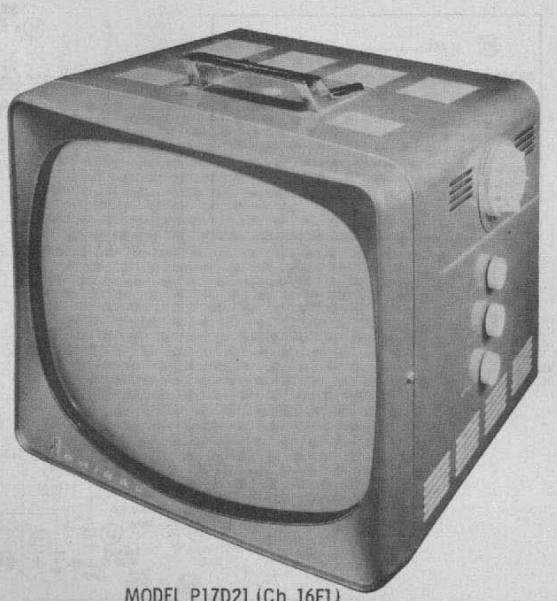
DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 5 push-on type knobs from the side.
2. Remove 5 metal screws holding the rear cover. Remove the rear cover.
3. Remove 5 metal screws holding the cabinet front. Remove the front.
4. Remove 2 metal screws holding the antenna terminal board.
5. Remove 11 metal screws holding chassis to cabinet.
6. Remove the chassis from the front.



MODEL P17D21 (Ch.16F1)

CAUTION NOTE

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

TRADE NAME	Admiral	MODELS	CHASSIS
		P17D21, P17D22, P17D23, P17D24	16F1
		PA17D21, PA17D22, PA17D23, PA17D24	16AF1
MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Illinois		
TYPE SET	Television Receiver		
TUBES	Sixteen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 150 Watts, 1.3 Amp. @ 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

TUNER 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

Remove 5 metal screws holding the cabinet front. Remove the front. NOTE. Use only mild soap or detergent to clean the safety glass.

SUPER RANGE FINDER ADJUSTMENT

The super range finder (R7) is adjusted to improve reception in fringe areas and areas where interference is present. The super range finder control should be turned fully counter clockwise and left there if satisfactory pictures can be obtained in this position.
Where the signal strength is weak, turn the control clockwise until the picture is satisfactory. White flashes and snow can sometimes be minimized by carefully adjusting the super range finder.
Keep this control set as far counter clockwise as far as possible consistent with satisfactory pictures to prevent over-loading or excessive contrast.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

The horizontal frequency coil is used as the horizontal hold control. Adjust the horizontal hold until the picture synchronizes horizontally. (For location, see tube placement chart).

FUSE DEVICE

A 5Ω fusible resistor (R96) 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.

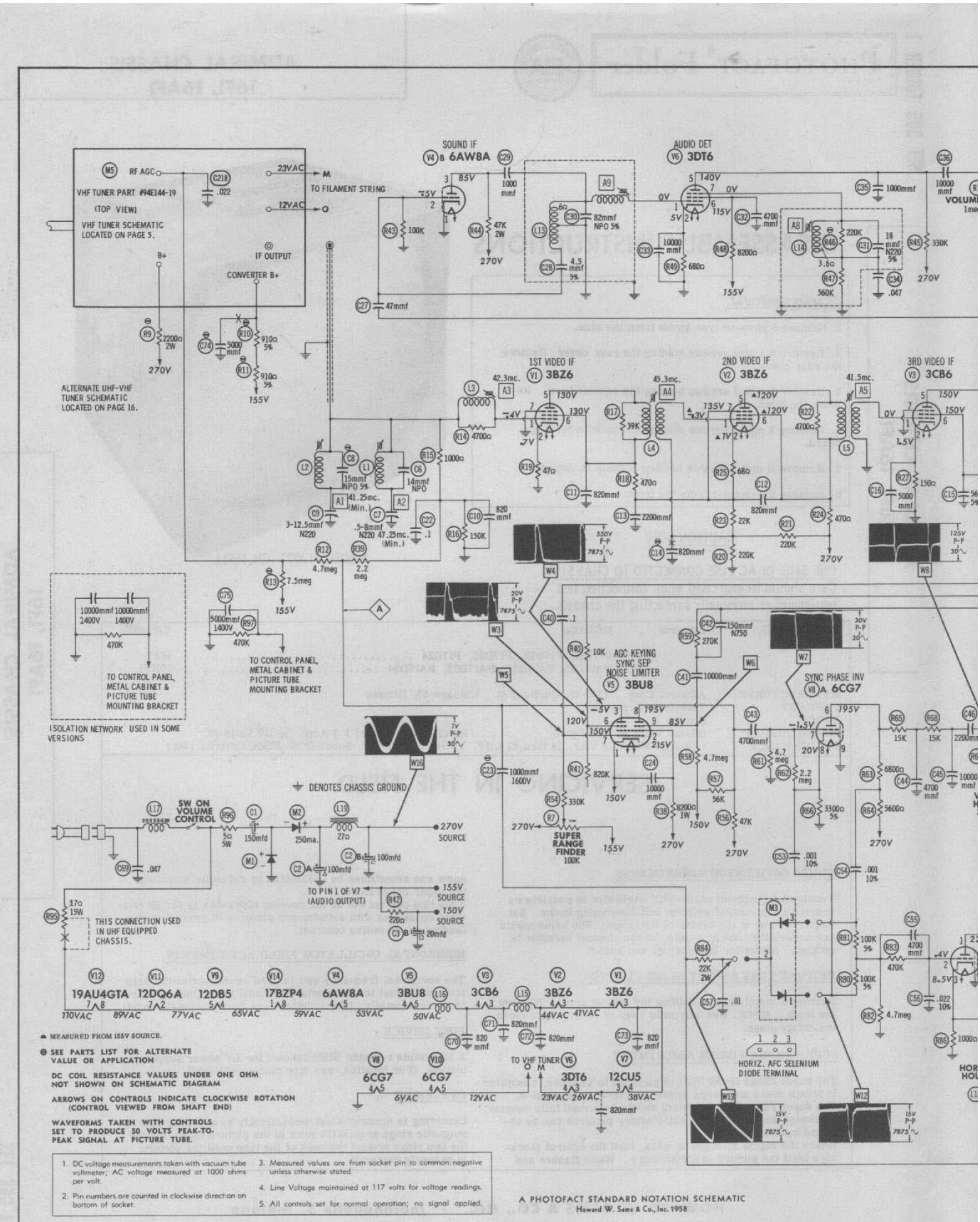
HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

