

CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern. Adjust the Brightness and Contrast Controls for a normal picture.

Short out the AFC voltage by connecting a clip lead from point ⬡ to chassis. Connect a .22mfd, 400 volt capacitor from point ⬡ to chassis.

Adjust Horizontal Range to the point where the picture is almost stable

horizontally.

Remove the capacitor from point ⬡ and adjust the Horizontal Lock to the point where the picture is almost stable horizontally.

Remove the clip lead from point ⬡ and chassis. Adjust the Horizontal Lock until the picture is synchronized horizontally.

SET 505 FOLDER 1

ADMIRAL CHASSIS 18B7, B, 18UB7, B

PHOTOFACT® Folder with CIRCUITRACE®

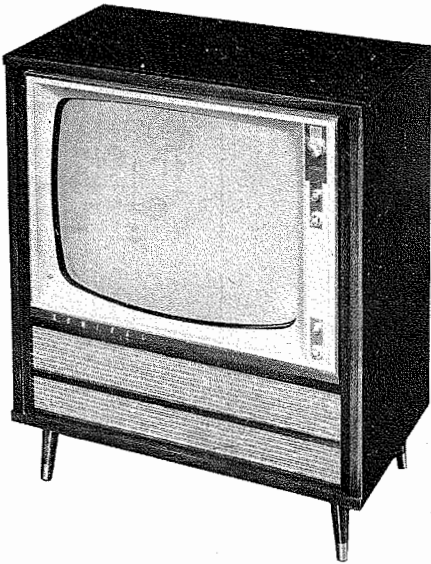
DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL C24KI12

- 1. Remove rear cover by compressing spring clamps. Remove antenna lead. Remove rear cover.
- 2. Remove speaker leads.
- 3. Remove 4 screws holding front escutcheon (mask) to cabinet from inside the cabinet.
- 4. Remove chassis, picture tube, tuner, and escutcheon (as a unit) by sliding out the front of the cabinet.

PICTURE TUBE REMOVAL

It is necessary to remove the chassis, picture tube, tuner, and escutcheon (as a unit) for picture tube removal. (See "Chassis Removal".)



MODEL C24KI12 (CH. 18B7)

TRADE NAME	ADMIRAL	MODELS	CHASSIS
		C24KI11, C24KI12, C24KI13, C24KI42, C24KI45, L24KI31, L24KI32, L24KI33, L24KI52, L24KI57, T24KI10, T24KI11, T24KI12, T24KI13	18B7
		C24KI11B, C24KI12B, C24KI13B, C24KI42B, C24KI45B, L24KI31B, L24KI32B, L24KI33B, L24KI52B, L24KI57B, T24KI10B, T24KI11B, T24KI12B, T24KI13B	18B7B
		C24UK11, C24UK12, C24UK13, C24UK142, C24UK145, L24UK131, L24UK132, L24UK133, L24UK152, L24UK157, T24UK10, T24UK11, T24UK12, T24UK13	18UB7
		C24UK11B, C24UK12B, C24UK13B, C24UK142B, C24UK145B, L24UK131B, L24UK132B, L24UK133B, L24UK152B, L24UK157B, T24UK10B, T24UK11B, T24UK12B, T24UK13B	18UB7B
MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Illinois		
TYPE SET	Television Receiver		
TUBES	VHF - Sixteen, UHF - Seventeen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle		
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		
		RATING	VHF - 165 Watts, 1.45 Amp. @ 117 Volts AC

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

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

FUSE DEVICE

A Circuit Breaker is used for low voltage power supply protection, and may be reset by depressing the reset button. (For location, see "Tube Placement Chart".)

TUNER OSCILLATOR ADJUSTMENT

To touch up the VHF Oscillator, remove Channel Selector Knob.

AGC

The AGC may be varied by means of an AGC Control. (For

location, see "Tube Placement Chart".)

FOCUS

The focus may be varied by connecting the lead from pin 4 of the picture tube to various voltage points. (For location, see photo "Cabinet - Rear View".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Range. (For further information, see back page for "Horizontal Sweep Circuit Adjustments".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



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ADMIRAL CHASSIS 18B7, B, 18UB7, B

SET 505

FOLDER 1

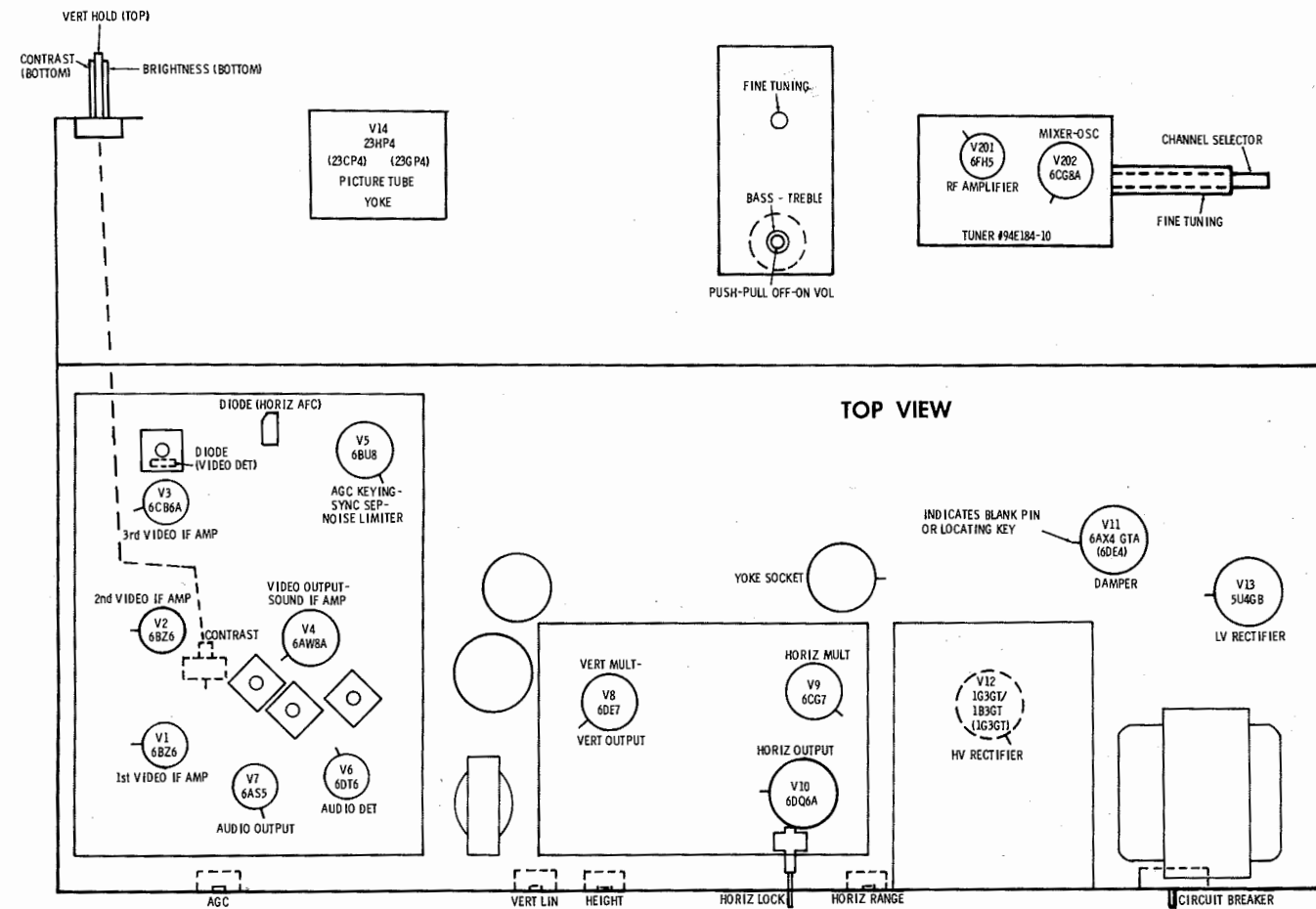


# RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	150K	47Ω	0Ω	.1Ω	▲470Ω	▲470Ω	0Ω		
V2	6BZ6	150K	170K	.1Ω	0Ω	†555Ω	†555Ω	170K		
V3	6CB6A	0Ω	150Ω	.1Ω	0Ω	■470Ω	■470Ω	0Ω		
V4	6AW8A	0Ω	100K	■45K	0Ω	.1Ω	0Ω	3400Ω	†30K	†5000Ω
V5	6BU8	■0Ω	†8200Ω	2.3meg	0Ω	.1Ω	●†30K	†1meg	†47K	†12meg
V6	6DT6	15Ω	680Ω	.1Ω	0Ω	†780K	■8200Ω	560K		
V7	6AS5	†	550K	0Ω	.1Ω	NC	†300Ω	†525Ω		
V8	6DE7	†700Ω	NC	1.5meg	0Ω	.1Ω	●†4.4meg	750K	●220K	●800Ω
V9	6CG7	†10K	2.5meg	1100Ω	.1Ω	0Ω	†82K	●52K	1100Ω	0Ω
V10	6DQ6A	NC	0Ω	NC	†15K	1meg	NC	.1Ω	0Ω	TOP CAP †9Ω
V11	6AX4GTA	NC	NC	†	NC	†85Ω	NC	.1Ω	0Ω	
V12	1G3GT 1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †420Ω
V13	5U4GB	NC	†	NC	33Ω	NC	30Ω	NC	†	
V14	23HP4	.1Ω	39K	†3.3meg	†100K	NC	NC	●95K	0Ω	
V201	6FH5	47Ω	4.8meg	0Ω	.1Ω	†9200Ω	0Ω	47Ω		
V202	6CG8A	4700Ω	■7000Ω	0Ω	0Ω	.1Ω	■3200Ω	■2200Ω	0Ω	225K

- † THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.  
 ● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.  
 † MEASURED FROM PIN 8 OF V13.  
 † MEASURED FROM PIN 3 OF V11.  
 NC NO CONNECTION
- MEASURED FROM 140V SOURCE.  
 ▲ MEASURED FROM PIN 7 OF V2.

