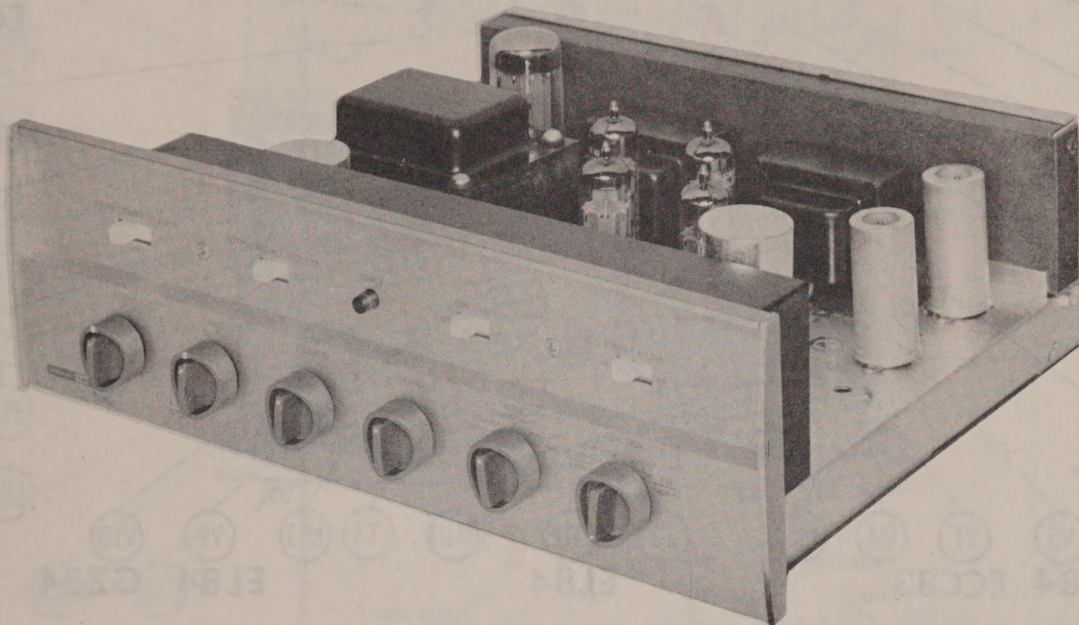




HARMAN-KARDON
MODEL A-230



HARMAN-KARDON
MODEL A-230

TRADE NAME	Harman-Kardon Model A-230 (The Ballad)		
MANUFACTURER	Harman-Kardon, Inc., 520 Main Street, Westbury, L. I., N. Y.		
TYPE SET	AC Operated 10 Tube Stereo Amplifier		
POWER SUPPLY	105 - 125 Volts AC, 60 Cycles	RATING	125 Watts, .94 Amp. @ 117 Volts AC

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 KV021

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PARTS LIST AND DESCRIPTIONS TUBES

ITEM No.	CBS	GENERAL ELECTRIC	RAYTHEON	SYLVANIA	TYPE
V1	Left Channel Preamp.	ECC83/12AX7	Left Channel Output	EL84/6BQ5	TYPE
V2	Right Channel Preamp.	12AU7/ECC82	Right Channel Output	EL84/6BQ5	
V3	Left Channel AF Amp.	12AU7/ECC82	Right Channel Phase Inv.	ECC83/12AX7	
V4	Right Channel AF Amp.	12AU7/ECC82	Right Channel Output	EL84/6BQ5	
V5	Left Channel Phase Inv.	ECC83/12AX7	Rectifier	GZ34/5AR4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA	NOTES
C1A	40 450	Harman-Kardon PART No. JE2202842	
C1B	50 350	AEROVOX PART No. AFH2-58	
C2A	40 300	CORNELL-DUBILIER PART No. C0355	
C2B	40 300	JE2362895	
C2C	40 300	AFH4-71-25	
C2D	100 25	C0194	
C2E	100 25	BR005	
C3	50 12	SRE12V50	
		BER50-25	
		TT15X50	
		TD-50-25	
		TVA-1206	

