



HARMAN-KARDON
MODEL CITATION V



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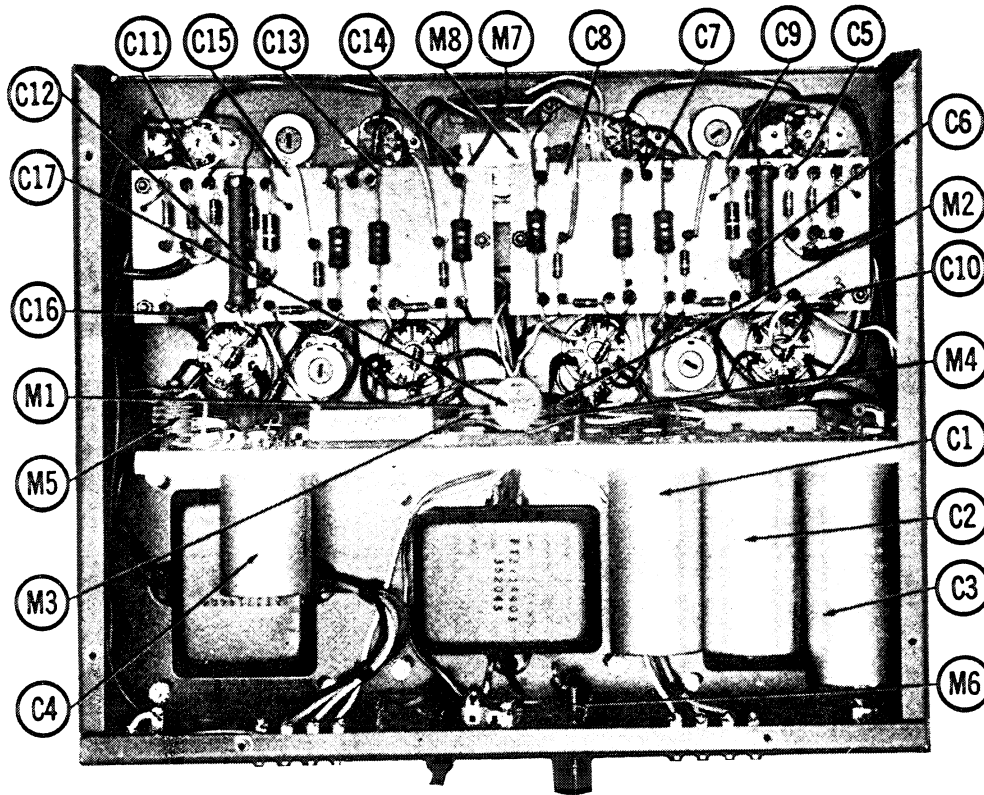
TRADE NAME	Harman-Kardon Model Citation V		
MANUFACTURER	Harman-Kardon, Inc., Ames Court, Plainview, L.I., N.Y.		
TYPE SET	AC Operated 8 Tube Stereo Amplifier		
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles	RATING	200 Watts, 2.1 Amp. @117 Volts AC