# TUBE PLACEMENT CHART



ADMIRAL CHASSIS  
18B7, B, 18UB7, B

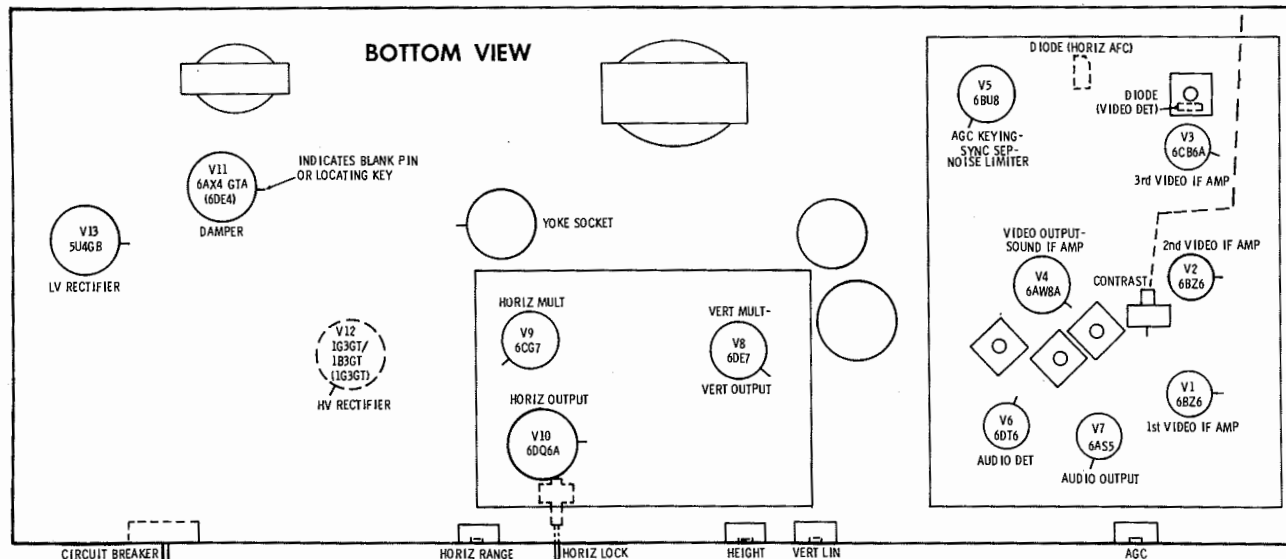
# TUBE FAILURE CHECK CHART

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.

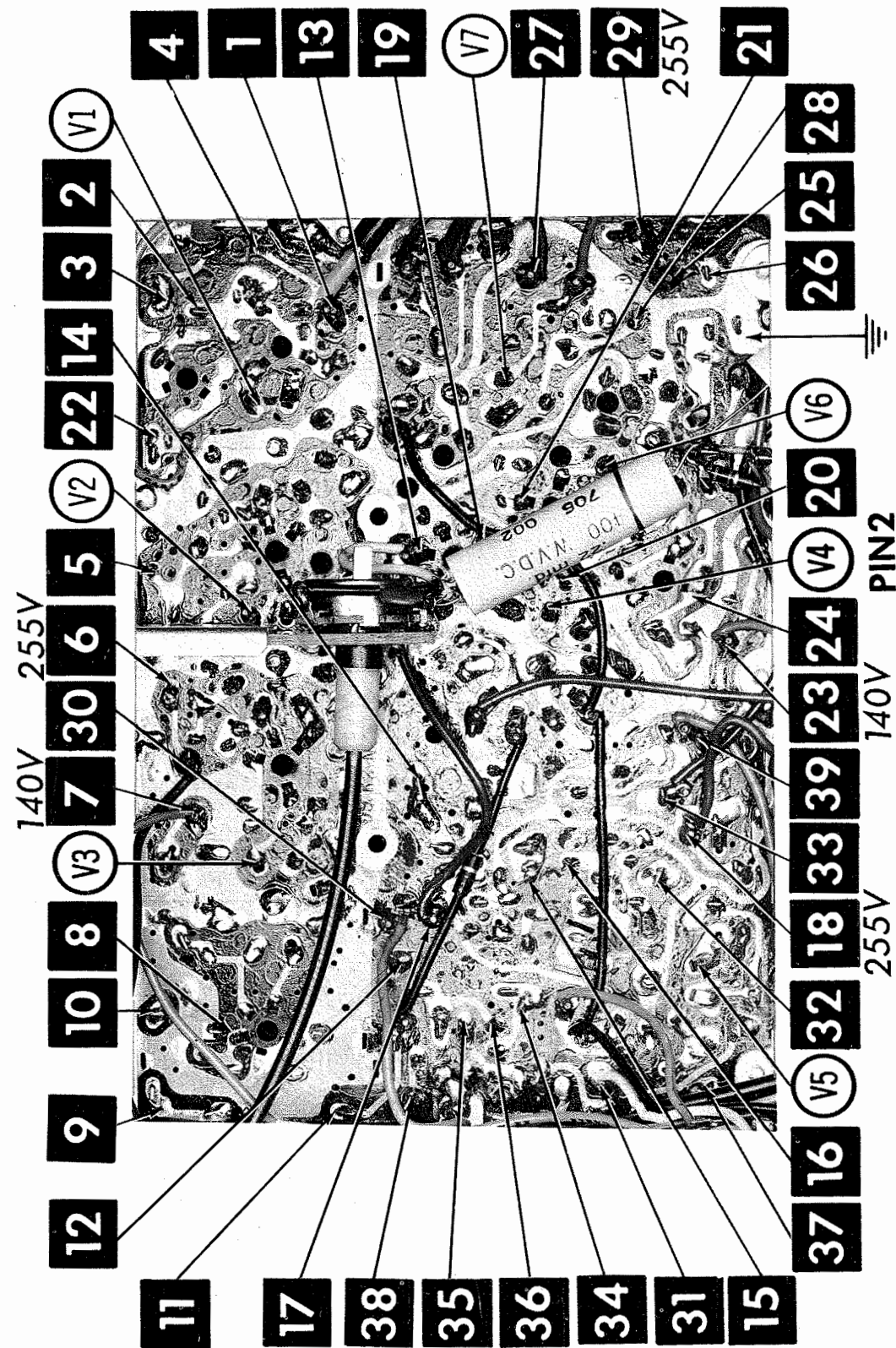
- POWER SUPPLY FAILURE**  
 No raster, no sound Circuit Breaker, V13
- SWEEP FAILURE**  
 No raster, has sound V9, V10, V11, V12, V14  
 No vertical deflection V8  
 Poor vert. linearity or foldover V8  
 Poor horiz. linearity or foldover V9, V10, V11  
 Narrow picture V9, V10, V11, V13  
 Vert. off freq. V8  
 Horiz. off freq. Diode (Horiz. AFC), V9
- LOSS OF PICTURE OR SOUND**  
 No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4  
 No pic, no sound, has snow V201, V202, V1  
 No pic, has sound, has raster V4, V14  
 Has pic, no sound V4, V6, V7  
 Overloaded picture V5
- SYNC FAILURE**  
 No vert. sync V5  
 No horiz. sync Diode (AFC), V5  
 No vert. or horiz. sync V5

