



EICO
MODEL HF-20



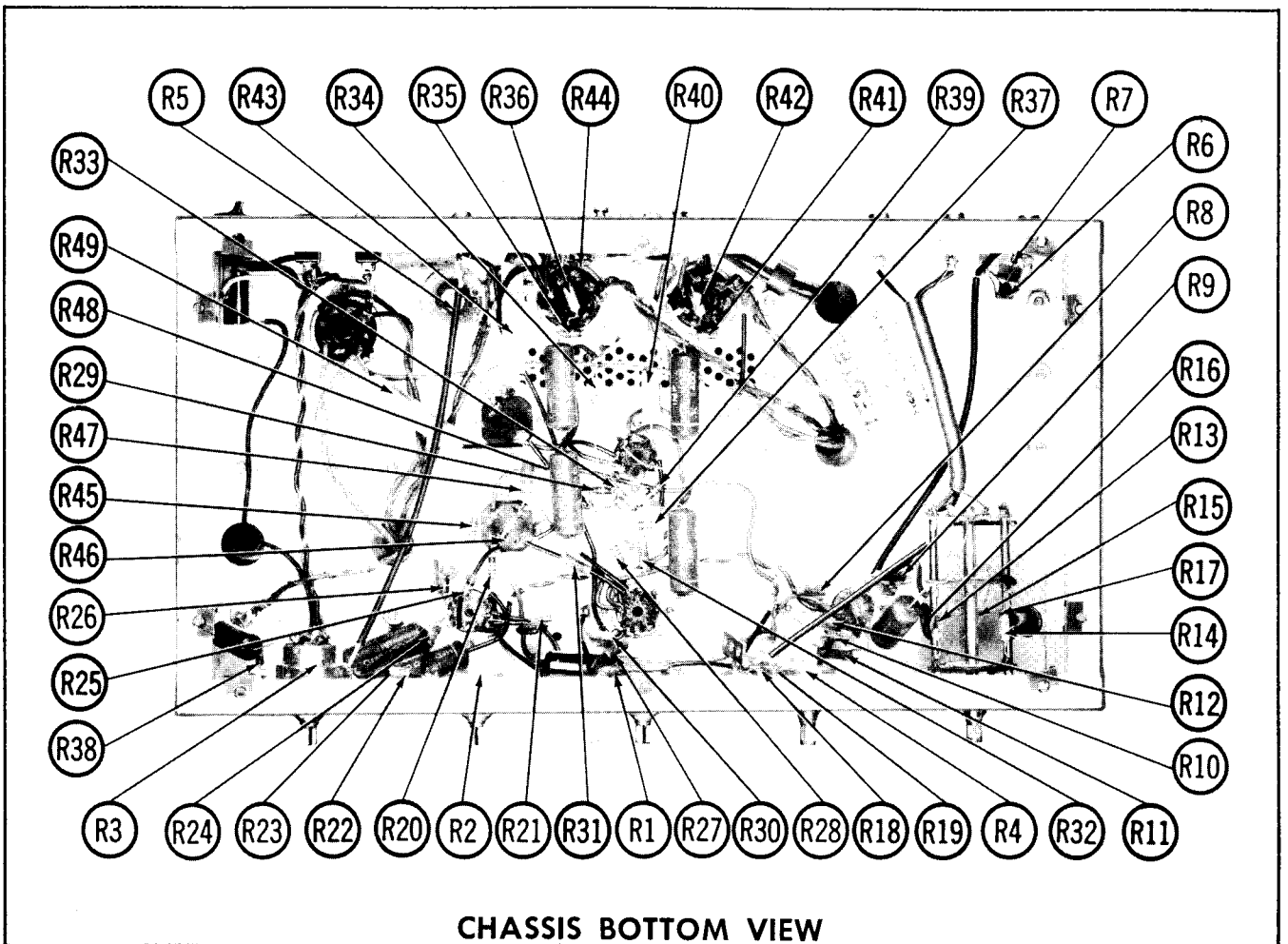
