PHOTOFACT® Folder

EMUD MODELS
186, 196

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186, 196

MODEL 196

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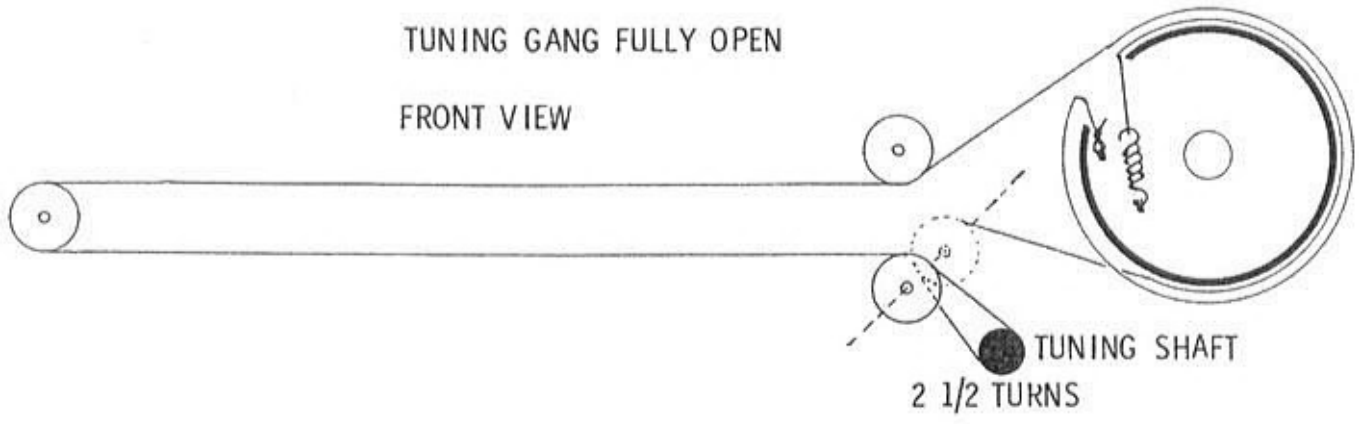
TRADE NAME	Emud Models 186, 196		
IMPORTER	Delmonico International Corp., 42-24 Orchard Street, Long Island City 1, N.Y.		
TYPE SET	AC Operated 6 Tube FM-AM Receiver		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	64 Watts, .59 Amp. @ 117 Volts AC (FM)
TUNING RANGE-BROADCAST	515-1620KC	FREQ. MOD.	88-108MC

DIAL CORD STRINGING



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

JK681

DATE 5-60 SET 485 FOLDER 9

SET 485 FOLDER 9

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Use only enough generator output to provide a usable indication on VTVM.
Suggested Alignment Tools: A15, A17..... GENERAL CEMENT #8282, 8606, 8606-L, 9091
WALSCO #2526, 2541, 2542, 2543, 2544
A16 ..... GENERAL CEMENT #8721, 8722
WALSCO #2519

AM ALIGNMENT - AM BUTTON DEPRESSED

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side to pin 2 (grid) of AM Mixer. Low side to chassis.	460KC (400∿ Mod)	(AM) Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	Loop	515KC	Tuning gang fully closed	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	1620KC	Tuning gang fully closed	"	A6	"
4.	"	600KC	600KC	"	A7	"
5.	"	1400KC	Tune to 1400KC signal	"	A8	Adjust for maximum output while rocking tuning gang.

FM IF ALIGNMENT USING SIGNAL GENERATOR AND VTVM - FM BUTTON DEPRESSED

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	High side to pin 7 (grid) of FM Converter. Low side to chassis.	10.7MC (Unmod)	FM (Point of non-interference)	DC probe to point Ⓐ. Common to chassis.	A9, A10, A11, A12, A13	Adjust for maximum deflection.
7.	"	"	"	DC probe to point Ⓑ. Common to point Ⓒ.	A14	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING SIGNAL GENERATOR AND OSCILLOSCOPE - FM BUTTON DEPRESSED

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
6.	High side to pin 7 (grid) of FM Converter. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference	Vert. Amp. to point Ⓐ : Low side to chassis.	A9, A10, A11, A12, A13	Disconnect stabilizing capacitor (C2). Adjust for maximum gain and symmetry of response similar to Fig. 1. Reconnect C2.
7.	"	"	"	Vert. Amp. to point Ⓑ. Low side to chassis.	A14	Adjust to place marker at the center of cross-over lines similar to Fig. 2 . SLIGHTLY retouch A9 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT - FM BUTTON DEPRESSED

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.	Across FM antenna terminals (marked "Dipol" with 120Ω in each lead.	88MC (Unmod)	(FM) 88MC	DC probe to point Ⓐ. Common to chassis.	A15	Adjust for maximum deflection.
9.	"	108MC	108MC	"	A16	"
10.	"	98MC	98MC	"	A17	"