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

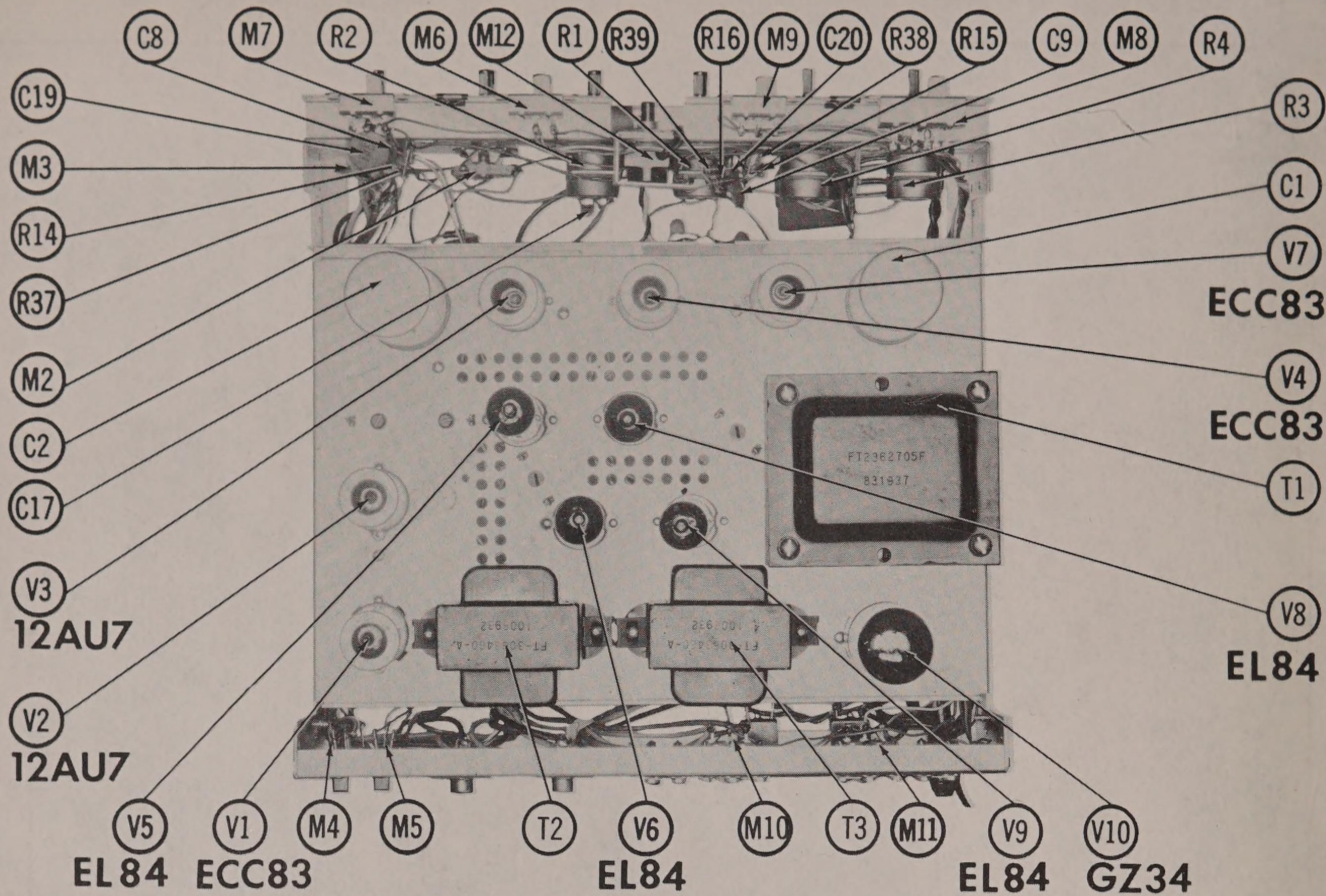
FIXED CAPACITORS

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.
C4	20000		AEROVOX PART No. BPD-02	SHK-S20
C5	20000		BPD-02	SHK-S20
C6	22 N750		N750-D1 22	107TCU-Q22
C7	1.1 400V		P488N-1	4TM-P1
C8	20000		BPD-02	SHK-S20
C9	10000		BPD-01	SHK-S20
C10	10000		BPD-01	SHK-S20
C11	100 N150		BPD-02	107TCP-T10
C12	20000		BPD-02	SHK-S20
C13	20000		BPD-02	SHK-S20
C14	22 N750		N750-D1 22	107TCU-Q22
C15	20000		BPD-02	SHK-S20
C16	20000		BPD-02	SHK-S20
C17	22 N750		N750-D1 22	107TCU-Q22
C18	1.1 400V		P488N-1	4TM-P1
C19	20000		BPD-02	SHK-S20
C20	10000		BPD-01	SHK-S20
C21	10000		BPD-01	SHK-S20
C22	100 N150		BPD-02	107TCP-T10
C23	20000		BPD-02	SHK-S20
C24	20000		BPD-02	SHK-S20
C25	22 N750		N750-D1 22	107TCU-Q22

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

CHASSIS—TOP VIEW



CONTROLS

ITEM No.	RATING	REPLACEMENT DATA	INSTALLATION NOTES
R1A	WATTS	Harman-Kardon PART No. RY3065500	Loudness, Left Channel
R1B	WATTS	CLAROSTAT PART No. CTS-IRC	Loudness, Right Channel

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS (cont)

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		HARMAN-KARDON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.	