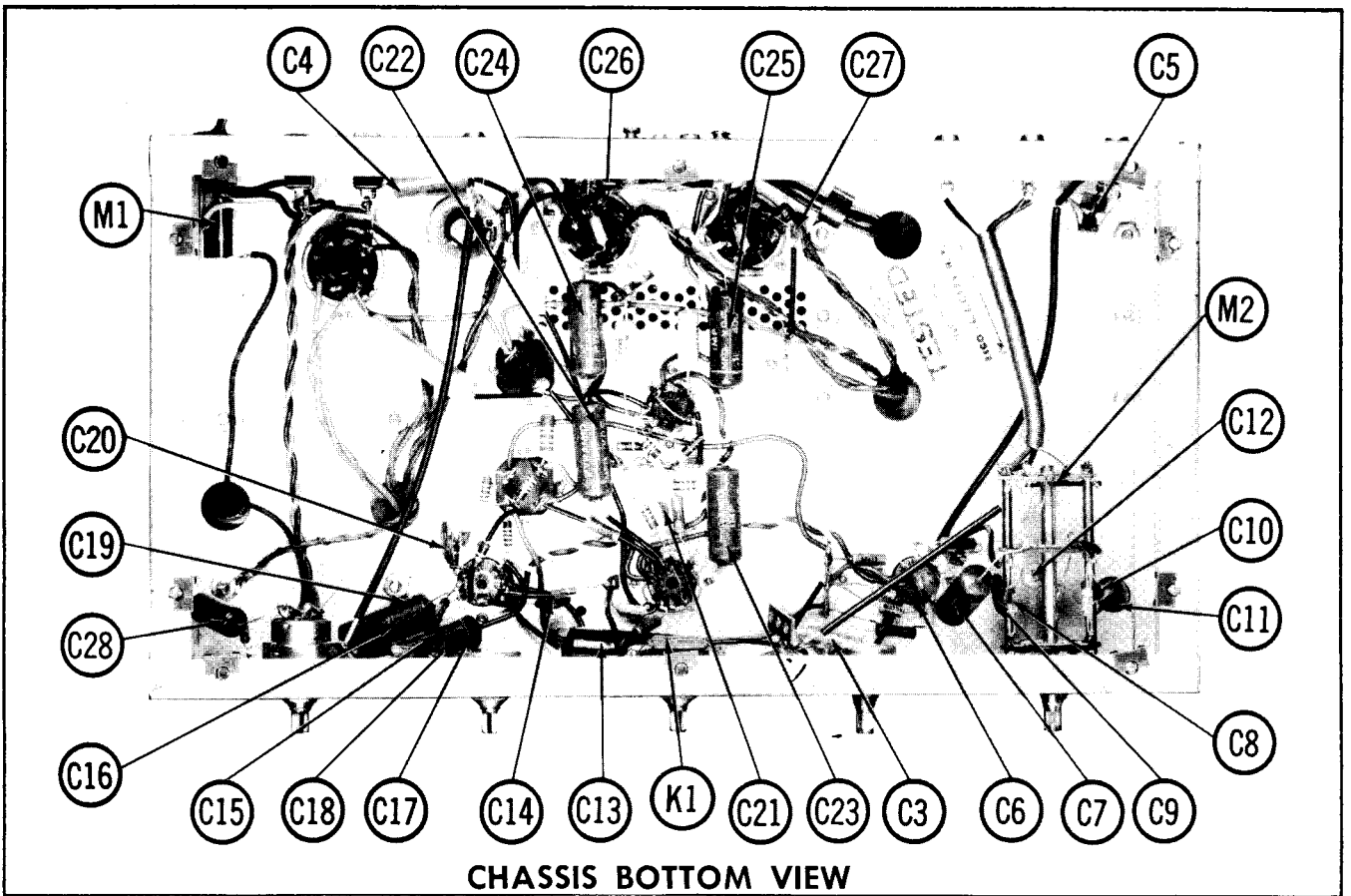
EICO
MODEL HF-20