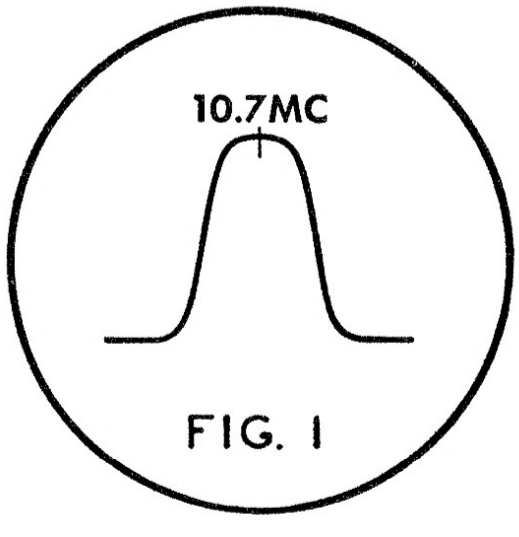


FIG. 1

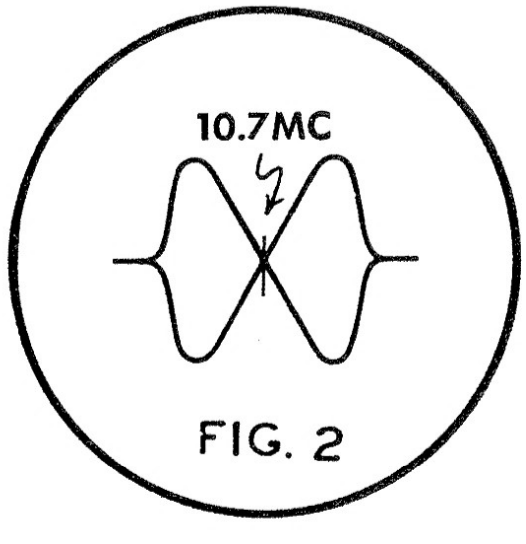
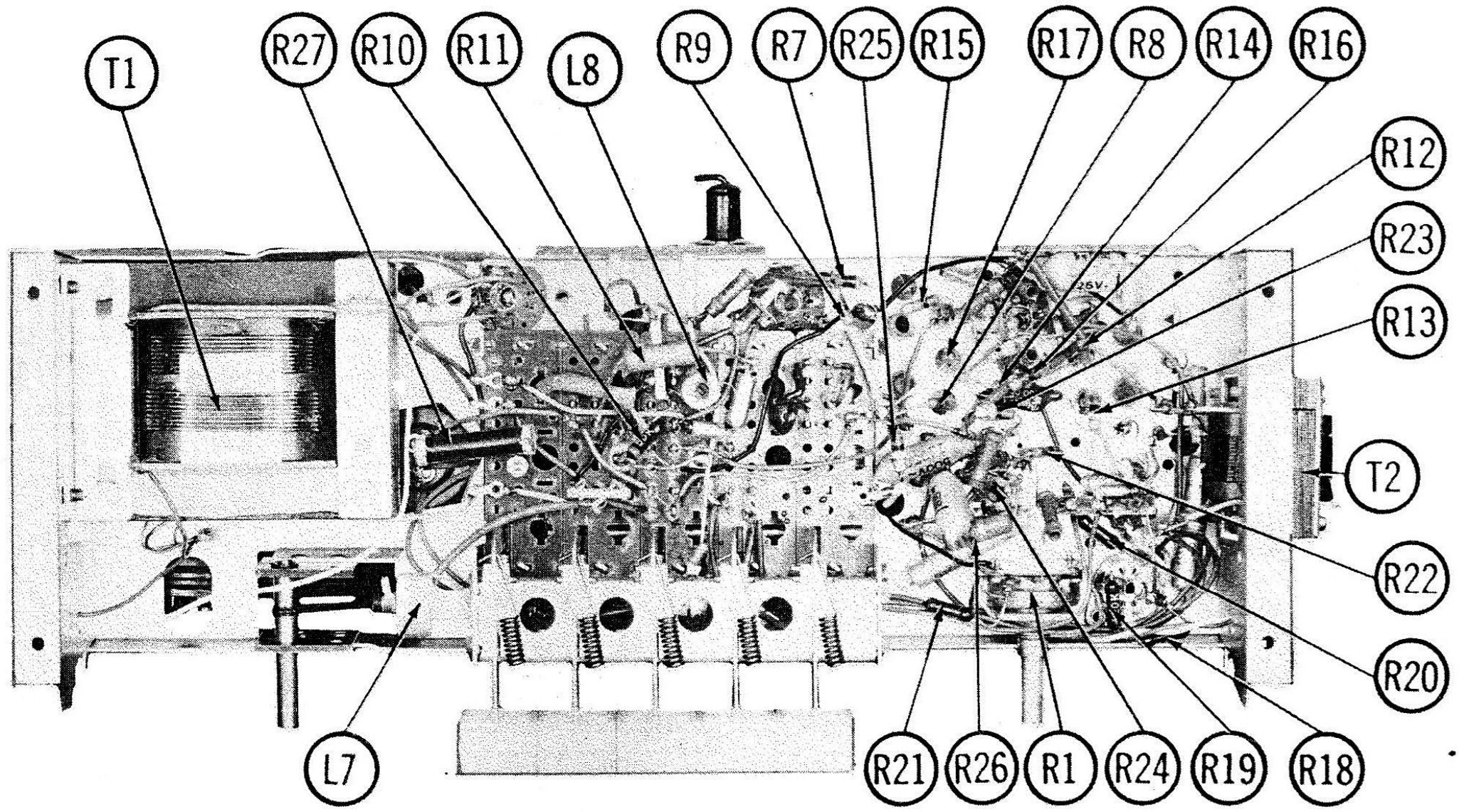


