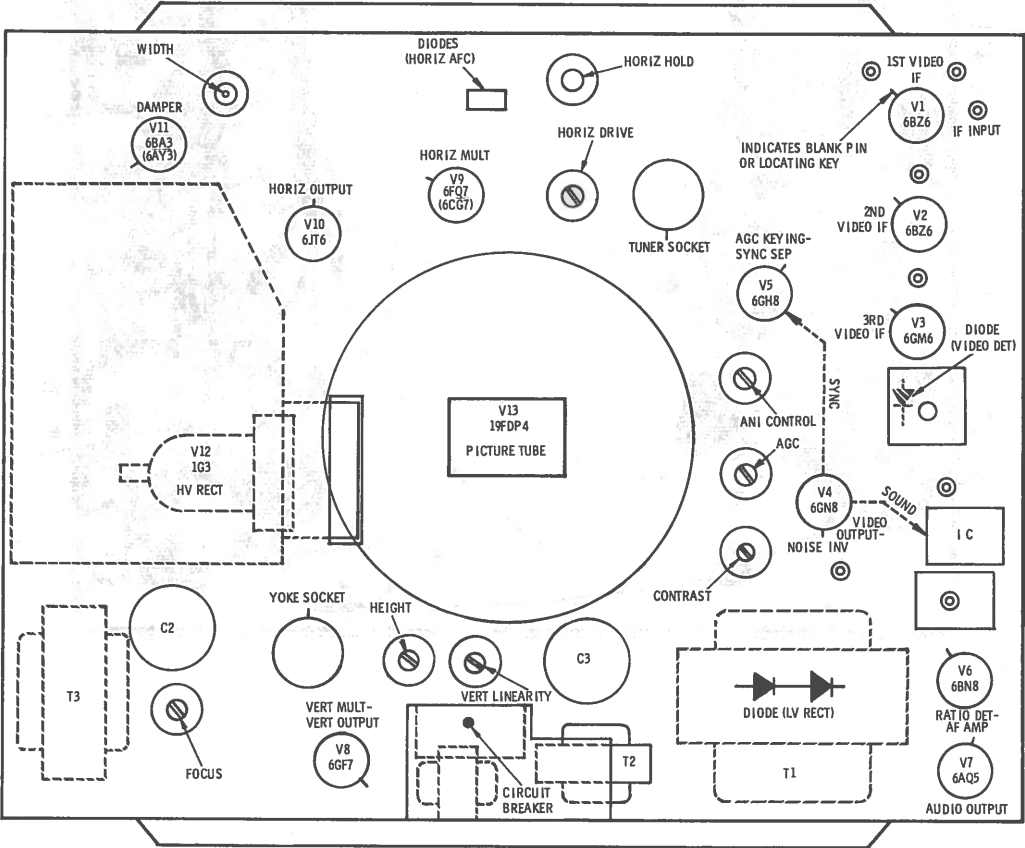


RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	105K	47Ω	FIL	FIL	550Ω ▲	550Ω ▲	0Ω		
V2	6BZ6	6900Ω ▲	80K	FIL	FIL	500Ω †	500Ω †	80K		
V3	6GM6	.1Ω	120Ω	FIL	FIL	6500Ω †	7500Ω †	0Ω		
V4	6GN8	0Ω	800K	40K	FIL	FIL	10Ω	1600Ω ●	27K †	6500Ω †
V5	6GH8	22K †	40K	38Ω †	FIL	FIL	500K	6000Ω †	0Ω	4.7meg
V6	6BN8	1N	20K	1N	FIL	FIL	0Ω	220K †	4.7meg	330Ω
V7	6AQ5	NC	560Ω	FIL	FIL	370Ω †	38Ω †	470K		
V8	6GF7	0Ω	3.1meg	330Ω	FIL	FIL	650Ω †	NC	5meg †	1.7meg
V9	6FQ7	7200Ω †	950K	1200Ω	FIL	FIL	130K †	100K	1200Ω	0Ω
V10	6JT6	12K †	770K	0Ω	FIL	FIL	7200Ω	12K †	NC	11.5Ω †
V11	6BA3	NC	38Ω †	0Ω	FIL	FIL	TP	NC	TP	7meg
V12	1G3	NC	47K ††	NC	TP	NC	NC	1N	NC	TOP CAP 580Ω †
V13	19FDP4	FIL	22K	970K †	1.6meg	NC	NC	155K	FIL	
V201	6HQ5	1.9meg	0Ω	FIL	FIL	6000Ω †	0Ω	0Ω		
V202	6GJ7	0Ω	220K	0Ω	FIL	FIL	5800Ω †	12K †	16K †	47K

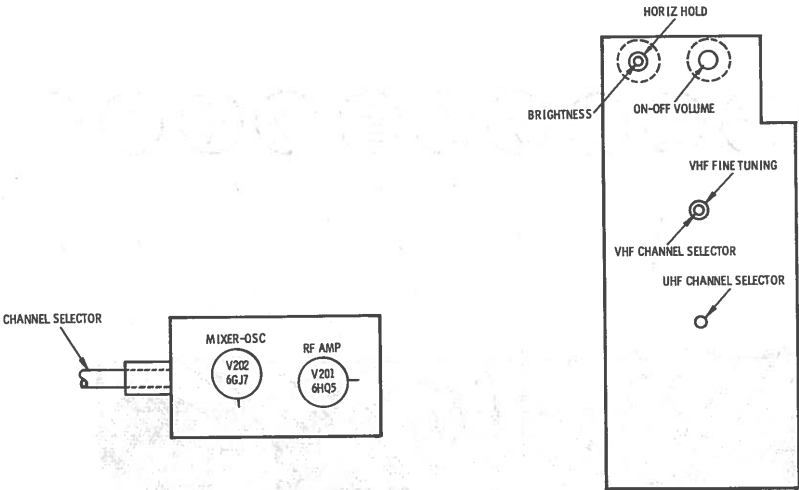
● READING DEPENDS ON POLARITY OF METER CONNECTIONS
†† MEASURED FROM PICTURE TUBE ANODE LEAD.
NC NO CONNECTION TP TIE POINT
▲ MEASURED FROM PIN 2 OF V2.
† MEASURED FROM OUTPUT OF X2.
‡ MEASURED FROM PIN 9 OF V11.