TRADE NAME	Eico Model HF-20		
MANUFACTURER	Electronic Instrument Co., Inc., 84 Withers St., Brooklyn 11, N. Y.		
TYPE SET	AC Operated 7 Tube Audio Amplifier		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	100 Watts, .9 Amp. @117 Volts AC

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

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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW

ITEM No.	USE	GENERAL ELECTRIC		RAYTHEON		SYLVANIA	
		TYPE	ITEM No.	USE	TYPE		
V1	Phono Pre-amplifier	ECC83(2AX7, 12AD7)*					
V2	A.F. Amplifier	ECC83 (12AX7) *	V5	Output	6L6GB		
V3	A.F. Amp-Phase Inverter	ECC82 (12AU7A) *	V6	Output	6L6GB		
V4	Driver	ECC82 (12AU7A) *	V7	Rectifier	5U4GB		

* Alternate.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
		EICO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
C1A	500	24008	AFH2-71-90	B0530	FP399, 5	TMD-62
C1B	500		AFH4-90	D0130	FP474, 5	TMQ-12
C2A	20 450	24003				
C2B	20 450					
C2C	10 350					
C2D	10 350					
C3	10 6	23014	XPP6010	NLW10-6	TT6X10	ML10-6
C4	50 50	23011	FRS1350	BR505	TC39	TD-50-50

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				SPRAGUE PART No.
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENC0 PART No.	
C5	47		DI-47	DD-470	LI0Q47	CCD-470	GP447
C6	20000		BPD-02	DD-203	BYB652	CCD-203	GP120
C7	.1 400V 10%		V84C4P1-10%	DD-821	PM4P1	4DP-3-104	GP382
C8	850 10%		DI-3300	DD-821	IR5T82	CCD-821	JL-233
C9	3300 10%		DI-5000	DD-501	PM6D33	CCD-332	GP350
C10	5000 10%		DI-5000	DD-501	5R5T5	CCD-501	JL-250
C11	2700 10%		DI-2700	DD-270	PM6D5	CCD-502	JL-250
C12	2700 10%		P488N-25	DD-222	IR5D27	CCD-272	GP222
C13	25 400V		P488N-1	DD-104	PM6D25	4DP-5-254	GEM-4025
C14	2200 10%		DI-100	DD-101	PM6D22	CCD-222	GP222
C15	10 600V		DI-100	DD-101	LJ0T1	CCD-101	GEM-401
C16	2200 10%		BPD-0022	DD-222	BYA10D22	CCD-222	GP222
C17	2200 10%		DI-2700	DD-270	IR5D27	CCD-272	GP222
C18	2700 10%		V84C4P1-10%	DD-203	PM4P1	4DP-3-104	GP120
C19	1. 400V 10%		BPD-02	DD-203	BYB652	CCD-203	GP382
C20	20000		DI-320	DD-821	IR5T82	CCD-821	GP382
C21	850 10%		V84C4P1-10%	DD-821	PM4P1	4DP-3-104	GP382
C22	.1 400V 10%		V84C4P1-10%	DD-821	PM4P1	4DP-3-104	GP382
C23	.1 400V 10%		V84C4P1-10%	DD-821	PM4P1	4DP-3-104	GP382
C24	.1 400V 10%		V84C4P1-10%	DD-821	PM4P1	4DP-3-104	GP382
C25	.1 400V 10%		V84C4P1-10%	DD-821	PM4P1	4DP-3-104	GP382
C26	100 10%		DI-100	DD-101	LI0T1	CCD-101	GP310
C27	330 10%		DI-330	DD-331	LI0T33	CCD-331	GP333
C28	.03 600V		P688N-03	DD-303	CUB653	6DP-3-303	GEM-613

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		EICO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	
R1A	500K *	18021	C1-60 †	B20-133XX	Loudness
R2A	Shaft	18020	B-69	SK1	Not Req.
R3A	500K	18008	Not Req.	A47-1meg-S	Bass
R3B	250K Tap		BT-65	KSS-3	Not Req.
R3C	Switch		BT-65	A47F5-500K	Treble
R4A	500K	18019	KR-1	76-1	Not Req.
R4B	Shaft		B-60	SWE-12	US-26
R5A	100K	19009	Not Req.	A47-500K-Z	Level
R5B	Shaft		WN-101	KSS-3	Not Req.
R5C	Shaft		FKS-1/4	A43-100	R100L
				FKS-1/4	Hum Balance

* Taps @ 150K, 300K.
† Includes K1.