FOLDER 1

# BOTTOM VIEW



# TUBE PLACEMENT CHART

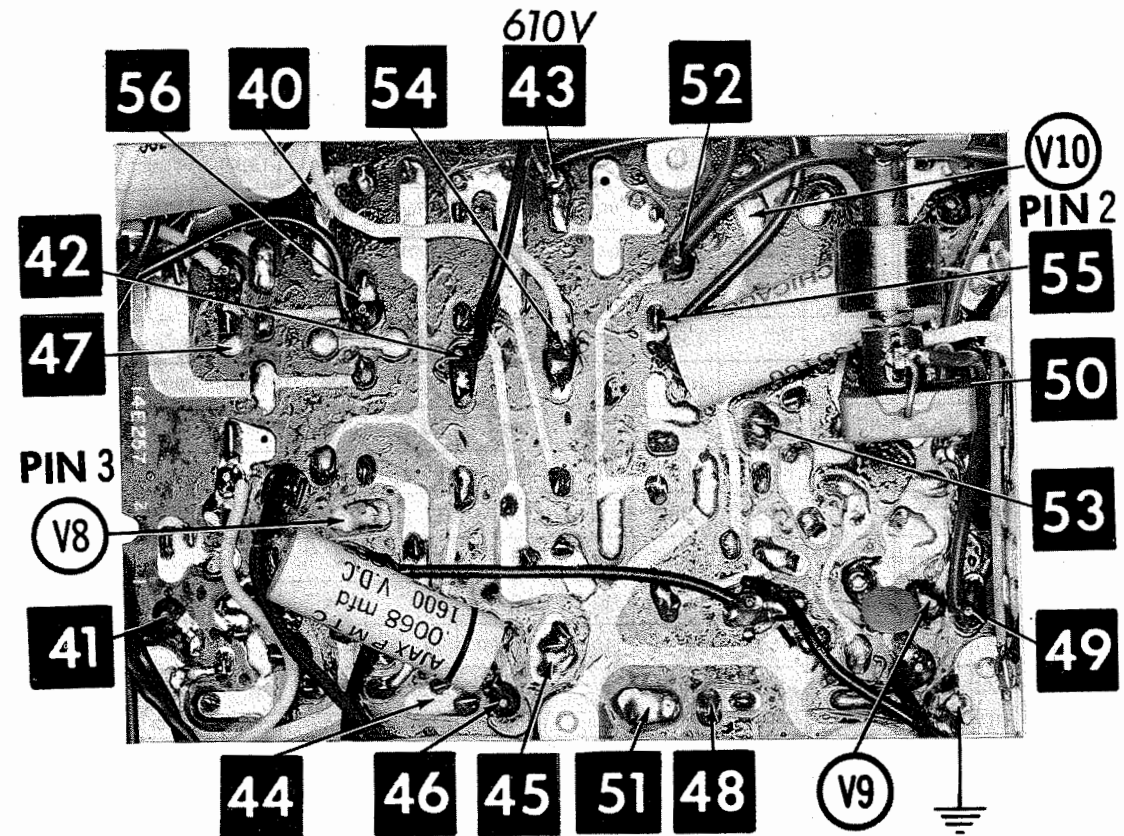


A Howard W. Sams **CIRCUITRACE** Photo

MAIN PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

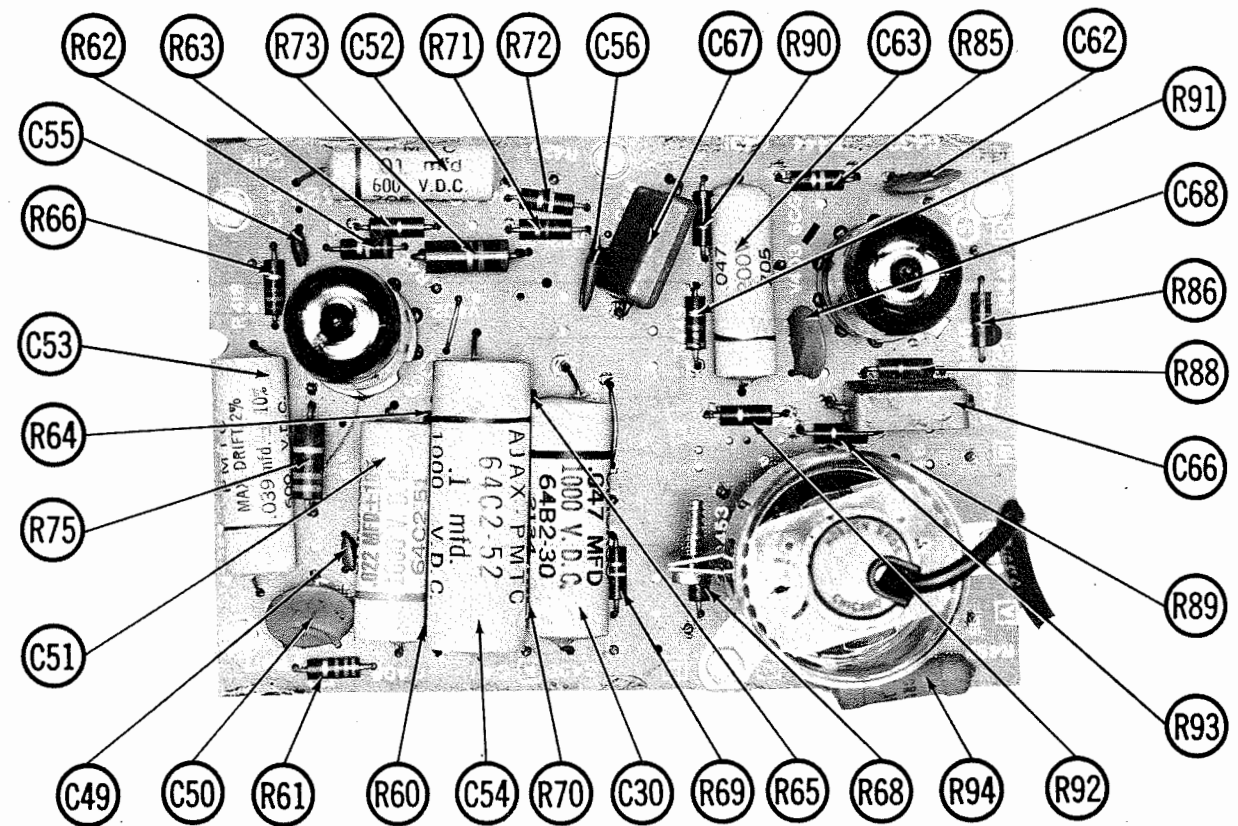
CircuiTrace Numbers 40 thru 56



A Howard W. Sams **CIRCUITRACE** Photo

SWEEP PRINTED BOARD

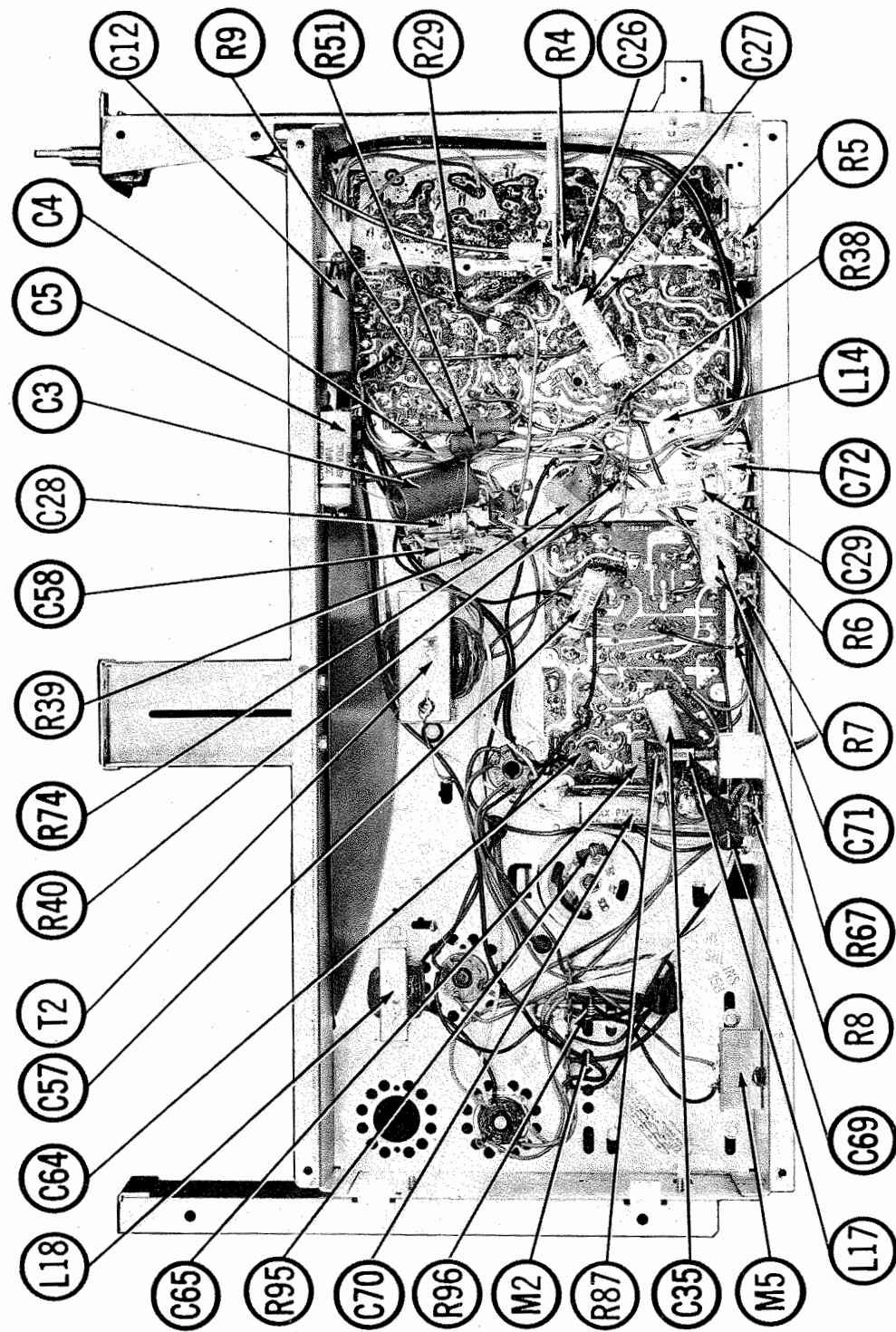
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



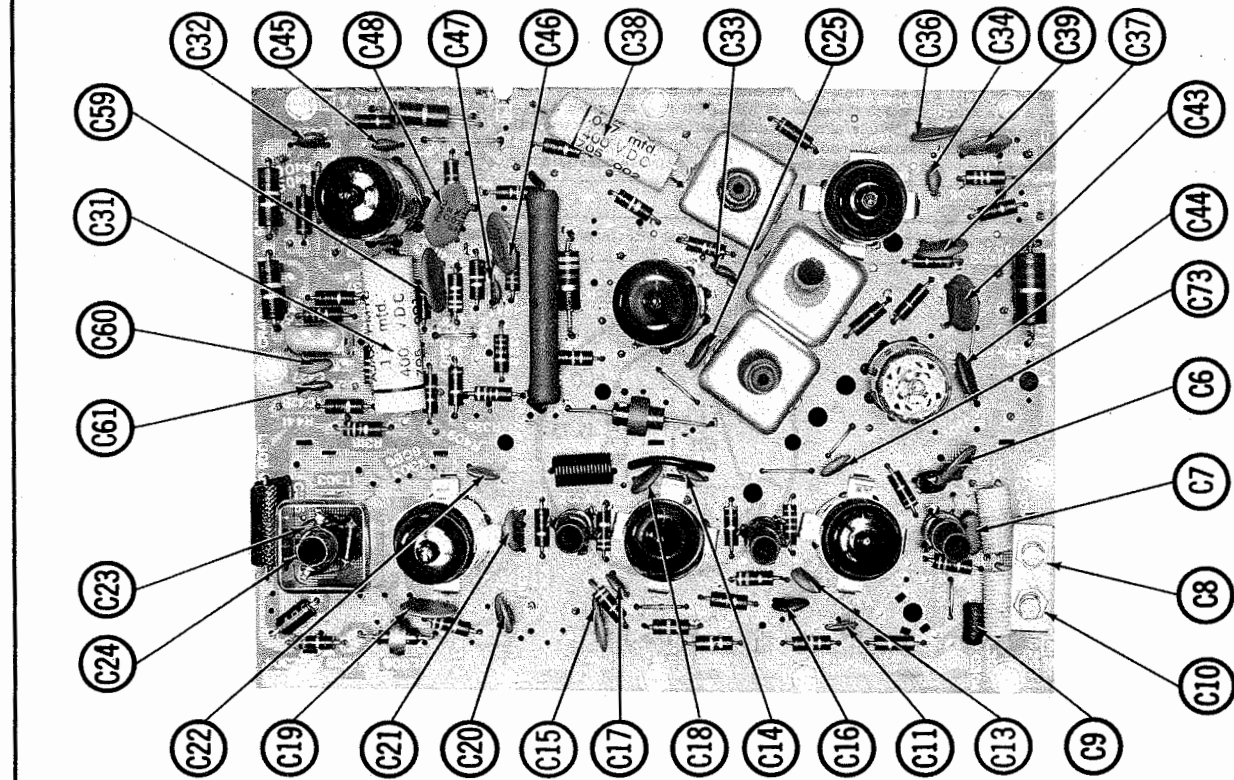
SWEEP PRINTED BOARD - CAPACITOR & RESISTOR IDENT.