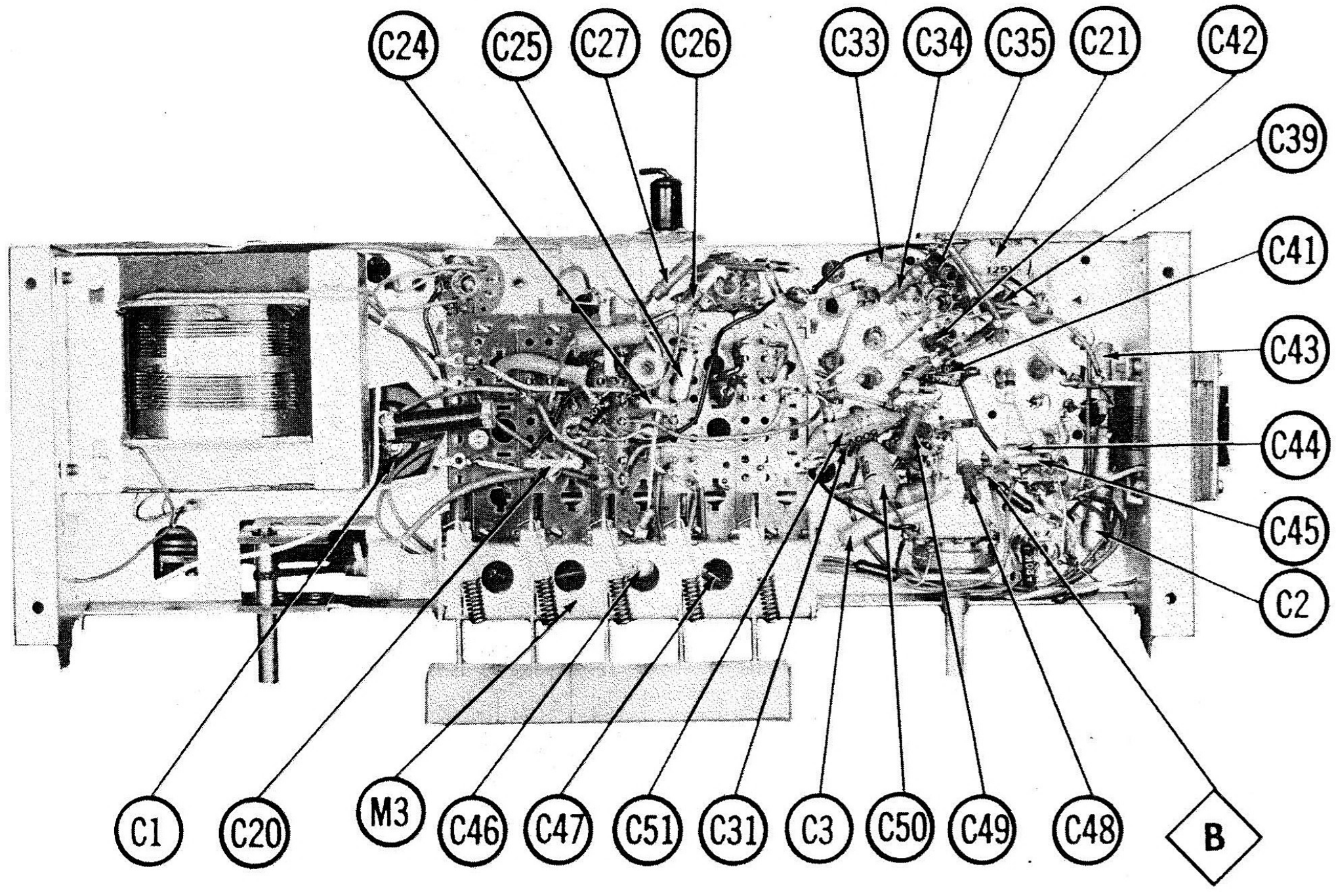
FIG. 2

EMUD MODELS 186, 196

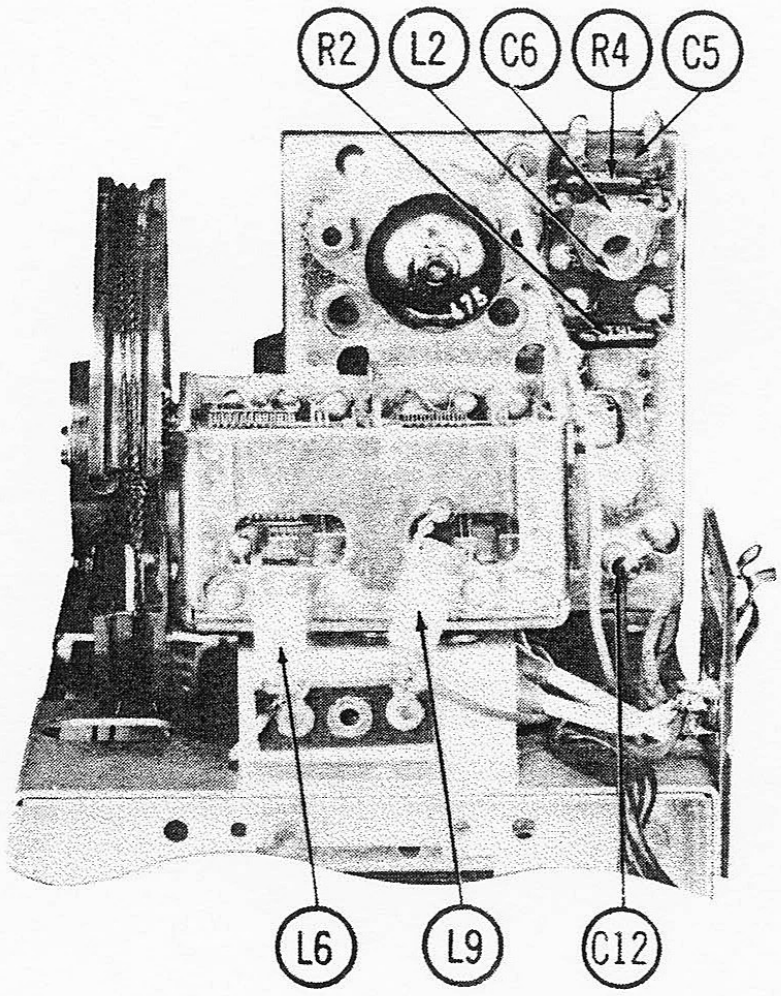