CONTROLS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					INSTALLATION NOTES	
			ETCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS - IBC PART No.	MALLOY PART No.		
R1A	500K *		18021	CI-60 †			E20-133XX	UD2-283	Loudness
B	Shatt		18020	Not Req.			Q11-137	Not Req.	Not Req.
R2A	1meg		18008	B-69	A47-1meg-S		Not Req.	U54	Bass
B	Shatt			Not Req.	KSS-3		Not Req.	Not Req.	Treble
R3A	500K			BT-65	A47F3-500K		Q19-133X	UT-431	
B	Shatt			Not Req.	KSS-3		Not Req.	Not Req.	
C	Switch		18019	KR-1	SWE-12		76-1	US-26	Power Off-On
R4A	500K		19009	B-60	A47-500K-Z		Q13-133	U48	Level
B	Shatt			Not Req.	KSS-3		Not Req.	Not Req.	
R5A	100K			WN-101	A43-100		W11-084	RI001L	
B	Shatt			Not Req.	FKS-1/4		SK5	Not Req.	Hum Balance

* Taps @ 150K, 300K.
† Includes KI.

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

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

ITEM No.	RATING	REMARKS	ITEM No.	RATING	REMARKS	ITEM No.	RATING	REMARKS
R6	68K		R21	1200K		R36	100K 5%	
R7	33K		R22	68K 5%		R37	470K	
R8	200K 5%		R23	68K 5%		R38	47K	
R9	1200K 5%		R24	470K 5%		R39	500K	
R10	375K 5%		R25	100K		R40	47K 2W	
R11	120K 5%		R26	3300K		R41	100K 5%	
R12	3400K 5%		R27	10K		R42	100K 5%	
R13	100K 5%		R28	47K		R43	350K 10W	
R14	100K 5%		R29	1500K		R44	10K	
R15	4.7meg 5%		R30	470K		R45	33K	
R16	560K 5%		R31	22K		R46	47K	
R17	2.2meg 5%		R32	22K		R47	33K 1W	
R18	56K		R33	470K		R48	22K	
R19	330K		R34	47K 2W		R49	600K 2 10W	
R20	33K		R35	100K				

TRANSFORMER (POWER)

ITEM No.	RATING		REPLACEMENT DATA		Triod PART No.
	PRI.	SEC.	ETCO PART No.	Merit PART No.	
T1	11V @ .9A	740 VCT @ .105A	30016	24R22U	PC8410 ① 24R22U
	SEC. 3	SEC. 4	SEC. 5		
	6.3V @ 2.9A				

① Tape Green/yellow lead.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES	
	PRI.	SEC.	ETCO PART No.	Hollidson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.		Triod PART No.
T2	750K @ 150K	15K Tap @ 4K	30004	22S43 ①	A-3101 ①	A-8072	22S43 ①	S-146A ①	① Drill New Mounting Holes



FCC83

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ETCO PART No.	REPLACEMENT DATA
K1	Loudness Comp.	100mmf, 200mmf, 450mmf, 450mmf, 50K, 50K		Aerovox Centralab Sprague PA-682 PC-324 TC-4

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			ETCO PART No.	HOLDER	BUSS PART No.	HOLDER		
M1	3AG	2A 250V	FUSE 91000	HOLDER 97800 (3AG 2A 250V)	FUSE 312002	HOLDER 341001	FUSE AGC 2	HOLDER HKP-CC

MISCELLANEOUS

ITEM No.	PART NAME	ETCO PART No.	NOTES
M2	Switch	60038	Function Selector (Rotary Water Type)

