

CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.
Set the Brightness and Contrast Controls for a normal picture.
Turn the Horizontal Lock clockwise until the picture loses sync. It may

be necessary to switch off channel and back again for picture to lose sync.
Turn the Horizontal Lock slowly counterclockwise until the picture just falls into sync.

DISASSEMBLY INSTRUCTIONS

CHASSIS AND PICTURE TUBE ASSEMBLY REMOVAL

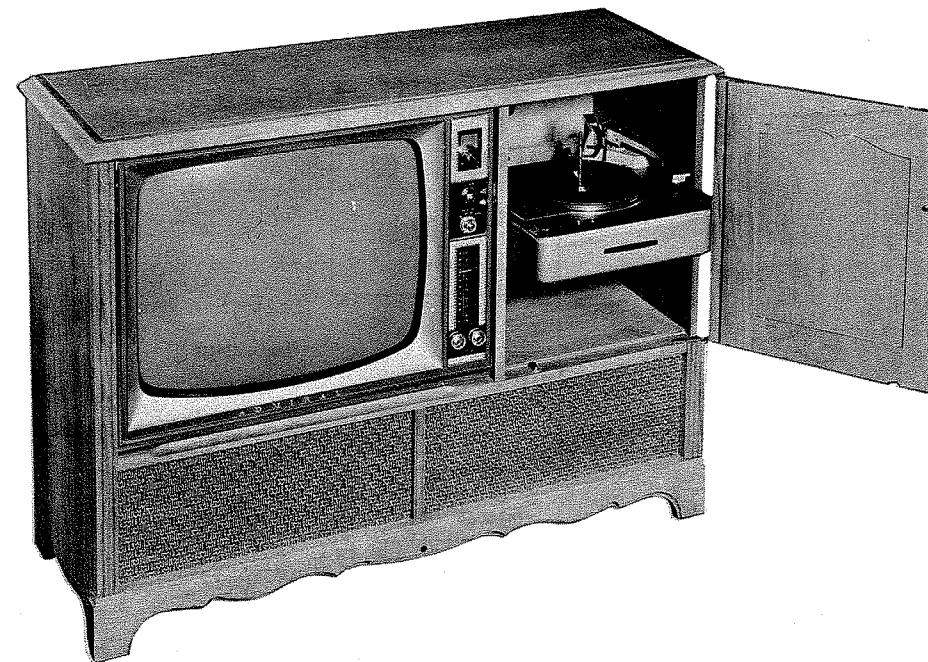
1. Remove rear cover.
2. Disconnect speaker(s), 2 phono plugs (on combination model), and antenna.
3. Remove 3 chassis bolts.
4. Remove 4 screws (inside) holding front escutcheon to cabinet.
5. Remove chassis, escutcheon, and picture tube (as one unit) out front.

FOLDER 1
SET 532

PHOTOFACT® Folder

with CIRCUITTRACE®

ADMIRAL CHASSIS 20A7, 20A7B,
20B7, 20C7, 20UA7, 20UA7B



MODEL STF24M169

TRADE NAME	Admiral						
MANUFACTURER	Admiral Sales Corp., Service Division, 903 Morrissey Drive, P.O. Box 845, Bloomington, Illinois						
TYPE SET	Television Receiver (Some Models with AM Tuner, FM-AM Tuner, Stereo Audio Amp., 4 Speed Automatic Record Changer, Remote Control).						
TUBES	TV: VHF (Chassis 20A7, B - Seventeen VHF (Chassis 20C7) - Eighteen VHF (Chassis 20B7) - Seventeen UHF (Chassis 20UA7, B) - Eighteen FM-AM Tuner 7X1: Six AM Tuner 3V1: Three Remote Control Receiver 7E2A: Seven						
TRANSISTORS	TV (Chassis 20C7): 210 Watts, 1.85 Amp. @ 117 Volts AC (Selector Sw. in TV Position)						
POWER SUPPLY	FM-AM Tuner (Chassis 7X1): 160 Watts, 1.35 Amp. @ 117 Volts AC (Selector Sw. in AM or FM Position)						
RATING	110 - 120 Volts AC, 60 Cycle 135 Watts, 1.2 Amp. @ 117 Volts AC (In Phono Pos., Less Phono Motor)						
TUNING RANGE	TV: Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)						
	FM-AM Tuner (Chassis 7X1): FM - 88-108MC (IF 10.7MC) BC - 540-1600KC (IF 455KC)						
	AM Tuner (Chassis 3V1): BC - 540-1600KC (IF 455KC)						
MODELS	TV Chassis (Run 10, 11, 12)	FM-AM Tuner Chassis (Run 10, 11)	AM Tuner Chassis	Record Changer	Remote Control Receiver, Transmitter Chassis	VHF Tuner	UHF Tuner
C24M121, 122, 123, 131, 132, 133, 142, 149, 171, 172, 189;							
L24M151, 152, 153, 161, 162, 169; or 20A7						94E184-10	
T24M110, 111, 112, 113						94E188-1	
CS24M131, 132, 133, 142, 149;							
LS24M152, 159, 161, 169;							
TS24M120, 122, 123	20B7				7EA2A & S121C	94E164-15	
STA24M120, 121, 122, 123, 132, 139, 141, 149	20C7		3V1	*		94E164-10	
STA24M151, 152, 153, 162, 169, 171, 179	20C7	7X1		*		94E164-10	
C24UM121, 122, 123, 131, 132, 133, 142, 149, 171, 172, 189;						94E164-11	94D162-9
L24UM151, 152, 153, 161, 162, 169; or 20UA7						94E188-2	94D162-9
T24UM110, 111, 112, 113	20UA7B						

* FOR SERVICE INFORMATION ON RECORD CHANGER RC7FOG-17W OR RC7EOG-17W - SEE SIMILAR RC700 SERIES - PHOTOFACT SET 529 FOLDER 3