FOLDER 9



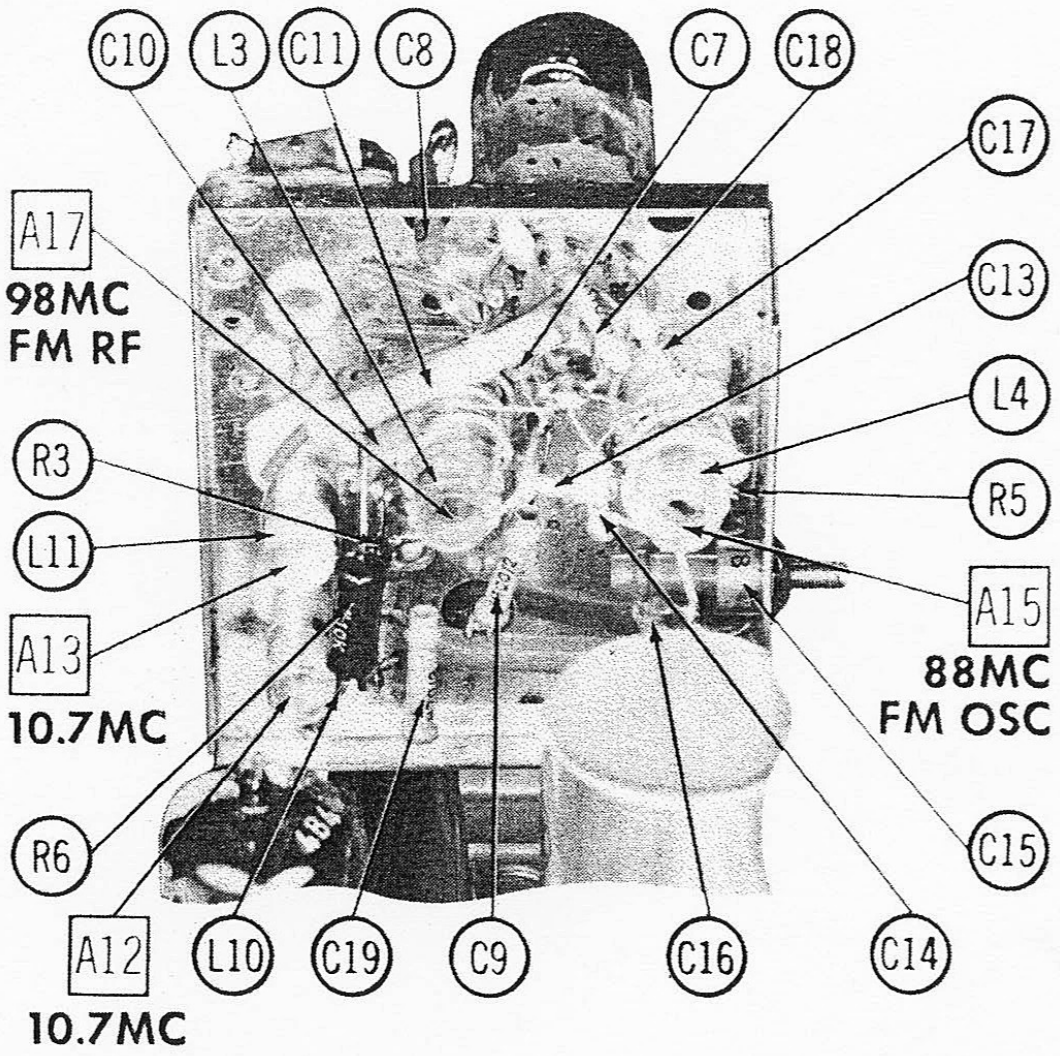
CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