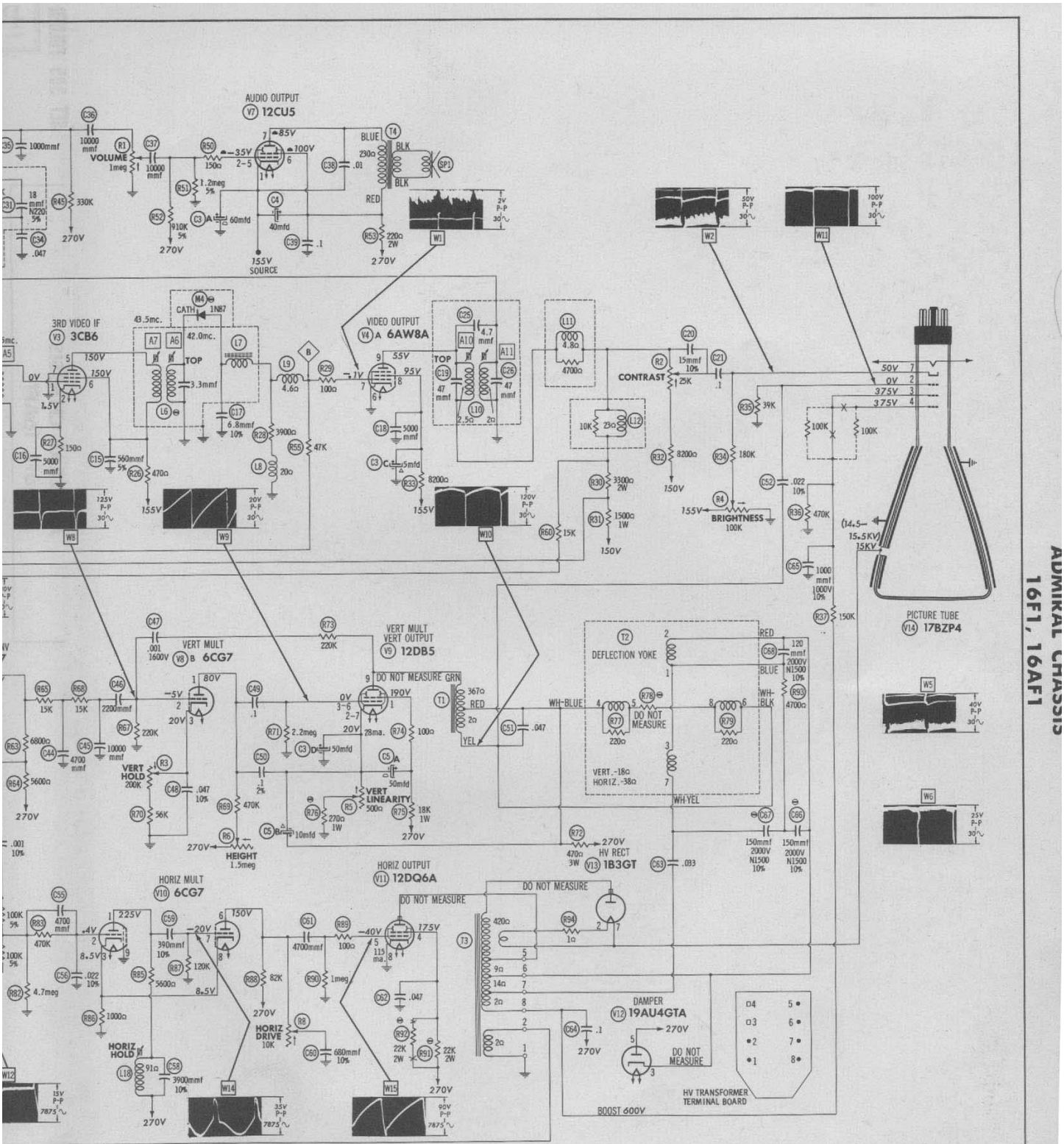
H376

ADMIRAL CHASSIS
16F1, 16AF1

ADMIRAL CHASSIS
16F1, 16AF1

SET 395 FOLDER 1


VHF TUNER PART #94E144-19
(TOP VIEW)
VHF TUNER SCHEMATIC LOCATED ON PAGE 5.
RF AGC
23VAC
12VAC
TO FILAMENT STRING
IF OUTPUT
CONVERTER B+
B+
ALTERNATE UHF-VHF TUNER SCHEMATIC LOCATED ON PAGE 16.
SOUND IF V4B 6AW8A
AUDIO DET V6 3DT6
1ST VIDEO IF V1 3BZ6
2ND VIDEO IF V2 3BZ6
3RD VIDEO IF V3 3CB6
AGC KEYING SYNC SEP NOISE LIMITER V5 3BU8
SYNC PHASE INV V8A 6CG7
SW ON VOLUME CONTROL
SUPER RANGE FINDER 100K
DENOTES CHASSIS GROUND
270V SOURCE
155V SOURCE
150V SOURCE
TO PIN 1 OF V7 (AUDIO OUTPUT)
THIS CONNECTION USED IN UHF EQUIPPED CHASSIS.
ISOLATION NETWORK USED IN SOME VERSIONS
TO CONTROL PANEL, METAL CABINET & PICTURE TUBE MOUNTING BRACKET
HORIZ. AFC SELENIUM DIODE TERMINAL
TO VHF TUNER
V12 19AU4GTA 7∧8 110VAC
V11 12DQ6A 7∧2 89VAC
V9 12DB5 5∧4 77VAC
V14 17BZP4 1∧8 65VAC
V4 6AW8A 4∧5 59VAC
V5 3BU8 4∧5 53VAC
V3 3CB6 4∧3 50VAC
V2 3BZ6 4∧3 44VAC
V1 3BZ6 4∧3 41VAC
V8 6CG7 4∧5 6VAC
V10 6CG7 4∧5 12VAC
V6 3DT6 4∧3 23VAC
V7 12CU5 3∧4 26VAC 38VAC
▲ MEASURED FROM 155V SOURCE.
⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

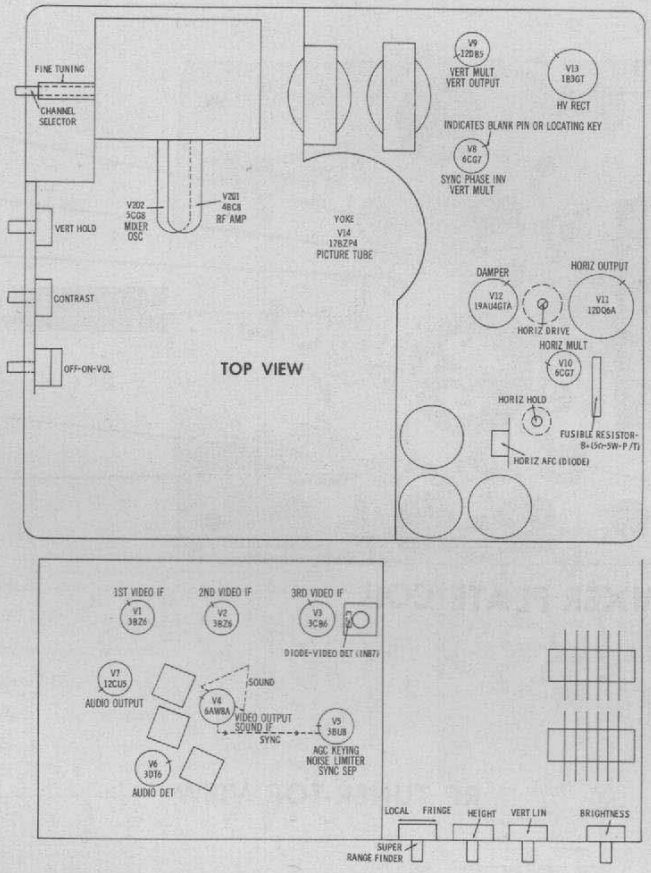


ADMIRAL CHASSIS
16F1, 16AF1

ADMIRAL CHASSIS
16F1, 16AF1

FOLDER 1

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.

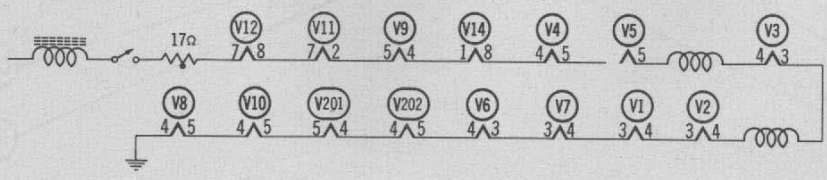
POWER SUPPLY FAILURE
No raster, no sound - **Fusible Resistor (R96), Rectifier (M1, M2), V7**

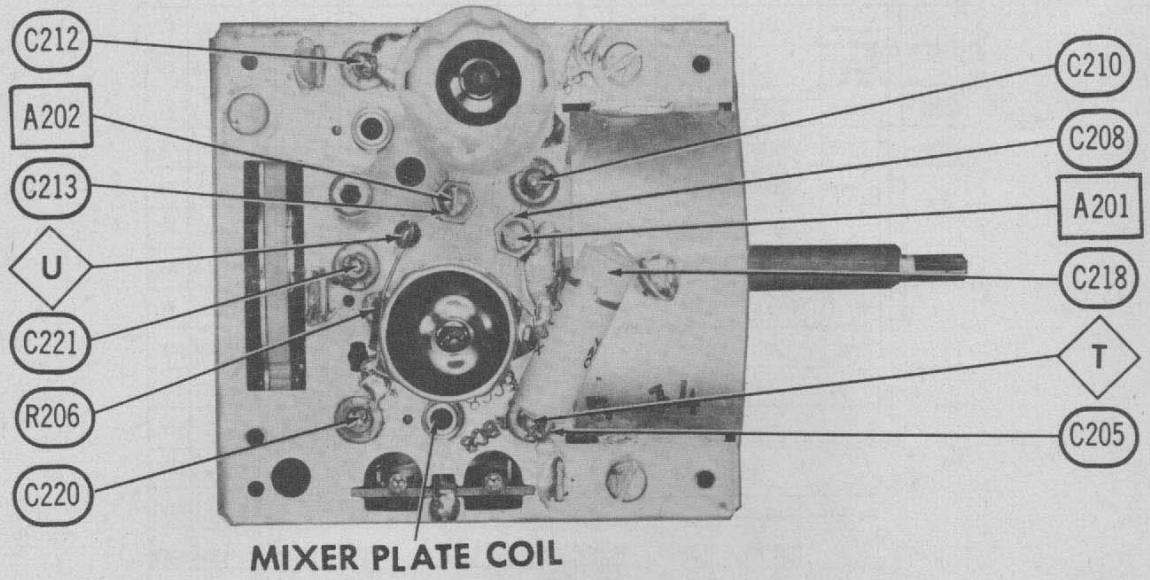
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V1, V2, V3, Diode (M4), V4, V7**
No pic, no sound, has snow - **V201, V202, V1, V7**
No pic, has sound, has raster - **V4, V14, V7**
Has pic, no sound - **V4, V6, V7**
Overloaded picture - **V5, V7**

SYNC FAILURE
No vert. sync - **V5, V8, V7**
No horiz. sync - **V5, V8, Rectifier (M3), V7**
No vert. or horiz. sync - **V5, V8, V7**

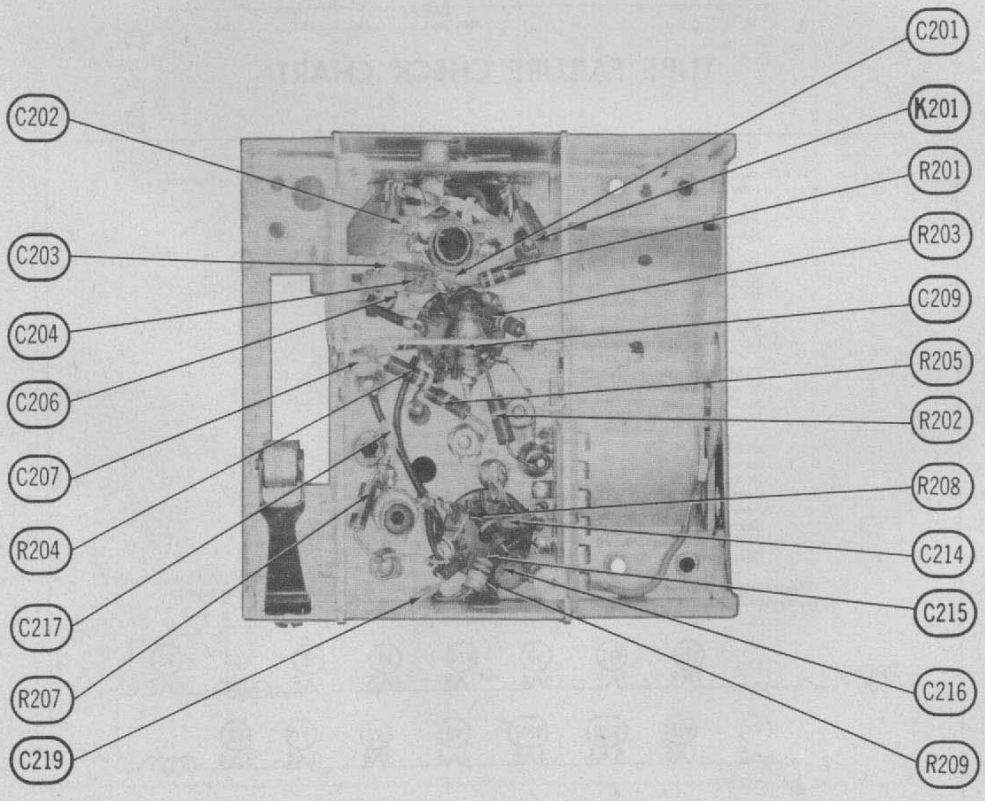
SWEEP FAILURE
No raster, has sound - **M3, V10, V11, V12, V13, V14, V7**
No vertical deflection - **V8, V9**
Poor vert. linearity or foldover - **V8, V9**
Poor horiz. linearity or foldover - **V10, V11, V12**
Narrow picture - **V10, V11, V12, M1, M2**
Vert. off freq. - **V8, V9**
Horiz. off freq. - **V10**

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).