ADMIRAL CHASSIS  
18B7, B, 18UB7, B

FOLDER 1

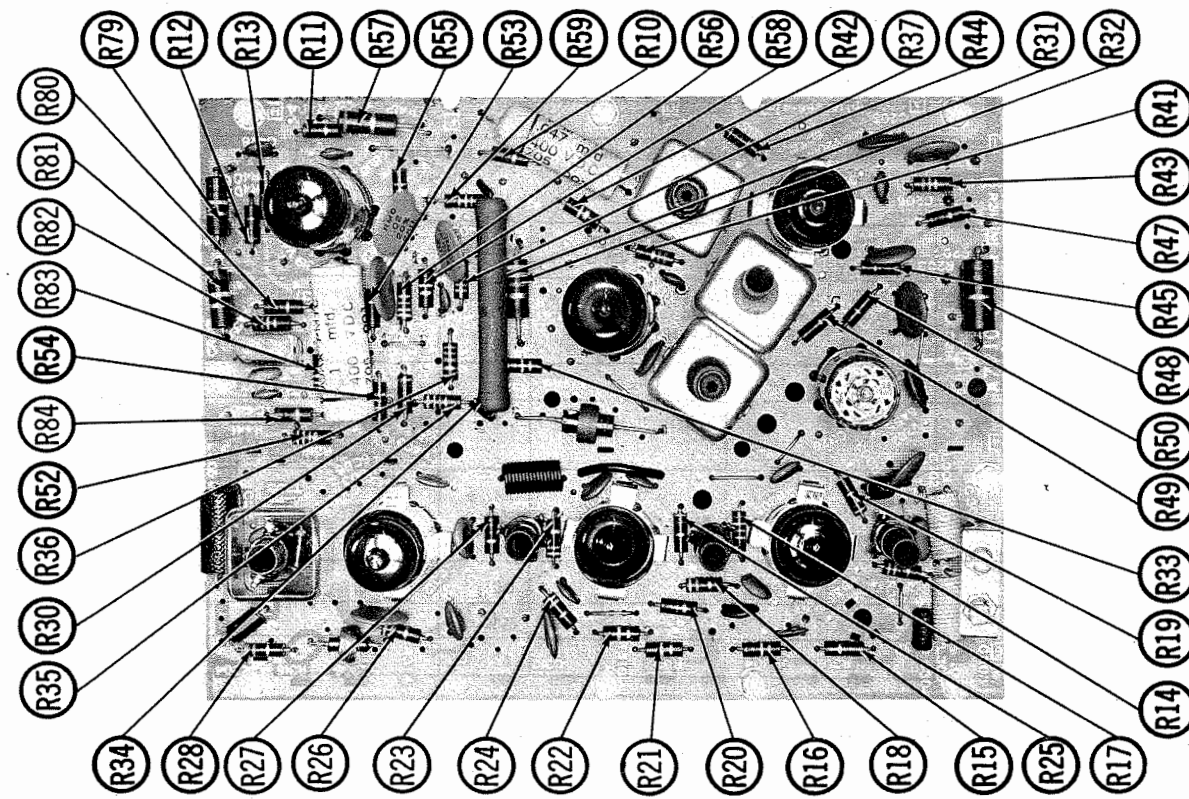


CHASSIS - BOTTOM VIEW



MAIN PRINTED BOARD-CAPACITOR IDENT.

FOLDER 1



MAIN PRINTED BOARD-RESISTOR IDENT.

ADMIRAL CHASSIS  
18B7, B, 18UB7, B

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

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.  
Suggested Alignment Tools: GENERAL CEMENT #8606, 8606L, 8282, 8285  
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point  $\diamond$  thru a 10K resistor. Positive to chassis.  
Connect a jumper across the antenna terminals.  
Connect a 270mmf capacitor across the VTVM leads.  
Set Contrast control fully clockwise.

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.	41.25 MC (Unmod)	Any non-interfering channel	DC probe thru 47K to point $\diamond$ . Common to chassis. (Across Video Det. load)	A1	Use high generator output. Adjust for MINIMUM deflection.
2. "	"	47.25MC	"	"	A2	"
3. "	"	42.3MC	"	"	A3	Use only enough generator output to provide a usable indication on VTVM. Adjust for maximum deflection.
4. "	"	45.3MC	"	"	A4, & Mixer Plate Coil	"
5. "	"	41.5MC	"	"	A5	"
6. "	"	42.0MC	"	"	A6	"
7. "	"	43.5MC	"	"	A7	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the negative lead of a 3 volt bias supply to point  $\diamond$ . Positive to chassis.  
Set Contrast fully clockwise.  
If an external marker is used, couple loosely to sweep generator lead.  
Connect a 270mmf capacitor across the scope leads.

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.	43MC (10MC Swp)	41.25MC 42.0MC 43.5MC 45.0MC 45.75MC 47.25MC	Any non-interfering channel	Vert. Amp. thru 47K to point $\diamond$ . Low side to chassis. (Across Video Det. load)		Check for response similar to Fig. 1 with markers as shown. If necessary, retouch Mixer Plate Coil to position 45.75 MC marker and A7 to position 43.5MC marker and to correct shape of curve.

SOUND IF ALIGNMENT

Tune in the strongest TV station available in the area. Adjust the set for normal operation.  
Turn A8 slowly counterclockwise until a buzz is heard in the sound, then turn clockwise for maximum undistorted sound. (There may be two points approximately 1/2 turn apart at which the sound is loud. Set slug at center range of second loud point as slug is turned clockwise).  
Reduce the signal at the antenna terminals (by use of an adjustable attenuator or disconnecting the antenna) until a strong hiss is heard in the sound. Carefully adjust A9 and A10 for maximum undistorted sound with MINIMUM hiss. If the hiss disappears during alignment, reduce the signal more until the hiss returns and readjust A9 and A10. If the sound is unsatisfactory, repeat procedure.

4.5MC TRAP ALIGNMENT

Adjust A11 for MINIMUM 4.5MC beat pattern in the picture. (4.5MC beat interference appears as a very fine crosshatch pattern on the screen.)

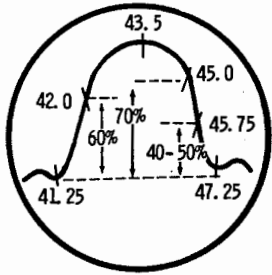
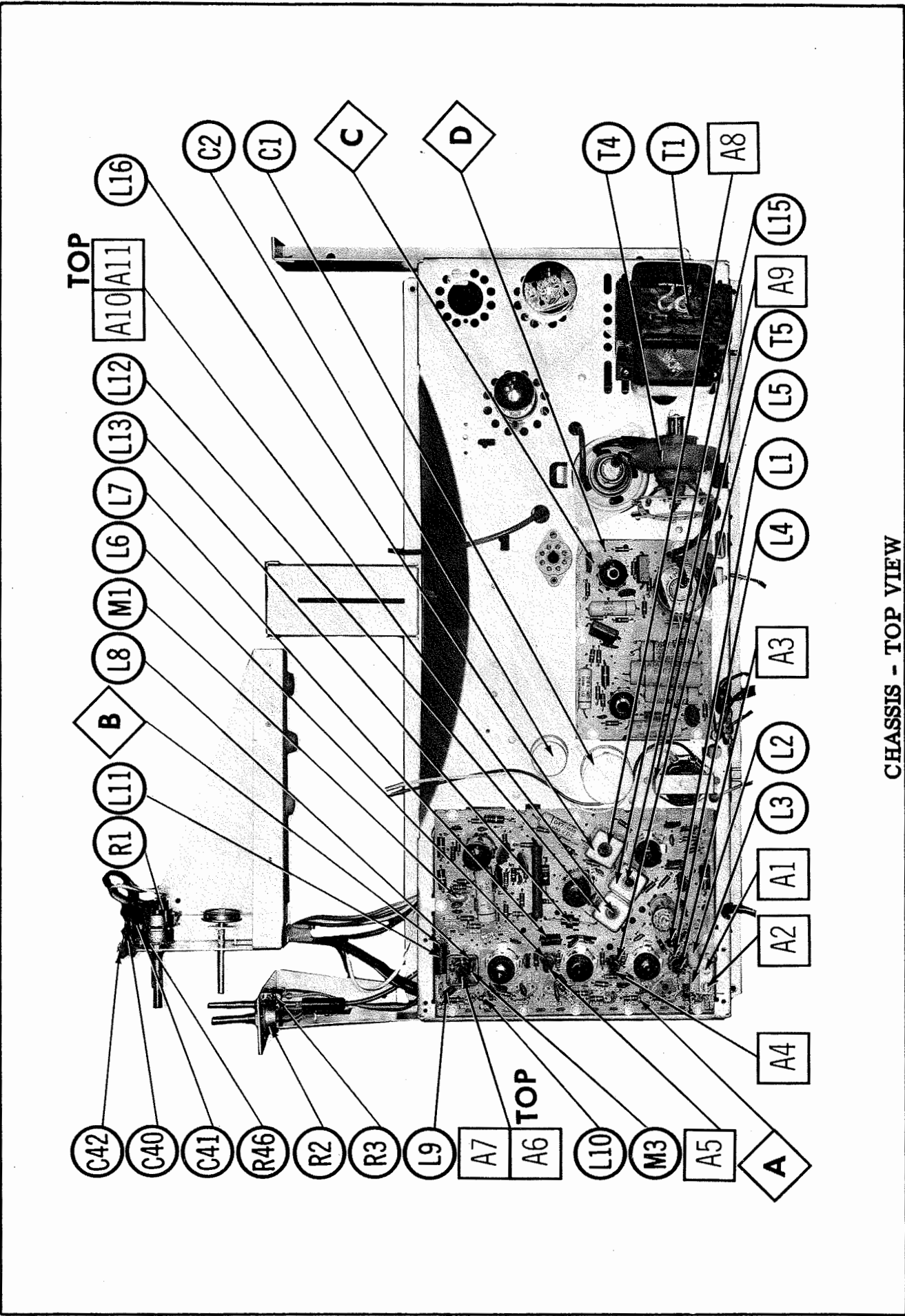
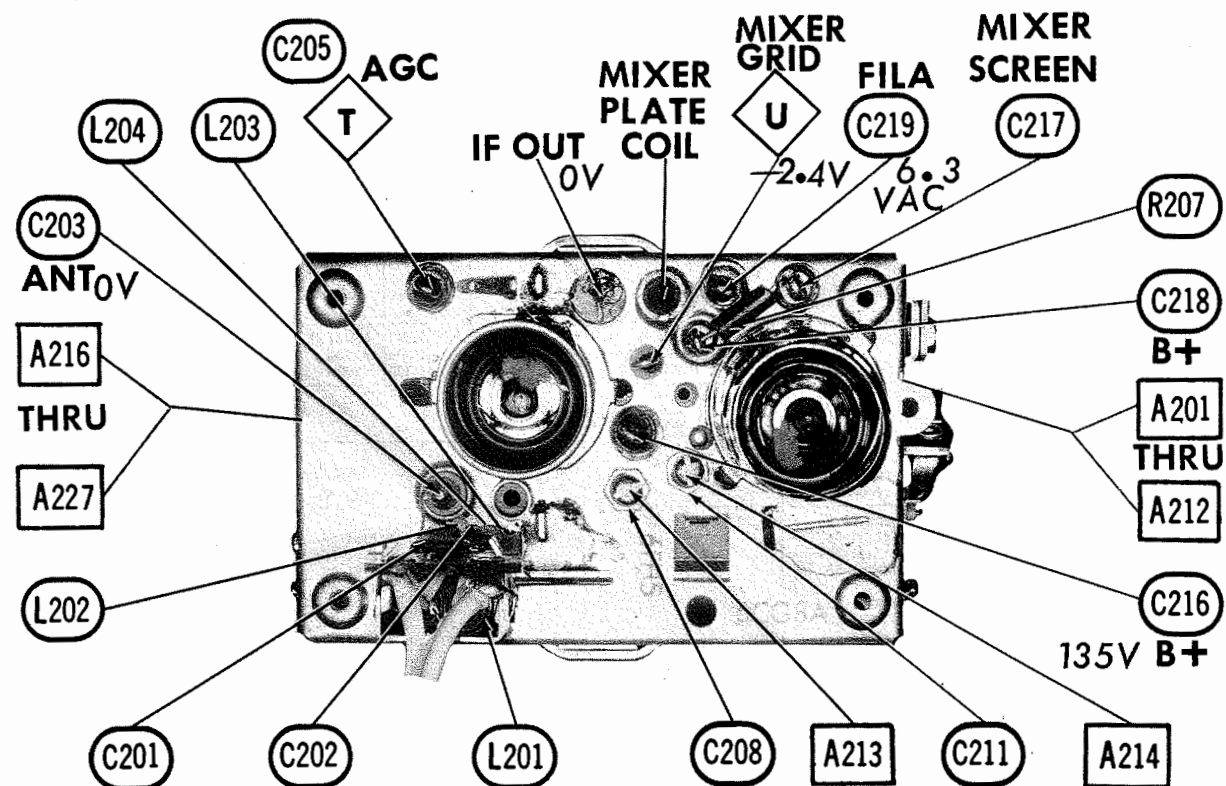