BOTTOM VIEW

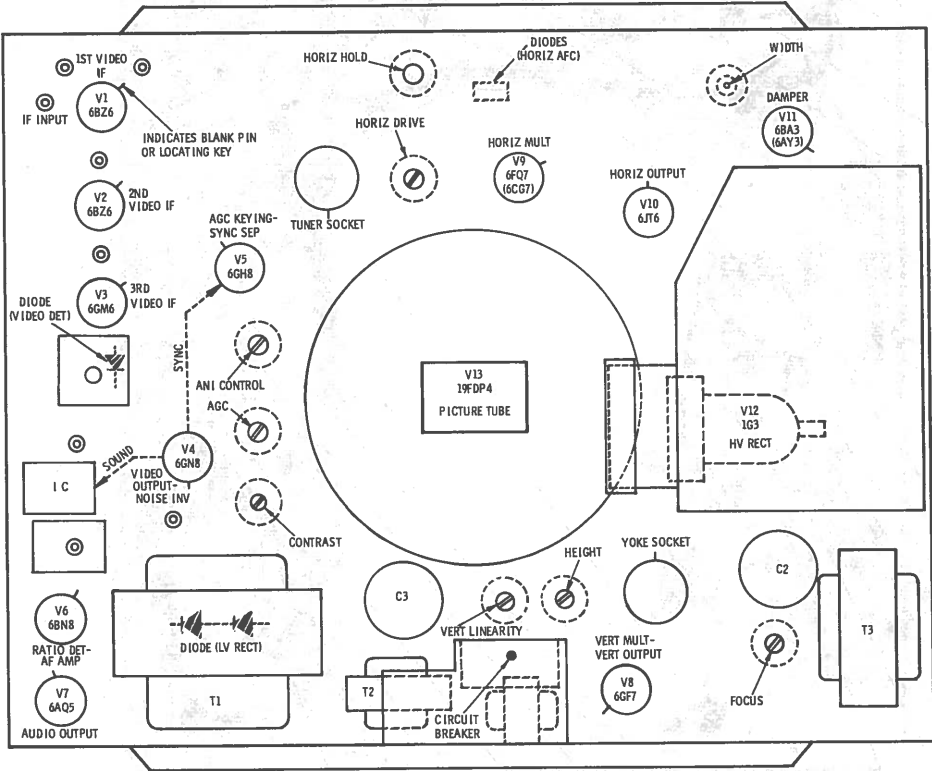


TUBE PLACEMENT CHART

TUBE PLACEMENT CHART



TOP VIEW



TUBE FAILURE CHECK CHART

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

POWER SUPPLY FAILURE

No raster, no sound F1, X1, X2

SWEEP FAILURE

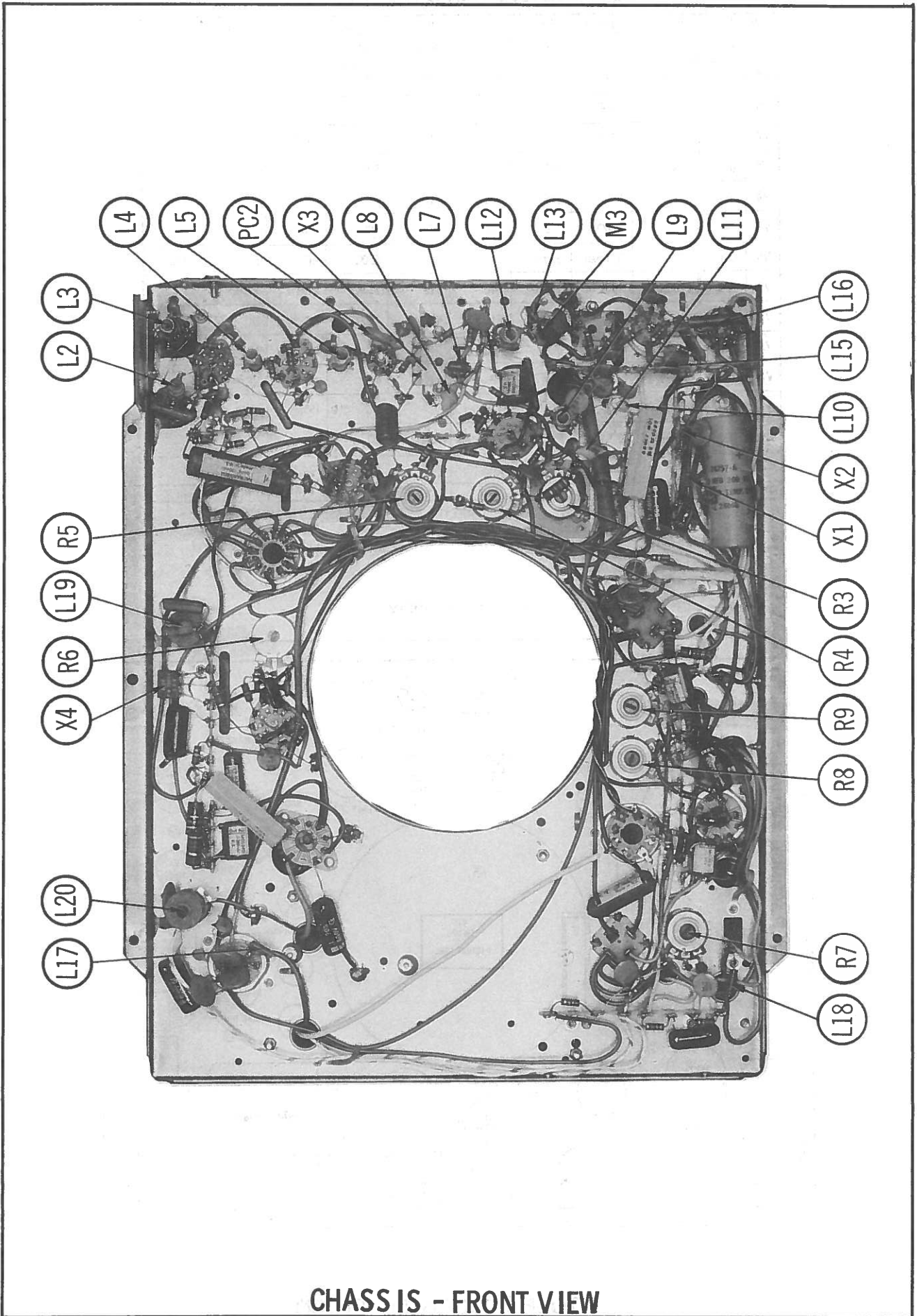
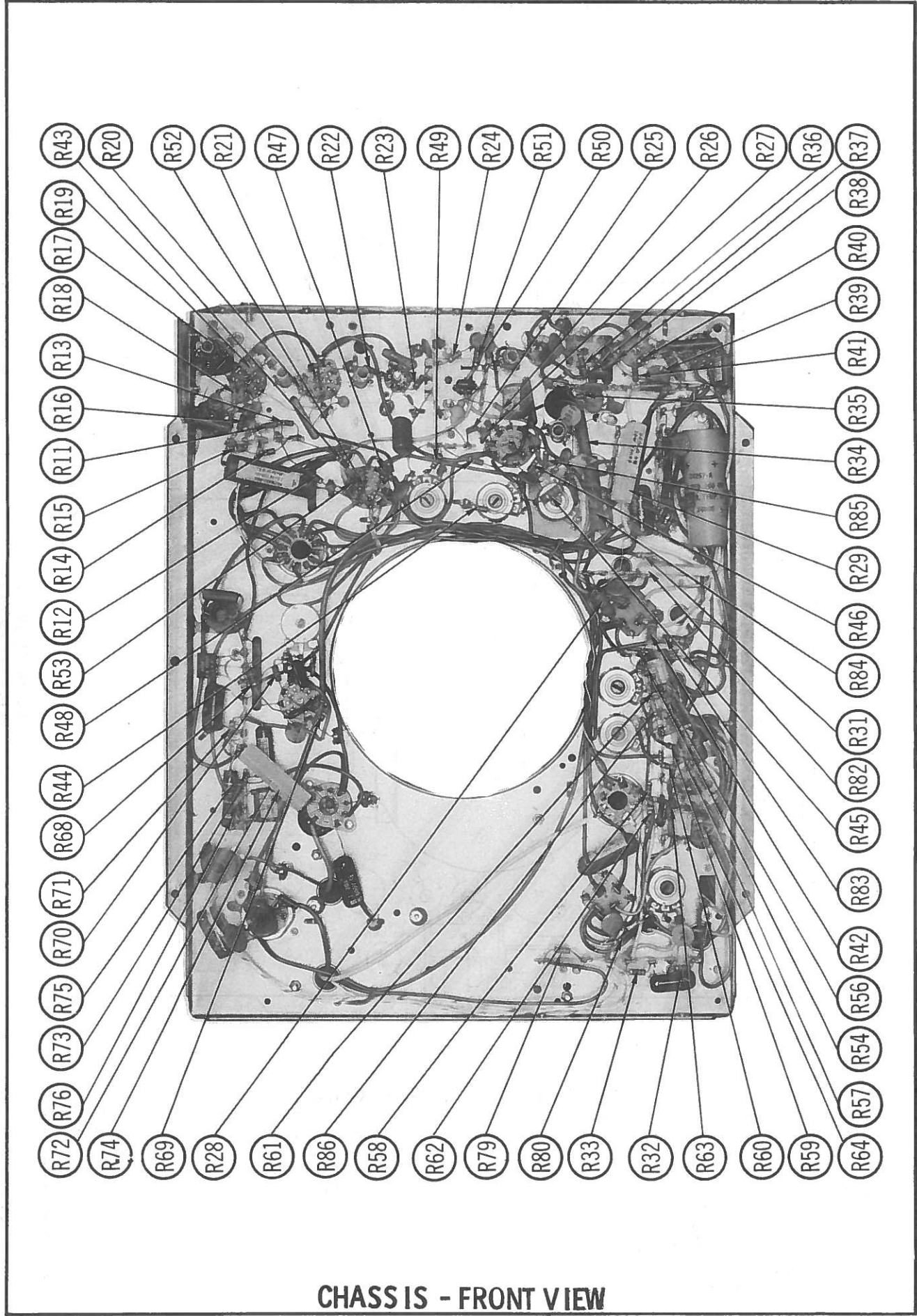
No raster, has sound V10, V11, V12, V13
No vertical deflection V8
Poor vert. linearity or foldover V8
Poor horiz. linearity or foldover V9, V10, V12
Narrow picture X1, X2, V9, V10, V12
Vert. off freq. V8
Horiz. off freq. X4, V9

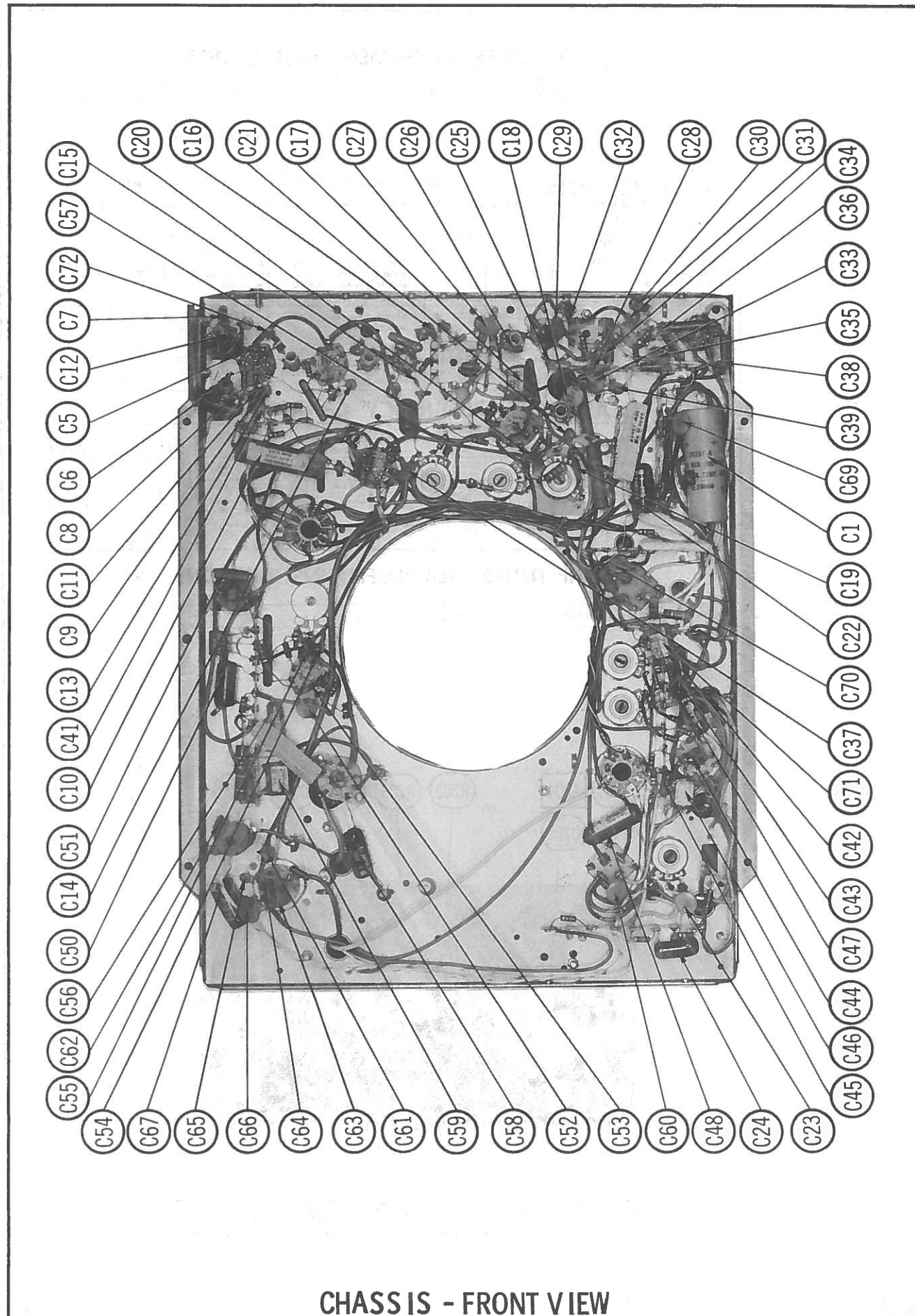
LOSS OF PICTURE OR SOUND

No pic, no sound, has raster V1, V2, V3, X3, V4
No pic, no sound, has snow V201, V202, V1, V2, V3
No pic, has sound, has raster V4, V13
Has pic, no sound V8, V7
Overloaded picture V5