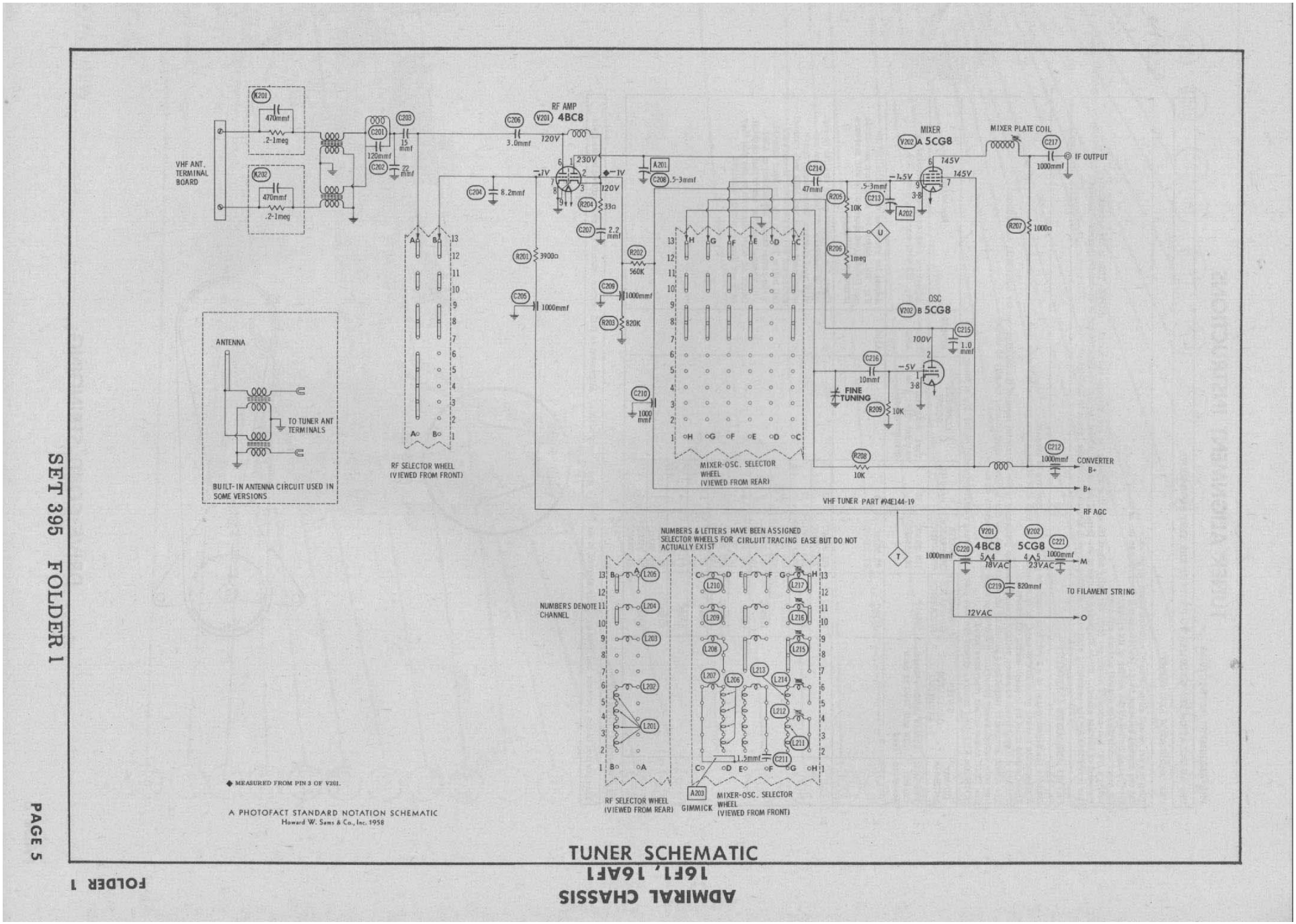




RF TUNER-TOP VIEW



RF TUNER-BOTTOM VIEW



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

TUNER SCHEMATIC

ADMIRAL CHASSIS 16F1, 16AF1

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.

VHF OSCILLATOR ALIGNMENT

Turn the set on and allow 15 to 20 minutes warm-up period.
Set the channel selector to the lowest channel operating in the area.
Set the fine tuning to the center of its range.
Set other controls for normal picture and sound.
Using a 1/8" non-metallic alignment tool, carefully adjust the oscillator slug for best picture and sound. (NOTE: This is not necessarily the point of loudest sound). If two slugs are visible at the front of the tuner, adjust the one nearest the top of the tuner chassis. Repeat this procedure for the remaining stations, adjusting them in sequence from the lowest to the highest.

VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a 2 volt bias supply to point (T) . Positive to chassis.
If a separate marker generator is used, couple loosely to the high side of the sweep generator output lead.
Tuner shield must be in place during 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 a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
NOTE: On VHF-UHF tuners, ground the high side of the 1meg resistor located on the top of tuner chassis.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point (U) . Low side to chassis.	A201, A202	Adjust for response curve similar to Fig. 201 with markers above 90%.
2.	"	"	85MC	83.25MC 87.75MC	6	"	A203	Adjust for response curve similar to Fig. 201. Adjust for maximum amplitude and flat-topped appearance with markers properly positioned.
3.	"	"	213MC	211.25MC 215.75MC	13	"		Check for response curve similar to Fig. 201. If markers fall below 70% on any high band channel, make compromise adjustment of A201 and A202 with channel switch set to that channel. If markers fall below 70%, on any low band channel, make compromise adjustment of A203 with channel selector set to that channel. Check all other channels to see that they have not been seriously affected.
			207MC	205.25MC 209.75MC	12			
			201MC	199.25MC 203.75MC	11			
			189MC	187.25MC 191.75MC	9			
			183MC	181.25MC 185.75MC	8			
			177MC	175.25MC 179.75MC	7			
			79MC	77.25MC 81.75MC	5			
			69MC	67.25MC 71.75MC	4			
			63MC	61.25MC 65.75MC	3			
			57MC	55.25MC 59.75MC	2			

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.

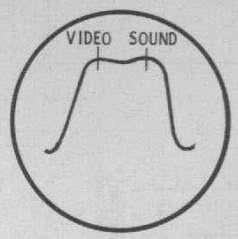
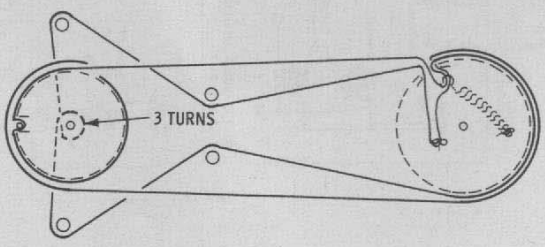
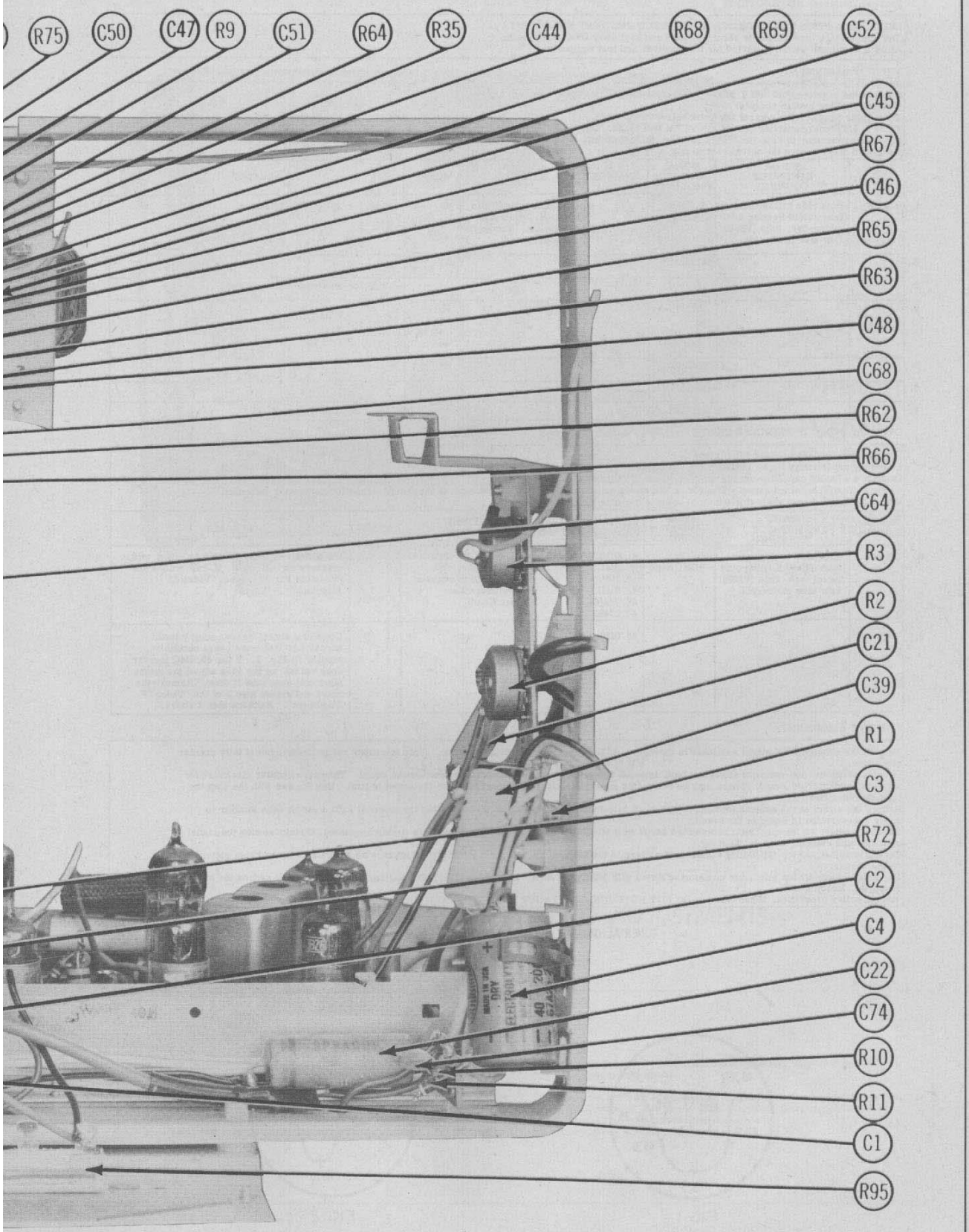