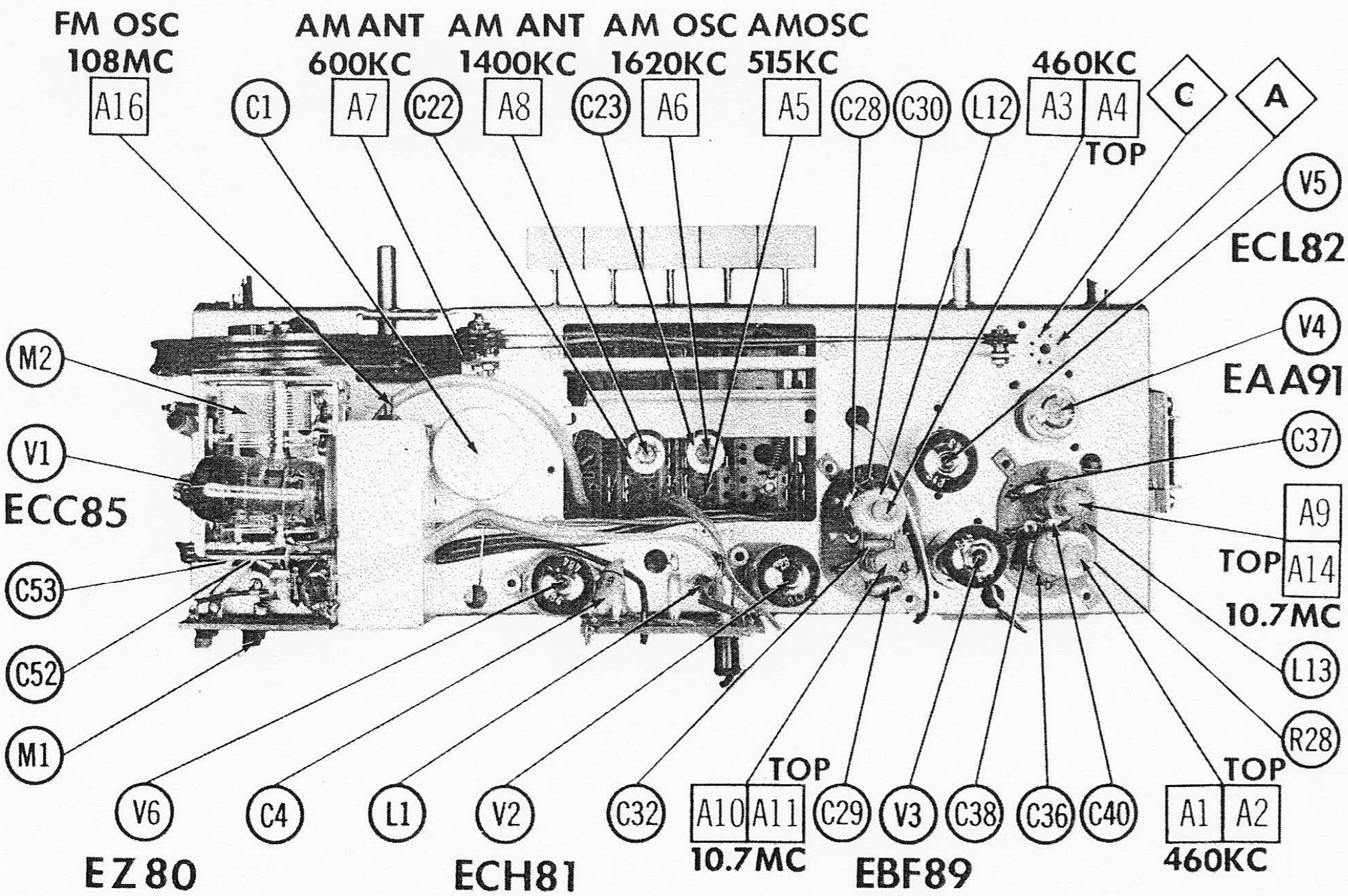
CHASSIS-BOTTOM VIEW-CAPACITOR IDENTIFICATION



FM RF SUBCHASSIS - TOP VIEW



FM RF SUBCHASSIS - BOTTOM VIEW



CHASSIS - TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amp. -FM Conv.	ECC85	V4	Ratio Det.	EAA91
V2	1st FM IF Amp. -AM Mixer-AM Osc.	ECH81	V5	AF Amp. -Output	ECL82
V3	2nd FM IF Amp. -AM IF Amp. -AM Det.-AVC	EBF89	V6	Rectifier	EZ80

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	EMUD PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	50	350	)			TCD78			
B	50	350	)						
C2	4	100		PRS1400	BBR4-150	TT150X4	TD-4-150	TE-1403	
C3	50	15		XPP15050	BBR50-25	TT15X50	ML50-15	TE-1160	

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-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	.0005 500V		P688N-0005	D6-501	CUB6T5	CCD-501	GP350	6TM-T5
C5	30		DI-30	DD-300	L10Q3	CCD-300	GP430	10TS-Q30
C6	1500		BPD-0015	D6-152	BYA10D15	CCD-152	GP215	5HK-D15
C7	2.5		NPO-DI 2.2	DTZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V27
C8	5000			TCZ-100		CM-15-E-101G	MCE235	
C9	100 2%							
C10	1500		BPD-0015	D6-152	BYA10D15	CCD-152	GP215	5HK-D15
C11	600 2%					CM-20D-601G		
C12	5000							
C13	50		SI 51	D6-500	L10Q5	CCD-500	GP450	10TS-Q50
C14	12		SI 12	D6-120	L10Q12	CCD-120	GP412	10TS-Q12
C15	1-8							
C16	45		SI 47	D6-470	L10Q47	CCD-470	GP447	10TS-Q47
C17	20 .05%		NPO-SI 20					
C18	10 5%		NPO-SI 10	TCZ-10	C10Q1C	CM-19B-100J	MCE215	10TCC-Q10
C19	70 2%			TCZ-75		CM-15-E-680G		
C20	120		SI 120	D6-121	L10T12	CCD-121	GP312	10TS-T12
C21	.05 125V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S5
C22	30 (Max)							
C23								
C24	50 5%			TCZ-50	C10Q5C	CM-19B-500J	CNO-450	MS-45
C25	500		SI 500	D6-501	BYA10T5	CCD-501	GP350	10TS-T50
C26	100 2.5%			TCZ-100		CM-15-E-101G	MCE235	
C27	5000		SI 5000	D6-502	BYA10D5	CCD-502	GP250	5HK-D50
C28	300 2.5%					CM-15-E-301G	MCE241	
C29	300 2.5%					CM-15-E-301G	MCE241	
C30	15		NPO-SI 15	D6-150	L10Q15	CCD-150	GP415	10TS-Q15
C31	5000		SI 5000	D6-502	BYA10D5	CCD-152	GP250	5HK-D50
C32	15 .05%							
C33	100 5%			TCZ-100	C10T1C	CM-19B-101J	CNO-310	MS-31
C34	5000		SI 5000	D6-502	BYA10D5	CCD-502	GP250	5HK-D50
C35	5000		SI 5000	D6-502	BYA10D5	CCD-502	GP250	5HK-D50
C36	6 5%				C10V6C			10TCC-V56
C37	40 5%			TCZ-39	C10Q39C	CM-19B-390J	CNO-439	10TCC-Q39
C38	300 2.5%					CM-15-E-301G	MCE241	
C39	5000		SI 5000	D6-502	BYA10D5	CCD-502	GP250	5HK-D50
C40	300 2.5%					CM-15-E-301G	MCE241	
C41	.0001 500V		P688N-0001	D6-101	CUB6T1	CCD-101	GP310	6TM-T1
C42	5000		SI 5000	D6-502	BYA10D5	CCD-502	GP250	5HK-D5
C43	300 10%			TCZ-300	L10T3	CCD-301	GP330	10TS-T30
C44	1000 2.5%					CM-20E-102G	MCE255	