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

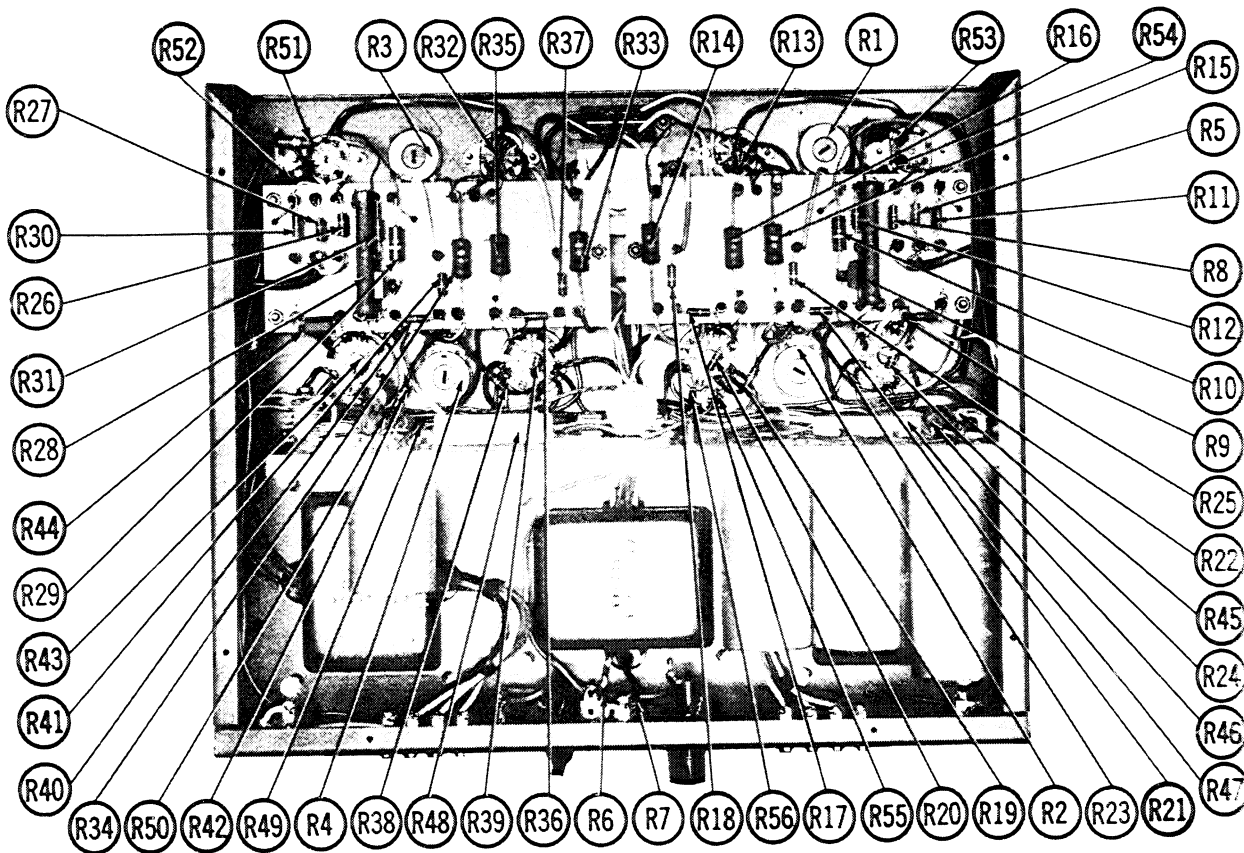


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CHASSIS BOTTOM VIEW-CAPACITOR & MISC. IDENT.



CHASSIS BOTTOM VIEW-RESISTOR IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES

GENERAL ELECTRIC			RAYTHEON			SYLVANIA		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Channel A AF Amp.	12BY7A	V5	Channel B AF Amp.	12BY7A			
V2	Channel A AF Amp. - Channel A Phase Inv.	6CG7	V6	Channel B AF Amp. - Channel B Phase Inv.	6CG7			
V3	Channel A Output	7581	V7	Channel B Output	7581			
V4	Channel A Output	7581	V8	Channel B Output	7581			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Harman-Kardon PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	200	250	JE3273851	AFH81-37-30	XA0318	XC1-21	WP132	TMD-1490	TVL-1547
C2	200	250	JE3273851	AFH81-37-30	XA0318	XC1-21	WP132	TMD-1490	TVL-1547
C3A	.90	500	JE3714399	AFH2-73	B0540				
C3B	.30	500		PR81640	BR3050				
C3C	.30	500							
C4A	.80	150	JE3714397	AFH2-20	XB0183	XC2-34	FP214, 5	TMD-2155	TVL-2442, 3
C4B	.80	150							

