

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS (cont)

ITEM No.	REPLACEMENT DATA				INSTALLATION NOTES
	RATING RESISTANCE	McINTOSH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	
R2A	500K	C202-R3	B-59		Aural Comp., Left Channel. Aural Comp., Right Channel. Balance, Left Channel. Balance, Right Channel. Bass, Left Channel. Bass, Right Channel. Treble, Left Channel. Treble, Right Channel. Low Freq. Trim, Left Channel. Low Freq. Trim, Right Channel.
R2B	500K		SR-59*		
R3A	300K	C202-R5	B-70		
R4A	Ineg	C202-R1	SR-70*		
R5A	250K	C202-R2	B-51		
R6A	100K	C202-R6-7	EX-40	Q1-128	
R7A	100K	C202-R6-7	EX-40	Not Req.	
R8	220K			Q1-128	
R9	56K			Not Req.	
R10	1000Ω			U41	
R11	220K			Not Req.	
R12	220K			U41	
R13	56K			Not Req.	
R14	1000Ω				
R15	220K				
R16	56K				
R17	300K				
R18	200Ω				
R19	1800Ω IW				
R20	1Ω				
R21	1Ω				
R22	3.9meg				
R23	22meg				
R24	Ineg				
R25	100K				
R26	2200Ω				
R27	180K				
R28	4.7meg				
R29	470K				
R30	100K				
R31	33K				
R32	100K				
R33	Ineg				
R34	3300Ω				
R35	100K				
R36	2.2meg				
R37	3300Ω				
R38	100K				
R39	1800Ω				
R40	4.7meg				
R41	10meg				
R42	330K				
R43	200K				

* Use Coupler AK-16

RESISTORS

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

ITEM No.	RATING	REMARKS	ITEM No.	RATING	REMARKS
R44	200K	(120K)*	R80	470K	
R45	200K	Note 1	R81	100K	
R46	1000Ω		R82	33K	
R47	22K		R83	100K	
R48	22K		R84	Ineg	
R49	2.2meg		R85	3300Ω	
R50	22K		R86	100K	
R51	100K		R87	2.2meg	Note 2
R52	10K		R88	3300Ω	
R53	330K		R89	100K	
R54	1800Ω		R90	1800Ω	
R55	22K		R91	4.7meg	
R56	Ineg		R92	10meg	
R57	680Ω		R93	330K	
R58	47K		R94	200K	
R59	220K		R95	200K	
R60	56K	(120K)*	R96	1000Ω	
R61	220K	Note 1	R97	22K	
R62	220K	(120K)*	R98	22K	
R63	56K		R99	22K	
R64	1000Ω	Note 1	R100	100K	
R65	220K	(120K)*	R101	10K	
R66	220K	(120K)*	R102	330K	
R67	56K	(1meg)*	R103	1800Ω	
R68	330K	(1200Ω)*	R104	22K	
R69	330K	Note 1	R105	Ineg	
R70	2200Ω IW	Note 1	R106	680Ω	
R71	1800Ω IW	Note 1	R107	47K	
R72	Ineg		R108	10K	
R73	3.9meg		R109	4700Ω	
R74	22meg		R110	2200Ω	
R75	Ineg		R111	1800Ω	
R76	100K		R112	1800Ω	
R77	2200Ω		R113	3300Ω, 2W	
R78	180K		R114	2Ω 10W	
R79	4.7meg	Note 1	R115	10Ω IW	

Note 1. Select for low noise and close tolerance.

Note 2. Not used in some versions.

* Alternate Value

TRANSFORMER (POWER)

ITEM No.	RATING		REPLACEMENT DATA						
	PHI	SEC. 1	McINTOSH PART No.	Holliderson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thorderson PART No.	Triad PART No.
T1	117V @ .38A	6.3V @ 1.3A	M-189						
	SEC. 3 25VCT @ 1.1A	SEC. 4							

RECTIFIERS

ITEM No.	RATING		REPLACEMENT DATA				
	CURRENT (Measured)	McINTOSH PART No.	INTERNATIONAL PART No.	ITT PART No.	SARRES PART No.	Sylvania PART No.	NOTES
M1	1.1A				F-2		
M2	1.1A				F-2		① Silicon Type