FIG.201



DRIVE CORD STRINGING


R75
C50
C47
R9
C51
R64
R35
C44
R68
R69
C52
C45
R67
C46
R65
R63
C48
C68
R62
R66
C64
R3
R2
C21
C39
R1
C3
R72
C2
C4
C22
C74
R10
R11
C1
R95

TOM VIEW

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3.5 volt bias supply thru a 10K resistor to point Ⓐ.
Connect positive lead to chassis.
Turn super range finder control fully clockwise.
Connect a 270mmf capacitor across the VTVM test leads. Use the lowest scale on the VTVM. While peaking the adjustments, keep reducing the signal generator to keep the VTVM reading no higher than -1 volt DC.
Connect a short across the antenna terminals.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V202). Low side to chassis.	41.25MC (Unmod)	12	DC probe thru 47K to point Ⓑ. Common to chassis. (Across video det. load).	A1	Adjust for MINIMUM deflection.
2.	"	"	47.25MC	"	"	A2	"
3.	"	"	42.3MC	"	"	A3	Adjust for maximum deflection.
4.	"	"	45.3MC	"	"	Mixer Plate Coil & A4	"
5.	"	"	41.5MC	"	"	A5	"
6.	"	"	42.0MC	"	"	A6	"
7.	"	"	43.5MC	"	"	A7	"

OVERALL VIDEO IF RESPONSE CHECK

Connect bias as under "Video IF Alignment".
Leave the super range finder control fully clockwise.
Connect a 270mmf capacitor across the input leads of the scope.
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 a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V202). Low side to chassis.	44.0MC (10MC Swp)	41.25MC 42.0MC 43.5MC 45.0MC 45.75MC 47.25MC	12	Vert. Amp. thru 10K to point Ⓑ. Low side to chassis. (Across video det. load).		Check for response similar to Fig. 1 with markers as indicated. If curve does not resemble Fig. 1, repeat "Video IF Alignment".
9.	"	"	"	45.0MC	"	"		Connect a short, heavy, solid jumper across L3. Response curve should be similar to Fig. 2. If the 45.0MC marker does not fall on the peak adjust the mixer plate coil slug until it does. Remove the short and repeat step 3 of the "Video IF Alignment". Recheck step 8 above.

SOUND IF ALIGNMENT

Tune in the strongest TV signal available in the area. Adjust the set for normal operation. Turn the super range finder control fully counter clockwise.
Using a hexagonal non-metallic alignment tool, turn A8 slowly clockwise until a buzz is heard in the sound. Then turn counter clockwise for maximum undistorted sound. (There may be two points approximately $\frac{1}{4}$ turn apart at which the sound is loud. Use the one with the slug the farthest clockwise.
Reduce the signal at the antenna terminals (by use of an adjustable attenuator or disconnecting the antenna) until a strong hiss similar to super regeneration is heard in the sound.
Carefully adjust A9 for maximum undistorted sound with MINIMUM hiss. If the hiss disappears during alignment, further reduce the signal until the hiss returns, then readjust A9.
Carefully adjust A10 for MINIMUM 4.5MC beat pattern in the picture. 4.5MC beat interference appears as a very fine cross hatch pattern on the screen.
Carefully adjust A11 for maximum undistorted sound with MINIMUM hiss. If the hiss disappears during alignment, further reduce the signal strength. Readjust A11.
Repeat entire procedure, if necessary. DO NOT RETOUCH A9 WITHOUT REPEATING ALL OF SOUND ALIGNMENT.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGE 6.

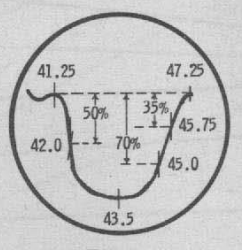


FIG. 1

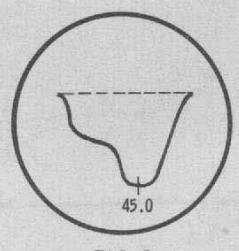
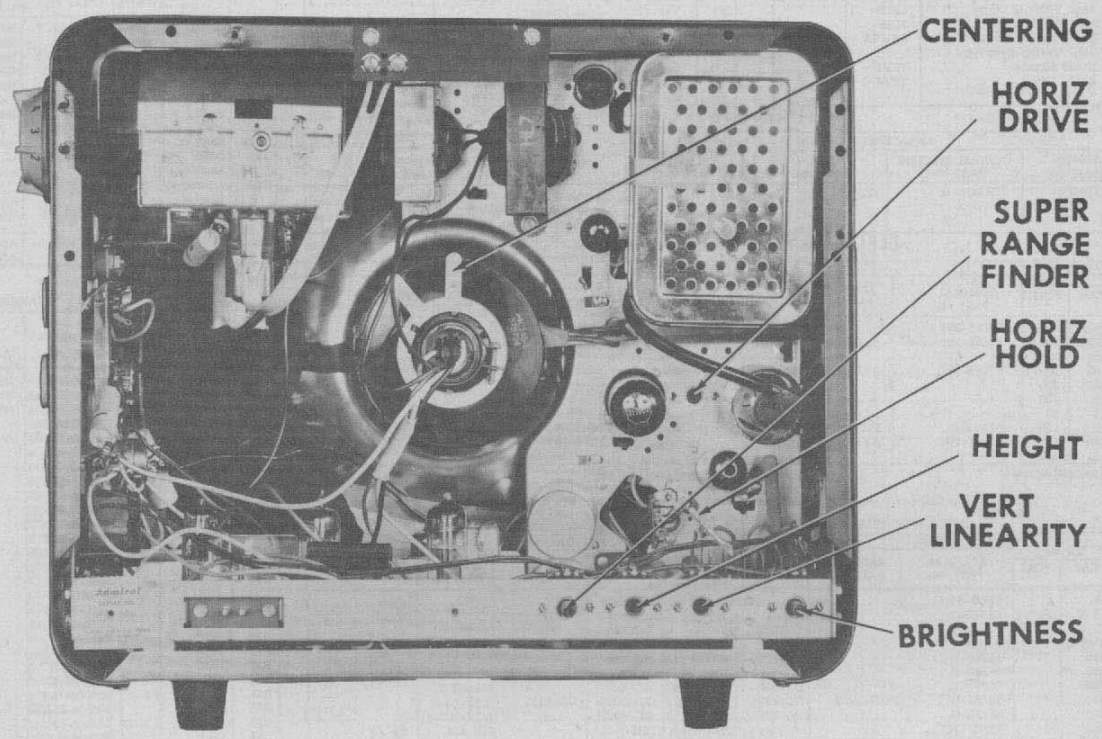


FIG. 2



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

1. Allow 15 minutes for receiver to warm-up. Tune in a station and set brightness and contrast controls for a normal picture.

2. Turn horizontal drive control (R8) fully clockwise. Foldover and/or compression will appear near the center of the picture. Slowly turn the drive control clockwise until the foldover or compression disappears. This point will provide maximum width and brightness. DO NOT turn the drive control too far counter clockwise as this will shorten the life of the horizontal output tube.

3. Reduce the contrast to MINIMUM. If the picture loses horizontal sync, adjust the horizontal hold to the point where the picture remains in sync and vertical lines do not bend near the top of the picture. If the horizontal hold requires adjustment, repeat steps 2 and 3.

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	1st. Video IF Amp.	3BZ6	
V2	2nd. Video IF Amp.	3BZ6	
V3	3rd. Video IF Amp.	3CB6	
V4	Video Output-Sound IF Amp	6AW8A	
V5	AGC Keying-Sync Sep. - Noise Limiter	3BU8	
V6	Audio Det.	3DT6	
V7	Audio Output	12CU5	
V8	Vert. Mult. -Sync Phase Inverter	6CG7	
V9	Vert. Mult. -Vert. Output	12DB5	
V10	Horiz. Mult.	6CG7	
V11	Horiz. Output	12DQ6A	
V12	Damper	19AU4GTA	
V13	HV Rectifier	1B3GT	

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	ADMIRAL PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V14	17BZP4	17BZP4 ①	17BZP4 ②	17BZP4 ③	① "Aluminized" ② "Silverama" ® ③ "Silver Screen 85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	150	150	67D15-203	AFH51-37-25	XA0266	FP214.5	TMS-34	S-105	TVL-1430
C2A	▲100	300	67D15-306	AFH2-41-50	B0332	FP227.7	TMT-165	D-148	TVL-2641
B	▲100	300							
C3A	▲60	200	67D15-307	AFH4-46-20	D0032 *BR505	FP419.35 TC50X		Q-136	*R2573
B	▲20	200							
C	▲5	200							
D	50	50							
C4	40	200	67A25-2	PRS250V40	BR4025	TC58	TD-40-250	MT-2540	TVA-1511
C5A	▲50	300	67D15-204	AFH3-41	C0400	FP242	TMT-36	D-132	*R2574
B	▲10	300							