SERVICING IN THE FIELD - PAGE 3

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

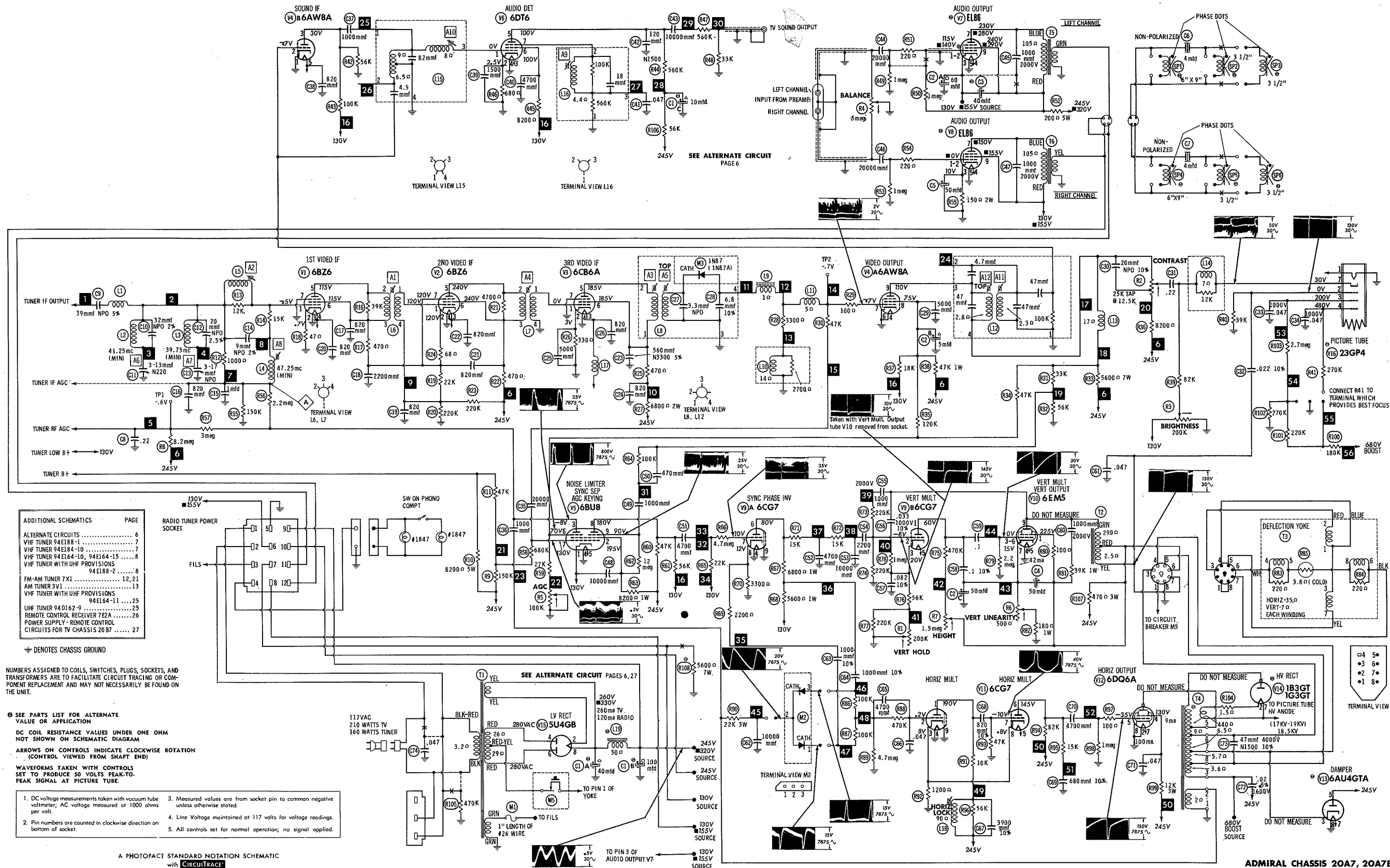


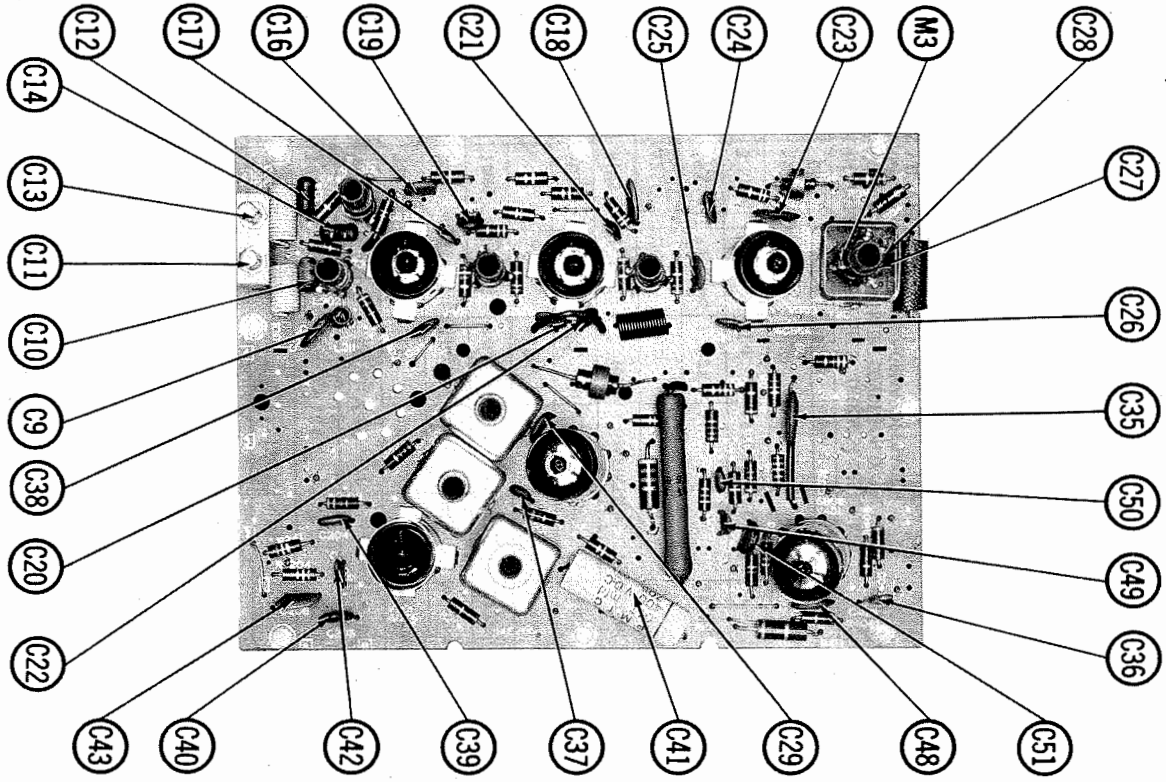
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KC622

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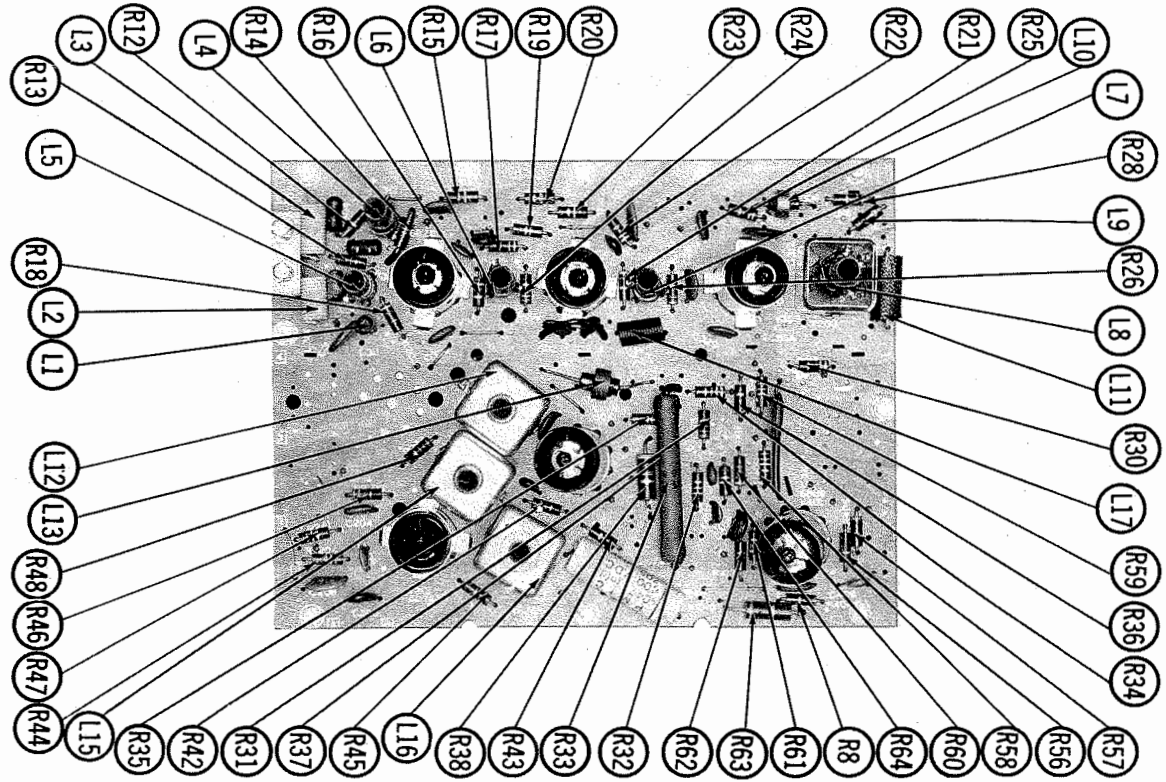
ADMIRAL CHASSIS 20A7, 20A7B,
20B7, 20C7, 20UA7, 20UA7B