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA		
			McINTOSH PART No.	Holder	BUSS PART No.
M3	SAG	1A 250V		342001	AGC 1
				(SAG IA 250V)	HERP

MISCELLANEOUS

ITEM No.	PART NAME	McINTOSH PART No.	NOTES
M4	Switch		Function (Input Selector)
M5	Switch		Mode
M6	Switch		Bass Compensating
M7	Switch		Treble Compensating
M8	Switch		HF Cut-Off Filter
M9	Switch		Phase
M10	Switch		Rumble Filter (Pushbutton Type)
M11	Switch		Tape Jack (Pushbutton Type)
M12	Switch		Tape Compare (Pushbutton Type)
M13	Switch		Pilot Light Dimmer

WIRING DATA

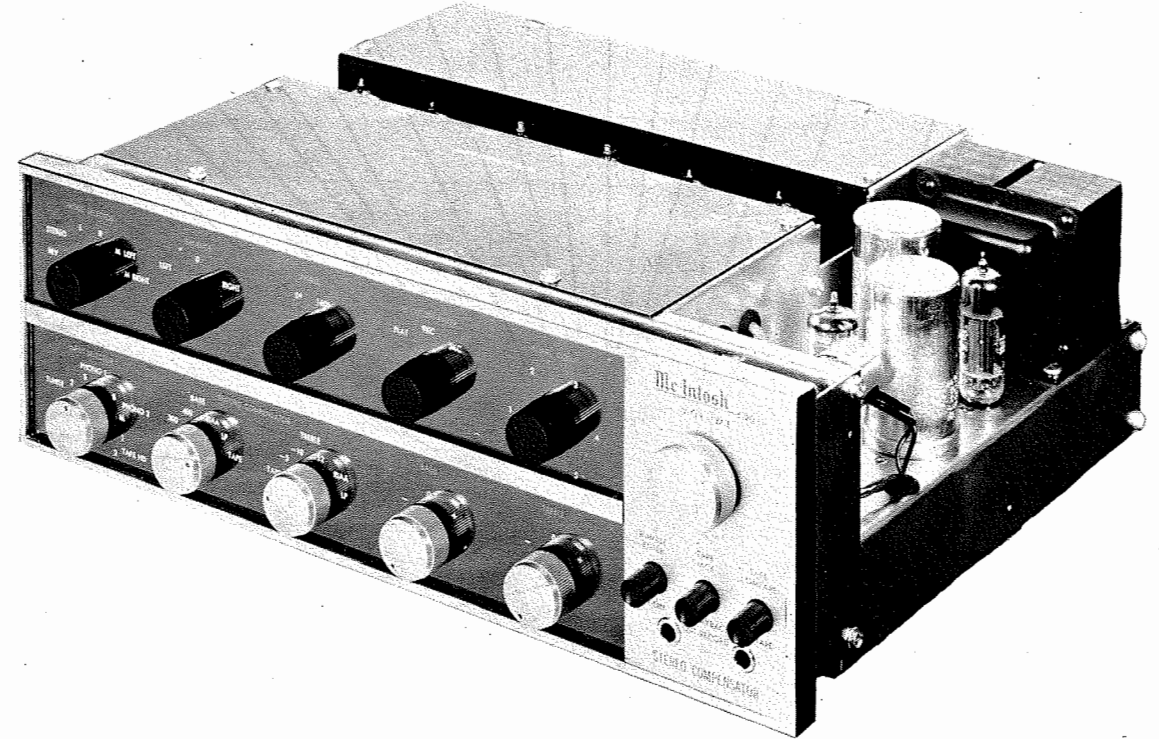
General-use Unshielded Hook-up Wire Use BELDEN No. 8530 (Solid) Available in Ten Colors
Power Cord Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7 1/2 Ft. Length)

FOLDER 4
SET 475



MCINTOSH
MODEL C20

MCINTOSH
MODEL C20



TRADE NAME	McIntosh Model C20
MANUFACTURER	McIntosh Laboratory Inc., 2 Chambers Street, Binghamton, N. Y.
TYPE SET	AC Operated 8 Tube Stereo Amplifier
POWER SUPPLY	110-120 Volts AC, 60 Cycles
RATING	38 Watts, .38 Amp. @ 117 Volts AC