* 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
	CAP.	VOLT	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	14		65D6-40							NPO
C7	.5-8		66A38-8							N220
C8	15				TCZ-15		TCO-15			NPO 5%①
C9	3-12.5		66A38-7							N220
C10	820		65D10-91		DD-821	BYA10T82	ED-820		5GA-T82	
C11	820		65D10-91		DD-821	BYA10T82	ED-820		5GA-T82	
C12	820		65D10-91		DD-821	BYA10T82	ED-820		5GA-T82	
C13	2200		65D10-111	BPD-0022	DD-222	BYA10D22	ED-0022	UC-5222	5GA-D22	
C14	820		65D10-91		DD-821	BYA10T82	ED-820		5GA-T82	②
C15	560		65D6-131			1R5T56	CY15C56IJ		MS-356	5%
C16	5000		65D10-5	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C17	6.8		65B41-068	NPO-SI 6.8	TCZ-6R8	C10V68C	TCO-6.8	ZT-5568	5TCCB-V68	10%
C18	5000		65D10-5	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C19	47		65D10-80	BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C20	15		65B28-150	NPO-SI 15	TCZ-15	L10Q15	ED-15		5TCC-Q15	10%
C21	.1	200	64B16-53	P288N-1	DF-103	CUB2P1		GEM-201	2TM-P1	
C22	.1	100	64A10-3	P288N-1	DF-103	CUB2P1		GEM-201	2TM-P1	
C23	1000	1600		DAC-2	DD30-102	HVB20D1	HD3-1000	DC3021	BL-D10	③
C24	10000		65D10-41	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C25	4.7			NPO-SI 4.7	TCZ-4R7	C10V47C	TCO-4.7	ZT-5547	5TCCB-V47	
C26	47		65D10-80	BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C27	47		65D10-80	BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C28	4.5		65B27-045							5%
C29	1000		65D10-53	BPD-001	DD-102	BYA5D1	ED-1000	DC521	5HK-D1	
C30	82		65D10-98		TCZ-82		TCO-82			NPO 5%
C31	18		65D10-140							N220 5%
C32	4700		65D10-112	BPD-005	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C33	10000		65D10-41	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C34	.047	100	64B16-55	P288N-047		BC2S47J		ACE6147	2SE-S47	
C35	1000		65D10-53	BPD-001	DD-102	BYA6D1	ED-001	DC521	5HK-D1	
C36	10000		65D10-41	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C37	10000		65D10-41	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C38	.01	600	64B8-13	P688N-01	D6-103	CUB6S1	GP-10000	GEM-611	6TM-S1	
C39	.1	400	64C27-32	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C40	.1	400	64B8-26			BC6P1J		ACE401	4SE-P1	
C41	10000		65D10-41	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C42	150		65D10-85	N750-DI 150	TCN-150	C10T15U	TC7-150		5TCU-T15	N750
C43	4700		65D10-112	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C44	4700		65D10-112	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C45	10000		65D10-41	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C46	2200		65D10-111	BPD-0022	DD-222	BYA10D22	ED-0022	UC-5222	5GA-D22	
C47	.001	1600	64B2-32	P1688N-001	DD30-102	CUB16D1	HD3-1000	GEM-1621	MB-D1	
C48	.047	200	64C26-59							10%
C49	.1	400	64B8-26	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C50	.1	400	64C27-32							2% Drift
C51	.047	200	64B8-41	P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C52	.022	600	64B22-11							10%
C53	.001	400	64C24-45					GEM-1621		10%
C54	.001	400	64C24-45					GEM-1621		10%
C55	4700		65D10-112	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C56	.022	200	64C25-61							10%
C57	.01	600	65D10-41	P688N-01	D6-103	CUB6S1	GP-10000	GEM-611	6TM-S1	
C58	3900		65B21-392	1464-0039		1R5D39		MS-339		10%
C59	390		65B21-391		D6-391	5R5T39	ED-390		MS-339	10%
C60	680		65B21-681	1464-00068	D6-681	1R5T68	ED-680		MS-368	10%
C61	4700		65D10-112	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C62	.047	400	64B8-28	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C63	.033	200	64C25-60	P288N-033	DD-303	CUB6S33		GEM-6133	6TM-S33	
C64	.1	600	64B8-7	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C65	1000	1000	65D10-147							10%
C66	150	2000	65D10-149							N1500 10%④
C67	150	2000	65D10-149							N1500 10%④
C68	120	2000	65D10-148							N1500 10%
C69	.047	600	64B2-36	P688N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	
C70	820		65D10-91		DD-821	BYA10T82	ED-820		5GA-T82	
C71	820		65D10-91		DD-821	BYA10T82	ED-820		5GA-T82	
C72	820		65D10-91		DD-821	BYA10T82	ED-820		5GA-T82	
C73	820		65D10-91		DD-821	BYA10T82	ED-820		5GA-T82	
C74	5000		65D10-5	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	②
C75	5000	1400	65D10-133	DAC-9	DD16-502	HVE16D5	HD15-4700	GEM-1625	BL-D50	

① Chassis stamped run 19 and higher use 18mmf 5% N220 (Part #65D10-140) in this application.
② Not used in some versions.
③ Chassis stamped run 10 use 300mmf(Part #65D10-140) in this application.
④ Chassis stamped run 10 use 190mmf 2KV 10% N1500 (Part #65D10-149) in this application.

PARTS LIST AN CONTI

ITEM No.	RATING		REPLACEMENT		
	RESISTANCE	WATTS	ADMIRAL PART No.	CENTRALAB PART No.	CLAROSTA PART No
R1A	1meg	½	75D1-93	B-70-S	A47-1meg-
B	Shaft			Not Req.	KSS-3
C	Switch			Not Req.	SWE-12
R2A	25K	½	75D20-98	B-26	A47-25K-S
B	Shaft			Not Req.	KSS-3
R3A	200K	½	75D20-97	B-46	A47-200K-
B	Shaft			Not Req.	KSS-3
R4A	100K	½	75D20-101		
B	Shaft				
R5A	500Ω	½	75D20-100		
B	Shaft				
R6A	1.5meg	½	75D20-104		
B	Shaft				
R7A	100K	½	75D20-101		
B	Shaft				
R8A	10K	½	75D20-106	AB-14	A47-10K-S
B	Shaft			AK-1	FKS-1/4

RESIST

All wattages 1/2 watt, or less,

ITEM No.	RATING		ADMIRAL PART No.	NOTES
	OHMS	WATT		
R9	2200Ω	2	60B-20-222	Note 1
R10	910Ω 5%			Note 2
R11	910Ω 5%			Note 2
R12	4.7meg		60B-8-475	
R13	7.5meg		60B-8-755	Note 3
R14	4700Ω 5%		60B-7-472	
R15	1000Ω		60B-8-102	
R16	150K		60B-8-154	
R17	39K		60B-8-393	
R18	470Ω		60B-8-471	
R19	47Ω		60B-8-470	
R20	220K		60B-8-224	
R21	220K		60B-8-224	
R22	4700Ω		60B-8-472	
R23	22K		60B-8-223	
R24	470Ω		60B-8-471	
R25	68Ω		60B-8-680	
R26	470Ω		60B-8-471	
R27	150Ω		60B-8-151	
R28	3900Ω		60B-8-392	
R29	100Ω		60B-8-101	
R30	3300Ω	2	60B-20-332	
R31	1500Ω	1	60B-15-152	
R32	8200Ω		60B-8-822	
R33	8200Ω		60B-8-822	
R34	180K		60B-8-184	
R35	39K		60B-8-393	
R36	470K		60B-8-474	
R37	150K		60B-8-154	
R38	8200Ω	1	60B-14-822	
R39	2.2meg		60B-8-225	
R40	10K		60B-8-103	
R41	820K		60B-8-824	
R42	220Ω		60B-8-221	
R43	100K		60B-8-104	
R44	47K	2	60B-14-473	
R45	330K		60B-8-334	
R46	220K		60B-8-224	Note 4
R47	560K		60B-8-564	
R48	8200Ω		60B-8-822	
R49	680Ω		60B-8-681	
R50	150Ω		60B-8-151	
R51	1.2meg 5%		60B-7-125	
R52	910K 5%		60B-7-914	
R53	220Ω	2	60B-20-221	

Note 1. Chassis 16AF1 uses 1800Ω 2W (Part #60B-20-1
Note 2. Chassis stamped run 12 and lower use a single
Run 13 and higher may use a single 1800Ω (Part #60B-
Note 3. Chassis stamped run 16 and higher use 10meg
Note 4. Chassis stamped run 18 and higher use 100K (
Note 5. Some versions may use 180Ω 1W (Part #60B-1
Note 6. Temperature compensating resistor.
Note 7. Some versions may use a single 12K 3W (Par

TRANSFORMERS (

ITEM No.	USE	ADMIRAL PART No.	Halldorson PART No.	Merit PART N
T1	Vert. Output	79B43-13		
T2A	Yoke-Horiz. (19MH)	94D147-1		MDF-1
B	(110°)-Vert. (14MH)	②		
M6	Rear Cover & Centering Device	94C148-1		
	Rear Cover & Centering Device	94D148-1		
	Yoke Clamp	18B203-1		
T3	Horiz. Output	79D77-2		HVO-17

① Connect as autoformer.
② Includes resistors R78, R79 and R80.
③ Use original rear cover and centering device.

TRANSFORMER (A

ITEM No.	IMPEDANCE		REPLACEMEN			
	PRI.	SEC.	ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Ro PART
T4	2700Ω	3-4Ω	79D83-15	Z1101	A-3025	AU-

SPEAK

ITEM No.	TYPE			REPLACEMENT DATA	
	SIZE	FIELD	V. C. IMP.	ADMIRAL PART No.	QUAM PART No.
SP1	4"	PM	3-4Ω	78B122-2	4A07

DESCRIPTIONS
S

IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
13-137	TA16A	Volume
ot Req.	Not Req.	
5-1	U8-26	
11-120	TA253L	Contrast
ot Req.	Not Req.	
11-129	U43	Vert. Hold
ot Req.	Not Req.	
	PTA15L	Brightness
	Not Req.	
11-103	PTA52L	Vert. Lin.
M1-Kit	Not Req.	
11-138	PTA155L	Height
M1-Kit	Not Req.	
	PTA15L	Super Range Finder
	Not Req.	
11-116	TA14L	Horiz. Drive
M1-Kit	Not Req.	

ss otherwise listed.

M.	RATING OHMS	RATING WATT	ADMIRAL PART No.	NOTES
	330K		60B-8-334	
	47K		60B-8-473	
	47K		60B-8-473	
	56K		60B-8-563	
	4.7meg		60B-8-475	
	270K		60B-8-274	
	15K		60B-8-153	
	4.7meg		60B-8-475	
	2.2meg		60B-8-225	
	6800Ω		60B-8-682	
	5600Ω		60B-8-562	
	15K		60B-8-153	
	3300Ω 5%		60B-7-332	
	220K		60B-8-224	
	15K		60B-8-153	
	470K		60B-8-474	
	56K		60B-8-563	
	2.2meg		60B-8-225	
	470Ω	3	61B-24-317	
	220K		60B-8-224	
	100Ω		60B-8-101	
	18K	1	60B-14-183	
	270Ω	1	60B-14-271	Note 5
	220Ω		60B-8-221	
	3.8Ω Cold		61A27	Note 6
	220Ω		60B-8-221	
	100K 5%		60B-7-104	
	100K 5%		60B-7-104	
	4.7meg		60B-8-475	
	470K		60B-8-474	
	22K	2	60B-20-223	
	5600Ω		60B-8-562	
	1000Ω		60B-8-102	
	120K		60B-8-124	
	82K		60B-8-823	
	100Ω		60B-8-101	
	1meg		60B-8-105	
	22K	2	60B-20-223	Note 7
	22K	2	60B-20-223	Note 7
	4700Ω		60B-8-472	
	1Ω		60B-28-63	
	17Ω	15	61B-5-13	
	5Ω	5	61A-28	
	470K		60B-8-474	

is application.
Part #60B-8-471) to replace R10 and R11.
replace R10 and R11.
0B-8-106) in this application.
B-8-104) in this application.
this application.

4-353) to replace R91 and R92.