SET 532 FOLDER 1



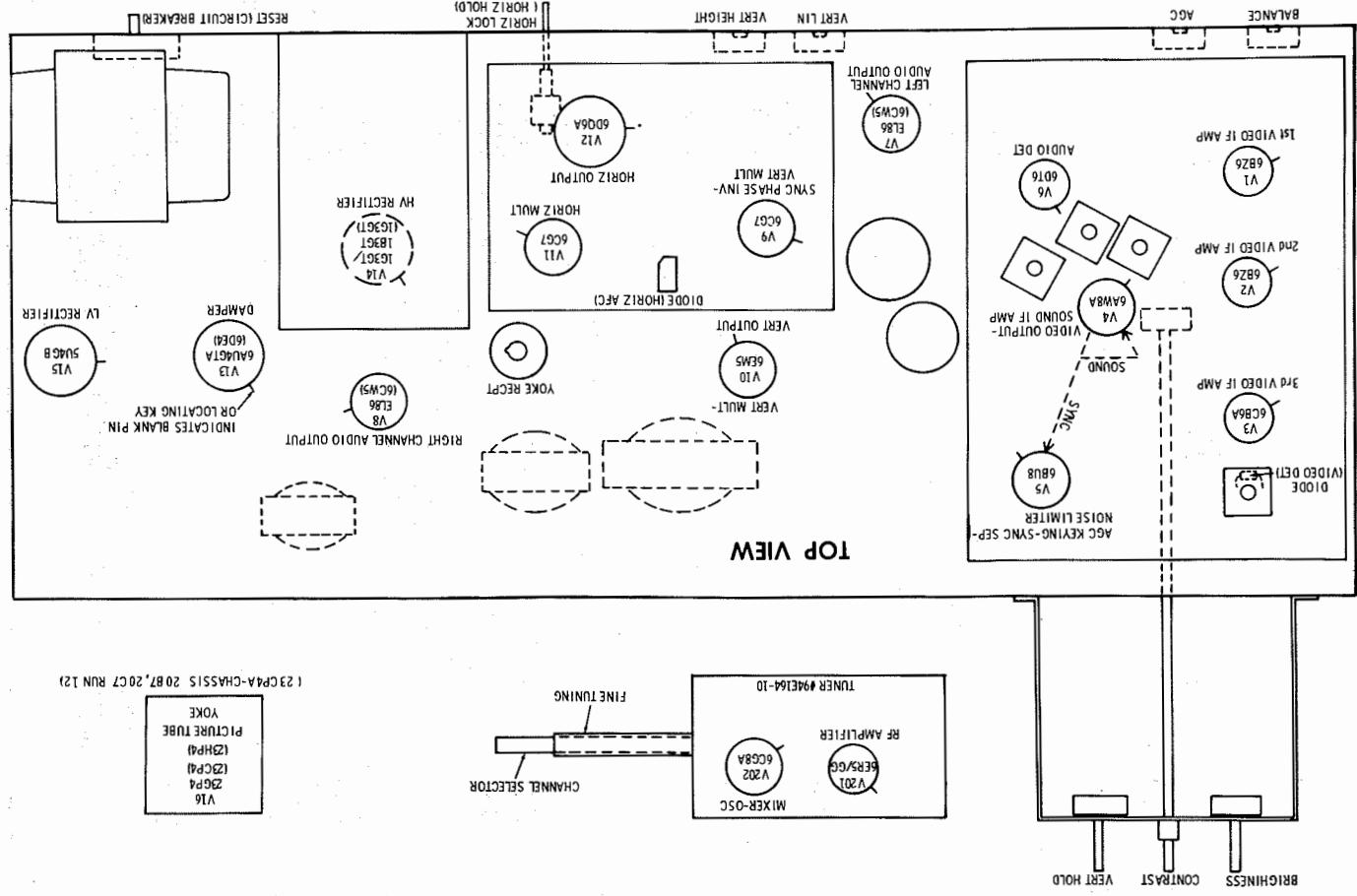


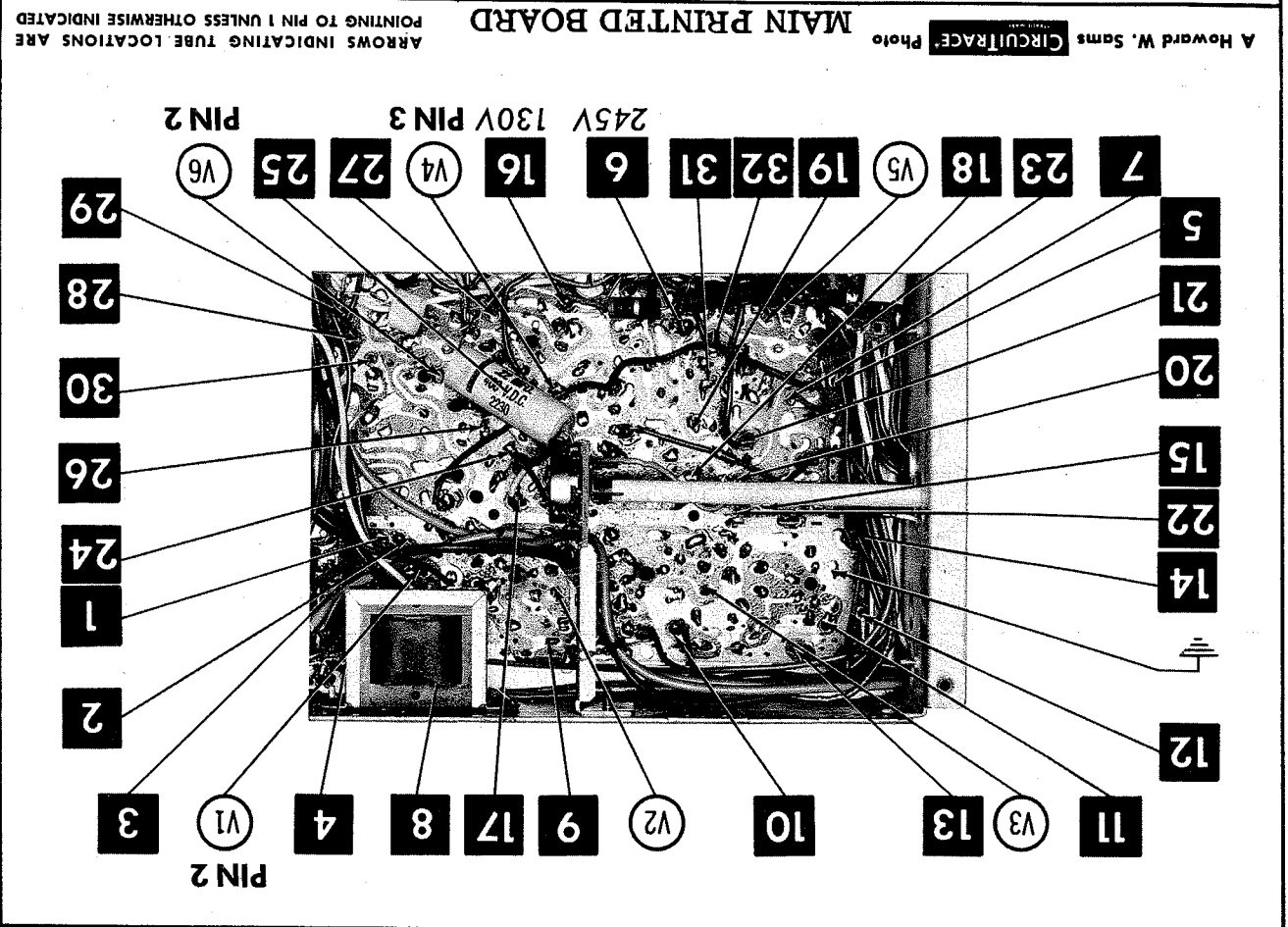
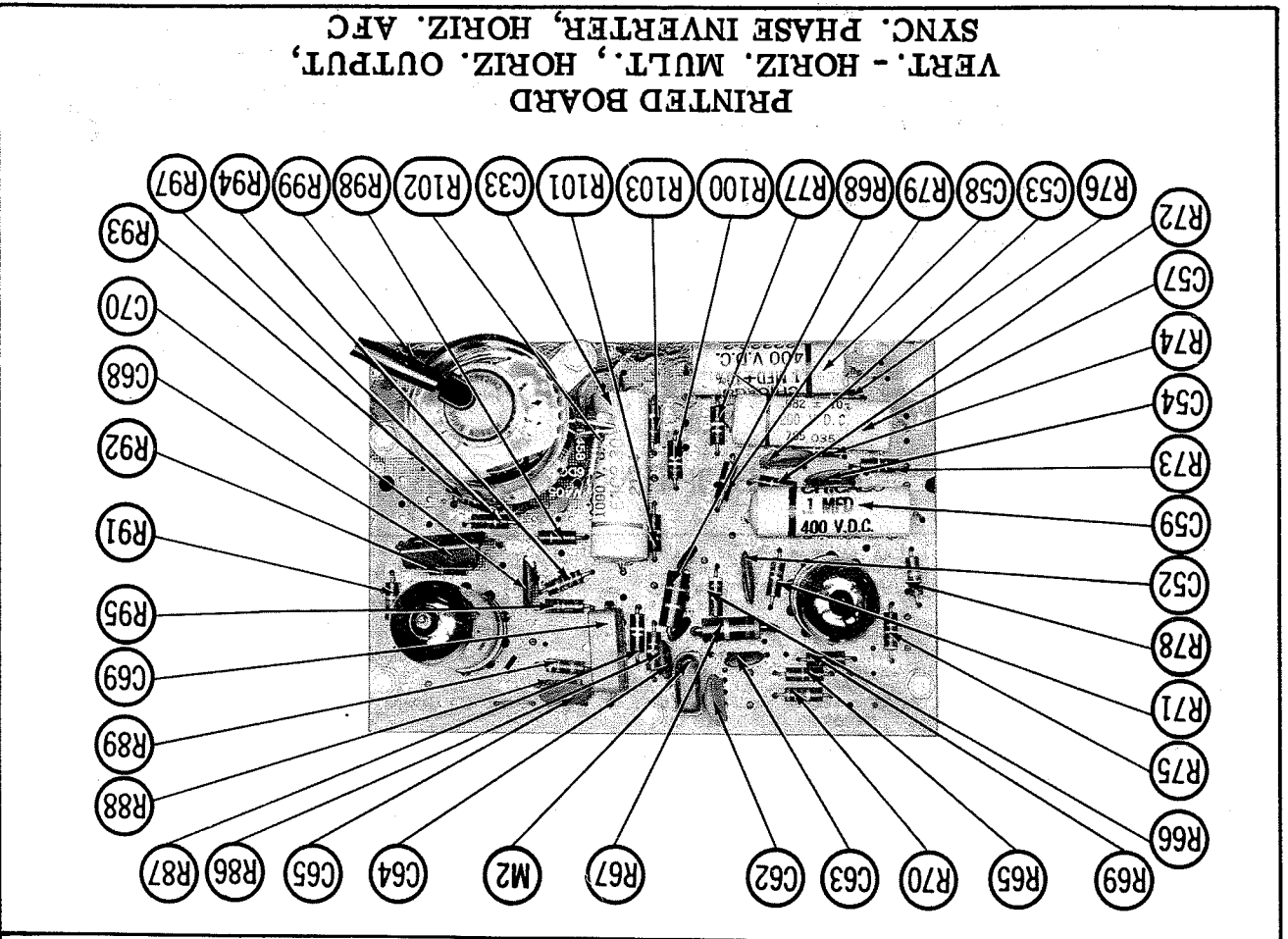
MAIN PRINTED BOARD
CAPACITOR & MISC IDENT.



MAIN PRINTED BOARD
RESISTOR & INDUCTOR IDENT.