SYNC FAILURE

No vert. sync V5
No horiz. sync V5
No vert. or horiz. sync V5





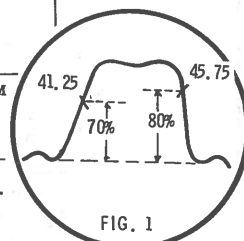
ALIGNMENT INSTRUCTIONS

Use an isolation transformer and maintain voltage at 117 volts. Allow a 20-minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A1 thru A12 GENERAL CEMENT #8606, 8606L, 8869 ... WALSCO #2543, 2544, 2588
Mixer Plate Coil .. GENERAL CEMENT #9296, 9297, 9300 WALSCO #2510, 2546, 2547

VIDEO IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. Use only enough generator output to provide a usable indication. Note: Response may vary slightly from those shown. Connect a variable bias supply to the IF AGC line (point \diamond) and adjust to obtain a response curve which shows no indication of overload. Disable Oscillator section of Mixer-Osc. Set the Channel Selector to any non-interfering channel.

INDICATOR	GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	ADJUST	REMARKS
1. Connect DC probe of a VTVM thru a 47K resistor to point \diamond . Common to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.		39.25MC 41.25MC 47.25MC	A1 A2 A3	Adjust for MINIMUM. Bias voltage may be removed to expand the response curve for observing trap markers.
2. Connect vertical input of a scope to point \diamond . Low side to ground.	Connect high side thru .001 mfd capacitor to pin 1 (grid) of V3. Low side to ground.	44MC (10MC Sweep)	41.25MC 45.75MC	A4 A5	Adjust for maximum amplitude and MINIMUM tilt with markers as shown in Figure 1.
3. Connect vertical input of a scope to point \diamond . Low side to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.	44MC (10MC Sweep)	39.25MC 41.25MC 42.5MC 44.0MC 45.75MC 47.25MC	A6, A7, A8 and Mixer Plate Coil	Adjust for maximum gain and symmetry of response with markers as shown in Figure 2. In order to obtain a proper response, it may be necessary to slightly retouch A4 and A5.

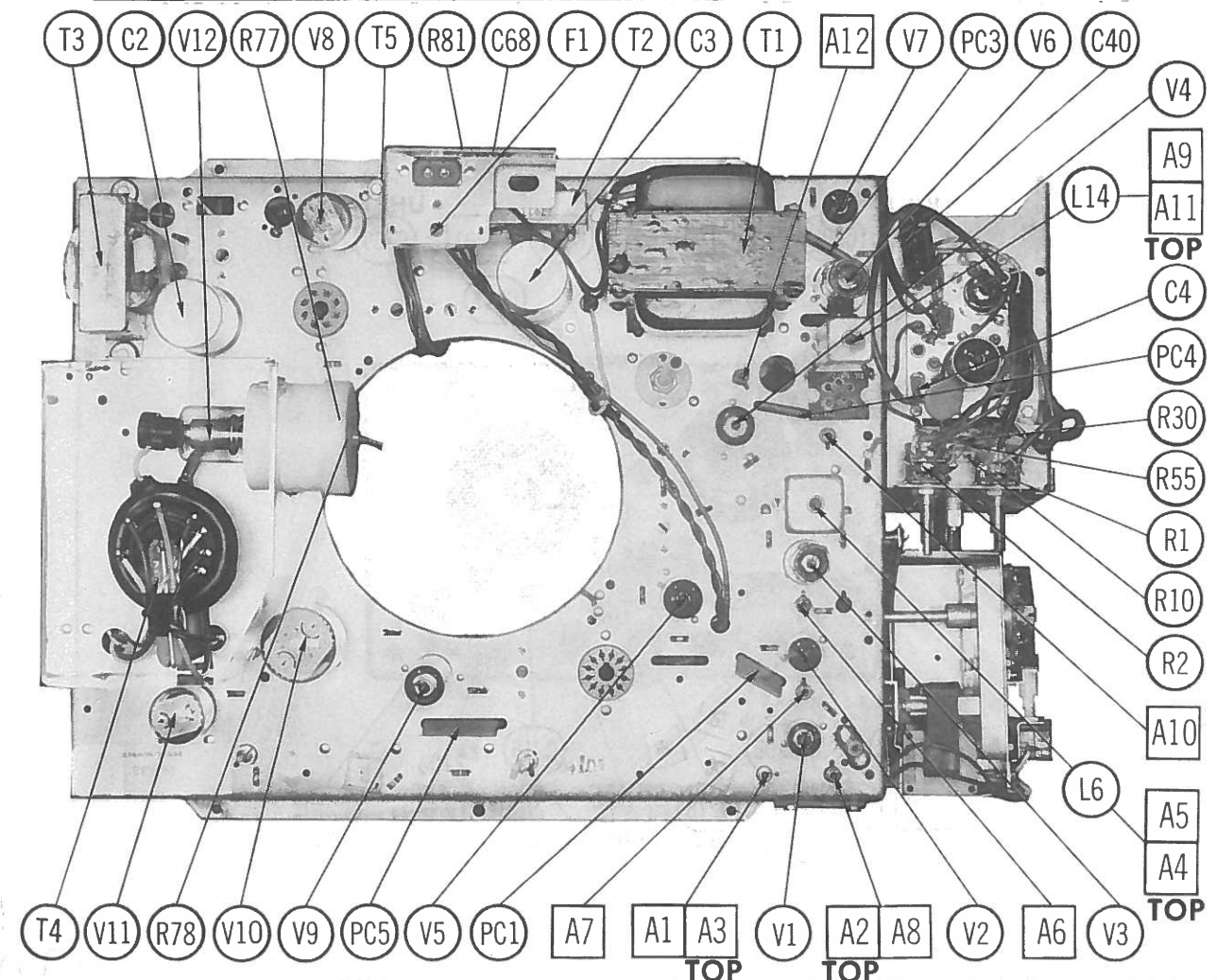
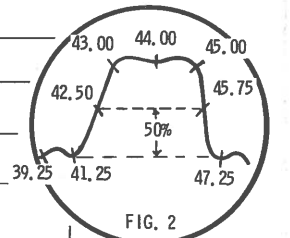


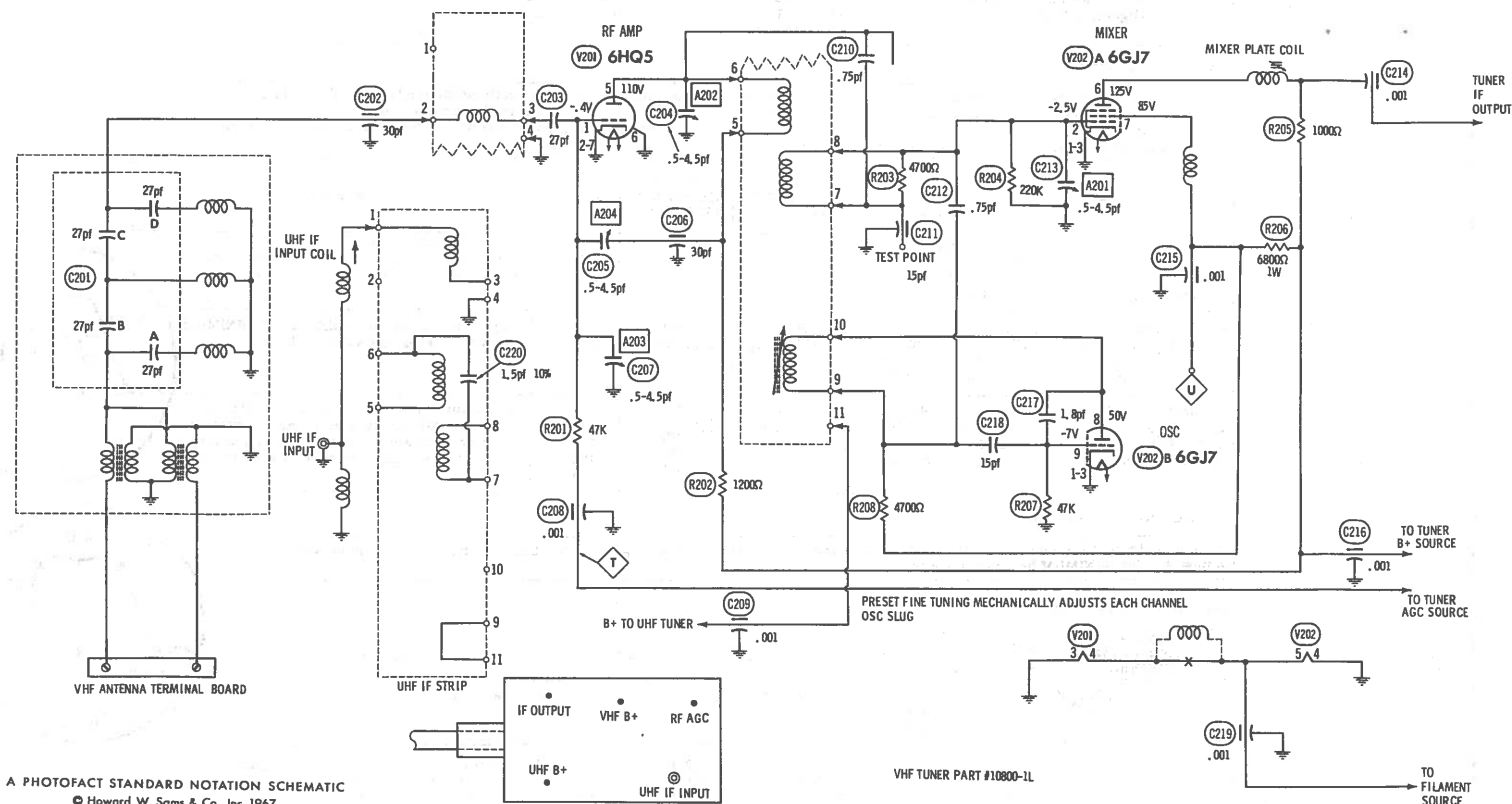
4.5 MC TRAP ALIGNMENT

Tune in a strong TV signal and set the Contrast at maximum. Adjust the Fine Tuning until a beat pattern is visible on the screen. Adjust A12 for MINIMUM beat interference.