P CIRCUITS)

NT DATA: am T No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
			A-113X ① Y-60 & NW25 ③	Alternate

OUTPUT)

Stancor ART No.	Thordarson PART No.	Triad PART No.	NOTES
-3332	24S53	S-12X	

NOTES

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: ADMIRAL PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	47.25MC Trap Coil	73B37-1					1.36 Microhenries
L2	41.25MC Trap Coil	73B37-1					1.36 Microhenries
L3	1st. Video IF	72C132-31					
L4	2nd. Video IF	72C132-23					
L5	3rd. Video IF	72C132-23					
L6	4th. Video IF	72B19-2					
L7	RF Choke	73B31-4					Includes Cap. - Note 1
L8	Shunt Peaking Coil	73B5-34		TV-208			879 Microhenries
L9	RF Choke	73B31-3					28 Microhenries
L10A	4.5MC Trap	72C185-2					
B	1st. Sound IF						
L11	Series Peaking Coil	73B5-23	19-3180 *	TV-184 *	6180 *	VP-5 *	189 Microhenries, wound on 4700Ω resistor
L12	Shunt Peaking Coil	73B5-36					Wound on 10K resistor
L13	2nd. Sound IF	72B186-1					
L14	Quadrature Coil	72C132-18					
L15	Fil. Choke	73B37-2	19-1001	BC-562	4604		1.4 Microhenries
L16	Fil. Choke	73B37-2	19-1001	BC-562	4604		1.4 Microhenries
L17	Line Choke	73B31-1					68 Microhenries

* Parallel with 4700Ω resistor.
Note 1. Alternate part #72B191-1, 72B19-1, 72B191-2.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: ADMIRAL PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	NOTES
L18	91Ω		94C17-7	19-1576 *	TV-163 *	6210 *	H-102 *	HS-5 *	18-45 Millihenries * Enlarge mounting hole.

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ∿)	REPLACEMENT DATA: ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L19	.250A	27Ω	.8 Hy.	74B18-24	C5037 ①	C-2974		C-2328 ①	26C44	C-23X

① Drill new mounting hole.

RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: ADMIRAL PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.250A	93A4-4 ①	1023 ①	RS350SL ①	1N007 ②	350A ① M500 ③	① Selenium type. ② Germanium type.
M2	.250A	93A4-4 ①	1023 ①	RS350SL ①	1N1007 ②	350A ① M500 ③	③ Silicon type. ④ Two required.
M3		93B5-4 ①	1215 ①④	1T1 ①④			

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: ADMIRAL PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M4	1N87	1N87 *	1N60	1N60	Video Detector (Pigtail)

* Some versions may use 1N60 or 1N295 in this application.

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M5	Tuner	94E144-19	VHF - Ch. 16F1
	Tuner	94E144-20	UHF-VHF - Ch. 16AF1
	Tuner	94D112-5	UHF - Ch. 16AF1
M6	Centering Device	94C148-1	Includes yoke cover
	Centering Device	94D148-1	Alternate
	Printed Circuit Board	A5770-2	Complete with components - less tubes

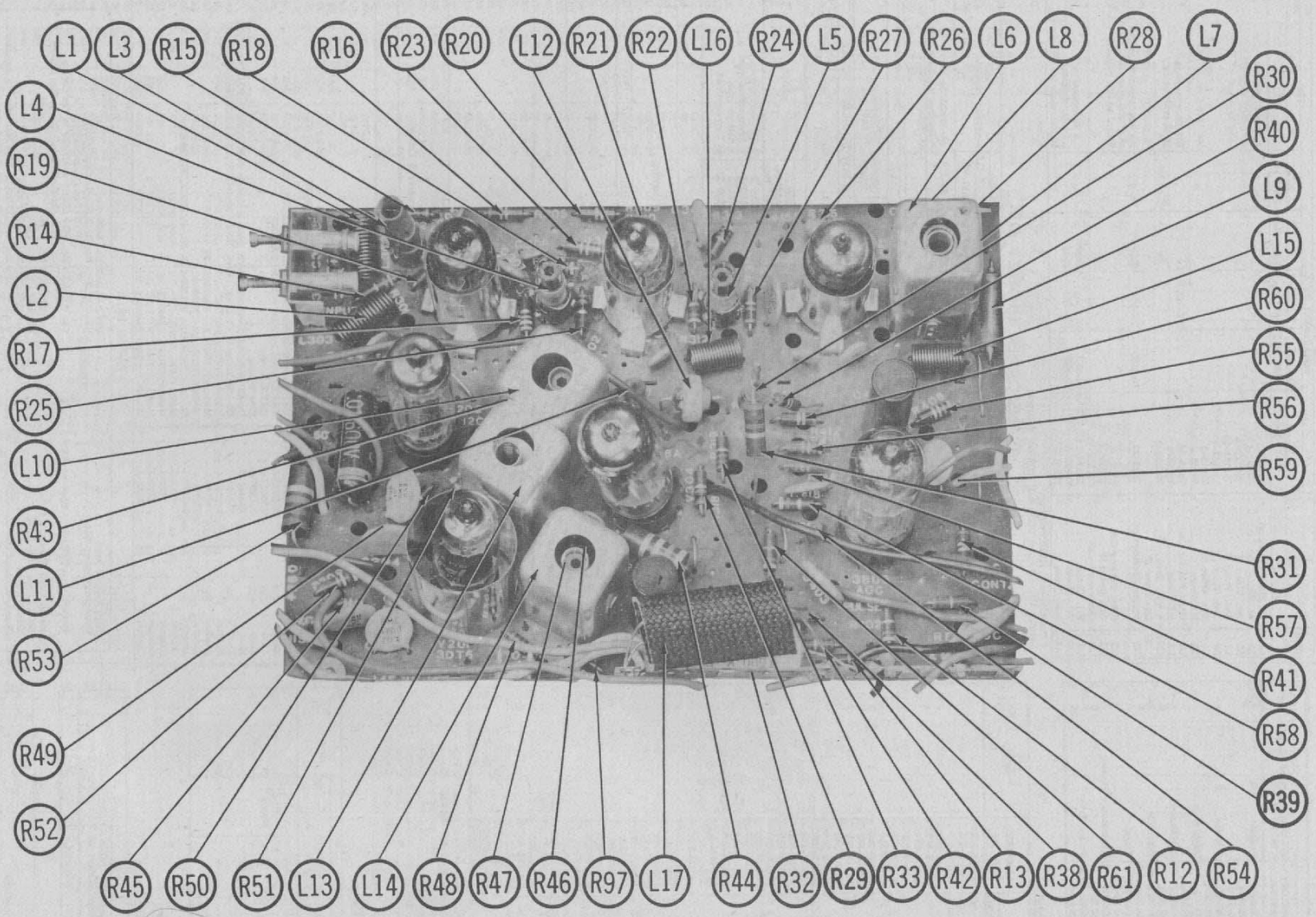
CABINETS & CABINET PARTS

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

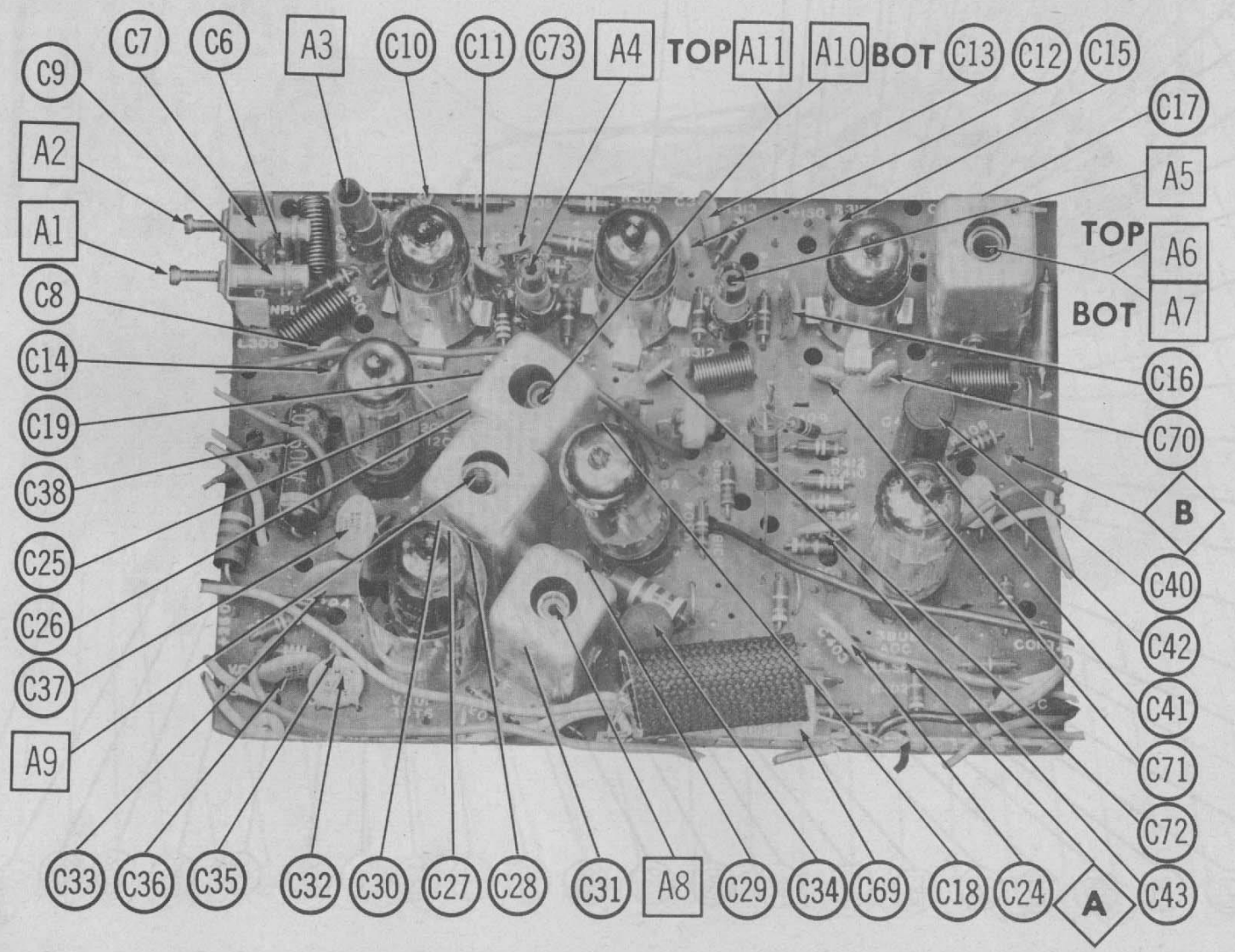
NAME	PART NO.	DESCRIPTION
Safety Glass	21D99-2	
Cabinet Front	23E293-1	Models P17D21, PA17D21
Cabinet Front	23E293-2	Models P17D22, PA17D22
Cabinet Front	23E293-3	Models P17D23, PA17D23
Cabinet Front	23E293-4	Models P17D24, PA17D24
Knob	33D237-6	VHF Channel Selector - Models P17D21, 22, 23
Knob	33D237-2	VHF Channel Selector - Model P17D24
Knob	33D237-5	VHF Channel Selector - Models PA17D21, 22, 23
Knob	33D237-1	VHF Channel Selector - Model PA17D24
Knob	33D237-4	UHF Indicator
Knob	33D237-3	Fine Tuning
Knob	33A143-9	On-Off-Volume, Contrast, Vert. Hold - Models P17D21, 22, 23, PA17D21, 22, 23
Knob	33A143-7	On-Off-Volume, Contrast, Vert. Hold - Models P17D24, PA17D24
Handle	37C161-4	Models P17D21, PA17D21
Handle	37C161-1	Models P17D22, 23, PA17D22, 23
Handle	37C161-2	Models P17D24, PA17D24
Antenna	69C220-1	Hide-away - Models P17D22, 23, 24, PA17D22, 23, 24
Cabinet	34E122-5	Model 17D21, PA17D21
Cabinet	34E122-2	Models P17D22, PA17D22
Cabinet	34E122-3	Models P17D23, PA17D23
Cabinet	34E122-4	Models P17D24, PA17D24