TUBE PLACEMENT CHART

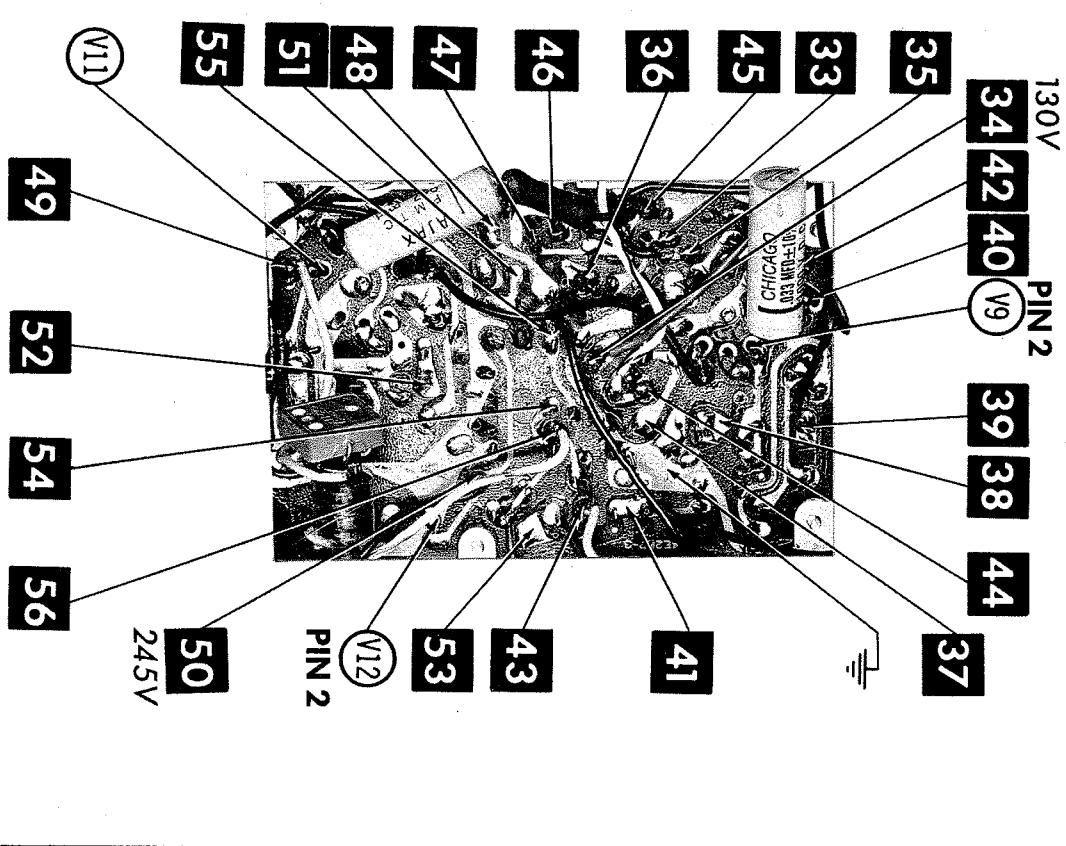




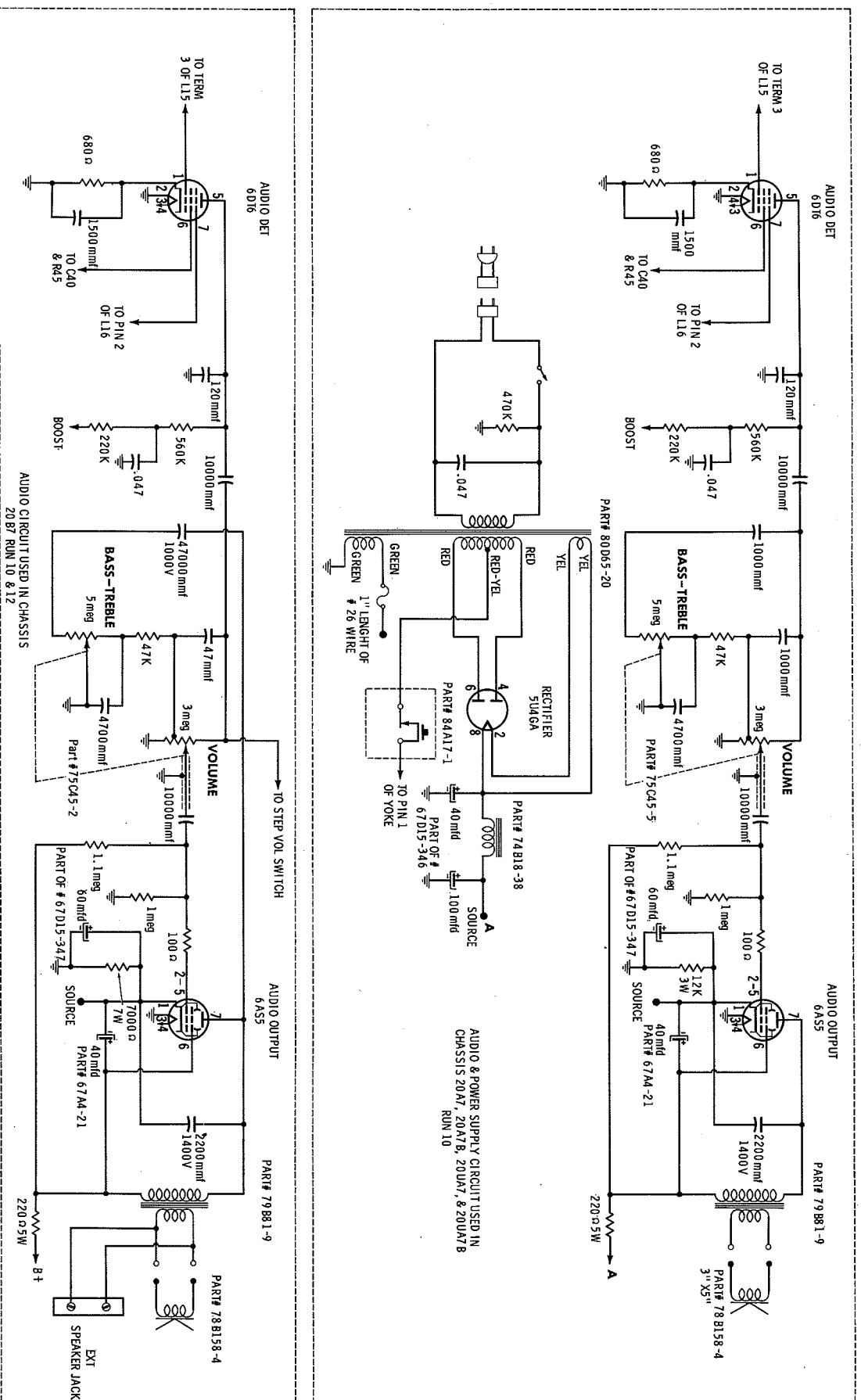
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	150K	47Ω	0Ω	.1Ω	Δ540Ω	Δ540Ω	0Ω		
V2	6BZ6	110K	120K	.1Ω	0Ω	†520Ω	†520Ω	120K		
V3	6CB6A	.1Ω	330Ω	.1Ω	0Ω	†7300Ω	†7300Ω	0Ω		
V4	6AW8A	0Ω	100K	•40K	0Ω	.1Ω	0Ω	3400Ω	•12K	†4700Ω
V5	6BU8	•0Ω	†8200Ω	2meg	0Ω	.1Ω	•30K	†725K	†30K	†12meg
V6	6DT6	17Ω	680Ω	.1Ω	0Ω	†615K	•8200Ω	560K		
V7	EL86	NC	500K	†5000Ω	.1Ω	0Ω	NC	†355Ω	NC	†250Ω
V8	EL86	NC	1meg	150Ω	.1Ω	0Ω	NC	•105Ω	NC	••0Ω
V9	6CG7	•†1meg	220K	•100K	.1Ω	0Ω	•12K	•4.7meg	3300Ω	0Ω
V10	6EM5	†620Ω	NC	2.2meg	0Ω	.1Ω	NC	•350Ω	NC	†810Ω
V11	6CG7	†10K	1meg	1200Ω	0Ω	.1Ω	†82K	47K	1200Ω	0Ω
V12	6D06A	NC	0Ω	NC	†12K	1meg	NC	.1Ω	0Ω	TOP CAP †15Ω
V13	6AU6GT	NC	NC	700K	NC	†50Ω	NC	.1Ω	0Ω	
V14	1B3GT									TOP CAP †450Ω
V15	5U4GB	NC	†25K	NC	26Ω	NC	29Ω	NC	†25K	
V16	23GP4	.1Ω	39K	†3.1meg	†200K	NC	NC	•110K	0Ω	
V201	6E5 GG	47Ω	3.5meg	0Ω	.1Ω	†9200Ω	0Ω	47Ω		
V202	6CG8A	4700Ω	•5700Ω	0Ω	0Ω	.1Ω	•2000Ω	•1000Ω	0Ω	225K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

ALL MEASUREMENTS MADE IN "TV" POSITION UNLESS OTHERWISE DESIGNATED.
† THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• MEASURED FROM PIN 8 OF V15.
+ MEASURED FROM PIN 3 OF V13.
Δ MEASURED IN "FM" POSITION.
• MEASURED IN "AM" POSITION.
NC NO CONNECTION