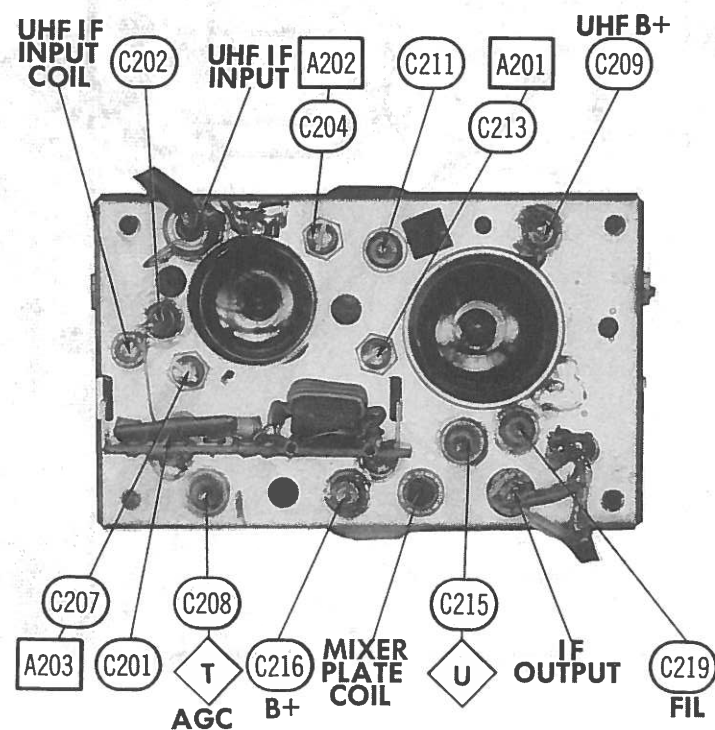
SOUND IF ALIGNMENT

SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4. High side thru .002 mfd capacitor to Point \diamond . Low side to ground.	4.5MC	Any non-interfering channel	DC probe to Point \diamond . Low side to ground.	A9, A10	Adjust for maximum.
5. "	"	"	DC probe to Point \diamond . Low side to Point \diamond .	A11	Adjust for zero. A positive or negative reading will be obtained on either side of the correct setting.





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VHF TUNER ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools: A201, A202, A203, A204 ... GENERAL CEMENT #8868, 8987, 9089 ... WALSCO #2531-X, 2541, 2587
UHF Input Coil ... GENERAL CEMENT #9296, 9297, 9300 ... WALSCO #2510, 2511, 2547

OSCILLATOR ADJUSTMENTS

The oscillator for each channel is preset by means of the fine tuning control. Adjust fine tuning for best picture and sound on each channel.

RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. Use 10MC sweep unless otherwise noted. Connect a variable bias to the RF AGC line at point T. Adjust bias to obtain response curve which shows no indication of overloading.

SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1. Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Input to Point U, low side to ground	A201, A202, A203	Adjust for maximum gain and symmetry of response similar to Fig. 201 with markers as shown.
2. "	195MC	193.25MC 197.75MC	10	Across Video Det. load resistor.	A204	Increase bias to -15 volts and adjust for MINIMUM amplitude of response.
3. "	See Chart	See Chart	12 thru 2	Vert. Input to Point U, low side to ground.		Decrease bias. Check response on all channels and make compromise adjustments of A201, A202 and A203 if necessary.

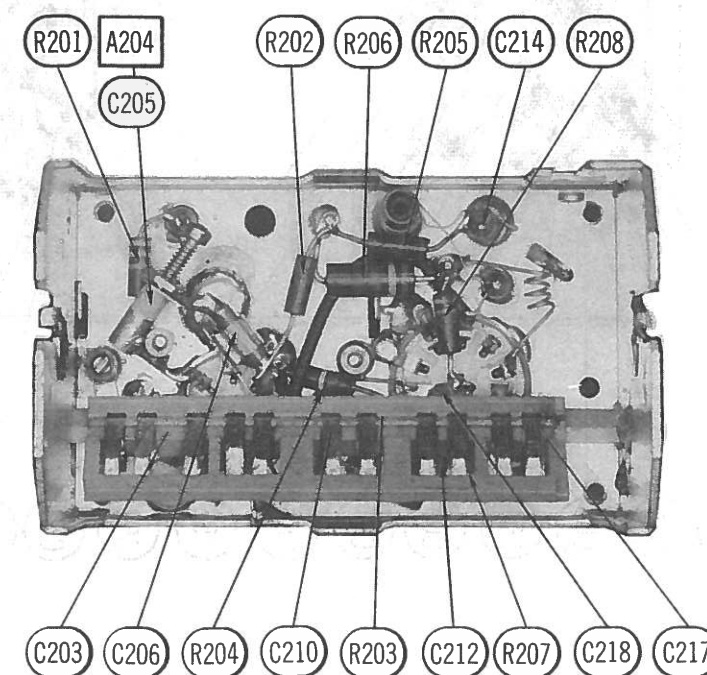
CHANNEL & FREQUENCY CHART

SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	SOUND VIDEO
57MC	55.25MC 59.75MC	2	85MC	83.25MC 87.75MC	6	195MC	193.25MC 197.75MC	10	
63MC	61.25MC 65.75MC	3	177MC	175.25MC 179.75MC	7	201MC	199.25MC 203.75MC	11	
69MC	67.25MC 71.75MC	4	183MC	181.25MC 185.75MC	8	207MC	205.25MC 209.75MC	12	
79MC	77.25MC 81.75MC	5	189MC	187.25MC 191.75MC	9	213MC	211.25MC 215.75MC	13	

FIG. 201

UHF TUNER ALIGNMENT INSTRUCTIONS

Tune to a UHF station and adjust UHF IF Input Coil for best picture and sound.



VHF TUNER 10800-1L

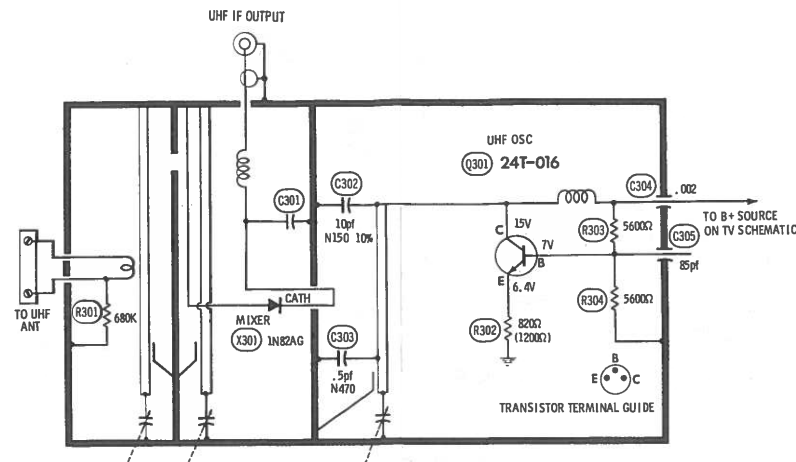
VHF TUNER PARTS LIST

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	6HQ5	V202	Mixer - Osc.	6GJ7

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCOPART No.	MALLORY PART No.	SPRAGUE PART No.
C201A	27pf		DI-27	DD-270		CCD-270	GP427	10TS-Q27
B	27pf		DI-27	DD-270		CCD-270	GP427	10TS-Q27
C	27pf		DI-27	DD-270		CCD-270	GP427	10TS-Q27
D	27pf		DI-27	DD-270		CCD-270	GP427	10TS-Q27
C202	30pf							
C203	27pf		DI-27	DD-270		CCD-270	GP427	10TS-Q27
C204	.5-4.5pf							
C205	.5-4.5pf							
C206	30pf							
C207	.5-4.5pf							
C208	.001		EF-001	MFT-1000		CCF-102	CT280A	
C209	.001		EF-001	MFT-1000		CCF-102	CT280A	
C210	.75pf							
C211	15pf							
C212	.75pf							
C213	.5-4.5pf		EF-001	MFT-1000		CCF-102	CT280A	
C214	.001		EF-001	MFT-1000		CCF-102	CT280A	
C215	.001		EF-001	MFT-1000		CCF-102	CT280A	
C216	.001							
C217	1.8pf							10TCC-V18
C218	15pf		DI-15	DD-150		CCD-150	GP415	10TS-Q15
C219	.001		EF-001	MFT-1000		CCF-102	CT280A	
C220	1.5pf	10%		DTZ-2R2			CNO515	10TCC-V15