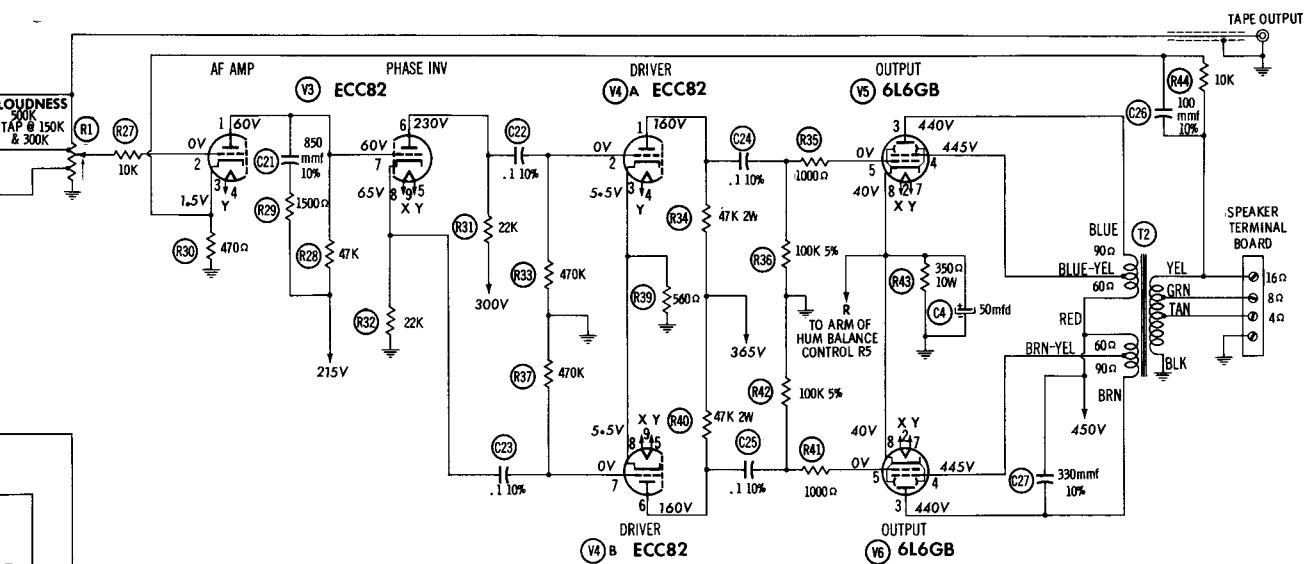
CABINETS & CABINET PARTS

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

NAME	PART NO.	DESCRIPTION
Knob	33007	Round
Knob	33008	Round with 1/2" Shank

WIRING DATA

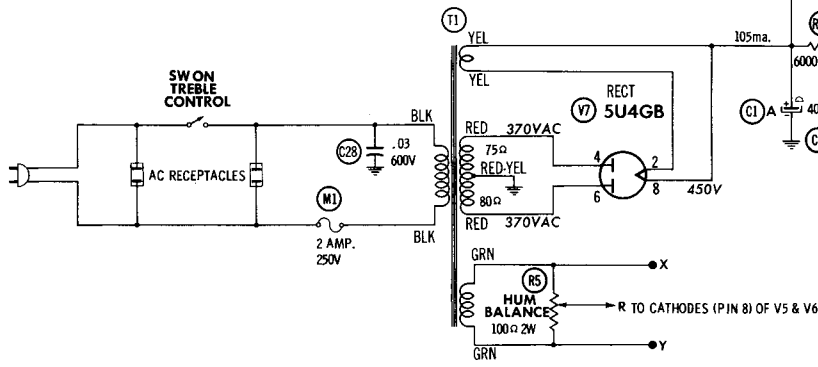
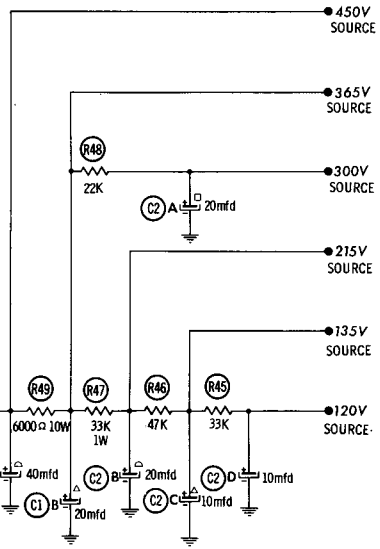
General-use Unshielded Hook-up Wire Use BLDEN No. 8530 (Solid) Available in Ten Colors
 Power Cord Use BLDEN No. 8524 (Stranded) Available in Ten Colors
 Use BLDEN No. 1765-B (6 Ft. Length)
 Use BLDEN No. 1725-K (7 1/2 Ft. Length)