TV RESISTANCE MEASUREMENTS

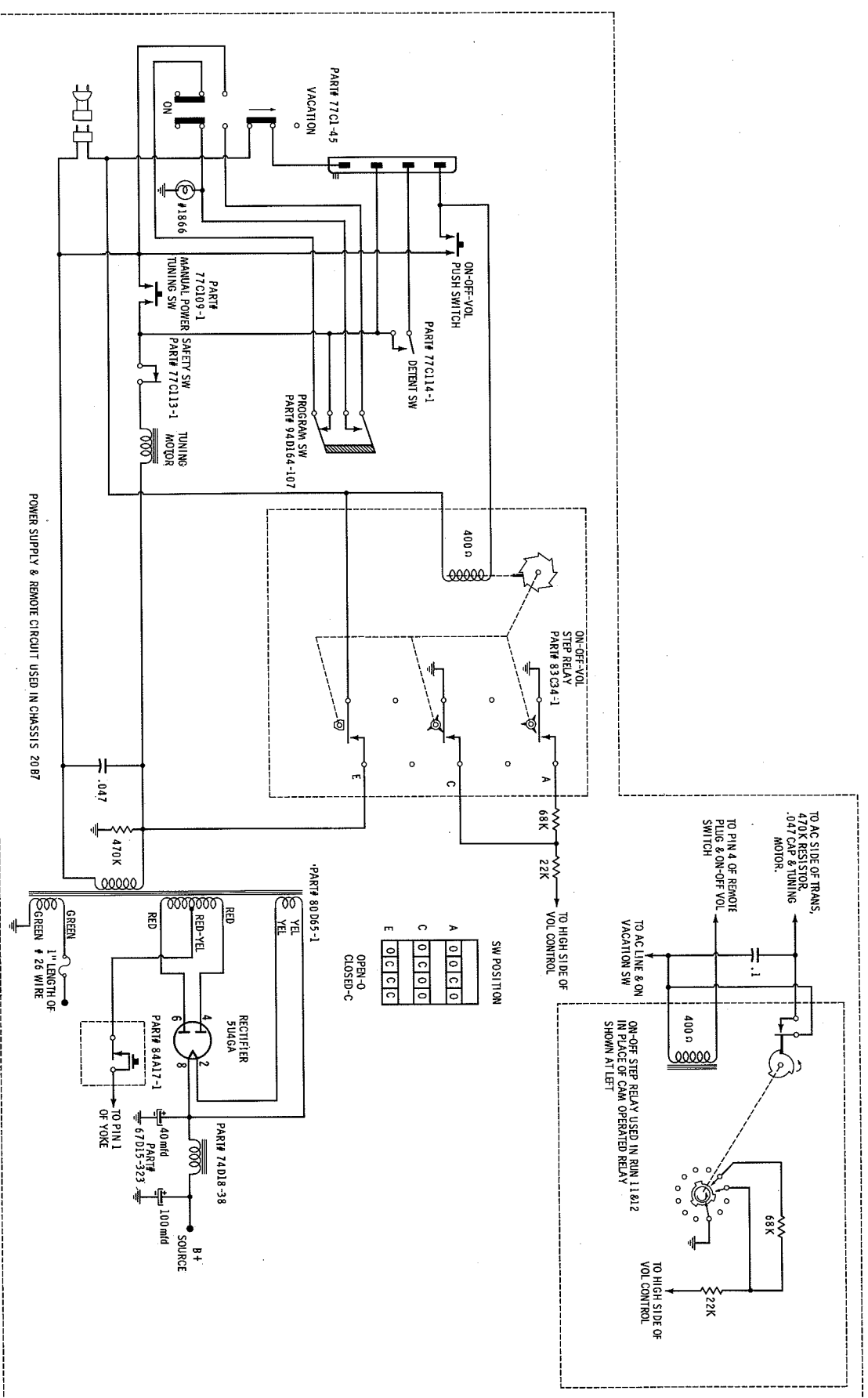


PRINTED BOARD
VERT. - HORIZ. MULT., HORIZ. OUTPUT,
SYNC PHASE INVERTER, HORIZ. AFC



A PHOTOFACIT STANDARD NOTATION SCHEMATIC
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ALTERNATE CIRCUITS



A PHOTOFACT STANDARD NOTATION SCHEMATIC
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POWER SUPPLY - REMOTE CONTROL CIRCUITS FOR TV CHASSIS 20B7

FM-AM TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A13 thru A16, A18, A20 thru A25 ... GENERAL CEMENT #8282, 8606, 8606L, 9285, 9440
A17, A19, A28, A29 ... GENERAL CEMENT #5004, 5008, 5009
WALSICO #2520
A26, A27 ... GENERAL CEMENT #9051
WALSICO #2527

AM ALIGNMENT - SELECTOR IN AM POSITION

SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR DIAL FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
High side thru, limit to pin 7 (grid of AM Converter. 440v. 30% AM)	455KC	AM	Across Voice Coil	A13, A14, A15, A16	Adjust for maximum output.
Low side to chassis.					
Loop	1620KC			A17	Rashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
				A18	
	535 KC	Tuning gang fully closed		A19	
	1400KC	1400KC signal			

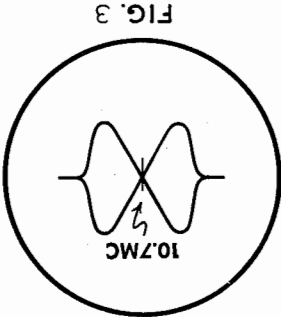
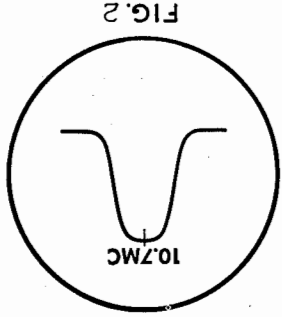
FM IF ALIGNMENT USING AM SIGNAL, GENERATOR AND VTVM - SELECTOR IN FM POSITION

SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR DIAL FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
High side to ungrounded tube shield floating over FM Mixer tube. Low side to chassis.	10.7MC (Unmod.)	FM	Point of non-interference	DC probe to point \odot . Low A20, A21, A22, A23	Adjust for maximum deflection.
				A25	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

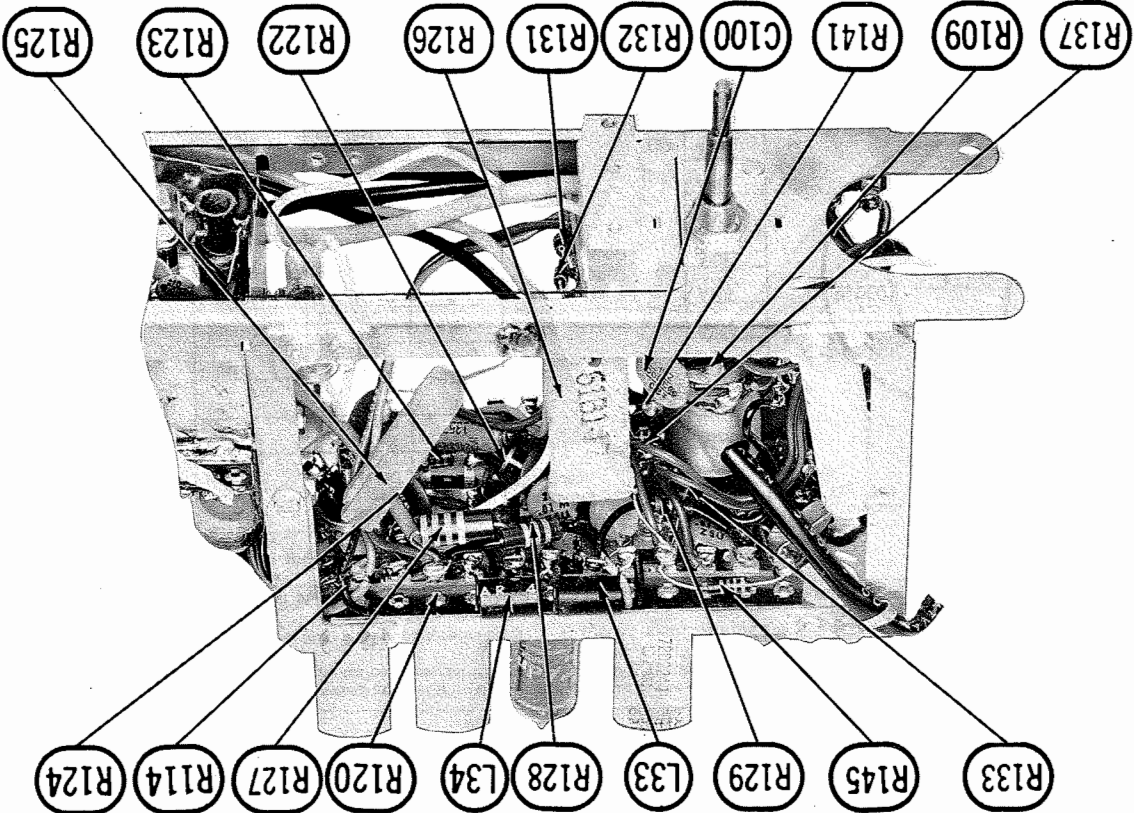
FM IF ALIGNMENT USING FM SIGNAL, GENERATOR AND OSCILLOSCOPE - SELECTOR IN FM POSITION

SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR DIAL FREQUENCY	RADIO DIAL SETTING	SCOPE	ADJUST	REMARKS
High side to ungrounded FM Mixer tube. Low side to chassis.	10.7MC (450KC Swp.)	FM	Point of non-interference	Vert. Amp. to A20, A21, A22, A23	Disconnect stabilizing capacitor C75. Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown. Reconnect C75.
				point \odot . Low side to chassis.	Adjust to place marker at the center of crossover lines similar to Fig. 3. SLIGHTLY retouch A20 for maximum amplitude and straightness of crossover lines.