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UHF TUNER PART #10855

UHF TUNER PARTS LIST

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			DELCO PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	RCA PART No.	
Q301	24T-016	UHF Oscillator		GE-11	TR-24	SK-3019	NPN

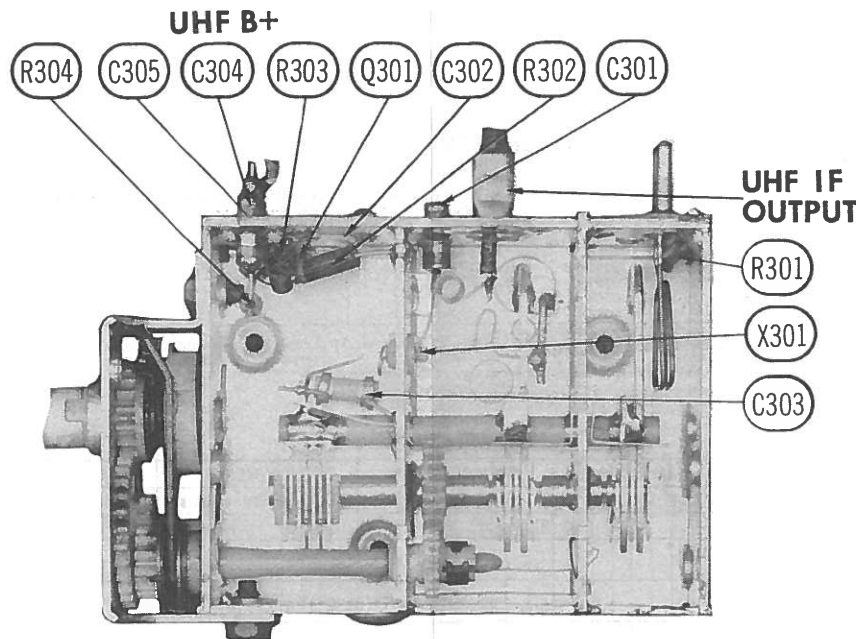
POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS & DIODES		RECTIFIERS		
			GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X301		1N82AG	1N82A	1N82AG			

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCOPART No.	MALLORY PART No.	SPRAGUE PART No.
C301	10pf N150	10%						10TCP-Q10
C302	.5pf N470							
C303	.002							
C304	.002							
C305	85pf							

* Not normally found in distributor's stock. Available thru distributor on special order.



UHF TUNER 10855A

PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements. Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
Q301	UHF Oscillator (Transistor)	24T-016	V6	Ratio Det. - AF Amp.	6BN8
V201	RF Amp.	6HQ5	V7	Audio Output	6AQ5
V202	Mixer-Osc.	6GJ7	V8	Vert. Mult. - Vert. Output	6GF7
V1	1st Video IF	6BZ6	V9	Horiz. Mult.	6FQ7 (6CG7) *
V2	2nd Video IF	6BZ6	V10	Horiz. Output	6J76
V3	3rd Video IF	6GM6	V11	Damper	6BA3 (6AY3) *
V4	Video Output - Noise Inv.	6GN8	V12	HV Rectifier	1G3
V5	AGC Keying - Sync Sep.	6GH8			

* Alternate

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	Packard Bell PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V13	19FDP4 ① or 19DQP4 ② or 23FMP4 ③ or 23GBP4 ④		19DQP4 † 19DQP4 † 23HFP4 † 23HFP4 †	19FDP4 † 19DQP4 † 23GBP4 † 23GBP4 †	† Silverama † Silver Screen "85" * Aluminized

① Used in Models MSQ-202/204/208/302/304.

② Used in Model MSQ-206.

③ Used in Models MSV-302/306/502.

POWER RECTIFIERS & SIGNAL DIODES

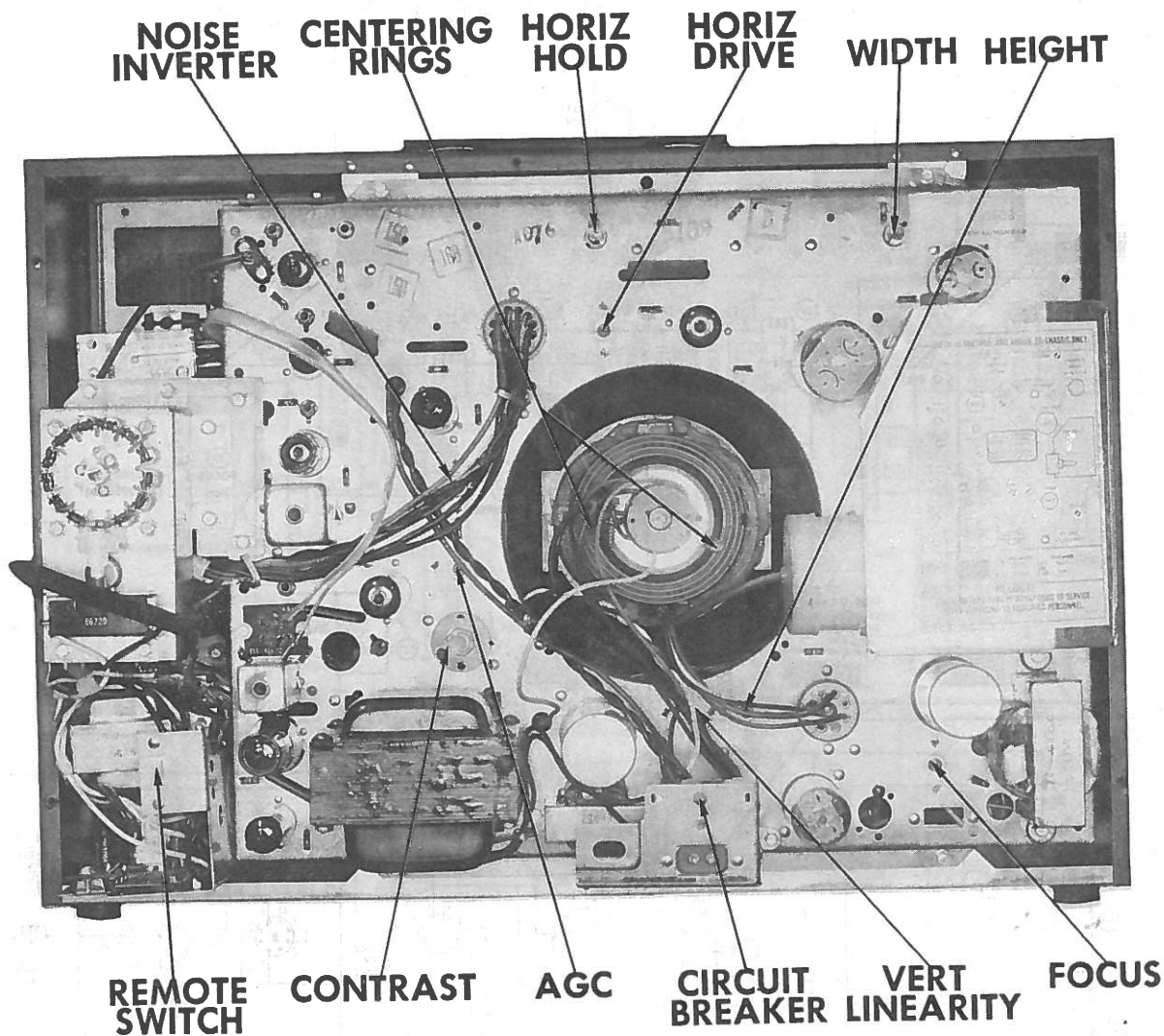
ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS & DIODES		RECTIFIERS		
			GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X1		72058A	GE-504A	8D6 or 5A6-D	1N2071 or T-800-X	SK-3016 or SK-3017A	F-L or 60C
X2		72058A	GE-504A	8D6 or 5A6-D	1N2071 or T-800-X	SK-3016 or SK-3017A	F-L or 60C
X3		1N296	1N60	1N295			
X4		72053	6GC1	DD04			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA					
	CAP.	VOLT.	Packard Bell PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	150	200	24257	PR1-060	BR150-250	QT1-26	TC593A	TVA-1447
C2A	150	200	24256	AFH4-99-30	DD0470	XC4-70.1	FP420.28A	TVL-4608.13
B	50	350						
C	10	350						
D	100	25						
C3A	100	350	24204	AFH4-53-90	DD0473.3	XC4-25	FP421.3A	TVL-4607.5
B	20	350						
C	5	50						
D	25	25						