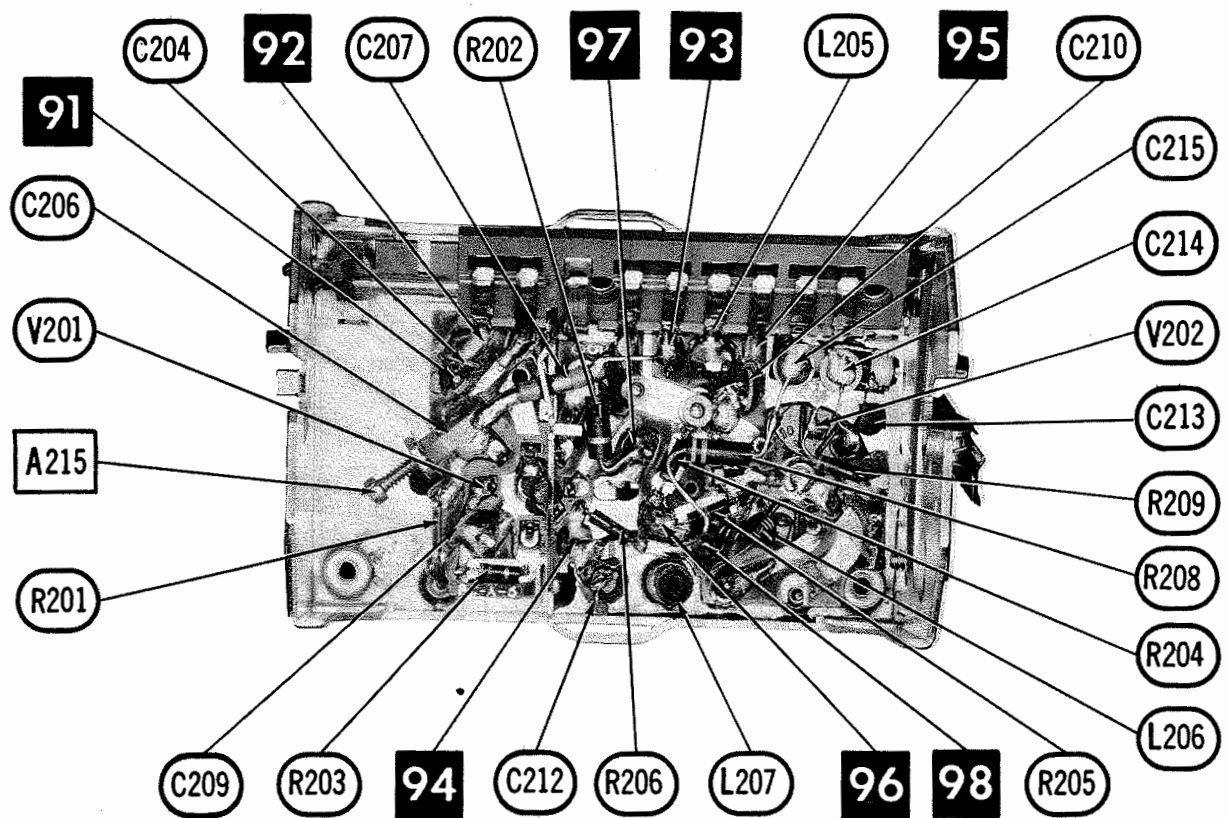
FIG.1



ADMIRAL CHASSIS  
18B7, B, 18UB7, B  
WELA POL - SISSEHCH



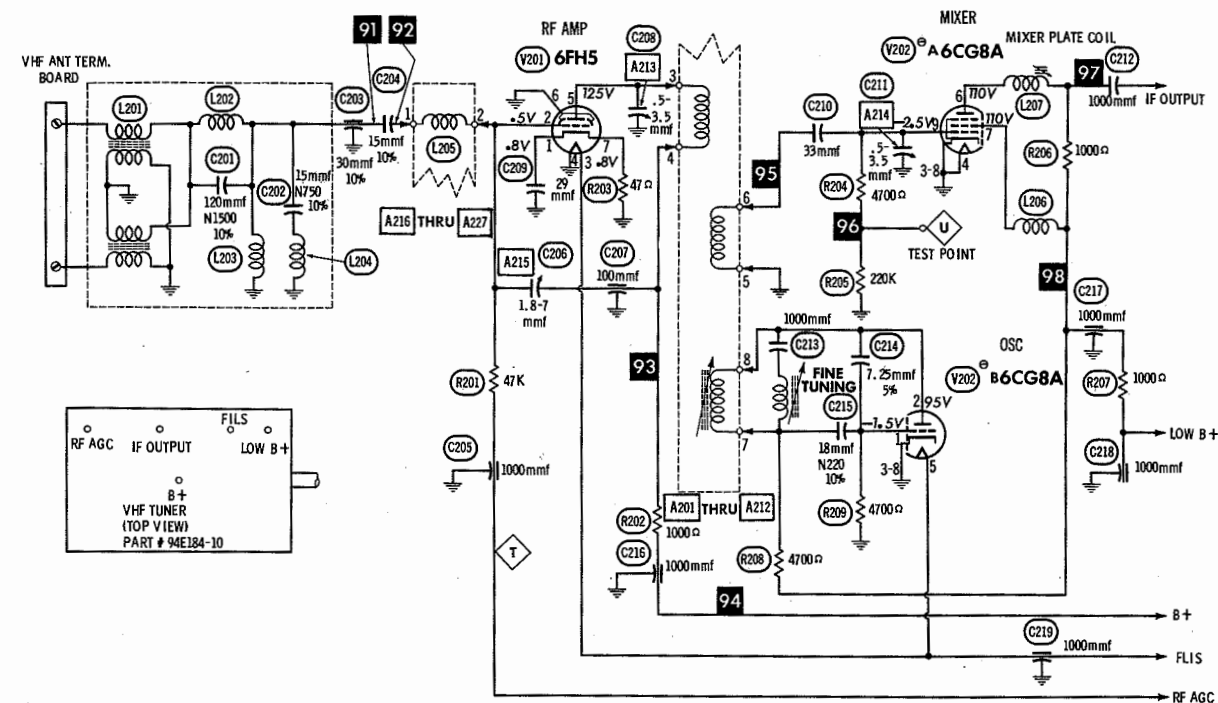
VHF TUNER 94E184-10-TOP VIEW



VHF TUNER 94E184-10  
BOTTOM VIEW

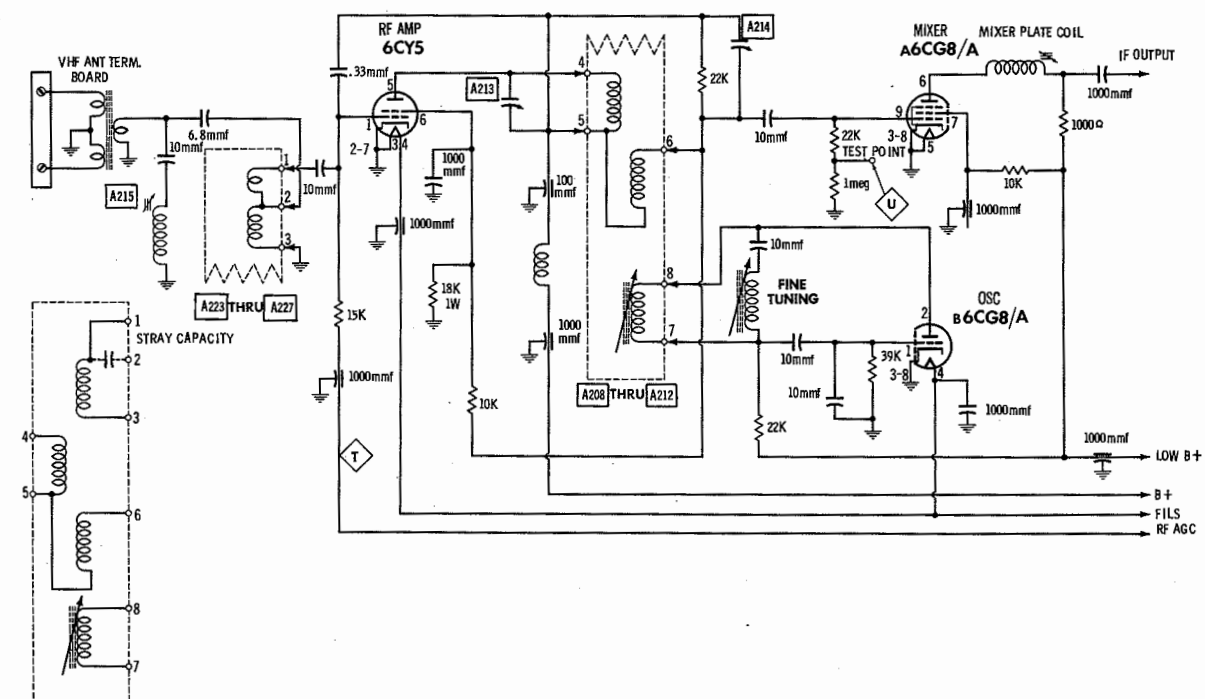
ARROWS INDICATING TUBE LOCATIONS ARE  
POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