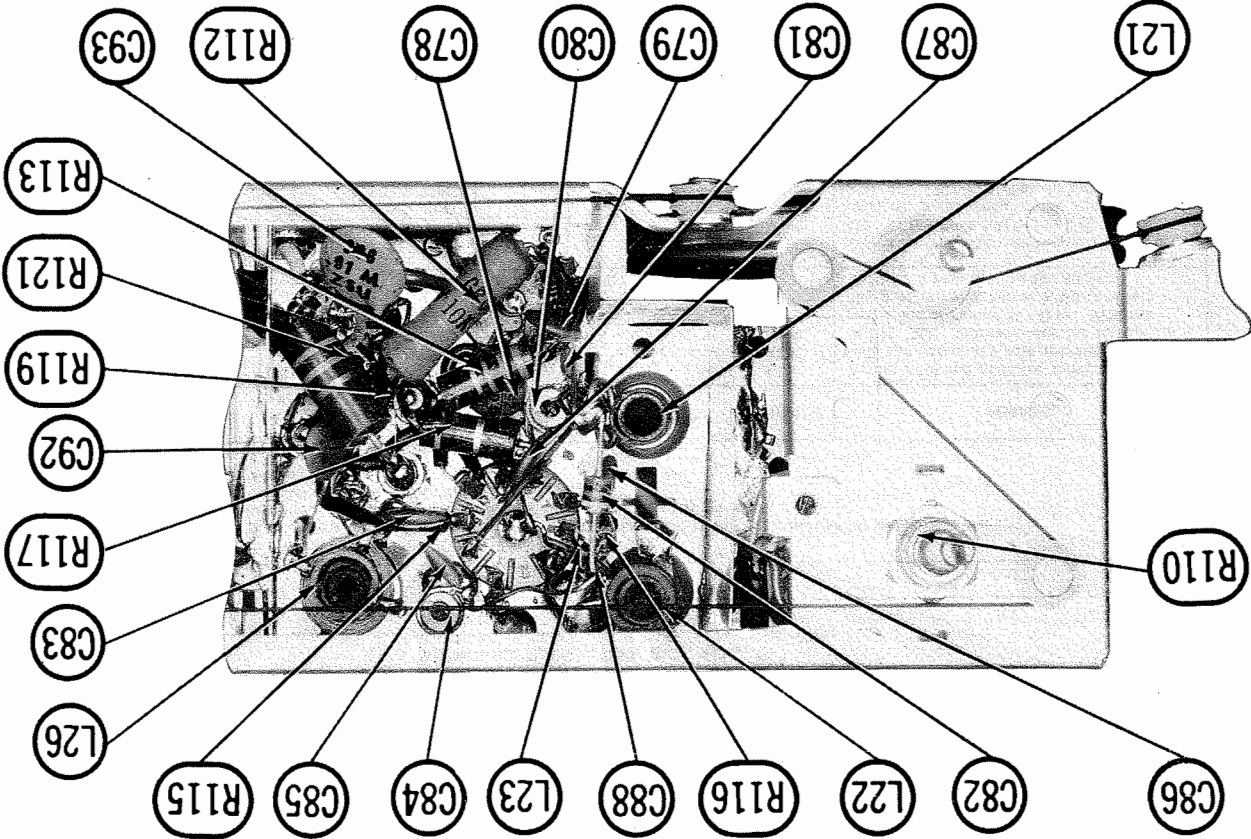
SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR DIAL FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
Across FM antenna terminals with 150 Ω in each lead.	88MC (Unmod.)	FM	DC probe to point \odot . Common to chassis.	A26, A27	Adjust for maximum deflection.
	108MC	108MC		A28, A29	
	88MC	88MC			Readjust A26 and A27 for maximum deflection. After adjusting, seal screws with melted wax or glytol.

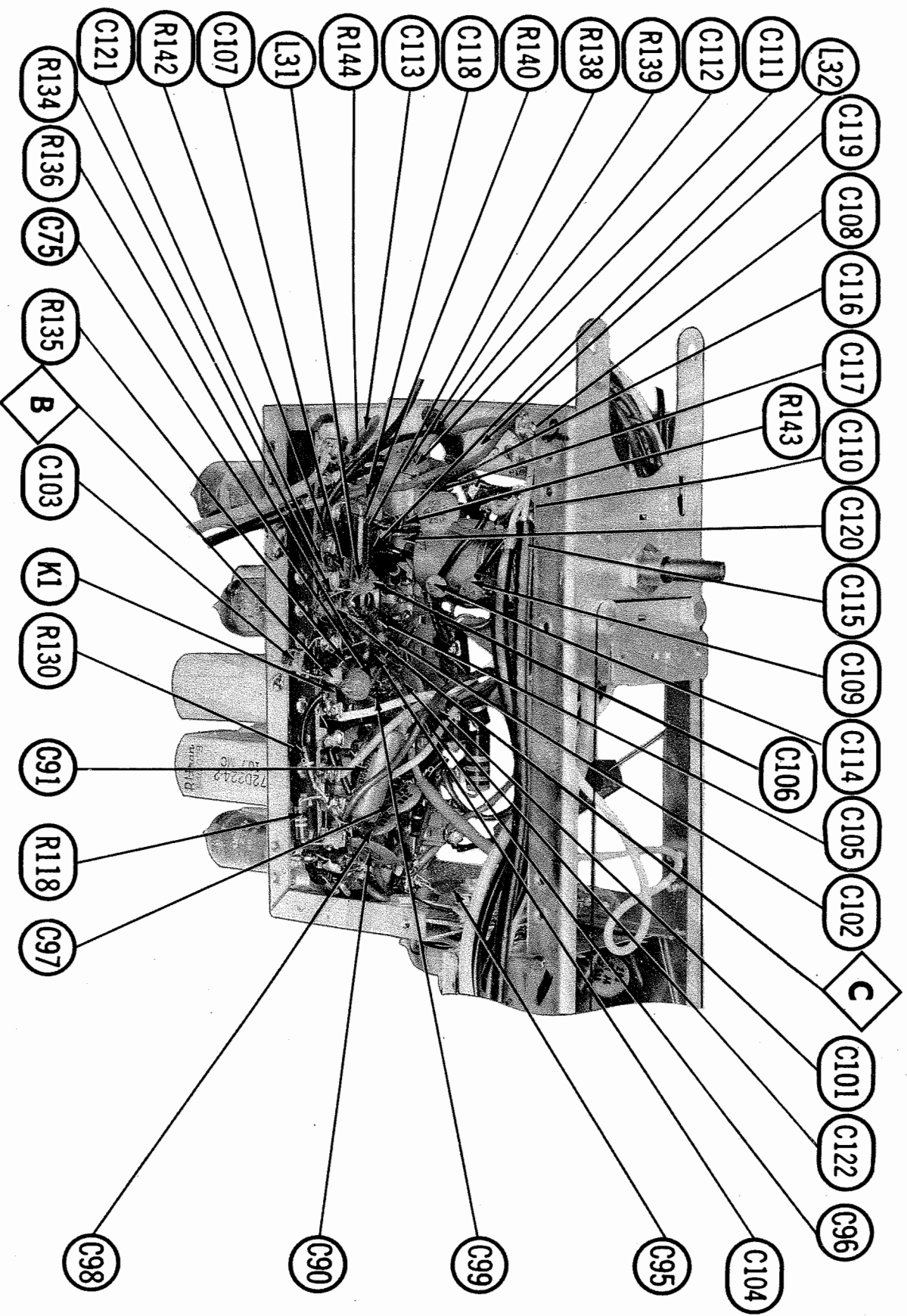


FM-AM TUNER CHASSIS 7X1 (IF SECTION)