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

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PAGE 2

CHASSIS BOTTOM VIEW - CAPACITOR & MISC IDENT

PARTS LIST AND DESCRIPTIONS

CBS		GENERAL ELECTRIC		RAYTHEON		SYLVANIA	
ITEM No.	USE	ITEM No.	TYPE	ITEM No.	USE	ITEM No.	TYPE
V1	Left Channel Preamp.	ECC83/2AX7		V5	Right Channel Preamp.	ECC83/2AX7	
V2	Left Channel Cathode Follower - AF Amp.	ECC82/2AX7		V6	Right Channel Cathode Follower - AF Amp.	ECC82/2AX7	
V3	Left Channel Cathode Follower - AF Amp.	ECC83/2AX7		V7	Right Channel AF Amp.	ECC83/2AX7	
V4	Left Channel Cathode Follower - Right Channel Cathode Follower	12AX7 (12AU7)*		V8	Rectifier	6X4	

* Alternate

TUBES

ITEM No.	CAP.	VOLT.	REMARKS	AEROVOX PART No.	CORNELL DUBILIER PART No.	PIRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	.40	350		AFH2-40	B0320	FPI76	TVL-2630	
C2A	.40	350		AFH4-04	D0032	TC78	TVL-4635	
C3	.20	300				FP420.35	TD-40-350	
C4	50	3		AFH1-03	A0070	WP041	TMS-5	
C5	50	3		SRE3750	BR50-3	TT6X50	TD-50-6	
C6	50	3		SRE3750	BR50-3	TT6X50	TD-50-6	
C7	50	3		SRE3750	BR50-3	TT6X50	TD-50-6	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CORNELL DUBILIER PART No.	PIRAMID PART No.	SPRAGUE PART No.	NOTES
C8	220		DI-220	L10T22	CCD-221	GP322	5GA-T22
C9	220		DI-220	L10T22	CCD-221	GP322	5GA-T22
C10	.033	400V	DI-39	L10Q39	CCD-390	GP439	5GA-Q39
C11	.1	200V	P488N-033	CUB4533	4DP-2-333	GEM-4133	4TM-S33
C12	.1	200V	P288N-1	DF-104	4DP-3-104	GEM-401	4TM-P1
C13	.1	200V	P288N-1	DF-104	4DP-3-104	GEM-201	4TM-P1
C14	500	5%	1469-0005	5R5T5	CM-19B-501J	MCE245	MS-35
C15	1800	5%	1464-0018	IR5D18	CM-19B-182J	MCT456.5	MS-28
C16	2200	5%	1464-0022	IR5D22	CM-19B-222J	MCT459	MS-22
C17	3000	5%	1464-003	IR5T5	CM-19B-302J	MCE461	MS-23
C18	50	5%	1469-00056	IR5T56	CM-19B-561J	MCE461	MS-35
C19	430	5%	1469-00043	2R5T43	CM-19B-431J	MS-34	MS-34
C20	360	5%	1469-00036	2R5T36	CM-19B-361J	MS-36	MS-36
C21	300	5%	1469-00018	2R5T18	CM-19B-301J	MS-38	MS-38
C22	180	5%	1469-00018	2R5T18	CM-19B-181J	MS-38	MS-38
C23	.022	200V	SI 100	CUB4522	4DP-2-223	GEM-4122	4TM-S22
C24	100	10%	DI-100	L10T1	CCD-101	GP310	5GA-T10
C25	1500	10%	DI-1500	IR5D15	CCD-152	GP215	10TS-D15
C26	750	200V	DI-750	IR5D75	4DP-5-474	GP875	10TS-T75
C27	.47	400V	P288N-47	CUB2P47	2DP-3-104	GEM-2047	4TM-P47
C28	4700	10%	P488N-1	BYA10D47M	4DP-3-104	GEM-401	4TM-P1
C29	4700	10%	BPD-0047	PM6D47	4DP-3-104	GP247	5HK-D47
C30	.01	200V	DI-4700	PM6D47	4DP-3-104	GP247	5HK-D47
C31	4700	10%	P288N-022	DI-4700	CCD-472	GEM161	10TS-S1
C32	4700	10%	P288N-022	DI-4700	CCD-472	GEM161	10TS-S1
C33	.022	200V	P288N-022	P288N-022	4DP-2-223	GEM-4122	4TM-S22