FIXED 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.	
C5	.47 400V		P488N-47		CUB4P47	4DP-6-474	GEM-4047	4TM-P47	
C6	430 5%		1469-00043		5R5T43	CM-19B-431J		MS-343	
C7	.47 400V		P488N-47		CUB4P47	4DP-6-474	GEM-4047	4TM-P47	
C8	.47 600V		P688N-47		CUB6P47	8DP-6-474	GEM-6047	8TM-P47	
C9	.47 600V		P688N-47		CUB6P47	8DP-6-474	GEM-6047	8TM-P47	
C10	100 5%		1469-0001	TCZ-100	22R5T1	CM-19B-101J	MCE235	MS-310	
C11	.47 400V		P488N-47		CUB4P47	4DP-6-474	GEM-4047	4TM-P47	
C12	430 5%		1469-00043		5R5T43	CM-19B-431J		MS-343	
C13	.47 400V		P488N-47		CUB4P47	4DP-6-474	GEM-4047	4TM-P47	
C14	.47 600V		P688N-47		CUB6P47	8DP-6-474	GEM-6047	8TM-P47	
C15	.47 600V		P688N-47		CUB6P47	8DP-6-474	GEM-6047	8TM-P47	
C16	100 5%		1469-0001	TCZ-100	22R5T1	CM-19B-101J	MCE235	MS-310	
C17	.01 1400V		DAC-27	DD16-103	HVE16SL	16DP-3-103	UAC-110	BL-810	

CONTROLS

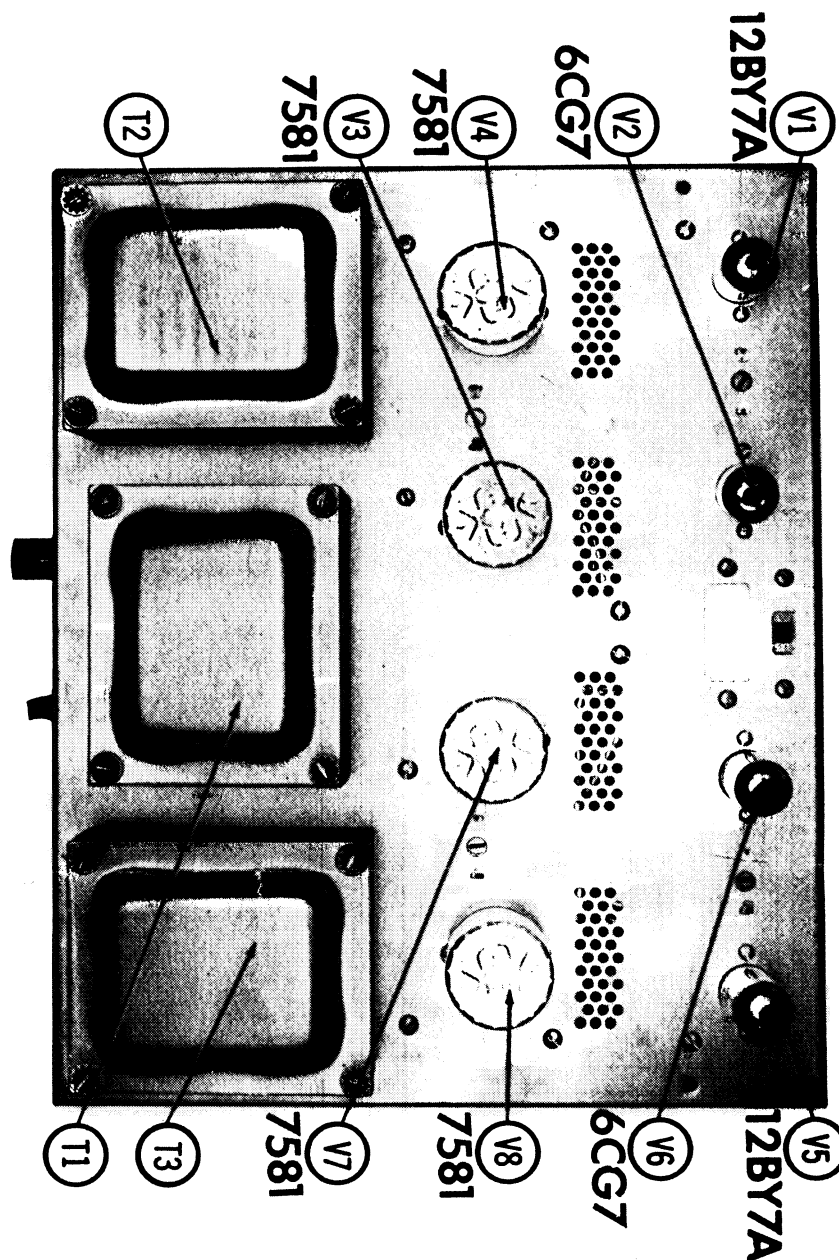
ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Harman-Kardon PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	5000Ω	1/2	RV1121910	TT-10	B47-5000-S	B11-114	TA53L	AC Balance, Channel A
R2A	5000Ω	1/2	RV1121910	TT-10	B47-5000-S	B11-114	TA53L	DC Balance, Channel A
R3A	5000Ω	1/2	RV1121910	TT-10	B47-5000-S	B11-114	TA53L	AC Balance, Channel B
R4A	5000Ω	1/2	RV1121910	TT-10	B47-5000-S	B11-114	TA53L	DC Balance, Channel B