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCOPART No.	MALLORY PART No.	SPRAGUE PART No.
C4	39 NPO	10%	NPO-DI 39	TCZ-39		CCO-390	CNO439	10TCC-Q39
C5	12 NPO	5%		TCZ-12		CCO-120	CNO412	10TCC-Q12
C6	15 NPO	10%		DTZ-15		CCO-150	CNO415	10TCC-Q15
C7	11 NPO	5%		TCZ-12		CCO-120	CNO412	10TCC-Q12
C8	100 NPO		NPO-DI 100	DTZ-100		CCO-101	CNO310	10TCC-T10
C9	.001		DI-1000	DD-102		CCD-102	GP210	10TS-D10
C10	1mf 100V			DMF1W1		CCD-102	PVC111	2TM-M1
C11	.001		DI-1000	DD-102		CCD-102	GP210	10TS-D10
C12	.47 NPO	5%	NPO-DI 47	DTZ-47		CCO-470	CNO447	10TCC-Q47
C13	.001		DI-1000	DD-102		CCD-102	GP210	10TS-D10
C14	.001		DI-1000	DD-102		CCD-102	GP210	10TS-D10
C15	.001		DI-1000	DD-102		CCD-102	GP210	10TS-D10
C16	.001	10%	DI-1000	DD-102		CCD-102	GP210	10TS-D10
C17	.1 200V		DBE2P1			2DP-3-104	PVC201	2PS-P10
C18	56 NPO	10%		TCZ-56		CCO-560	CNO456	10TCC-Q56
C19	39 NPO	10%	NPO-DI 39	TCZ-39		CCO-390	CNO439	10TCC-Q39
C20	.01		DI-10000	DD-103		CCD-103	GP110	10TS-S10
C21	12 NPO	5%		TCZ-12		CCO-120	CNO412	10TCC-Q12
C22	.1 600V		DBE8P1			6DP-4-104	PVC601	6PS-P10
C23	.01		DI-10000	DD-103		CCD-103	GP110	10TS-S10
C24	.047 600V		DBE8S47			6DP-3-473	PVC147	6PS-S47
C25	3.3 NPO ±.25		NPO-DI 3.0	DTZ-3R3		CCO-3R3	CNO533	10TCC-V30
C26	120 N75	10%						
C27	.05 50V		TTD-05					
C28	.01		DI-10000	DD-103		CCD-103	GP110	10TS-S10
C29	.05 50V		TTD-05					
C30	.01		DI-10000	DD-103		CCD-103	GP110	10TS-S10
C31	.001		DI-1000	DD-102		CCD-102	GP210	10TS-D10
C32	.001 1.5KV	10%						
C33	.01		DI-10000	DD-103		CCD-103	GP110	10TS-S10
C34	.01		DI-10000	DD-103		CCD-103	GP110	10TS-S10
C35	.01		DI-10000	DD-103		CCD-103	GP110	10TS-S10
C36	680	10%	DI-680	DD-681		CCD-681	GP368	10TS-T68
C37	.01		DI-10000	DD-103		CCD-103	GP110	10TS-S10
C38	.01 600V		DBE8S1			6DP-1-103	PVC611	6PS-S10
C39	880	10%	DI-880	DD-681		CCD-681	GP368	10TS-T68
C40	.47 200V		DBE2P47			2DP-5-474	PVC2047	2PS-P47
C41	.001		DI-1000	DD-102		CCD-102	GP210	10TS-D10
C42	.0047 600V	10%	DBE8D47			6DP-1-472	PVC6247	6PS-D47
C43	.022 600V		DBE8S22			6DP-2-223	PVC6122	6PS-S22
C44	.0047 600V	10%	DBE8D47			6DP-1-472	PVC6247	6PS-D47
C45	.0022 600V	10%	DBE8D22			6DP-1-222	PVC6222	6PS-D22



CABINET—REAR VIEW

DISASSEMBLY INSTRUCTIONS

TV CHASSIS REMOVAL

1. Remove 7 screws holding back cover and remove back cover. Disconnect antenna leads. Remove all knobs.
2. Disconnect yoke plug, high voltage anode lead, picture tube socket, speaker leads, ground wire, tuner connector, and remote receiver connectors.
3. Remove 4 screws holding chassis and 3 screws holding tuner and controls.

4. Remove 2 screws holding remote receiver. Lift out chassis, tuner, and remote receiver.

NOTE: Most components may be serviced without removing chassis.

PICTURE TUBE REMOVAL

1. Follow "Chassis Removal" procedure. Lay set face down on a soft protective surface.
2. Remove 4 screws holding picture tube brackets and lift out picture tube. Do not lift out by the neck of the tube.

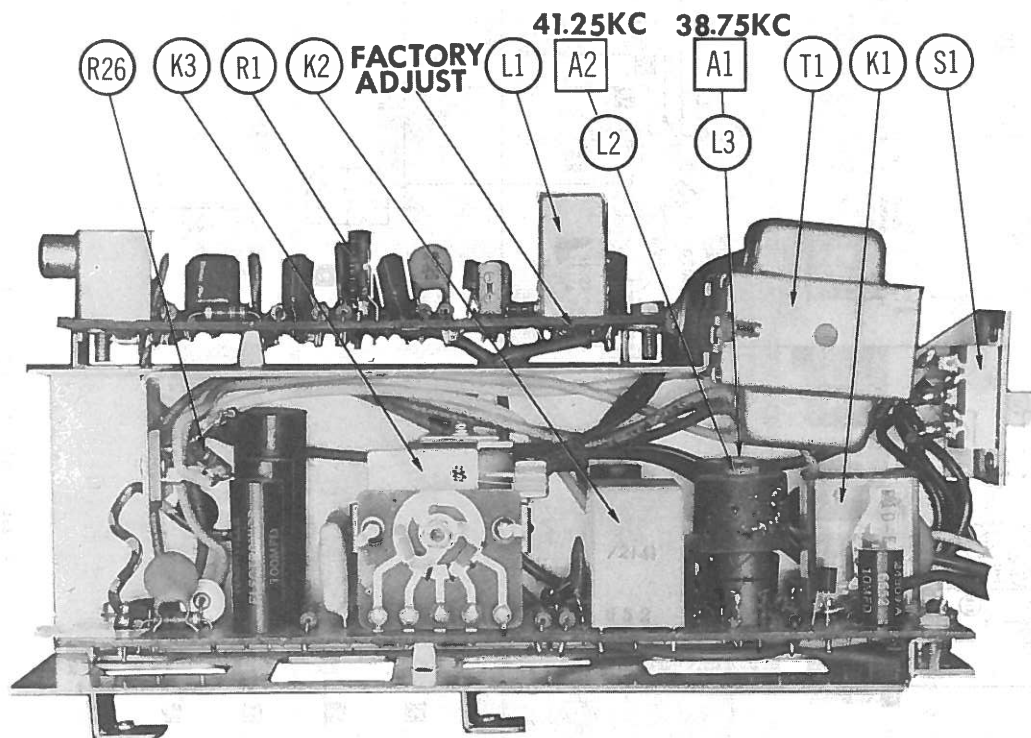
PHOTOFACT® Folder

with CIRCUITRACE™

PACKARD BELL REMOTE CONTROL RM-52,
RECEIVER WRR-17, TRANSMITTER WRT-9

IMPORTANT FILING NOTICE

This PHOTOFACT Folder covers equipment used with the TV chassis covered in PHOTOFACT SET 905 FOLDER 2. File this Folder with the TV Folder in the yellow filing jacket provided.



TRADE NAME	Packard Bell
SUPPLIER	For current address, see Annual Index.
TYPE SET	Remote Control RM-52 (Transmitter WRT-9 and Receiver WRR-17)
TRANSISTORS	Six
POWER SUPPLY	110-120 Volts AC, 60 Cycles

PACKARD BELL REMOTE CONTROL RM-52,
RECEIVER WRR-17, TRANSMITTER WRT-9

HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

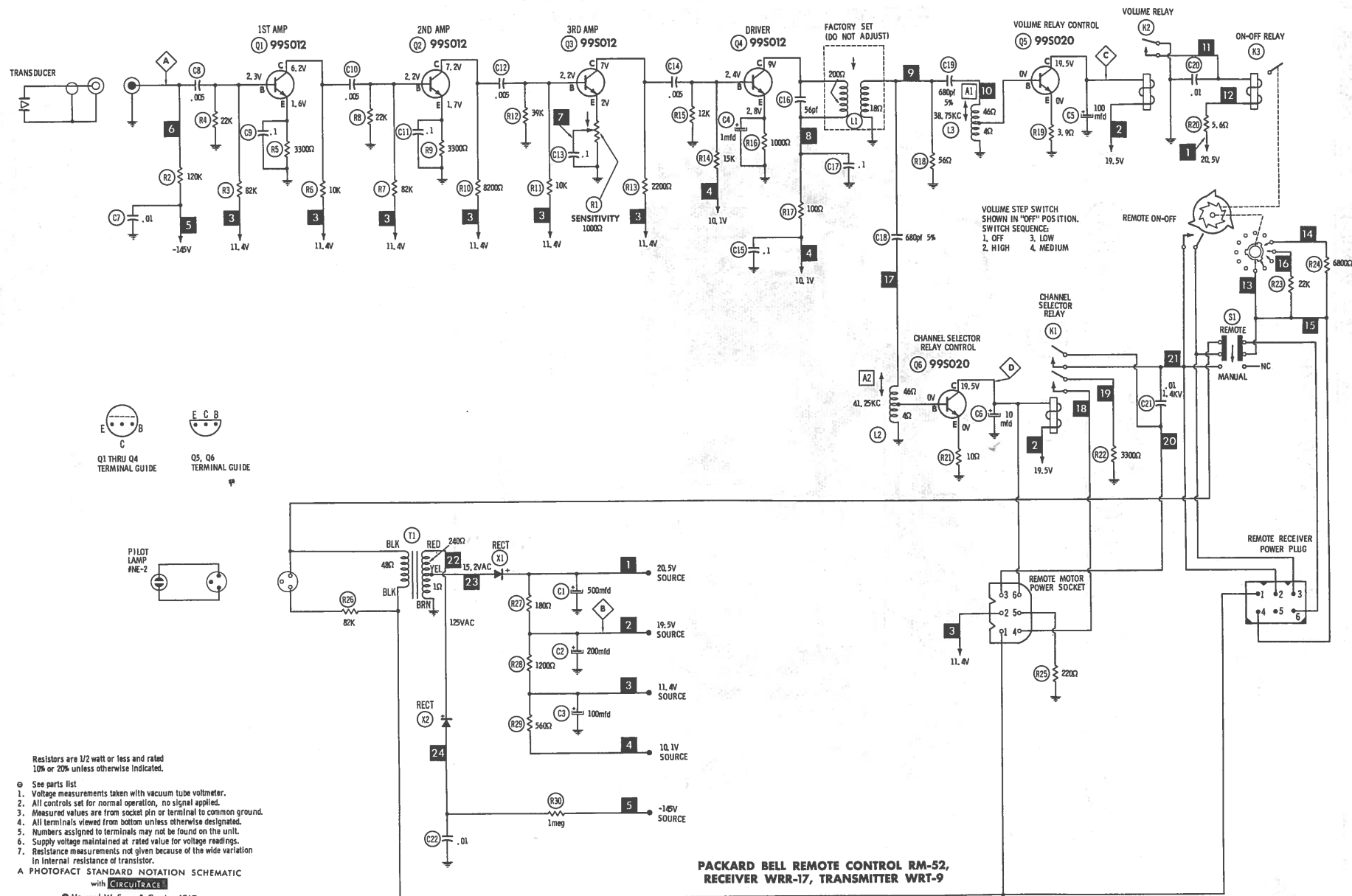
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. SA349