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	AEROVOX PART No.	CORNELL DUBILIER PART No.	ELEMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C34	.22	400V	P488N-22	CUB4P22	4DP-5-224	GEM-4022	4TM-P22
C35	.22	200V	P288N-22	CUB5P22	2DP-4-224	GEM-2022	2TM-P22
C36	.047	200V	P288N-047	CUB5S47	4DP-3-473	GEM-4147	4TM-S47
C37	.047	200V	DI-1000	PM6D1	CCD-102	GEM-4147	10TS-D10
C38	1000	10%	V84C2S1-10%	PM6D22	CCD-222	GEM-1811	4TM-S1
C39	.01	200V	DI-2200	PM6D22	4DP-2-223	GEM-1812	10TS-D22
C40	2200	10%	V84C2S2-10%	BYA10D22	CCD-682	GEM-401	4TM-P1
C41	.022	200V	BPD-0068	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C42	6800	10%	P488N-1	L10T22	CCD-221	GP322	5GA-T22
C43	.1	400V	DI-220	BYB6S22	CCD-203	GEM-16268	10TS-T22
C44	220	10%	DI-220	BYB6S22	CCD-203	GEM-16268	10TS-T22
C45	6800	10%	BPD-02	BYB6S22	CCD-203	GEM-16268	10TS-T22
C46	20000		P288N-47	CUB2P47	2DP-5-474	GEM-3047	2TM-P47
C47	.47	200V	P288N-47	L10T22	CCD-221	GP322	5GA-T22
C48	220	200V	DI-220	L10T22	CCD-221	GP322	5GA-T22
C49	39	5%	DI-39	L10Q39	CCD-390	GP439	5GA-Q39
C50	300	5%	P488N-033	CUB4533	4DP-2-333	GEM-4133	4TM-S33
C51	.033	400V	P488N-1	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C52	.1	200V	P288N-1	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C53	500	5%	1469-0005	5R5T5	CM-19B-501J	MCE245	MS-35
C54	1800	5%	1464-0018	IR5D18	CM-19B-182J	MCT456.5	MS-28
C55	2200	5%	1464-0022	IR5D22	CM-19B-222J	MCT459	MS-22
C56	3000	5%	1464-003	IR5T5	CM-19B-302J	MCE461	MS-23
C57	560	5%	1469-00056	IR5T56	CM-19B-561J	MCE461	MS-35
C58	430	5%	1469-00043	2R5T43	CM-19B-431J	MS-34	MS-34
C59	360	5%	1469-00036	2R5T36	CM-19B-361J	MS-36	MS-36
C60	300	5%	1469-00018	2R5T18	CM-19B-301J	MS-38	MS-38
C61	180	5%	1469-00018	2R5T18	CM-19B-181J	MS-38	MS-38
C62	.022	200V	SI 100	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C63	100	10%	DI-100	L10T1	CCD-101	GP310	5GA-T10
C64	1500	10%	DI-1500	IR5D15	CCD-152	GP215	10TS-D15
C65	750	200V	DI-750	IR5D75	4DP-5-474	GP875	10TS-T75
C66	.47	400V	P288N-47	CUB2P47	2DP-3-104	GEM-2047	4TM-P47
C67	4700	10%	P488N-1	BYA10D47M	4DP-3-104	GEM-401	4TM-P1
C68	4700	10%	BPD-0047	PM6D47	4DP-3-104	GP247	5HK-D47
C69	.01	200V	DI-4700	PM6D47	4DP-3-104	GP247	5HK-D47
C70	4700	10%	P288N-022	DI-4700	CCD-472	GEM161	10TS-S1
C71	4700	10%	P288N-022	DI-4700	CCD-472	GEM161	10TS-S1
C72	.022	200V	P288N-022	P288N-022	4DP-2-223	GEM-4122	4TM-S22
C73	.022	200V	P288N-022	P288N-022	4DP-2-223	GEM-4122	4TM-S22
C74	.047	200V	P288N-047	PM6D47	4DP-3-473	GEM-4147	4TM-S47
C75	.047	200V	P288N-047	PM6D47	4DP-3-473	GEM-4147	4TM-S47
C76	.047	200V	DI-1000	PM6D1	CCD-102	GEM-4147	10TS-D10
C77	1000	10%	DI-2200	PM6D22	CCD-222	GEM-1811	4TM-S1
C78	.01	200V	V84C2S1-10%	PM6D22	4DP-2-223	GEM-1812	10TS-D22
C79	2200	10%	V84C2S2-10%	PM6D22	4DP-2-223	GEM-1812	10TS-D22
C80	.022	200V	BPD-0068	BYA10D68	CCD-682	GEM-401	4TM-P1
C81	6800	10%	P488N-1	L10T22	CCD-203	GEM-16268	10TS-T22
C82	200	400V	DI-220	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C83	200	400V	DI-220	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C84	6800	10%	BPD-02	BYB6S22	CCD-203	GEM-16268	10TS-D68
C85	20000		P288N-47	CUB2P47	2DP-5-474	GEM-3047	2TM-P47
C86	47	200V	BPD-0047	PM6D47	4DP-3-104	GEM-401	4TM-P1
C87A	5000	5000	BPD-2X0047	BYD6D50	CCD-502	GEM-3047	5HK-2D47