RESISTORS

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

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R5	1meg				R7	330Ω			
R6	2200Ω				R8	10K			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R9	44K 7W	PW7-44K	7W-SQ-44K		R33	20K 2W			
R10	150K 1W				R34	20K 2W			
R11	470Ω				R35	24K 2W			
R12	1000Ω				R36	1000Ω			
R13	1meg				R37	100K			
R14	20K 2W				R38	15K		(10K)*	
R15	20K 2W				R39	3.3Ω		Note 2	
R16	24K 2W				R40	1000Ω			
R17	1000Ω				R41	100K			
R18	100K				R42	15K		(10K)*	
R19	15K				R43	3.3Ω		Note 2	
R20	3.3Ω				R44	10K			
R21	1000Ω				R45	390Ω 1W			
R22	100K				R46	180Ω 3W	PW3-180	3G-180	
R23	15K				R47	270Ω 10W	PW10-270	10W-SQ-270	
R24	3.3Ω				R48	5Ω 20W	PW20-5	20W-SQ-5Ω	
R25	10K				R49	4700Ω 1W		Note 3	
R26	10K				R50	1500Ω 3W	PW3-1500	3G-1500	
R27	1meg				R51	1Ω 1W			
R28	44K 7W	PW7-44K	7W-SQ-44K		R52	1Ω 1W			
R29	150K 1W				R53	1Ω 1W			
R30	470Ω				R54	1Ω 1W			
R31	1000Ω				R55	33Ω			
R32	1meg				R56	33Ω			

Note 1. R20 & R24 are matched resistors, values within 2%.
 Note 2. R39 & R43 are matched resistors, values within 2%.
 Note 3. Not used in some versions.
 * Alternate Value.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	Harman-Kardon PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V @ 2.1A	200V @ 1.2A AC	6.3V @ 6.3A	FT3714403					
	SEC. 3	SEC. 4	SEC. 5						
	60V @ .020A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	Harman-Kardon PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	4000Ω CT	16Ω Tap @ 8Ω, 4Ω	FT3714404					
T3	4000Ω CT	16Ω Tap @ 8Ω, 4Ω	FT3714404					

POWER RECTIFIERS

ITEM No.	RATING (CURRENT)	REPLACEMENT DATA			NOTES
		Harman-Kardon PART No.	RCA PART No.	SARKES TARZIAN PART No.	
M1	.330A	ZCOM3679*	1N1763*	F8*	* Silicon † Selenium
M2	.330A	ZCOM3679*	1N1763*	F8*	
M3	.330A	ZCOM3679*	1N1763*	F8*	
M4	.330A	ZCOM3679*	1N1763*	F8*	
M5	.020A	Z3714398 †	1N1763*	02A †	