RESISTANCE READINGS

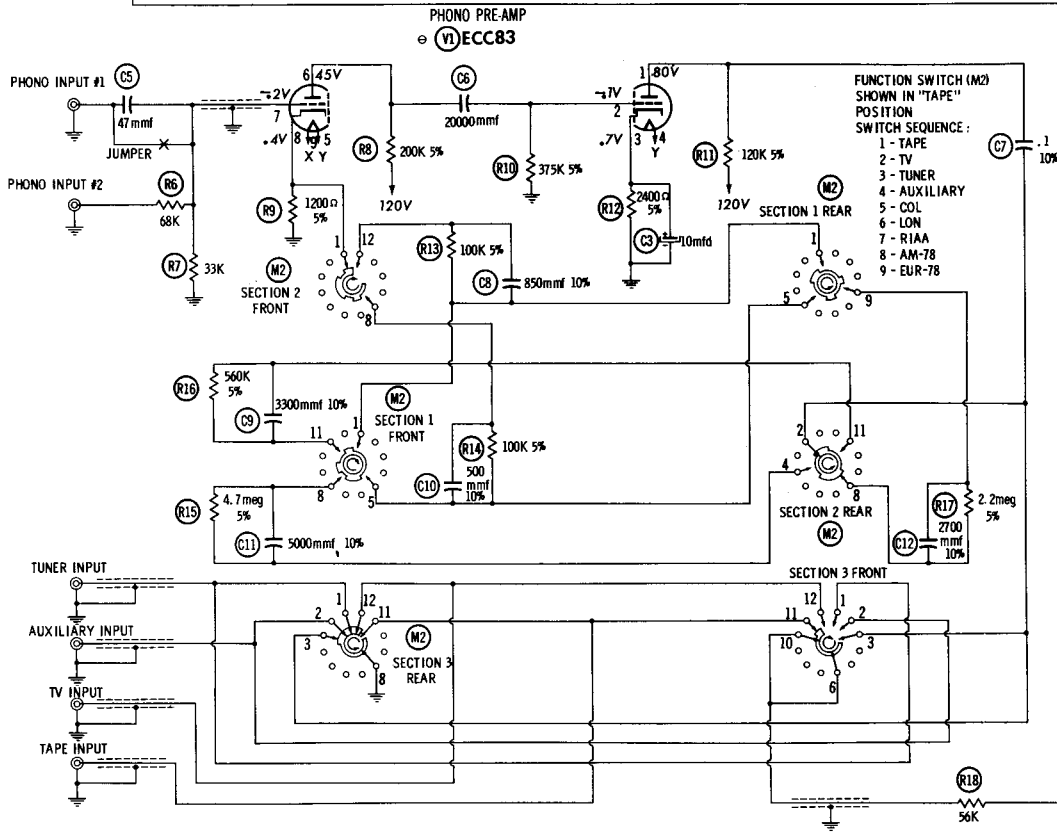
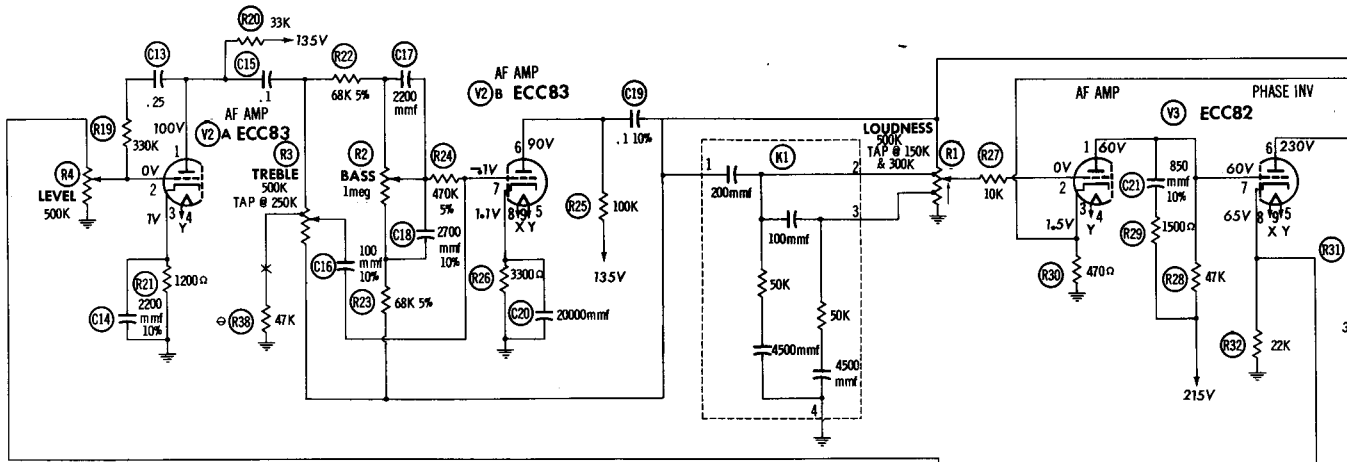
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC83	↑ 240K	375K	2400Ω	390Ω	390Ω	↑ 320K	33K	1200Ω	390Ω
V2	ECC83	↑ 120K	0Ω	1200Ω	390Ω	390Ω	↑ 185K	750K	3300Ω	390Ω
V3	ECC82	↑ 86K	10K	470Ω	390Ω	390Ω	↑ 50K	↑ 86K	22K	390Ω
V4	ECC82	↑ 53K	470K	560Ω	390Ω	390Ω	↑ 53K	470K	560Ω	390Ω
V5	6L6B	0Ω	390Ω	↑ 150Ω	↑ 60Ω	100K	TP	390Ω	350Ω	
V6	6L6B	0Ω	390Ω	↑ 150Ω	↑ 60Ω	100K	TP	390Ω	350Ω	
V7	5U4GB	NC	↑	NC	75Ω	NC	80Ω	NC	↑	