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.	SPRAGUE PART No.
C45	250 5%			TCZ-240	22R5T25	CM-19B-251J	GP325	MS-325
C46	2500 2.5%					CM-20E-252G	MCE460	
C47	5000		SI 5000	D6-502	BYA10D5	CCD-502	GP250	5HK-D50
C48	5000		SI 5000	D6-502	BYA10D5	CCD-502	GP250	5HK-D50
C49	5000		SI 5000	D6-502	BYA10D5	CCD-502	GP250	5HK-D50
C50	.002 500V		P688N-002	D6-202	CUB6D2	6DP-1-202	GEM-622	6TM-D2
C51	.002 500V		P688N-002	D6-202	CUB6D2	6DP-1-202	GEM-622	6TM-D2
C52	.005 500V		P688N-005	D6-502	CUB6D5	6DP-1-502	GEM-625	6TM-D5
C53	.005 500V		P688N-005	D6-502	CUB6D5	6DP-1-502	GEM-625	6TM-D5

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	EMUD PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	1.3meg	½		AB-70				Volume
B	Shaft			AK-29				

RESISTORS

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

ITEM No.	RATING	REMARKS
R2	15Ω	
R3	2000Ω	
R4	180Ω	
R5	1meg	
R6	10K	
R7	1meg	
R8	1000Ω	
R9	30K	
R10	50K	

ITEM No.	RATING	REMARKS
R11	33K	
R12	1.6meg	
R13	100K	
R14	300K	
R15	1meg	
R16	1000Ω	
R17	30K	
R18	20K	
R19	20K	

ITEM No.	RATING	REMARKS
R20	100K	
R21	20K	
R22	10meg	
R23	100K	
R24	1meg	
R25	100K	
R26	330Ω	
R27	1000Ω 5W	
R28	50Ω	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		EMUD PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	FM Ant. Coil							
L2	FM Ant. Trans.							
L3	FM RF Coil							
L4	FM Osc. Coil							
L5	Loopstick							
L6	RF Choke		19-1001	19-1001	BC-562	4604		1.5uh ①
L7	IF Trap Coil							932uh
L8	AM Osc. Coil							
L9	RF Choke		19-1001	19-1001	BC-562	4604		1.5uh ①
L10	1st FM IF Primary							
L11	1st FM IF Secondary							
L12A	2nd FM IF Trans.	)						
B	1st AM IF Trans.	)						
L13A	Ratio Det.	)						
B	2nd AM IF Trans.	)						

① Not used in some versions.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	EMUD PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .59A	500VCT @ .080A	6.3V@ 2.4A	BV70720						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	EMUD PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5300Ω tap@ 6.25%	4-6Ω	BV70725							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	EMUD PART No.	QUAM PART No.	
SP1 SP2	4" x 7" 3 3/8"	PM Electrostatic*	4-6Ω			* Used in Model 196 only.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			EMUD PART No.		LITTELFUSE * PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1		1A 125V						