A Howard W. Sams CIRCUITRACE Photo



A PHOTOFACT STANDARD NOTATION SCHEMATIC  
with CIRCUITRACE  
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VHF TUNER 94E184-10



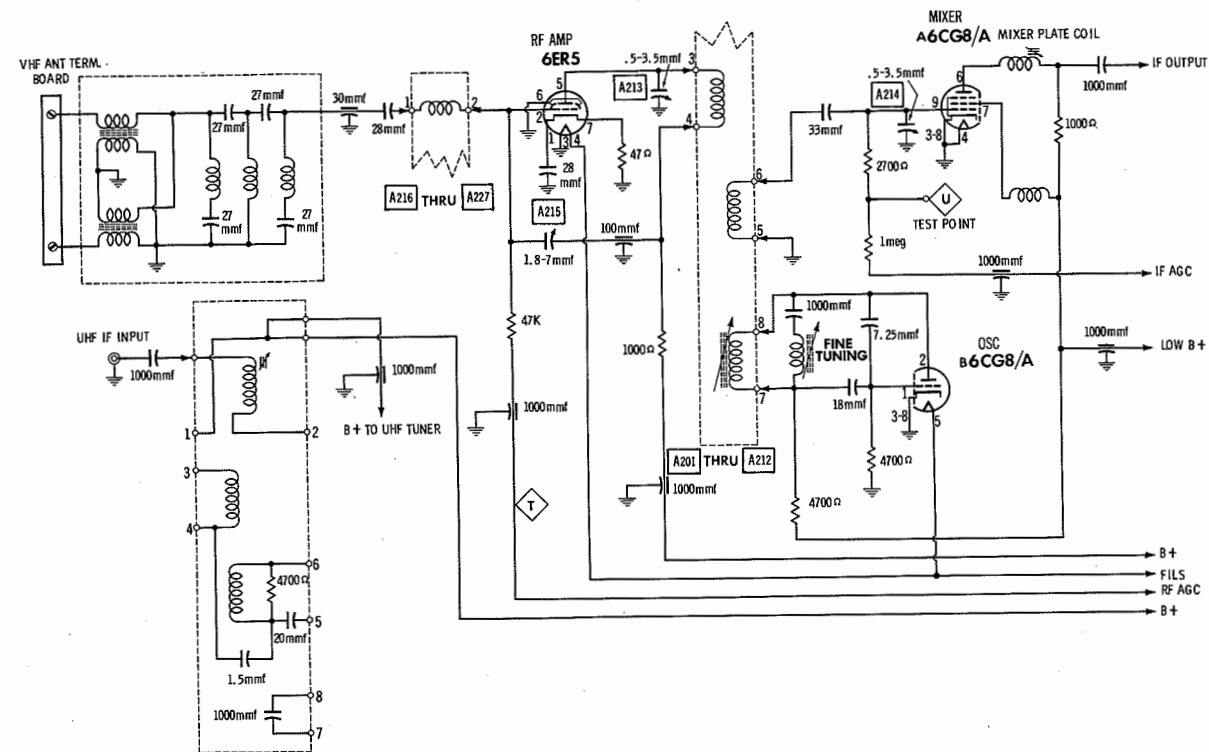
A PHOTOFACT STANDARD NOTATION SCHEMATIC  
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VHF TUNER 94E188-1

SET 505 FOLDER 1

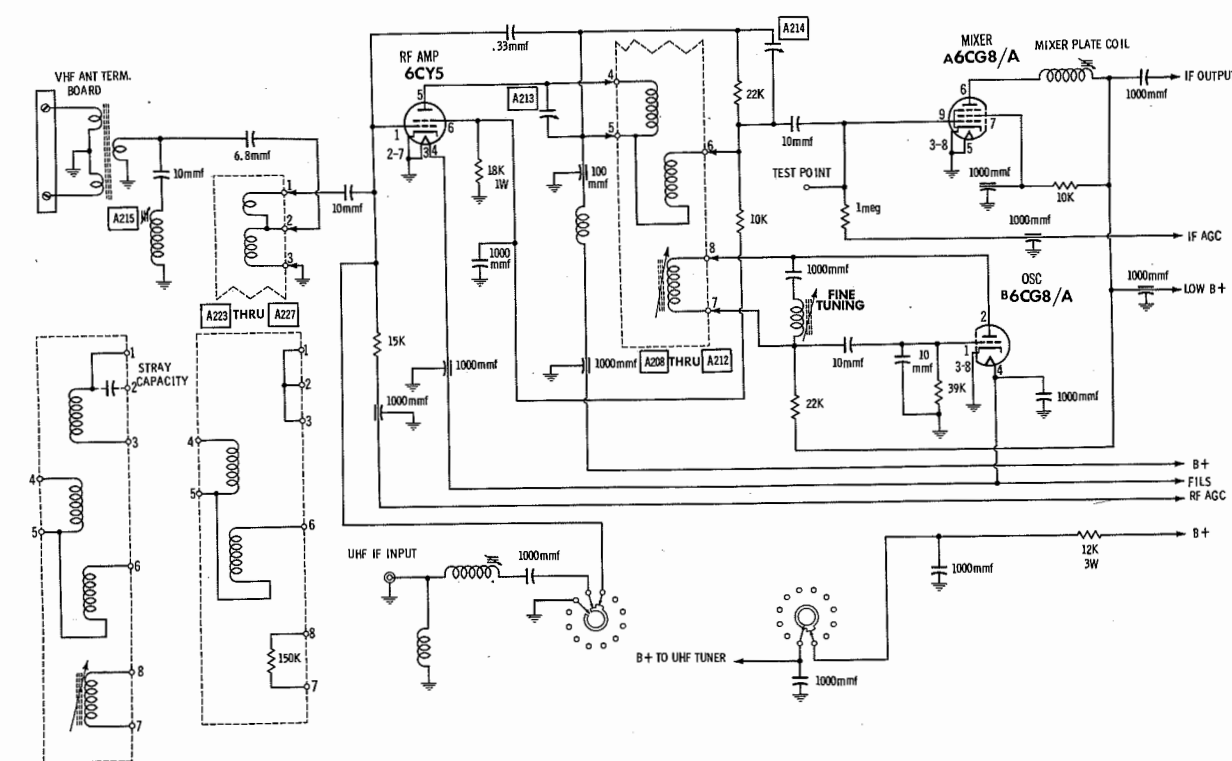
ADMIRAL CHASSIS  
18B7, B, 18UB7, B

FOLDER 1



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### VHF TUNER with UHF PROVISIONS-94E164-11



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### VHF TUNER with UHF PROVISIONS-94E188-2

## TUNER PARTS LIST AND DESCRIPTIONS (Continued)

### FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.
C215	18 N220 10%	Pt. #94E184-101	EF-001	MFT-1000		* CCF-102	CT280A
C216	1000		EF-001	MFT-1000		CCF-102	CT280A
C217	1000		EF-001	MFT-1000		CCF-102	CT280A
C218	1000		EF-001	MFT-1000		CCF-102	CT280A
C219	1000		EF-001	MFT-1000		CCF-102	CT280A

\* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

### RESISTORS (IRC or EQUIVALENT)

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

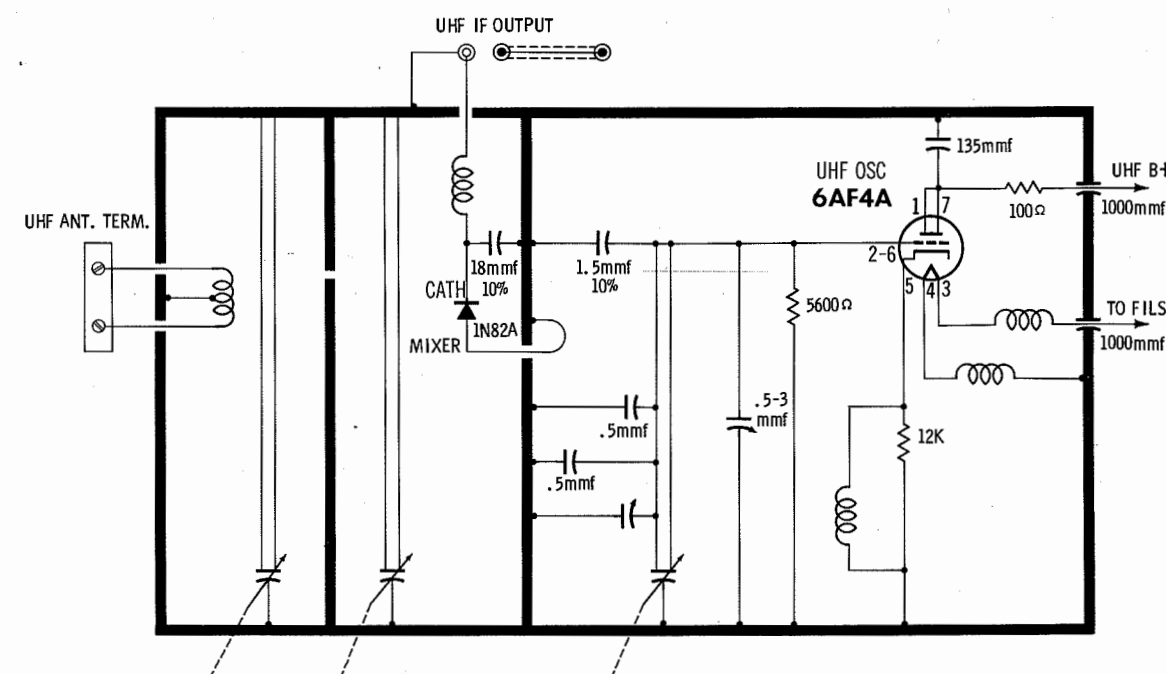
ITEM No.	RATING	REMARKS	ITEM No.	RATING	REMARKS	ITEM No.	RATING	REMARKS
R201	47K		R204	4700Ω		R207	1000Ω	
R202	1000Ω		R205	220K		R208	4700Ω	
R203	47Ω		R206	1000Ω		R209	4700Ω	