FOLDER 4

MODEL C70

MCINTOSH

REPLACEMENT DATA

ITEM No.	RATING	RESISTANCE	WATTS	MCINTOSH PART No.	CENTRALAB PART No.	CLAFOSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	100K			C202-R4					Volume, Right Channel
C	100K								Volume, Left Channel
D	100K								Volume, Left Channel
E	100K								Volume, Right Channel

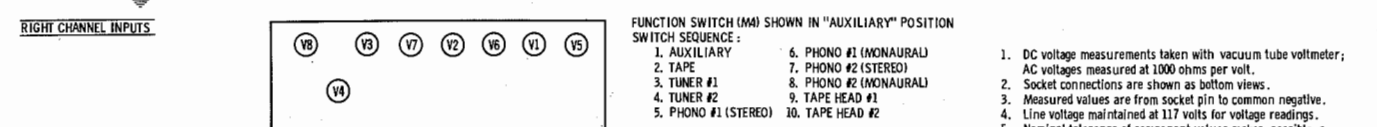
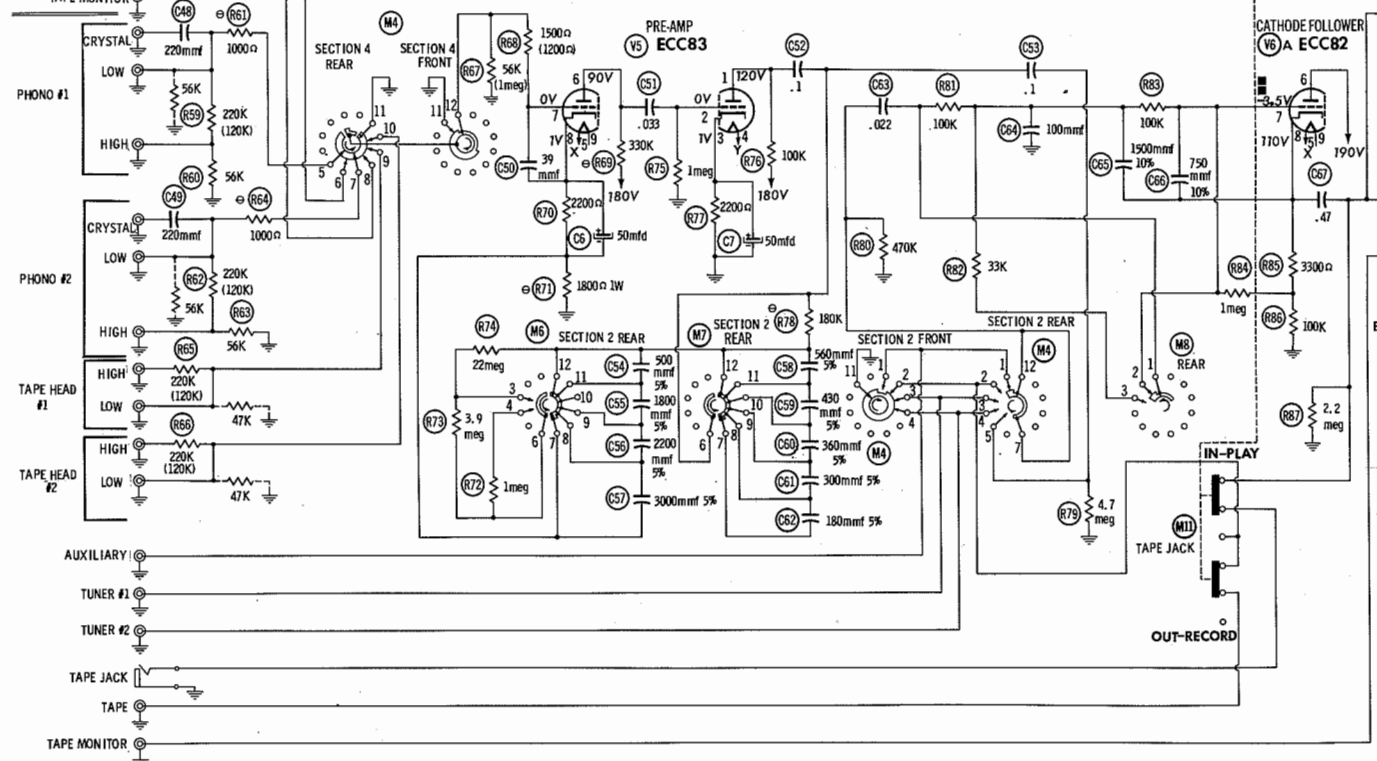
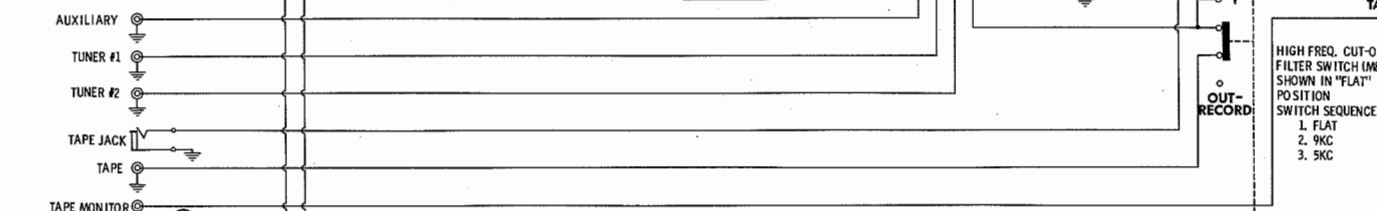
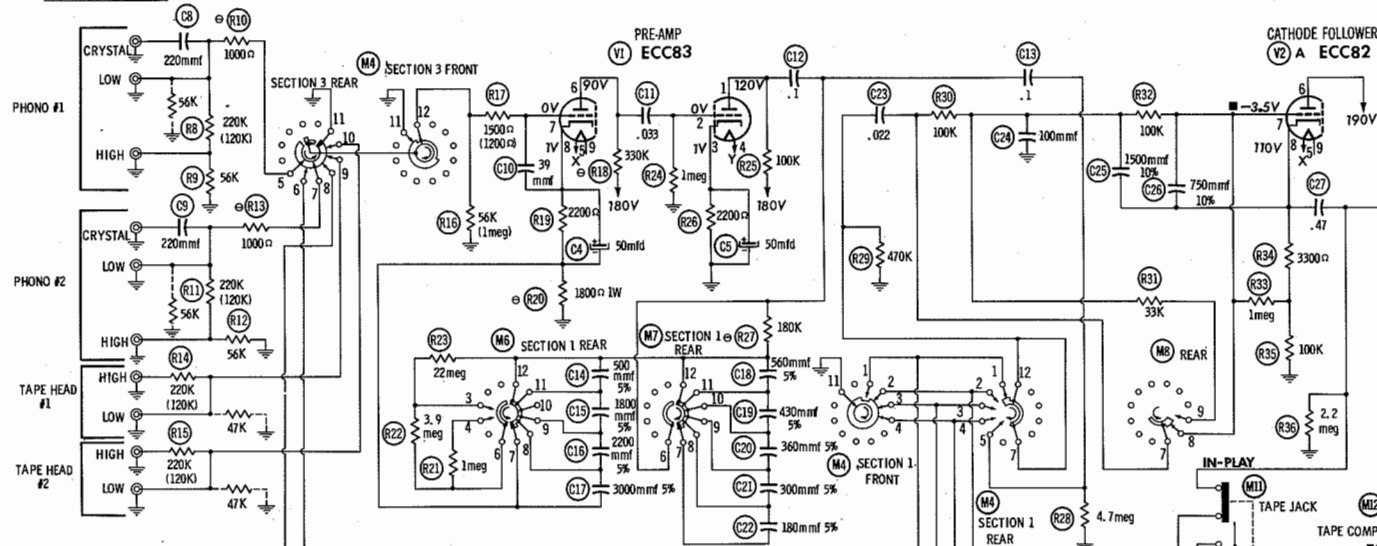
CONTROLS