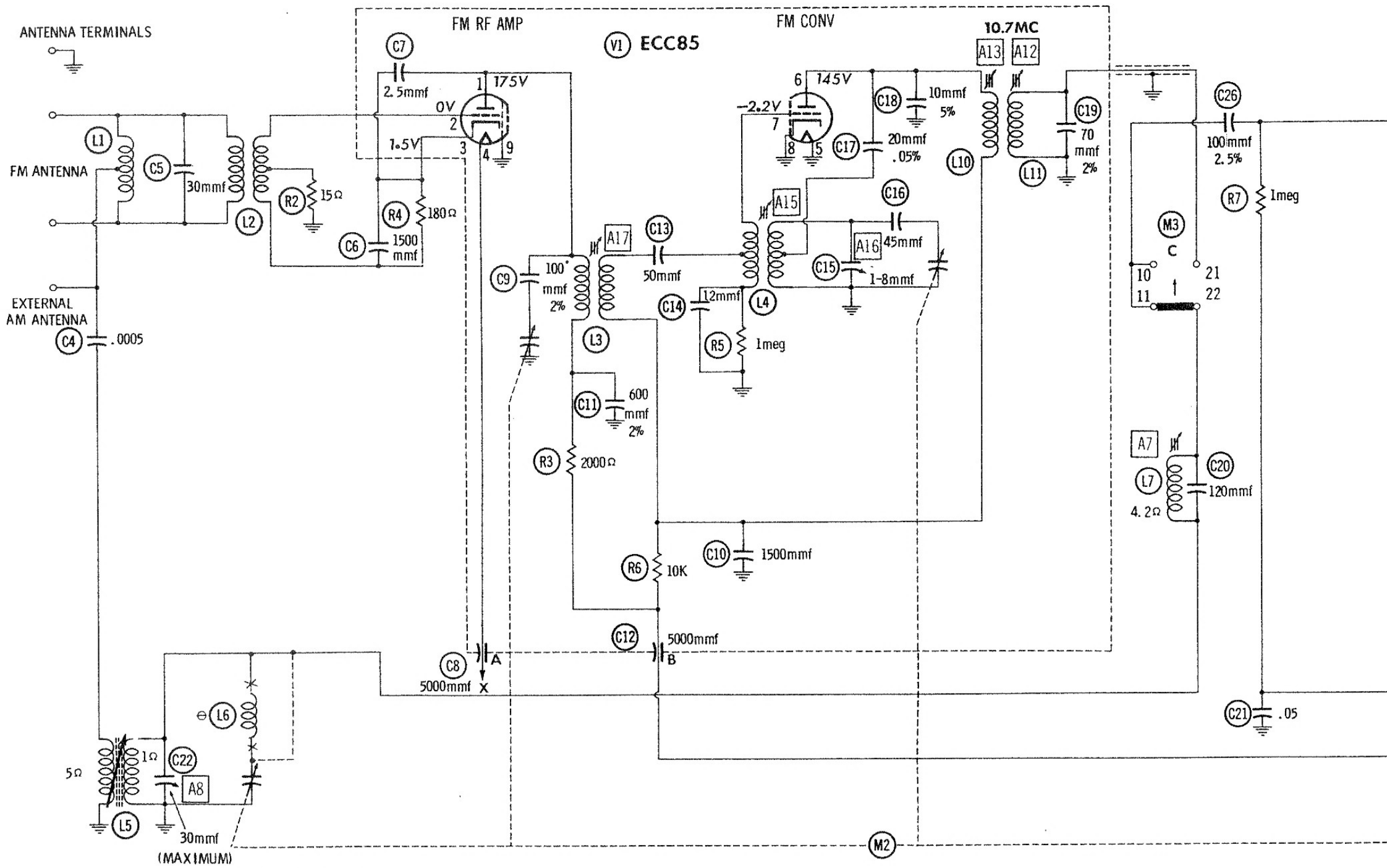
MISCELLANEOUS

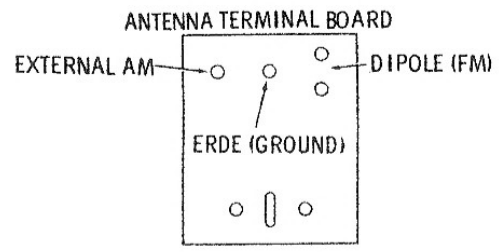
ITEM No.	PART NAME	EMUD PART No.	NOTES
M2 M3	Tuning Cap. Switch		2 Gang Complete (Pushbutton Type) Includes Off-Phono-FM-AM Treble-Bass

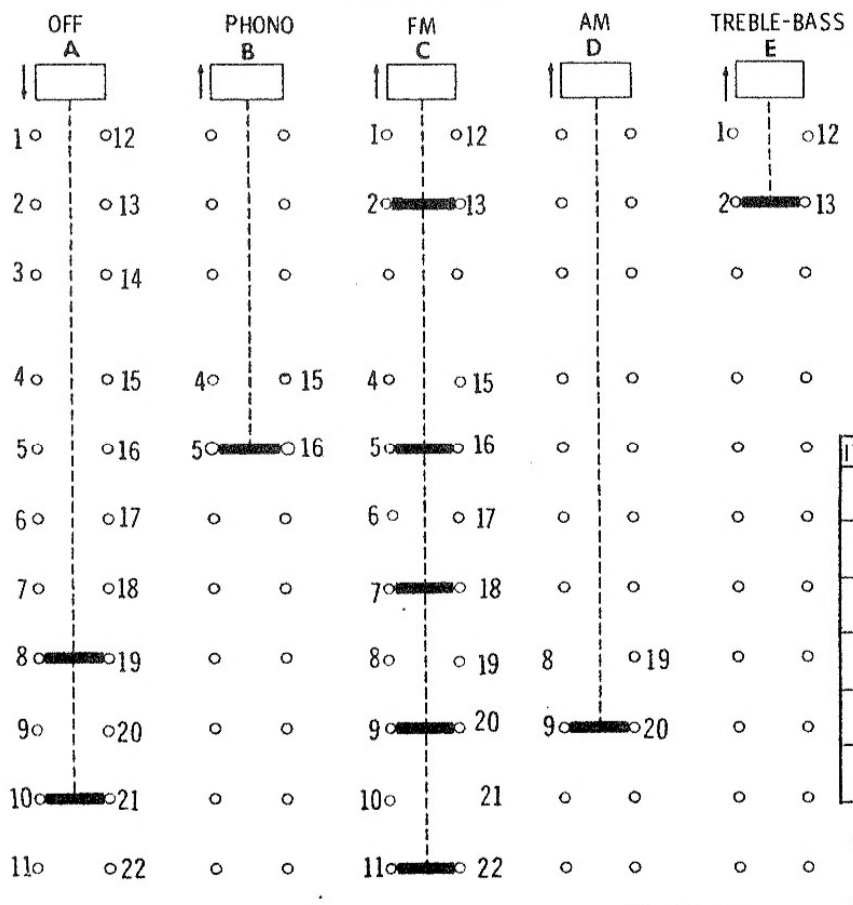
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K ($7\frac{1}{2}$ Ft. Length)