### COILS (RF-IF)

ITEM No.	USE	ADMIRAL PART No.	NOTES	ITEM No.	USE	ADMIRAL PART No.	NOTES
L201	Ant. Trans.	700B189		L205	Ant., RF, Mixer and Osc. Coils	94E184-57	Channel 7
L202	Trap Coil	94E184-66		G	"	94E184-58	Channel 8
L203	Trap Coil	94E184-64		H	"	94E184-59	Channel 9
L204	Trap Coil	94E184-65		I	"	94E184-60	Channel 10
L205	Ant., RF, Mixer and Osc. Coils	94E184-52	Channel 2	J	"	94E184-61	Channel 11
A	"	94E184-53	Channel 3	K	"	94E184-62	Channel 12
B	"	94E184-54	Channel 4	L	"	94E184-63	Channel 13
C	"	94E184-55	Channel 5				
D	"	94E184-56	Channel 6				
E	"						

### MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
	Shaft and Cam Assembly	94E184-83	Fine Tuning
	Shaft and Coil Support Assembly	94E184-85	



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### UHF TUNER 94D162-6

ADMIRAL CHASSIS  
18B7, B, 18UB7, B

FOLDER 1

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M4	Tuner	94E184-10	VHF, STANDARD COIL REPLACEMENT Part #GG-4220A, Used in Chassis 18B7
	Tuner	94E188-1	VHF, Used in Chassis 18B7
	Tuner	94E184-11	VHF with UHF Provisions, Used in Chassis 18UB7
	Tuner	94E188-2	VHF with UHF Provisions, Used in Chassis 18UB7B
	Tuner	94B162-6	UHF, Used in all "U" Models
M5	Circuit Breaker	84B17-2	
	Printed Board	A7710-1	Main Board, Chassis 18B7 and 18UB7
	Printed Board	A7713-5	Sweep Board, Chassis 18B7 and 18UB7

CABINETS & CABINET PARTS

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

NAME	PART NO.	DESCRIPTION
Knob	20C32-1	Channel Selector, VHF
Knob	33C355-2	Channel Selector, UHF
Knob	20C40-1	Fine Tuning (VHF), Vertical Hold
Knob	20C32-2	Fine Tuning (UHF)
Knob	20C40-2	Volume, Brightness
Knob	33B289-1	Contrast, Tone (Bass, Treble)
Spring	18A5-7	Knob, UHF Channel Selector
Spring	18A103-1	Knob, VHF Channel Selector, UHF Fine Tuning
Spring	18A244-1	Knob, VHF Fine Tuning, Vertical Hold, Volume, Brightness
Cabinet	35E590-1	Walnut, Models C24K11, C24K11B, C24UK11, C24UK11B
Cabinet	35E590-2	Mahogany, Models C24K12, C24K12B, C24UK12, C24UK12B
Cabinet	35E590-3	Blond, Models C24K13, C24K13B, C24UK13, C24UK13B
Cabinet	35E591-2	Mahogany, Models C24K14, C24K14B, C24UK14, C24UK14B
Cabinet	35E591-5	Maple, Models C24K15, C24K15B, C24UK15, C24UK15B
Cabinet	35E592-1	Walnut, Models L24K131, L24K131B, L24UK131, L24UK131B
Cabinet	35E592-2	Mahogany, Models L24K132, L24K132B, L24UK132, L24UK132B
Cabinet	35E592-3	Blond, Models L24K133, L24K133B, L24UK133, L24UK133B
Cabinet	35E593-2	Mahogany, Models L24K152, L24K152B, L24UK152, L24UK152B
Cabinet	35E593-7	Fruitwood, Models L24K157, L24K157B, L24UK157, L24UK157B
Cabinet	34E153-1	Charcoal, Models T24K110, T24K110B, T24UK110, T24UK110B
Cabinet	34E153-2	Bronze, Models T24K111, T24K111B, T24UK111, T24UK111B
Cabinet	34E153-3	Mahogany, Models T24K112, T24K112B, T24UK112, T24UK112B
Cabinet	34E153-4	Blond, Models T24K113, T24K113B, T24UK113, T24UK113B
Leg	35E592-51	Cabinet, Models L24K131, L24K131B, L24UK131, L24UK131B
Leg	35E592-52	Cabinet, Models L24K132, L24K132B, L24UK132, L24UK132B
Leg	35E592-53	Cabinet, Models L24K133, L24K133B, L24UK133, L24UK133B
Leg	35E590-51	Cabinet, Models C24K11, C24K11B, C24UK11, C24UK11B
Leg	35E590-52	Cabinet, Models C24K12, C24K12B, C24UK12, C24UK12B
Leg	35E590-53	Cabinet, Models C24K13, C24K13B, C24UK13, C24UK13B

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

TUNER PARTS LIST AND DESCRIPTIONS 94E184-10

TUBES

GENERAL ELECTRIC			RAYTHEON			SYLVANIA		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	6FH5	V202	Mixer - Osc.	6CG8A (6CG8) *			

\* Alternate

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	REMARKS	REPLACEMENT DATA						
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBIER PART No.	ELMENCOPART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	120 N1500 10%	Pt. #65D10-136							
C202	15 N750 10%								
C203	30 10%	Pt. #94E184-94							
C204	15 10%								
C205	1000 10%								
C206	1.8-7	Pt. #94E184-97							
C207	100								
C208	5-3.5								
C209	25								
C210	33								
C211	5-3.5								
C212	1000								
C213	1000								
C214	7.25 5%	Pt. #94E184-102							

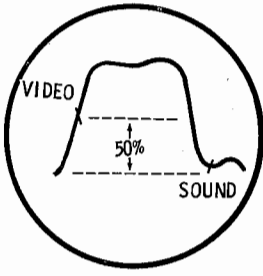
TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

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.  
Suggested Alignment Tools: A201 thru A212 ... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987  
WALSCO #2531  
A213 thru A215 .... GENERAL CEMENT #5000, 5003, 8276, 8290  
WALSCO #2512, 2525

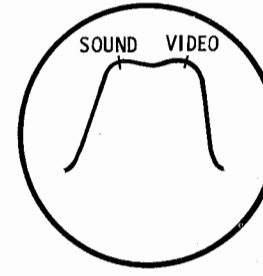
VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.  
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.  
Set the Fine Tuning to the center of its range.  
Use only enough sweep generator output to provide a usable pattern on scope.  
Use 10MC sweep unless otherwise noted.  
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.

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.	213MC	211. 25MC 215. 75MC	13	Vert. Amp. thru 47K across Video Det. load.	A201	Adjust to place sound marker in trap notch as in Fig. 201. Video marker should fall at 50%. 
		207MC	205. 25MC 209. 75MC	12		A202	
		201MC	199. 25MC 203. 75MC	11		A203	
		195MC	193. 25MC 197. 75MC	10		A204	
		189MC	187. 25MC 191. 75MC	9		A205	
		183MC	181. 25MC 185. 75MC	8		A206	
		177MC	175. 25MC 179. 75MC	7		A207	
		85MC	83. 25MC 87. 75MC	6		A208	
		79MC	77. 25MC 81. 75MC	5		A209	
		69MC	67. 25MC 71. 75MC	4		A210	
		63MC	61. 25MC 65. 75MC	3		A211	
		57MC	55. 25MC 59. 75MC	2		A212	

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.  
The 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.  
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.  
Connect the negative lead of a 4.5 volt bias supply to point Ⓢ. Positive to chassis.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
2. Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193. 25MC 197. 75MC	10	Vert. Amp. thru 10K to point Ⓢ. Low side to chassis.	A213, A214, A215	Adjust A213 and A214 for maximum amplitude and symmetry with markers as shown in Fig. 202. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A215 to obtain MINIMUM response on the scope. Reduce bias. 
3. "	"	213MC	211. 25MC 215. 75MC	13	"	A216	Adjust for maximum amplitude of response similar to Fig. 202. Adjust by expanding or compressing coil turns.
		207MC	205. 25MC 209. 75MC	12		A217	
		201MC	199. 25MC 203. 75MC	11		A218	
		195MC	193. 25MC 197. 75MC	10		A219	
		189MC	187. 25MC 191. 75MC	9		A220	
		183MC	181. 25MC 185. 75MC	8		A221	
		177MC	175. 25MC 179. 75MC	7		A222	
		85MC	83. 25MC 87. 75MC	6		A223	
		79MC	77. 25MC 81. 75MC	5		A224	
		69MC	67. 25MC 71. 75MC	4		A225	
		63MC	61. 25MC 65. 75MC	3		A226	
		57MC	55. 25MC 59. 75MC	2		A227	

## PARTS LIST AND DESCRIPTIONS

## TUBES

GENERAL ELECTRIC			RAYTHEON			SYLVANIA		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	1st Video IF Amp.	6BZ6	V7	Audio Output	6AS5			
V2	2nd Video IF Amp.	6BZ6	V8	Vert. Mult. -				
V3	3rd Video IF Amp.	6CB6A	V9	Vert. Output	6DE7			
V4	Video Output -		V10	Horiz. Mult.	6CG7			
	Sound IF Amp.		V11	Horiz. Output	6DQ6A			
V5	AGC Keying - Sync Sep. -	6AW8A	V12	Damper	6AX4/GTA (6DE4) *			
	Noise Limiter		V13	HV Rectifier	IG3GT/IB3GT (IG3GT) *			
V6	Audio Det.	6BU8		LV Rectifier	5U4GB			