FUSES

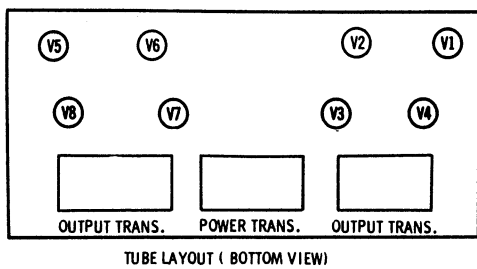
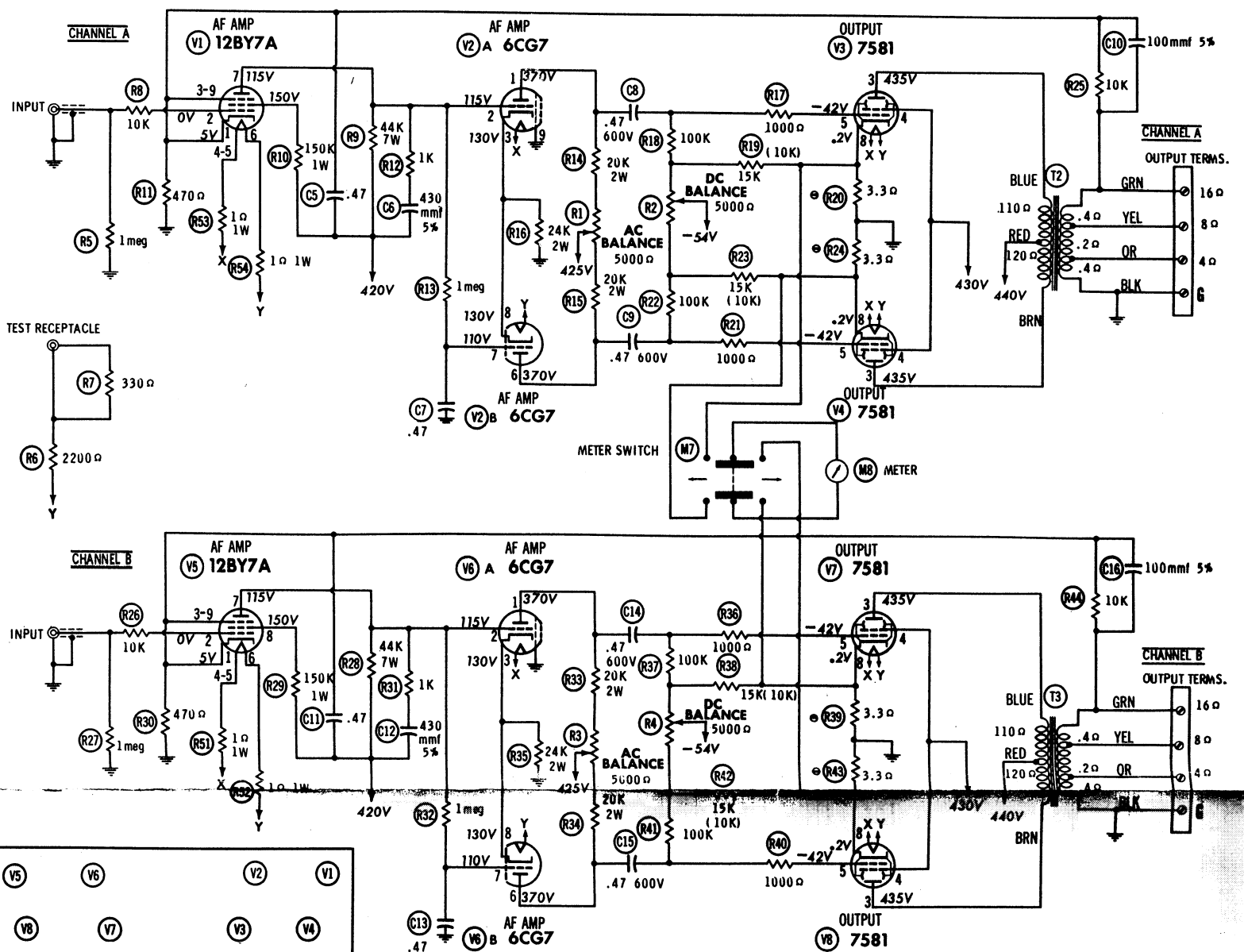
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Harman-Kardon PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M6	3AG	6A 250V	ZCOM4425	HCCOM3870	312008 (3AG 6A 250V)	342001	MTH 6	HKP

MISCELLANEOUS

ITEM No.	PART NAME	Harman-Kardon PART No.	NOTES
M7	Switch	ER3714401	
M8	Meter	M3714400	Meter (DPDT Slide Type)

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 1/2 Ft. Length)



BALANCE ADJUSTMENTS

DC Balance

Hold the meter selector switch in Channel A position. With no signal applied, adjust Channel A DC Balance control until the meter reads exactly at the center.