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DATE 8 -67

SET 905 FOLDER 2-A










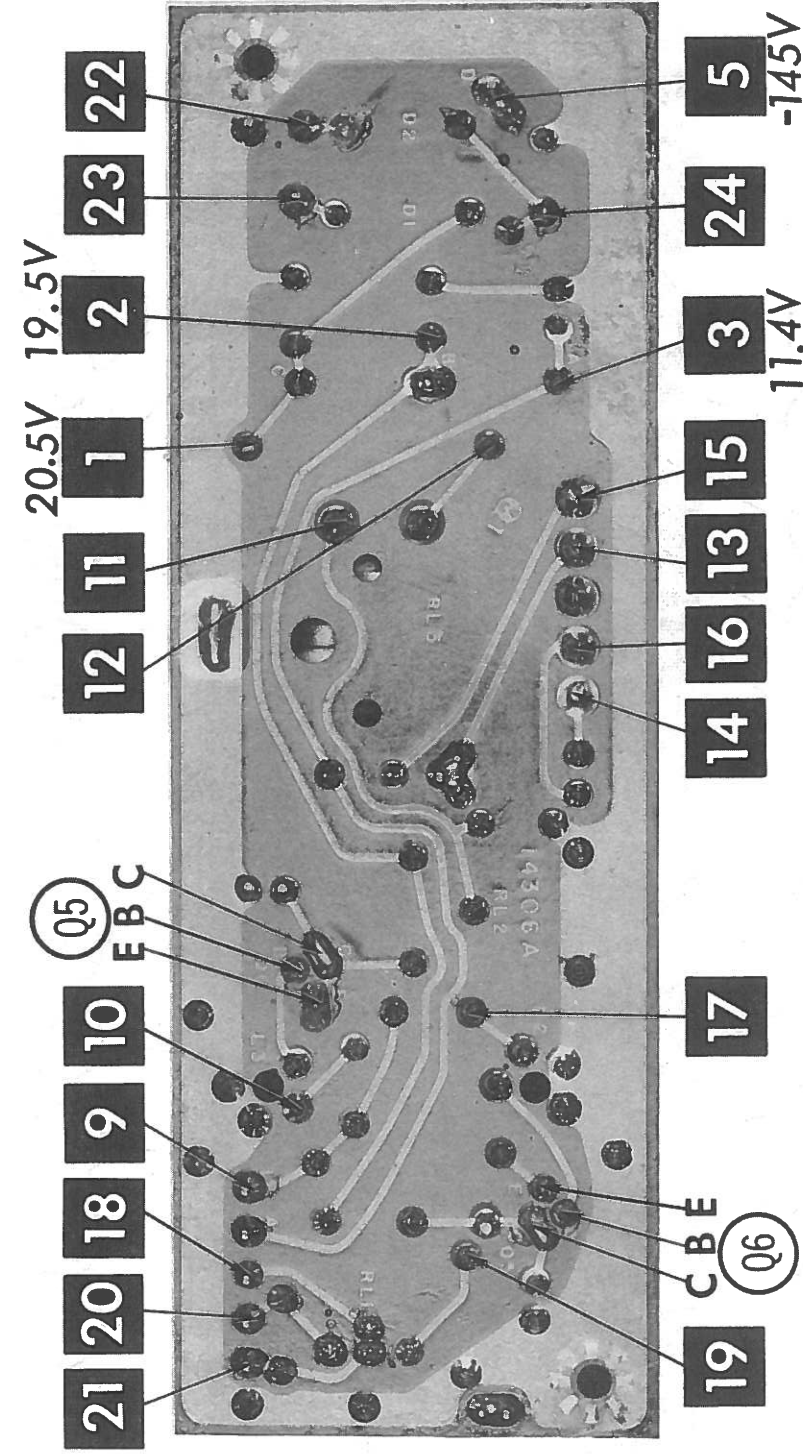
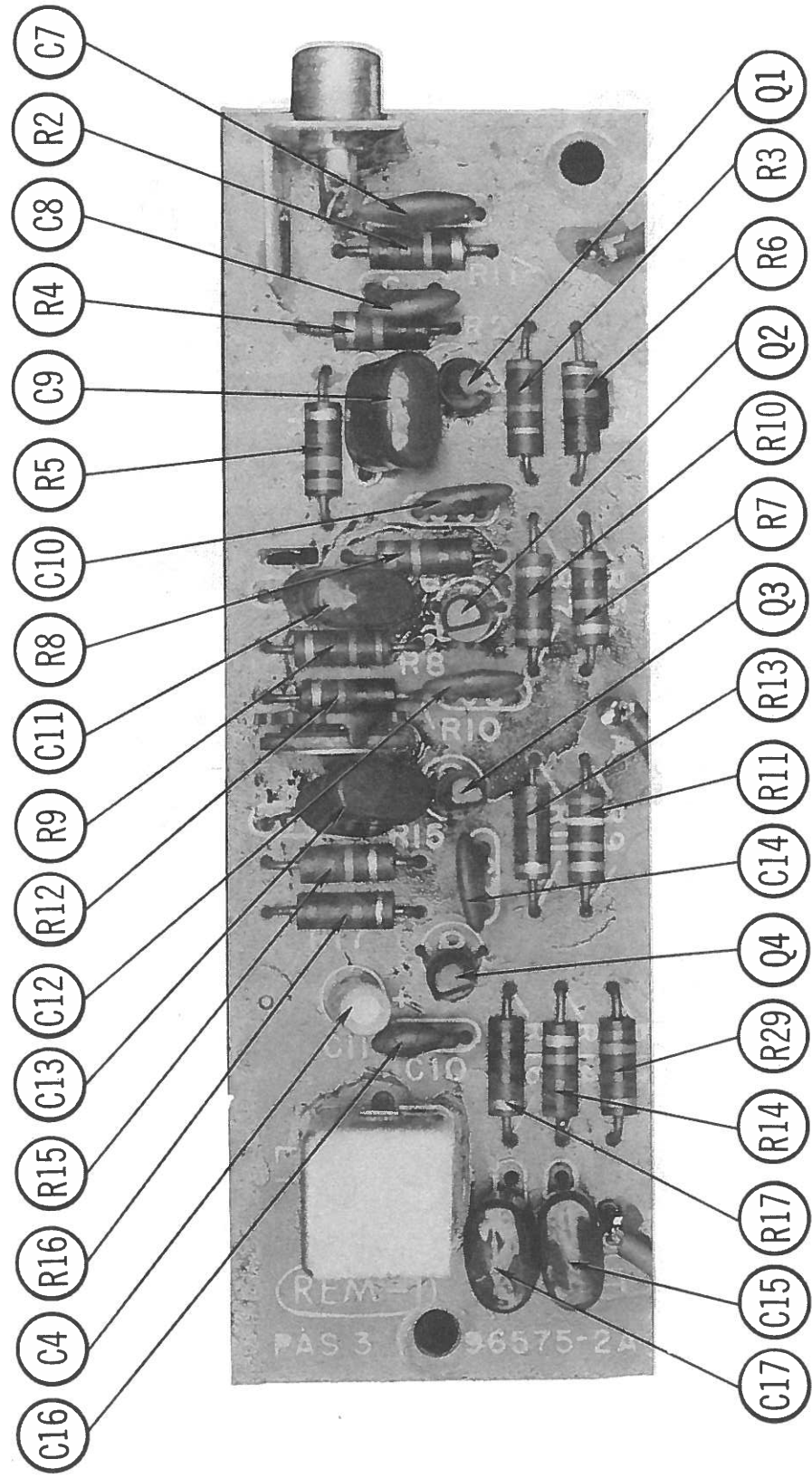
**PACKARD BELL REMOTE CONTROL RM-52,
RECEIVER WRR-17, TRANSMITTER WRT-9**