\*Alternate

## PICTURE TUBE

REPLACEMENT DATA						NOTES
ITEM No.	ADMIRAL PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
V14	23HP4 23CP4 23GP4		23CP4 ①		23CP4 ② 23CP4 ③	① Aluminized ② Silver Screen "85"

## ELECTROLYTIC CAPACITORS

RATING		REPLACEMENT DATA							NOTES
ITEM No.	CAP.	VOLT.	ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
CLA	40	350	87D15-344	AFHS3-29-87	B0332	FP227.7	TMD-2435	TVL-2641	
B	100	350			BR4035	TC78	TD-40-350	TVA-1611	
C	100	350							
CA	100	200	87D15-332	AFH3-84-60	B0576	FP217.8	TMD-2280	TCL-2561	
B	100	200			BR435	TC3501	TD-100-50	TVA-1310	
C	100	50							
C3	40	200	87A4-21	PRSI580	BR4025	TC55	TD-40-250	TVA-1511	

## FIXED CAPACITORS

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

RATING		REMARKS	REPLACEMENT DATA						
ITEM No.	CAP.		AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCOPART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	10000		BPD-01	DD-103	BYA1081	CCD-103	B-110	5HK-S10	
C5	.22	400V	P488N-22		CUB4P22	4DP-5-224	GEM-4022	4TM-P22	
C6	39	NPO		DTZ-39	C10Q39C	CCCTO-390	CNO-439	10TCC-Q39	
C7	23	NPO		TCZ-23	C10Q24C				
C8	3-13	N220							
C9	15	NPO		TCZ-15					
C10	3-13	N220							
C11	820		DI-820	DD-821	BYA10T82	CCD-821	B-382	10TS-T82	
C12	1.0	100V	P288N-1.0		CUB2W1	1DP-5-105	GEM-21	2TM-M1	
C13	820		DI-820	DD-821	BYA10T82	CCD-821	B-382	10TS-T82	
C14	820		DI-820	DD-821	BYA10T82	CCD-821	B-382	10TS-T82	
C15	2200		BPD-0022	DD-222	BYA10D22	CCD-222	B-222	5HK-D22	
C16	820		DI-820	DD-821	BYA10T82	CCD-821	B-382	10TS-T82	
C17	820		DI-820	DD-821	BYA10T82	CCD-821	B-382	10TS-T82	
C18	820		DI-820	DD-821	BYA10T82	CCD-821	B-382	10TS-T82	
C19	560	N3300 5%							
C20	820		DI-820	DD-821	BYA10T82	CCD-821	B-382	10TS-T82	
C21	5000		BPD-005	DD-503	BYA10D5	CCD-503	B-250	5HK-D50	
C22	820		DI-820	DD-821	BYA10T82	CCD-821	B-382	10TS-T82	
C23	3.3	NPO ±.25mmf	NPO-SI 3.3	DTZ-3R3	C10V33C	CCCTO-3 R3	CNO-533	10TCC-V33	
C24	6.8	10%	NPO-SI 6.8	TCZ-6R8	C10V68C	CCCTO-6R8	CNO-568	10TS-V68	
C25	5000		BPD-005	DD-503	BYA10D5	CCD-503	B-250	5HK-D50	
C26	20	NPO 10%	NPO-DI 20	DTZ-20	C10Q20C	CCCTO-200	CNO-422	10TCC-Q20	
C27	.22	400V	P488N-22		CUB4P22	4DP-5-224	GEM-4022	4TM-P22	
C28	.022	600V 10%	V84C8S22-10%		PM6S22	6DP-2-223	GEM-1812	6TM-S22	
C29	.047	1000V	P1088N-047		CUB10S47	16DP-5-473	GEM-10147	10TM-S47	
C30	.047	1000V	P1088N-047		CUB4P1	4DP-3-104	GEM-401	4TM-P10	
C31	32	1000V	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C32	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C33	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C34	560		DI-560	DD-561	LIOT56	CCD-561	B-356	10TS-T56	
C35	.047	1000V	P1088N-047		CUB10S47	16DP-5-473	GEM-10147	10TM-S47	
C36	4700		BPD-0047	DD-472	BYA10D47	CCD-472	B-247	5HK-D47	
C37	1500		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15	
C38	.047	400V	P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47	
C39	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C40	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C41	47	NPO	NPO-DI 47	DTZ-47	C10Q47C	CCCTO-470	CNO-447	10TCC-Q47	
C42	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47	
C43	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C44	2200	1400V	HVD-15-2200	DD30-222	HVC18D22	16DP-2-222	2HV-222	MB-D22	
C45	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C46	3300		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33	
C47	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	5HK-D33	
C48	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20	
C49	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47	
C50	3300		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33	
C51	.022	1000V 10%	P1084CM-022		PM10S22	16DP-5-223	GEM-1812	10TM-S22	
C52	.01	800V	P688N-01		CUB6S1	6DP-4-103	GEM-611	6TM-S1	
C53	.039	800V 10%	P888CM-039		DPMS6S39	6DP-3-393			
C54	.1	1000V	P1088N-01		CUB10P1		GEM-1001	10TM-P10	
C55	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C56	2200		BPD-0022	DD-222	BYA10D22	CCD-222	B-222	5HK-D22	
C57	.0068	1600V	V1684CM-0068		CUB18D68	16DP-3-702	GEM-16288	MB-D68	
C58	.047	600V 10%	V84C8S47-10%		PM6S47	6DP-3-473	GEM-1615	6TM-S47	
C59	100	NPO 5%		DTZ-100	C10T1C	CCCTO-101	CNO-310	10TCC-T10	
C60	1000		DI-1000	DD-102	SR5D1	CCD-102	B-210	5HK-D10	
C61	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C62	2200		BPD-0022	DD-222	BYA10D22	CCD-222	B-222	5HK-D22	
C63	.047	200V	P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	4TM-S47	
C64	33	NPO 10%	NPO-DI 33	DTZ-33	C10Q33C	CCCTO-330	CNO-433	10TCC-Q33	
C65	3800		I464-0039		IR5D39	CM-202-392K	MC1462.5	MS-289	
C66	820		I469-00082		5R5T82	CM-19B-821K	MC1249	MS-382	
C67	680		I469-00068		5R5T82	CM-19B-681K	MC1249	MS-388	
C68	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47	

## FIXED CAPACITORS (cont)

RATING		REMARKS	REPLACEMENT DATA						
ITEM No.	CAP.		AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCOPART No.	MALLORY PART No.	SPRAGUE PART No.	
C69	.047	400V	P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47	
C70	.015	1600V 5%	P1088N-01		P1088N-01	16DP-4-153-5%	GEM-1001	10TM-P10	
C71	.1	1000V	P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-8147	6TM-S47	
C72	.047	600V	DI-820	DD-821	BYA10T82	CCD-821	B-382	10TS-T82	

Note 1. May not be used in some versions.

\* Not normally in distributor's stock. Available thru distributor on order to mar

## CONTROLS

RATING		REMARKS	REPLACEMENT DATA					INSTALLATION NOTES
ITEM No.	RESISTANCE		ADMIRAL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
RIA	5meg		75B45-2	FI-83				Tone Volume
B	3meg			RPL-80				
C	15meg tap				RTV-719		UE4155-S	Push-Pull Off-On
R2A	300K		75D13-108	Not Req.	A47-300K-S	B11-131	U46	Vert. Hold
B	100K			AK-8	RS-3/16	SK9	DS-37	Brightness Contrast
R4	25K		75D20-126					
R5A	100K		75D20-118	AB-36	B47-100K-S	B17-128	PTA15L	AGC
B	1000Ω			AK-19	Not Req.	TM4	Not Req.	
R6A	1000Ω		75D20-128	AB-5	B47-1500-S	B11-108	TA13L	Vert. Linearity
B	5meg			AK-1	Not Req.	TM4	Not Req.	
R7	45K		75D20-119	TT-87	B47-50K-S	HLCS	PTA56L	Height
R8A	45K		75D20-131	TT-31	Not Req.	B11-123	PTA54L	Horiz. Range

\* "STA-LOC" Equivalent: FA56A, RUP36T155, OSI87.

Note 1. Some versions may use 60K (Part #75D20-127), with 180K Shunt. Use replacements listed and remove shunt resistor.

## RESISTORS (IRC or EQUIVALENT)

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

ITEM No.	RATING	REMARKS	ITEM No.	RATING	REMARKS	ITEM No.	RATING	REMARKS	
R9	8200Ω TW	Pt. #61B24-547 IRC #PW10-8200Ω	R38	82K	Pt. #61B24-349 IRC #PW5-10K	R68	220K	Pt. #61A1-57 IRC #PW5-400Ω	
R10	1200Ω		R39	39K		R69	150K		
R11	8.2meg		R40	3.3meg		R70	470K		
R12	3meg		R41	58K		R71	22K		
R13	2.2meg		R42	100K		R72	100K		
R14	4700Ω		R43	560K		R73	82K 1W		
R15	1000Ω		R44	8200Ω		R74	400Ω 3W		
R16	150K		R45	680Ω					
R17	39K		R46	47K		R75	330Ω 1W		
R18	470Ω		R47	1meg		R76	220Ω		
R19	47Ω		R48	220Ω 2W		R77	220Ω		
R20	22K		R49	1meg		R78	2.8Ω (COLD)		
R21	220K		R50	100Ω		R79	120K 1W		
R22	220K		R51	10K 3W		R80	2.2meg		
R23	4700Ω					R81	100K 1W		
R24	470Ω		R52	47K	R82	680K			
R25	68Ω		R53	1meg	R83	890K			
R26	470Ω		R54	27K	R84	1meg			
R27	150Ω		R55	12meg	R85	100K			
R28	3300Ω		R56	47K	R86	10K			
R29	100Ω		R57	8200Ω 1W	R87	56K			
R30	8200Ω		R58	100K	R88	1000Ω			
R31	18K		R59	180K	R89	27K			
R32	47K 1W		R60	68K	R90	18K			
R33	120K		R61	33K	R91	82K			
R34	5600Ω TW	Pt. #61B24-743 IRC #PW10-5600Ω	R62	820K	R92	1meg			
			R63	2.7meg	R93	100Ω			
R35	47K		R64	2.2meg	R94	15K 3W	Pt. #61B24-353 IRC #PW5-15K		
R36	33K		R65	1.2meg					
R37	56K		R66	68K	R95	1.5Ω			
			R67	1.8meg	R96	470K		(270K) *	