R2A	2meg	RV3063498	B-75	AD47-2meg-S	FA26L	Balance, Left Channel
B	2meg		SR-75	Not Req.	RU26L	Balance, Right Channel
C	500K	RV3063499	Not Req.	KSS-3	CS3500	Treble, Left Channel
R3A	500K					Treble, Right Channel
B	500K	RV3063499				Bass, Left Channel
R4A	500K					Bass, Right Channel
B	500K	RV3063499				Output Balance, Left Channel
R5	100K	RVCOM2569	B-1		UI	Output Balance, Right Channel
R6	100K	RVCOM2569	B-1		UI	Hum Adjust, Left Channel
R7A	100K	RV2362690	B-1		UI	Hum Adjust, Right Channel
B	100K					

* Taps at 300K and 600K.

RESISTORS

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

ITEM No.	RATING	REMARKS	ITEM No.	RATING	REMARKS	ITEM No.	RATING	REMARKS
R8	22K		R24	470K		R40	150K	
R9	470K		R25	470K		R41	270K	
R10	3.3meg		R26	270K 1W	(330K) *	R42	10meg	
R11	120K		R27	270K 1W	(330K) *	R43	180K	
R12	1200K		R28	1000K		R44	150K	
R13	39K		R29	1000K		R45	39K	
R14	22K		R30	10K 1W		R46	680K	
R15	27K		R31	10K 1W		R47	470K	
R16	68K		R32	22K		R48	270K 1W	(330K) *
R17	150K		R33	470K		R49	270K 1W	(330K) *
R18	270K		R34	3.3meg		R50	1000K	
R19	10meg		R35	120K		R51	1000K	
R20	180K		R36	39K		R52	1000K	
R21	150K		R37	22K		R53	1000K 2W	
R22	39K		R38	27K				
R23	680K		R39	68K				