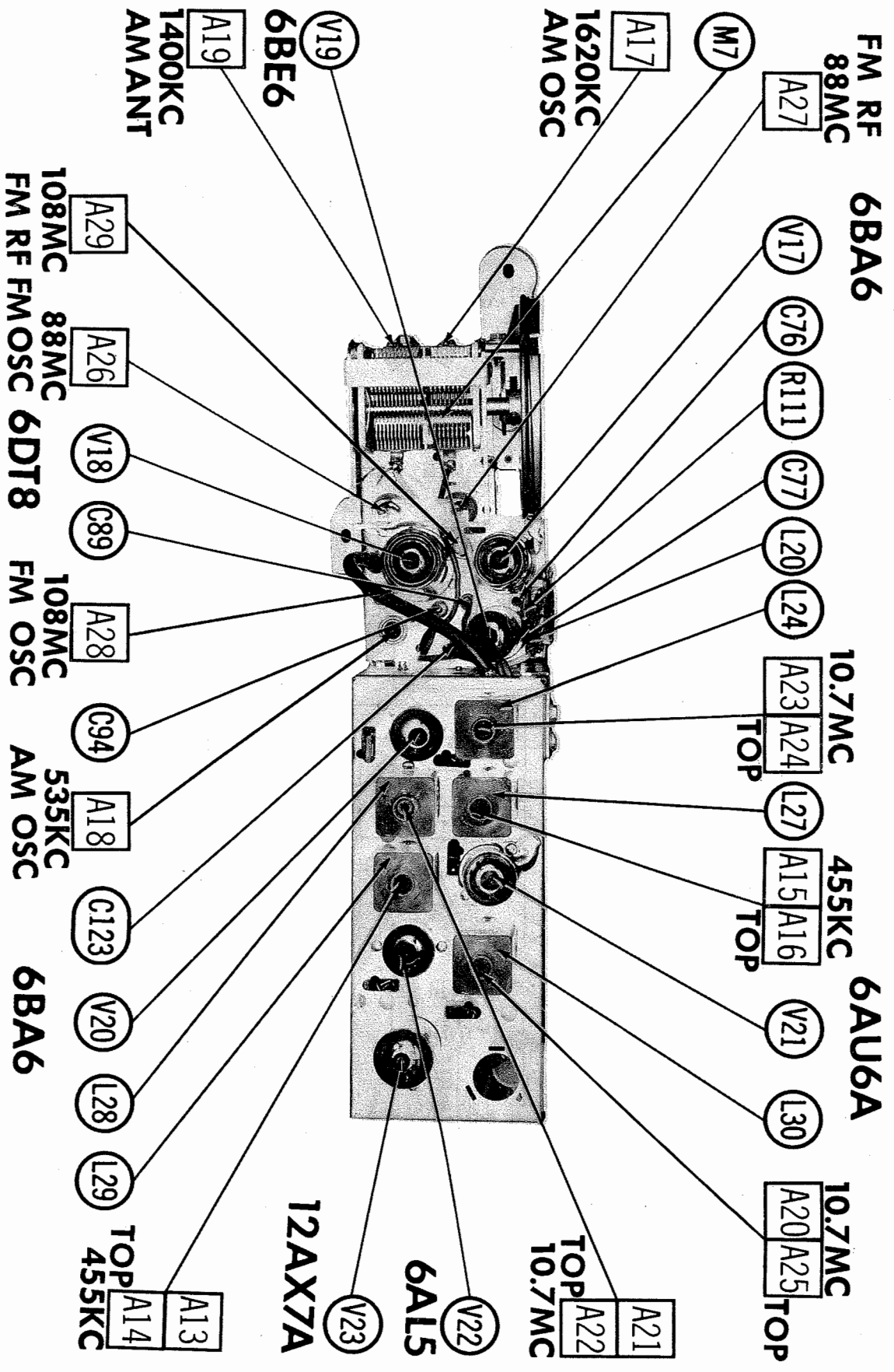


FM-AM TUNER CHASSIS 7X1 (FM RF-OSC., AM CONV. SECTION)

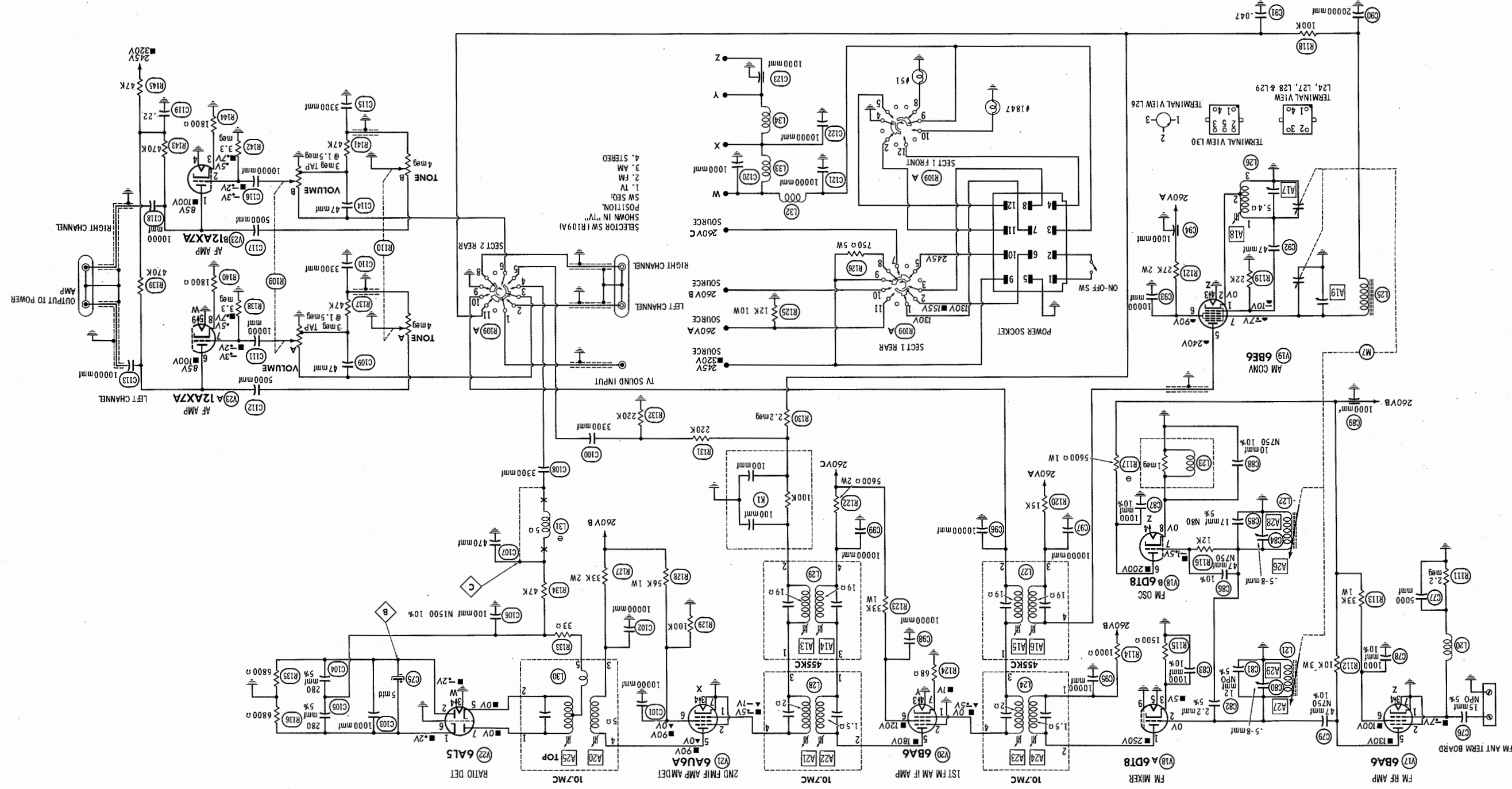




FM-AM TUNER CHASSIS TX1 (IF SECTION)



FM-AM TUNER TX1 - TOP VIEW



AM TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

AM ALIGNMENT - SELECTOR IN AM POSITION

SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1. High side thru. 1mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455 KC (400V 30% AM)	AM Tuning gang Fully open	Across Voice Coil	A13, A14, A15, A16	Adjust for maximum output.
2. Loop	1620KC	"	"	A17	Fashion loop of several turns of wire and radiate signal into loop of receiver.
3. "	535 KC	Tuning gang fully closed	"	A18	"
4. "	1400 KC	1400 KC Signal	"	A19	"