WIRING DATA

High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor



RESISTOR AND INDUCTOR IDENTIFICATION

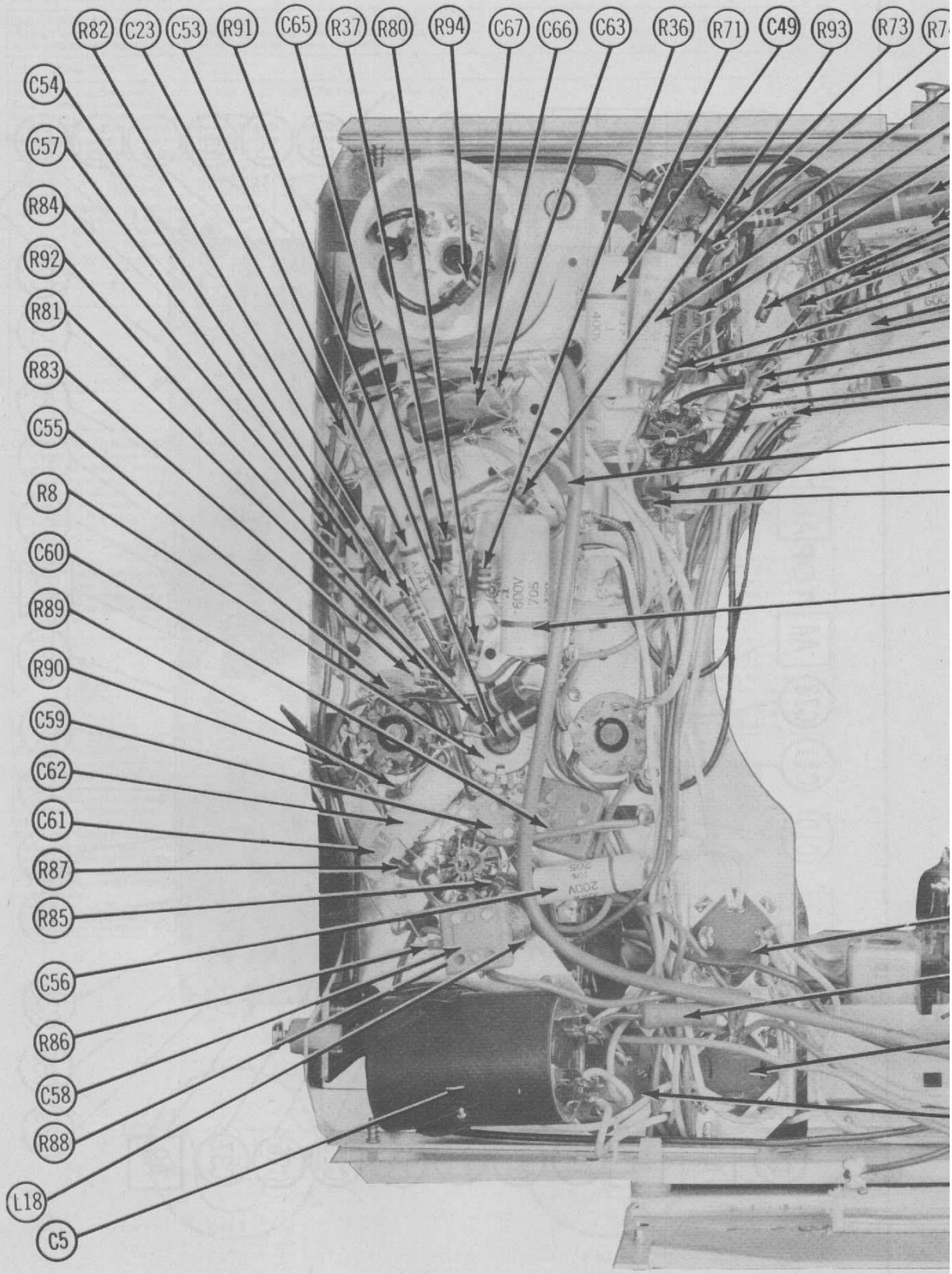


CAPACITOR AND ALIGNMENT IDENTIFICATION

ADMIRAL CHASSIS
16F1, 16AF1

FOLDER 1

PAGE 13


R82
C23
C53
R91
C65
R37
R80
R94
C67
C66
C63
R36
R71
C49
R93
R73
C54
C57
R84
R92
R81
R83
C55
R8
C60
R89
R90
C59
C62
C61
R87
R85
C56
R86
C58
R88
L18
C5

CHASSIS BOT

TUNER PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amplifier	4BC8	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	5CG8	

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 CAP.	RATING VOLT	REPLACEMENT DATA ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C201	120		65D10-136							N1500 10%
C202	22		65D10-134	N750-SI 22	TCN-22	C10Q22U	TC7-22		5TCU-Q22	N750 10%
C203	15		65D10-135	N750-SI 15	TCN-15	C10Q15U	TC7-15		5TCU-Q15	N750 10%
C204	8.2		65D10-131	NPO-SI 8.2			TCO-8.2			NPO 5%
C205	1000		65B26-5	EF-001	MFT-1000				503C-D1	
C206	3.0		65B41-030	NPO-SI 3.0		C10V3C	TCO-3	ZT-553		10%
C207	2.2		65D10-121	NPO-SI 2.2	TCZ-2R2	C10V22C	TCO-2.2		5TCCB-V22	10%
C208	.5-3		66A38-6		829-3		3115-E	CT565A		
C209	1000		65B26-5	EF-001	MFT-1000				503C-D1	
C210	1000		65B26-5	EF-001	MFT-1000				503C-D1	
C211	1.5		65B28-015	NPO-SI 1.5	TCZ-1R5		TCO-1.5	ZT-5515	5TCCB-V15	10%
C212	1000		65B26-5	EF-001	MFT-1000				503C-D1	
C213	.5-3		66A38-6		829-3		3115-E	CT565A		
C214	47		65D10-73							N1400 5%
C215	1.0		65B28-010	NPO-SI 1.0	TCZ-1.0		TCO-1		5TCCB-V1	10%
C216	10		65D10-139							N1500 5%
C217	1000		65D10-53	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C218	.022	200	64B25-61	P288N-022	DD-203	CUB4S22	ED-02	GEM-4122	2TM-S22	
C219	820		65D10-91	SI 820	DD-821	L10T82	ED-820		5GA-T82	
C220	1000		65B26-5	EF-001	MFT-1000				503C-D1	
C221	1000		65B26-5	EF-001	MFT-1000				503C-D1	

RESISTORS

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

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No.	NOTES
R201	3900Ω		60B-9-392	
R202	560K		60B-9-564	
R203	820K		60B-9-824	
R204	33Ω		60B-9-330	
R205	10K		60B-9-103	

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No.	NOTES
R206	1meg		60B-9-105	
R207	1000Ω		60B-9-102	
R208	10K		60B-9-103	
R209	10K		60B-9-103	

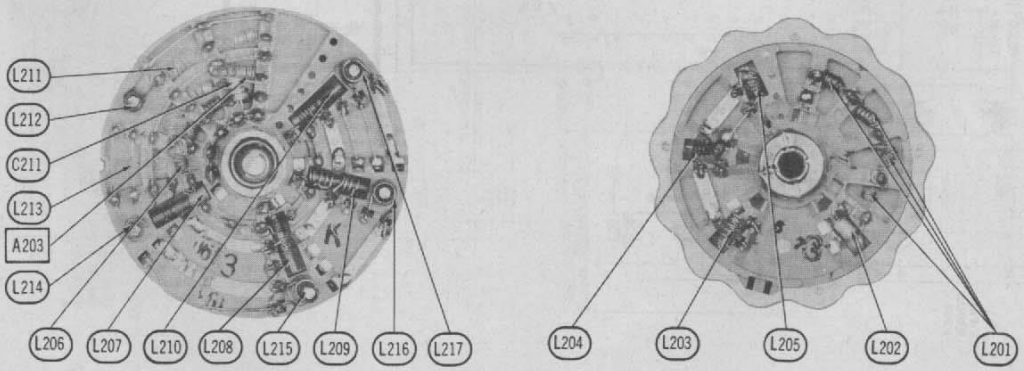
COILS (RF-IF)

ITEM No.	USE	ADMIRAL PART No.	NOTES
L201	Ant. Coils	73D30-12	Channels 2-5
L202	Ant. Coils	73D30-17	Channel 6
L203	Ant. Coil	73D30-18	Channel 9
L204	Ant. Coil	73D30-21	Channel 11
L205	Ant. Coil	73D30-40	Channel 13
L206	RF Coils	73D30-19	Channels 2-5
L207	RF Coil	73D30-27	Channel 6
L208	RF Coil	73D39-8	Channel 9
L209	RF Coil	73D30-5	Channel 11