* Alternate

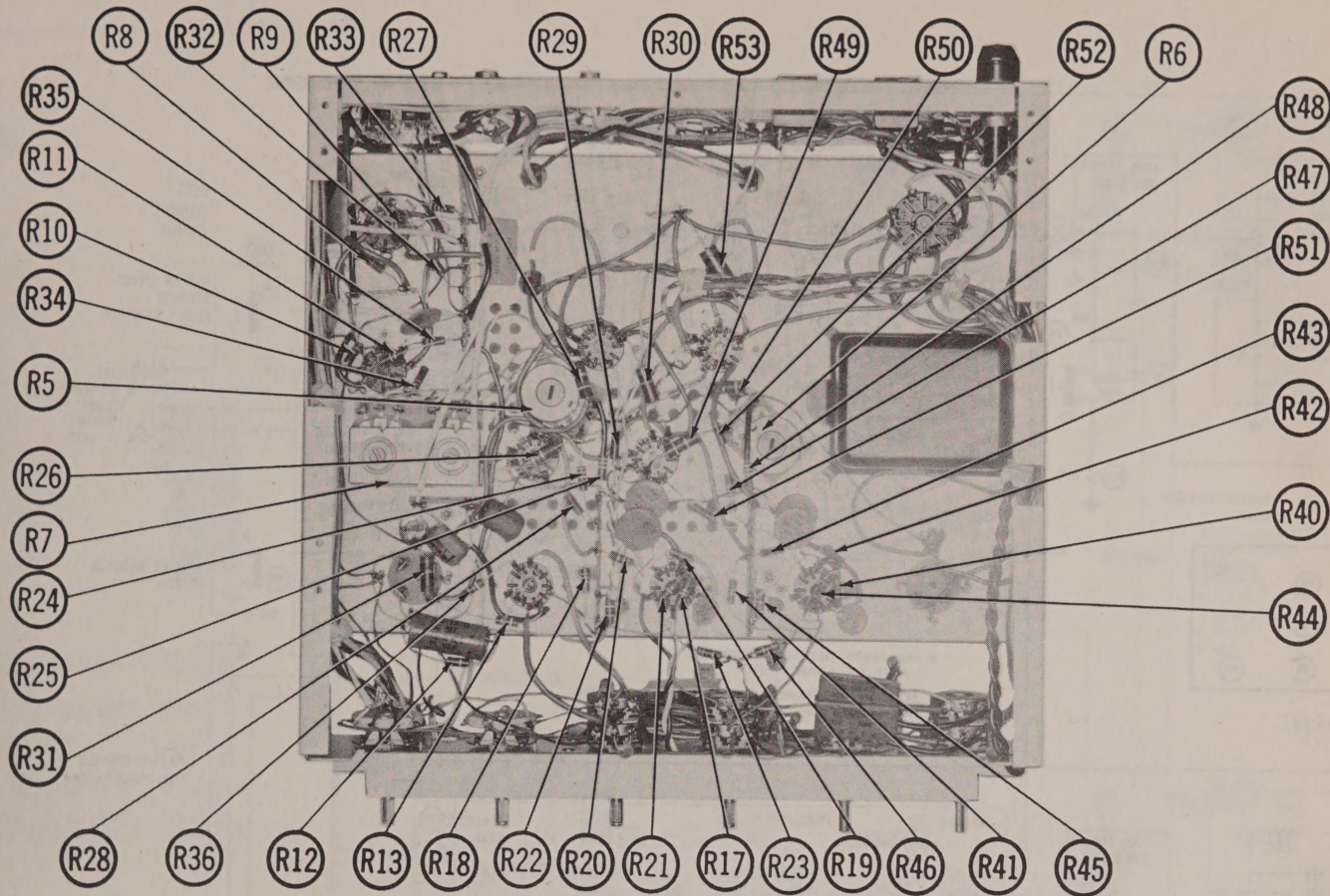
COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	HARMAN-KARDON PART No.	REPLACEMENT DATA
K1	Preamp. Cathode	500mmf, 2000mmf, 1800K, 32K, 47K, 150K	PCOM3248	Sprague TC-25
K2	Tone Comp.	750mmf, 3000mmf, 3400mmf, 1500mmf, 27K, 120K	PC2492902	Sprague TC-22
K3	Preamp. Cathode	500mmf, 2000mmf, 1800K, 32K, 47K, 150K	PCOM3248	Sprague TC-25
K4	Tone Comp.	750mmf, 3000mmf, 3400mmf, 32K, 47K, 150K	PC2492902	Sprague TC-22

TRANSFORMER (POWER)

ITEM No.	RATING		REPLACEMENT DATA			
	PRI.	SEC. 1	HARMAN-KARDON PART No.	Holldorson PART No.	Merit PART No.	Stancor PART No.
T1	117V @ 540 VCT .94A	5V @ 1.9A	FT2362705			
	SEC. 3	SEC. 4				
	6.3V @ 2.2A	6.3V @ 2.4A				

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued) **TRANSFORMER (AUDIO OUTPUT)**

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	Harman-Kardon PART No.	Holliderson PART No.	Merit PART No.	Rom PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6500Ω	160Tap CT ③ 8Ω	FT3063460-A ①							
T3	6500Ω CT	160Tap ③ 8Ω	FT3063460-A ①							