RESISTANCE MEASUREMENTS FM—AM TUNER TX1

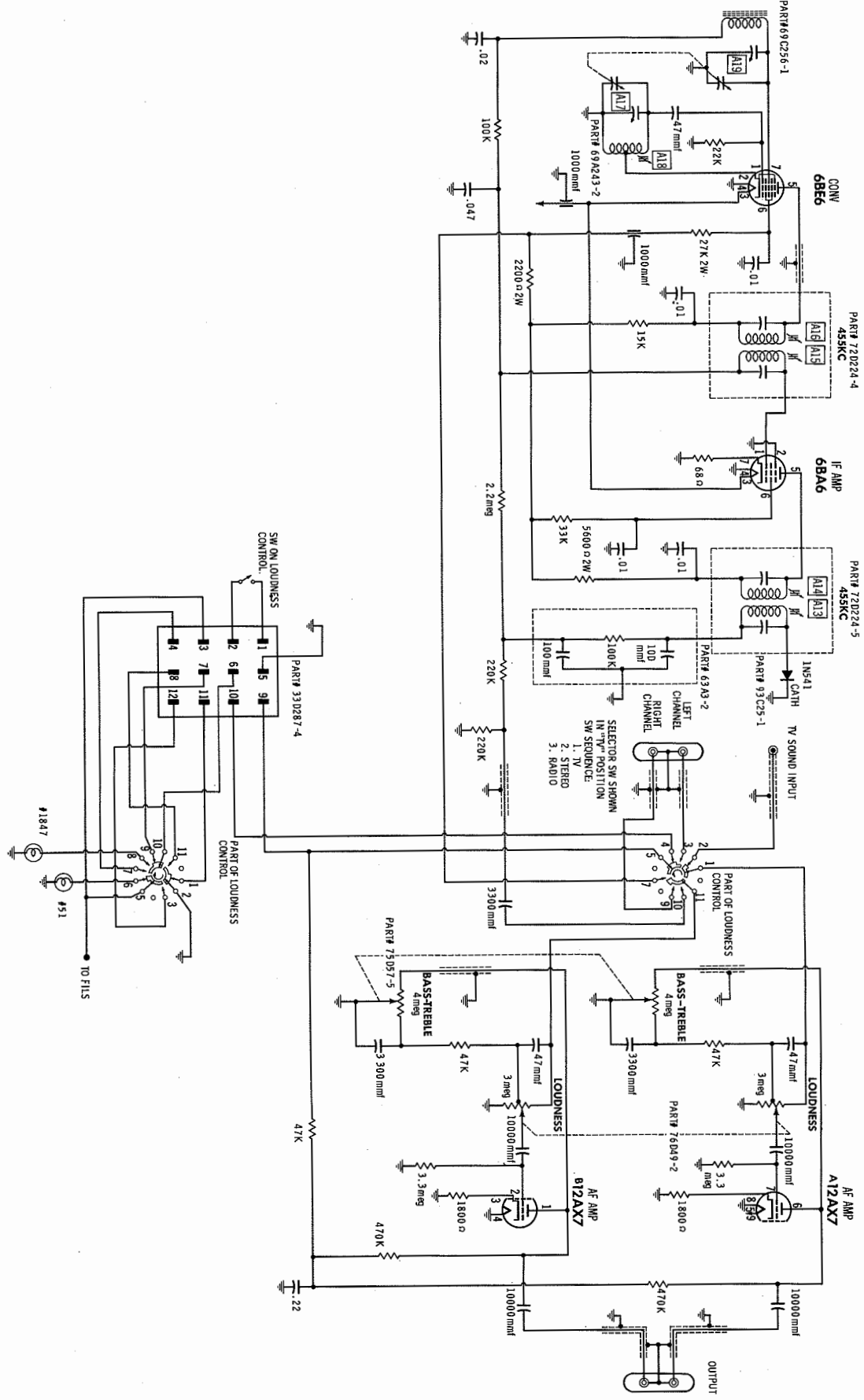
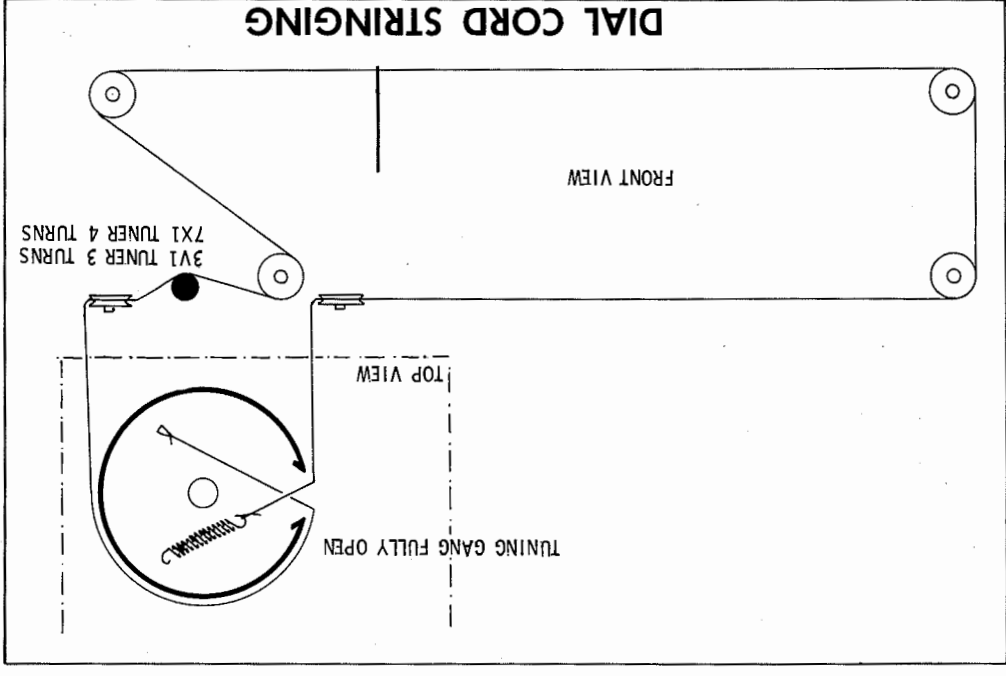
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V17	6BA6	0 Ω	2.2 meg	0 Ω	.1 Ω	\pm 10K	\pm 33K	0 Ω		
V18	6D18	\pm 1800 Ω	.1 Ω	1500 Ω	.1 Ω	0 Ω	\pm 6400 Ω	12K	.1 Ω	0 Ω
V19	6BE6	22K	.1 Ω	.1 Ω	0 Ω	\pm 15K	\pm 27K	2.7 meg		
V20	6BA6	\pm 20 meg	0 Ω	.1 Ω	0 Ω	\pm 6400 Ω	\pm 34K	68 Ω		
V21	6AU6A	540K	0 Ω	0 Ω	.1 Ω	\pm 34K	\pm 50K	0 Ω		
V22	6AL5	6800 Ω	6800 Ω	0 Ω	.1 Ω	INF	0 Ω	INF		
V23	12AX7A	\pm 520K	3.3 meg	1800 Ω	0 Ω	0 Ω	\pm 520K	3.3 meg	1800 Ω	.1 Ω

MEASURED IN "FM" POSITION.

MEASURED IN "AM" POSITION.

MEASURED IN "FM" POSITION.
MEASURED FROM PIN 8 OF V15.

MEASURED IN "AM" POSITION.



AM TUNER 3V1

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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FOLDER 1

**ADMIRAL CHASSIS 20A7, 20A7B,
20B7, 20C7, 20UA7, 20UA7B**

ITEM No.	PART NAME	ADMINISTRAL	NOTES
M201	VHF Input Assy	94D164-108	
	Collar	94D164-127	
	Spring	94D164-88	
	Spring	94D164-91	
	Shalt & Cam Assy	94D164-121	
	Arm	94D164-80	
	Spring	94D164-79	
	Pivot	94D164-81	
	Less Colls		
	Fine Tuning		
	Drum Retaining, Front		
	Drum Retaining, Rear		
	Fine Tuning		
	Fine Tuning		
	Fine Tuning Arm		

CABI

Cabinet Parts, Specify Model

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

[illegible]

REPLACEMENT

ITEM No.	TYPE	BATING.	FUSE	HOLDER
			FUSE	HOLDER
REPLACEMENT DATA				
			ADMAL. PART NO.	LITTEFUSE PART NO.
			BUSS PART NO.	
			FUSE	HOLDER
			FUSE	HOLDER
Mt	1 st length of #28 wire			

MENT DATA

ITEM	ORIG.	TYPE	REPLACEMENT DATA					
			ADDITIONAL PART NO.	GENERAL ELECTRIC PART NO.	RAYTHEON PART NO.	PAYSONIA PART NO.		
M2	*		89B-4	BGL *			IN87A or IN87A	* Series Connected Type + Video Detector, Crystal Mode, Pixel
M3	IN87A or						IN87A or IN87A	

NOTES

ITEM No.	PART NAME	ADPRAL	NOTES
M4	Tuner	94E184-10	VHF, Used in Chassis 200C7
	Tuner	94E184-15	VHF, Used in Chassis 20B7
	Tuner	94E184-10	VHF, Used in Chassis 20A7
	Tuner	94E184-11	VHF, Used in Chassis 20A7B
	Tuner	94E184-2	VHF with UHF Provisions, Used in Chassis 20UAT7
	Tuner	94E182-8	UHF, Used in Chassis 20UAT7, 20UAT7B
M5	Circuit Breaker *	94AT1-1	* Some Versions may use a slow-blow fuse for MS. Replace with original type component.

..... Use BELDEN 1

High Voltage Lead	Use Belden No.	8869
Shielded Hook-up Wire	Use Belden No.	8865
General-use Unshielded Hook-up Wire	Use Belden No.	8788 (Tw-Conductor)
	Use Belden No.	8530 (Solid) Available in Ten Colors
	Use Belden No.	8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use Belden No.	8874
3002 Three Input Lead	Use Belden No.	8226
3002 Antenna Lead-in	Use Belden No.	8240 or 8275
Antenna Floor Cable	Use Belden No.	8484 (Flat) or 8484 (Round)
	Use Belden No.	8488 (Round) - 8 Conductor
	Use Belden No.	8488 (Round) - 5 Conductor
	Use Belden No.	8488 (Round) - 4 Conductor

Specify Model

CABINETS
(When Ordering Cabinets Specify Model, Chassis & Color)

DESCRIPTION	PART NO.	MODEL NO.
Cabinet	335595-1	C24M121, C24UM121
Cabinet	335595-2	C24M122, C24UM122
Cabinet	335595-3	C24M123, C24UM123
Cabinet	335595-11	C24M131, C24UM131
Cabinet	335595-12	C24M132, C24UM132
Cabinet	335595-13	C24M133, C24UM133
Cabinet	335595-18-2	C24M142, C24UM142
Cabinet	335595-18-9	C24M149, C24UM149
Cabinet	335639-1	C24M171, C24UM171
Cabinet	335639-2	C24M172, C24UM172
Cabinet	335639-19	C24M189, C24UM189
Cabinet	335598-1	C24M131
Cabinet	335598-2	C24M133
Cabinet	335598-3	C24M139
Cabinet	335617-2	C24M142
Cabinet	335617-9	C24M149
Cabinet	335600-1	C24M151, C24UM151
Cabinet	335600-2	C24M152, C24UM152
Cabinet	335600-3	C24M153, C24UM153
Cabinet	335597-1	C24M161, C24UM161
Cabinet	335597-2	C24M162, C24UM162
Cabinet	335597-9	C24M169, C24UM169
Cabinet	335602-2	LS24M152
Cabinet	335602-9	LS24M159
Cabinet	335599-1	LS24M161
Cabinet	335599-9	LS24M169
Cabinet	335608-1	ST24M121, ST24M151
Cabinet	335608-2	ST24M122, ST24M152
Cabinet	335608-3	ST24M123, ST24M153
Cabinet	335604-2	ST24M132, ST24M162
Cabinet	335604-9	ST24M139, ST24M169
Cabinet	335606-1	ST24M141, ST24M171
Cabinet	335606-9	ST24M149, ST24M179
Cabinet	34E163-1	T24M110, T24UM110
Cabinet	34E163-5	T24M111, T24UM111
Cabinet	34E163-2	T24M112, T24UM112
Cabinet	34E163-3	T24M113, T24UM113
Cabinet	34E168-2	TS24M120
Cabinet	34E168-3	TS24M122
Cabinet	34E168-4	TS24M123