↑ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
 † MEASURED FROM PIN 8 OF V7.
 NC NO CONNECTION TP FIE POINT



with vacuum tube voltmeter;
 5 per volt.
 bottom views.
 in to common negative.
 for voltage readings.
 values makes possible a
 resistance readings.
 output load connected.

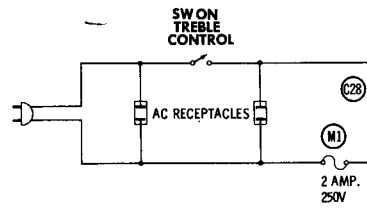
⊙ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
 DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
 ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4
V1	ECC83	†240K	375K	2400Ω	390Ω
V2	ECC83	†120K	0Ω	1200Ω	390Ω
V3	ECC82	†86K	10K	470Ω	390Ω
V4	ECC82	†53K	470K	560Ω	390Ω
V5	6L6B	0Ω	390Ω	†150Ω	†60Ω
V6	6L6B	0Ω	390Ω	†150Ω	†60Ω
V7	5U4GB	NC	†	NC	75Ω

† THIS READING WILL VARY DEPENDING UPON THE COND. MEASURED FROM PIN 8 OF V7.
 NC NO CONNECTION TP TIE



- DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance of component values makes possible a variation of ±1% in voltage and resistance readings.
- All controls at minimum, proper output load connected.