① Alternate Part #FT3063460.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA			
			Harman-Kardon PART No.		LITTELFUSE PART No.	
M1	3AG	2A 250V	FUSE	HOLDER	FUSE	HOLDER
					312002 (3AG 2A 250V)	342001 AGC 2 HKP

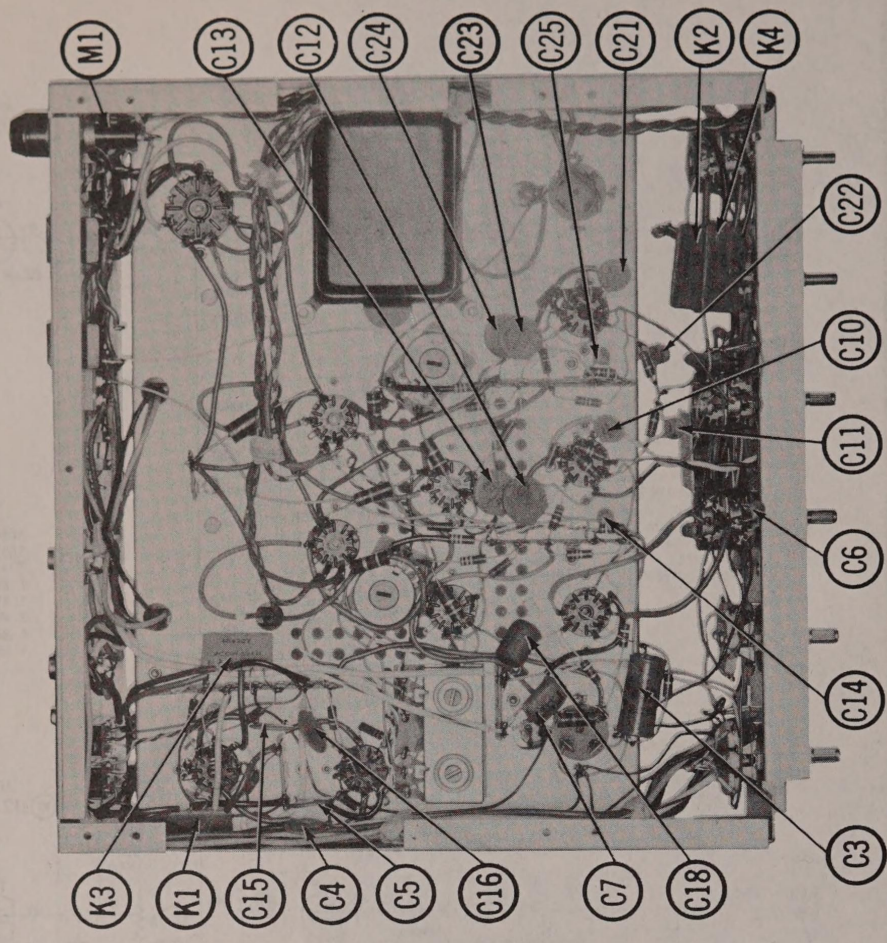
MISCELLANEOUS

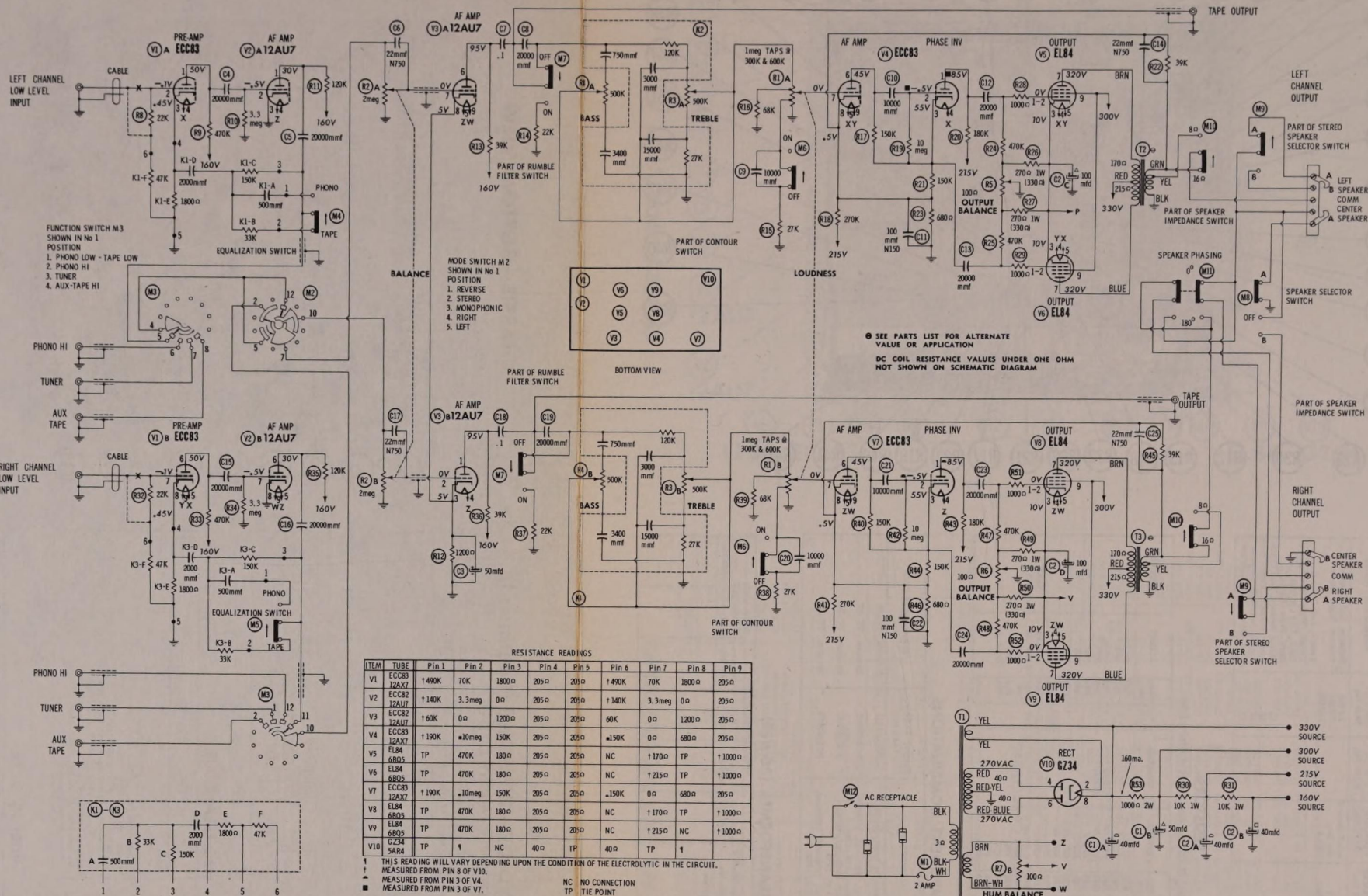
ITEM No.	PART NAME	Harman-Kardon PART No.	NOTES
M2	Switch	ER3063501	Mode
M3	Switch	ER2363340	Function
M4	Switch	ES771372	Equalization (Phono) (SPDT, Slide-Type)
M5	Switch	ES771372	Equalization (Tape) (SPDT, Slide Type)
M6	Switch	ESCOM2727	Contour (DPDT, Slide Type)
M7	Switch	ESCOM2727	Rumble Filter (DPDT, Slide Type)
M8	Switch	ESCOM2727	Speaker Selector (DP 3 position, Slide Type)
M9	Switch	ESCOM2727	Stereo Speaker Selector (DPDT, Slide Type)
M10	Switch	ESCOM2727	Speaker Impedance (DPDT, Slide Type)
M11	Switch	ESCOM2727	Speaker Phasing (DPDT, Slide Type)
M12	Switch	ESCOM2727	Power Off-On, Pushbutton Type

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors
Power Cord	8524 (Stranded) Available in Ten Colors
	1765-B (6 Ft. Length)
	1725-K (7½ Ft. Length)

CHASSIS—BOTTOM VIEW





- 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 ±15% in voltage and resistance readings.
- All controls at minimum; proper output load connected.