PUSH-BUTTON SELECTOR SWITCH (M3) SHOWN WITH ALL BUTTONS UNDEPRESSED.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

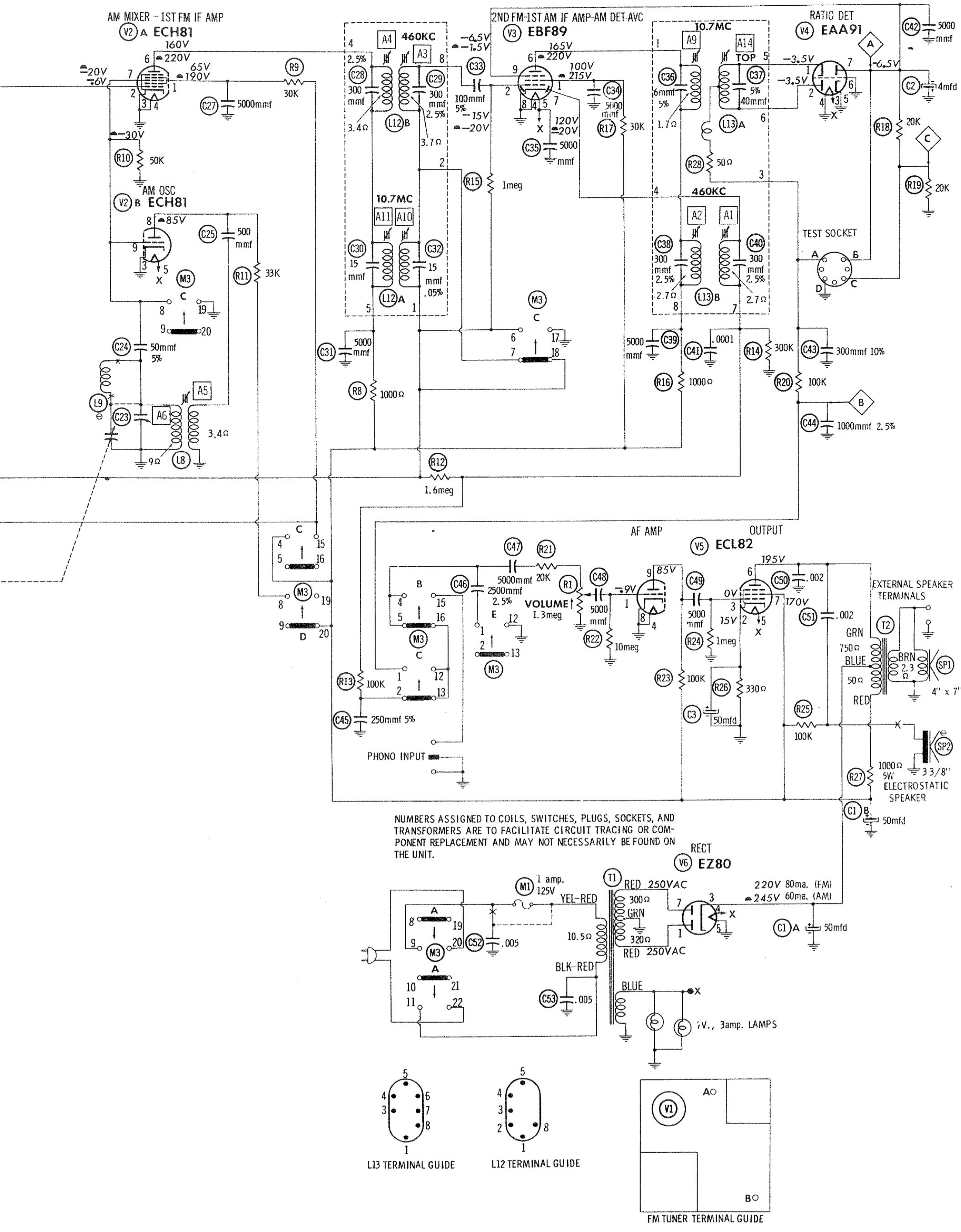
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC85	†3000Ω	15Ω	195Ω	.2Ω	0Ω	†11K	1meg	0Ω	0Ω
V2	ECH81	†31K	1meg -2.9meg	0Ω	0Ω	.2Ω	†2000Ω	0Ω -50K	†-34K	0Ω -50K
V3	EBF89	†31K	1meg -2.9meg	0Ω	0Ω	.2Ω	†2000Ω	300K	NC	40K
V4	EAA91	INF	INF	.2Ω	0Ω	0Ω	0Ω	40K		
V5	ECL82	10meg	330Ω	1meg	0Ω	.2Ω	†750Ω	†1000Ω	0Ω	†100K
V6	EZ80	320Ω	NC	¶	.2Ω	0Ω	NC	300Ω	NC	NC

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 3 OF V6.
- MEASURED IN "AM" POSITION.
NC NO CONNECTION



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