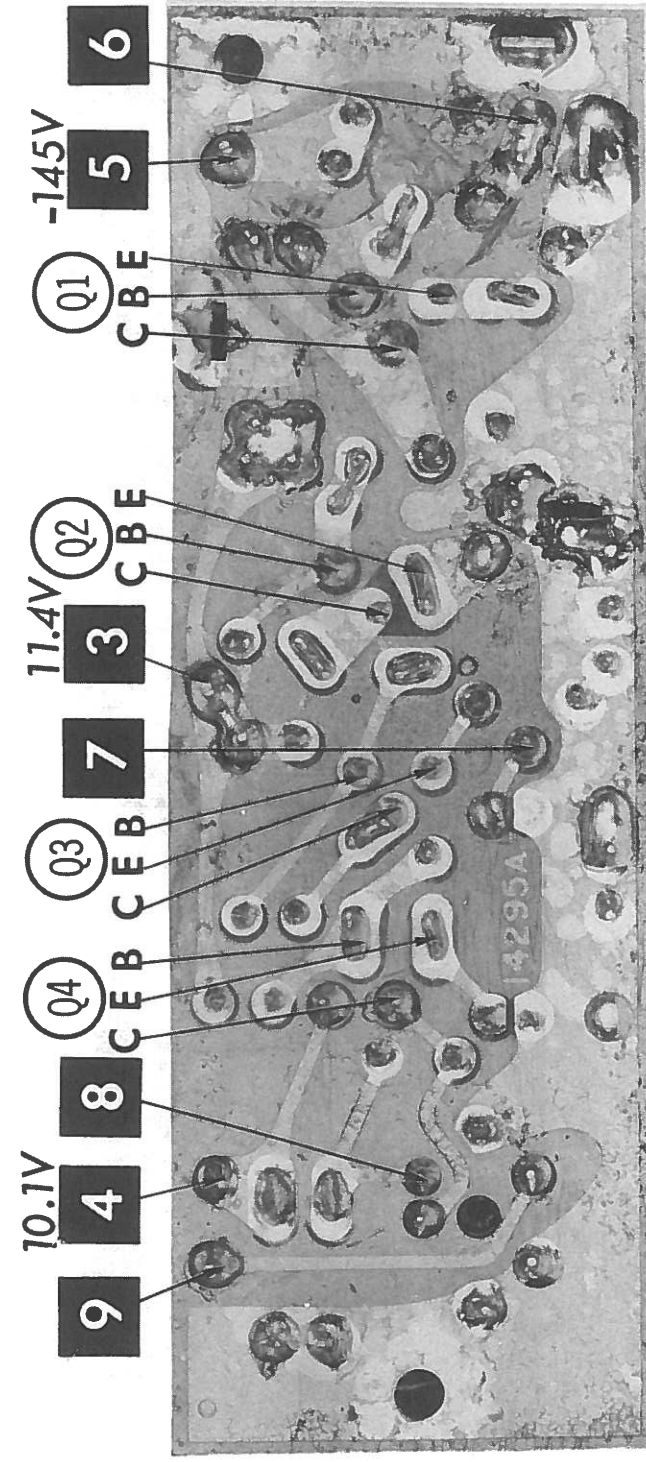
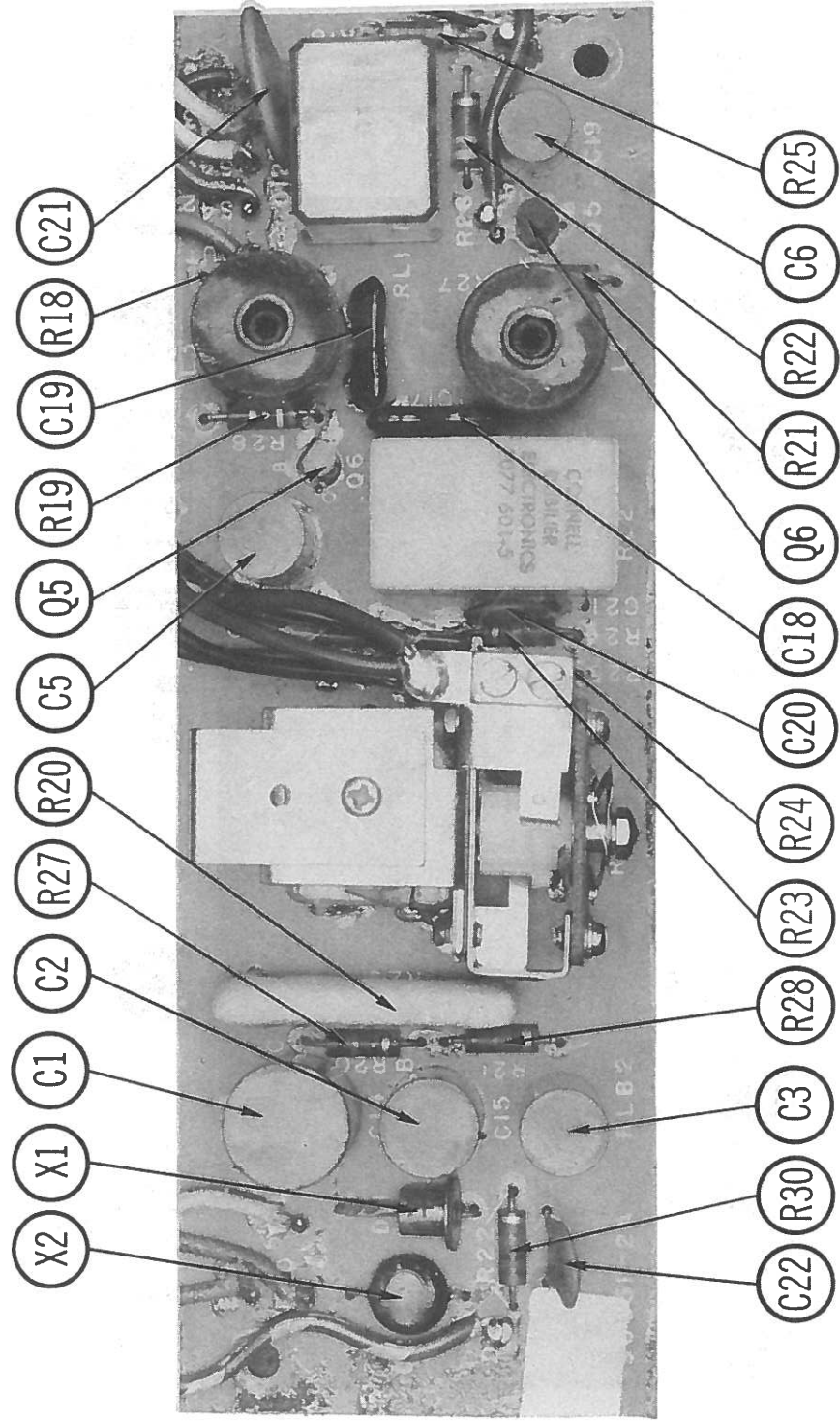
REMOTE ALIGNMENT

REMOTE CONTROL ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Connect high side thru .001 mfd capacitor to Point  . Low side to ground.	38.75KC		DC probe to Point  . Low side to Point  .	A1	Adjust for maximum.
2.	"	41.25KC		DC probe to Point  . Low side to Point  .	A2	Adjust for maximum.

Using Transmitter known to be operating properly, set the Sensitivity control (R1) for proper operation.





PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid 22AWG) 8524 (Stranded 22AWG) 8570 (Stranded 26AWG)	Available in 12 Colors
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TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				PART No.	NOTES
			DELCO PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	RCA PART No.		
Q1		1st Amp	DS-66	GE-10	TR-21	SK-3020	99S012	NPN
Q2		2nd Amp	DS-66	GE-10	TR-21	SK-3020	99S012	NPN
Q3		3rd Amp	DS-66	GE-10	TR-21	SK-3020	99S012	NPN
Q4		Driver	DS-66	GE-10	TR-21	SK-3020	99S012	NPN
Q5		Vol. Relay Control	DS-66	GE-10	TR-21	SK-3020	99S020	NPN
Q6		Channel Selector Relay Control	DS-66	GE-10	TR-21	SK-3020	99S020	NPN

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS & DIODES		RECTIFIERS		
			GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X1		72130-1A	GE-504A	8D4 or 5A4-D	A50 or D50	SK-3016 or SK-3017A	F-4 or 40C
X2		72136A	GE-504A	8D4 or 5A4-D	A50 or D50	SK-3016 or SK-3017A	F-4 or 40C

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA				
	CAP.	VOLT.	Packard Bell PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.
C1	500	25	24304A	PRS1290	BR500-25	QT1-31	TC2505
C2	200	25	24308A	PRS1530	BR200-150	QT1-28	MTV200DJ25
C3	100	25	24302A	PTT86	NLW100-25	MT1-20	MTV100CP25
C4	1	3	24286B	BCD3001	NLW1-50	MT1-1	MTV1CB50
C5	100	25	24302A	PTT86	NLW100-25	MT1-20	MTV100CP25
C6	10	25	24309A	BCD25010	NLW10-25	MT1-5	MTV10CB50

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELEMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C7	.01 25V		TTD-.01	CK-103	HOY1012V103P	CCD-103	TA110	TG-S10
C8	.005		DI-5000	DD-502	JBT801YP502K	CCD-502	GP250	10TS-D50
C9	.1 100V		DBE2P1	DF-104	DMF1P1	1DP-2-104	PVC101	225P10491
C10	.005		DI-5000	DD-502	JBT801YP502K	CCD-502	GP250	10TS-D50
C11	.1 100V		DBE2P1	DF-104	DMF1P1	1DP-2-104	PVC101	225P10491
C12	.005		DI-5000	DD-502	JBT801YP502K	CCD-502	GP250	10TS-D50
C13	.1 100V		DBE2P1	DF-104	DMF1P1	1DP-2-104	PVC101	225P10491
C14	.005		DI-5000	DD-502	JBT801YP502K	CCD-502	GP250	10TS-D50
C15	.1 100V		DBE2P1	DF-104	DMF1P1	1DP-2-104	PVC101	225P10491
C16	.56		DI-56	DD-560		CCD-560	GP456	10TS-Q56
C17	.1 100V		DBE2P1	DF-104	DMF1P1	1DP-2-104	PVC101	225P10491
C18	680	5%	ADM-20-681	CPR-6800J	CD19F681J500	DM-16-681J	SX368	MS-368
C19	680	5%	ADM-20-681	CPR-6800J	CD19F681J500	DM-16-681J	SX368	MS-368
C20	.01		DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10
C21	.01 1.4KV			CI-103	ACT142ZU103P		UAC110	125M-S10
C22	.01		DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10

CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA			
			Packard Bell PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.
R1	Sensitivity	1000Ω	25725A (25725X-1)	T-1000		X201R102B

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				
		PART No.	MEISSNER Part No.	MERIT PART No.	MILLER PART No.	WORKMAN PART No.
L1	Driver 40 KC ①	29922A				
L2	41.25 KC Channel Selector	29925B				
L3	38.75 KC Volume/Off-ON	29924B				

① Factory Tuned and Sealed

TRANSFORMER (POWER)

ITEM No.	RATING		REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	Packard Bell PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC A .140A	125VAC @ .001A Tapped @ 15.2VAC	89599					

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
K1	Relay	72139A	Channel
K2	Relay	72141A	Volume
K3	Relay	72143A	Sequence (Alt. 72142)
S1	Switch	86712	Remote-Manuel
	Printed Circuit Board	14295A	PreAmp (Board only)
	Printed Circuit Board	14306A	Relay (Board only)