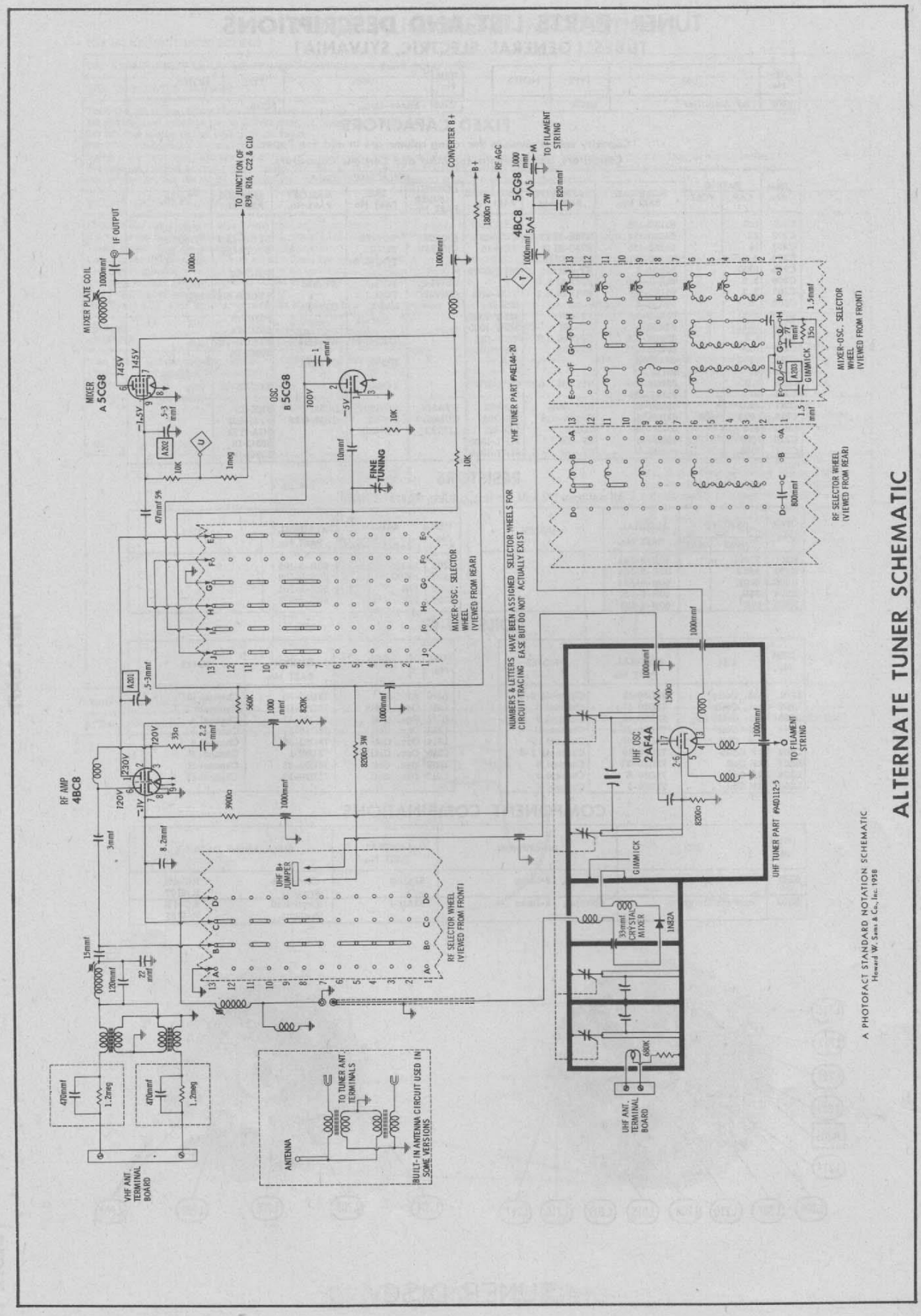
ITEM No.	USE	ADMIRAL PART No.	NOTES
L210	RF Coil	73D30-25	Channel 13
L211	Osc. Coils	73D30-11	Channels 2, 3
L212	Osc. Coil	73D30-37	Channel 4
L213	Osc. Coil	73D30-34	Channel 5
L214	Osc. Coil	73D30-36	Channel 6
L215	Osc. Coil	73D30-1	Channel 9
L216	Osc. Coil	73D30-33	Channel 11
L217	Osc. Coil	73D30-32	Channel 13

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ADMIRAL PART No.	REPLACEMENT DATA	
K201	Antenna Isolation	470mmf, .2-1meg	63A11-1	Centralab Sprague	RC-471 R-9197
K202	Antenna Isolation	470mmf, .2-1meg	63A11-1	Centralab Sprague	RC-471 R-9197



TUNER DISC

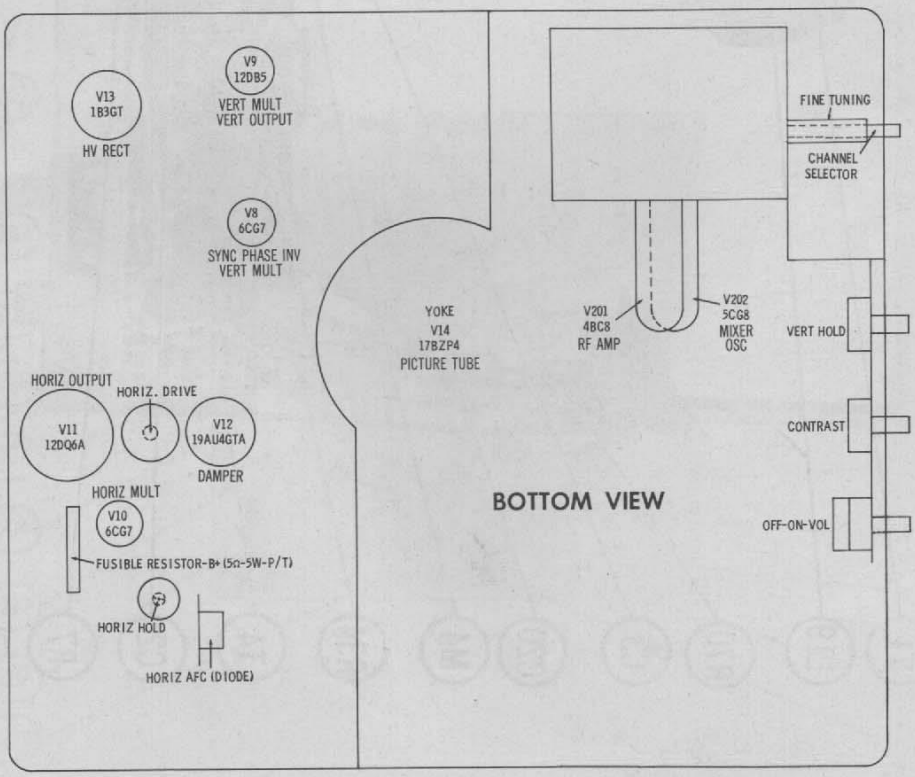

ALTERNATE TUNER SCHEMATIC
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958
RF AMP 4BC8
MIXER A 5CG8
OSC B 5CG8
4BC8 5CG8
MIXER PLATE COIL
IF OUTPUT
TO JUNCTION OF R39, R36, C22 & C10
CONVERTER B+
B+
RF AGC
TO FILAMENT STRING
VHF TUNER PART #40144-20
MIXER-OSC. SELECTOR WHEEL (VIEWED FROM REAR)
RF SELECTOR WHEEL (VIEWED FROM REAR)
MIXER-OSC. SELECTOR WHEEL (VIEWED FROM FRONT)
RF SELECTOR WHEEL (VIEWED FROM FRONT)
NUMBERS & LETTERS HAVE BEEN ASSIGNED SELECTOR WHEELS FOR CIRCUIT TRACING EASE BUT DO NOT ACTUALLY EXIST
UHF OSC 2AF4A
UHF TUNER PART #40112-5
UHF B+ JUMPER
FINE TUNING
GIMMICK
39mmf CRYSTAL MIXER
1N82A
VHF ANT. TERMINAL BOARD
UHF ANT. TERMINAL BOARD
TO TUNER ANT. TERMINALS
ANTENNA
BUILT-IN ANTENNA CIRCUIT USED IN SOME VERSIONS

CHASSIS-REAR VIEW

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3BZ6	140K	47Ω	8Ω	8.5Ω	▲ 470Ω	▲ 470Ω	0Ω		
V2	3BZ6	100K	▲ 68Ω	8.5Ω	9Ω	† 470Ω	† 470Ω	120K		
V3	6CB6	.1Ω	150Ω	9Ω	10Ω	■ 470Ω	■ 470Ω	0Ω		
V4	6AW8A	0Ω	100K	† 47K	12.5Ω	11Ω	0Ω	4000Ω	■ 8200Ω	■ 4200Ω
V5	3BU8	■ 220Ω	† 8200Ω	1.8meg	11Ω	10Ω	■ 11K	† 330K	† 35K	■ 4.7meg
V6	3DT6	15.5Ω	680Ω	5.5Ω	5Ω	† 330K	■ 8200Ω	560K		
V7	12CU5	¶	550K	5.5Ω	8Ω	550K	† 220Ω	† 450Ω		
V8	6CG7	● † 1.3meg	220K	●120K	0Ω	1.5Ω	† 12K	1.6meg	3300Ω	0Ω
V9	12DB5	† 18K	● 450Ω	2.2meg	14Ω	16Ω	2.2meg	● 450Ω	NC	† 840Ω
V10	6CG7	† 5700Ω	5.1meg	1000Ω	1.5Ω	3Ω	† 82K	120K	1000Ω	0Ω
V11	12DQ6A	TP	16Ω	NC	† 11K	1meg	TP	18Ω	0Ω	TOP CAP ǂ9Ω
V12	19AU4GTA	NC	NC	¶	NC	† 0Ω	NC	21Ω	18Ω	
V13	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ǂ429Ω
V14	17BZP4	14Ω	39K	ǂ125K	ǂ125K	NC	NC	● 200K	12.5Ω	
V201	6BC8	† 2200Ω	350K	INF	4Ω	3Ω	INF	3.5meg	0Ω	0Ω
V202	5CG8	10K	■ 12K	0Ω	4Ω	5Ω	■ 3700Ω	■ 2700Ω	0Ω	1meg

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
■ MEASURED FROM 155V SOURCE.
† MEASURED FROM 270V SOURCE.
ǂ MEASURED FROM PIN 3 OF V12.
▲ MEASURED FROM PIN 7 OF V2.
NC NO CONNECTION
TP TIE POINT



TUBE PLACEMENT CHART