Repeat for Channel B DC balance.

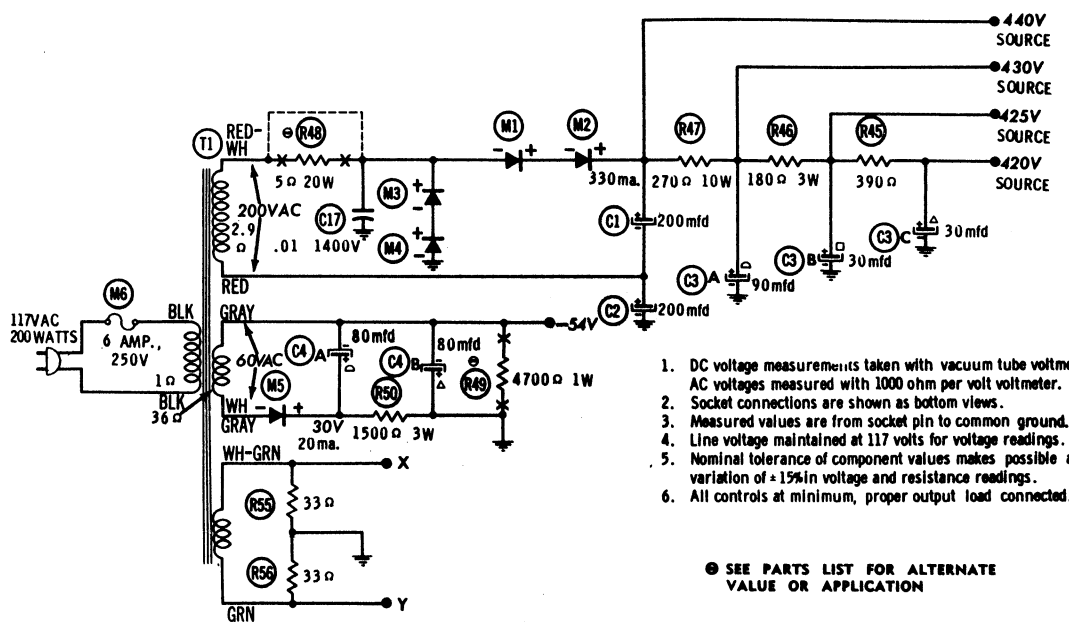
AC Balance

Connect a 16 ohm, 20 watt resistor between terminals marked "G" and "16" on the Channel A speaker terminal strip. Using a standard phono shielded patch cord, connect the 60v test signal from the Test Signal jack to the Channel A input jack. To avoid overheating the resistor, prolonged testing should be avoided.

Hold the meter selector switch in Channel A position and adjust Channel A AC Balance control until meter reads exactly at the center.

Remove the phono patch cord from Channel A input and connect to Channel B input. Move the resistor to terminals "G" and "16" on the Channel B speaker terminal strip. (NOTE: The resistor will be quite hot.)

Repeat for Channel B AC balance.



- DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common ground.
- 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.

SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BY7A	470 Ω	1 meg	NC	FIL	FIL	FIL	†45K	†150K	470 Ω
V2	6CG7	†23K	†45K	24K	FIL	FIL	†23K	†1 meg	24K	NC
V3	7581	NC	FIL	†110 Ω	†270 Ω	100K	TP	FIL	3.3 Ω	
V4	7581	NC	FIL	†120 Ω	†270 Ω	100K	TP	FIL	3.3 Ω	
V5	12BY7A	470 Ω	1 meg	NC	FIL	FIL	FIL	†45K	†150K	470 Ω
V6	6CG7	†23K	†45K	24K	FIL	FIL	†23K	†1 meg	24K	NC
V7	7581	NC	FIL	†110 Ω	†270 Ω	100K	TP	FIL	3.3 Ω	
V8	7581	NC	FIL	†120 Ω	†270 Ω	100K	TP	FIL	3.3 Ω	

* 5VAC MEASURED ACROSS FILS.

† MEASURED FROM OUTPUT OF M2.

NC NO CONNECTION

TP TIE POINT