REPLACEMENT DATA

ITEM No.	RATING	RESISTANCE	WATTS	MCINTOSH PART No.	CENTRALAB PART No.	CLAFOSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
C202-R4									Volume, Right Channel
									Volume, Left Channel
									Volume, Left Channel
									Volume, Right Channel

PAGE 7

LEFT CHANNEL INPUTS

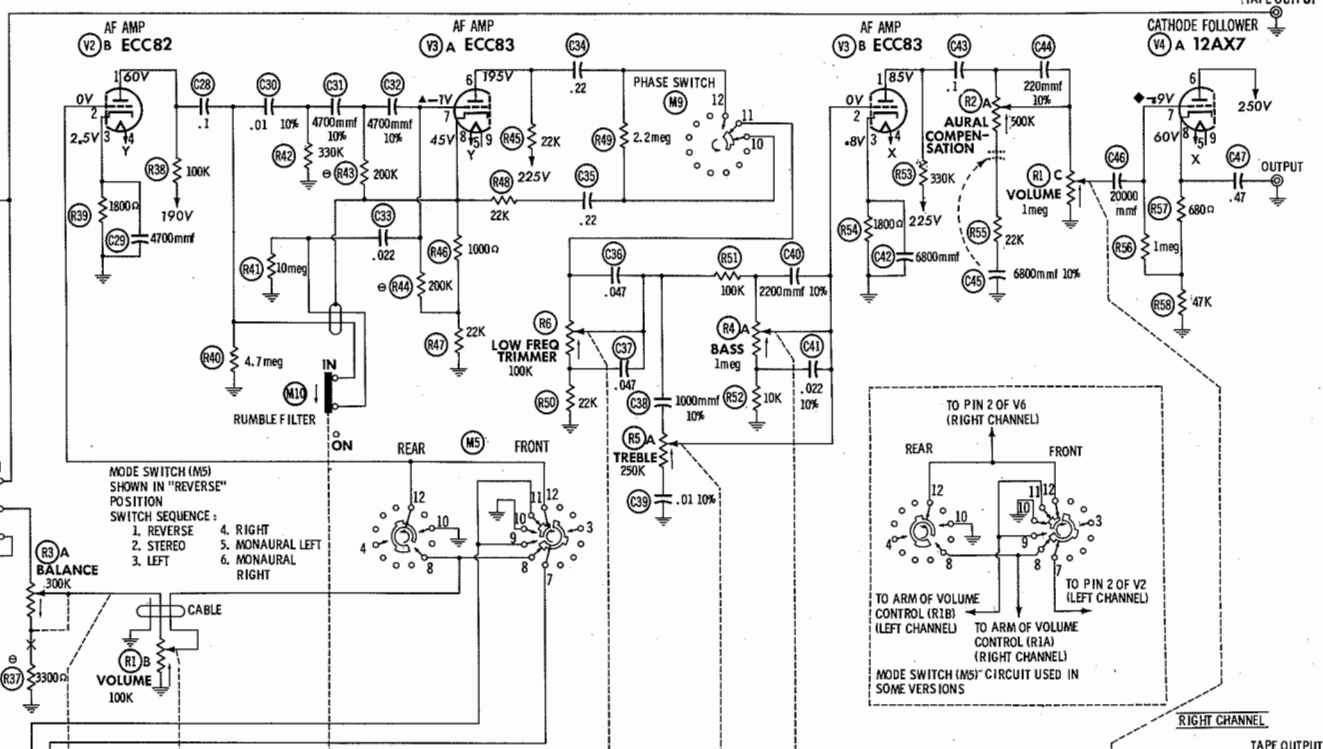


FUNCTION SWITCH (M1) SHOWN IN "AUXILIARY" POSITION
 SWITCH SEQUENCE:
 1. AUXILIARY 6. PHONO #1 (MONAURAL)
 2. TAPE 7. PHONO #2 (STEREO)
 3. TUNER #1 8. PHONO #2 (MONAURAL)
 4. TUNER #2 9. TAPE HEAD #1
 5. PHONO #1 (STEREO) 10. TAPE HEAD #2

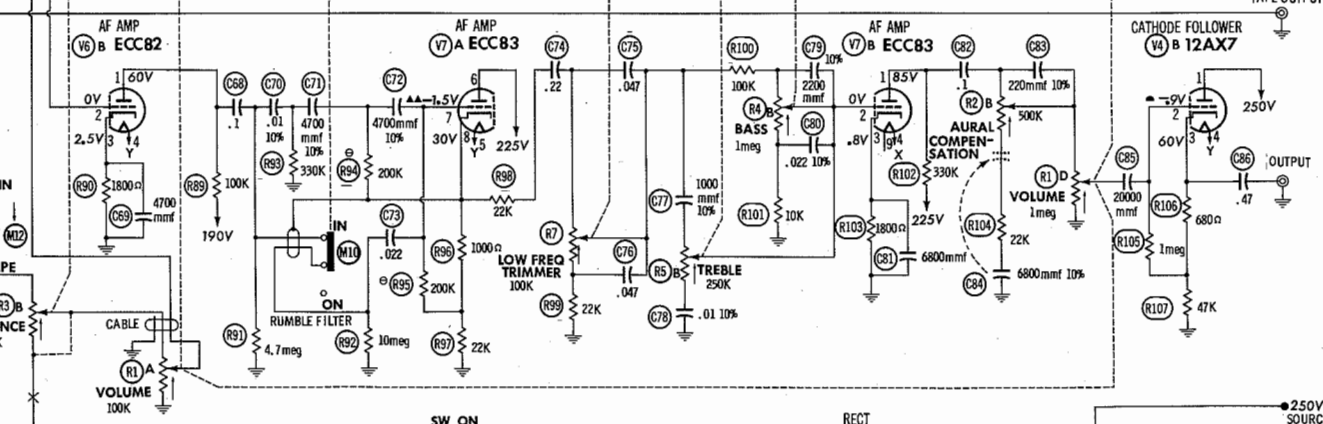
- DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance of component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

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)

LEFT CHANNEL



RIGHT CHANNEL



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC83 12AX7	1.125K	1meg	2200Ω	4Ω	4Ω	1.355K	1500Ω	4000Ω	6.8Ω
V2	ECC82 12AU7	1.115K	0Ω	1800Ω	4Ω	4Ω	1.14K	1.1meg	100K	6.8Ω
V3	ECC83 12AX7	1.340K	10K	1800Ω	4Ω	4Ω	1.31K	220K	23K	6.8Ω
V4	12AX7	1.6900Ω	1meg	47K	4Ω	4Ω	1.6900Ω	1meg	47K	6.8Ω
V5	ECC83 12AX7	1.125K	1meg	2200Ω	4Ω	4Ω	1.355K	1500Ω	4000Ω	6.8Ω
V6	ECC82 12AU7	1.115K	0Ω	1800Ω	4Ω	4Ω	1.14K	1.1meg	100K	6.8Ω
V7	ECC83 12AX7	1.340K	10K	1800Ω	4Ω	4Ω	1.3100Ω	220K	23K	6.8Ω
V8	6X4	550Ω	NC	.2Ω	0Ω	NC	570Ω	1		

† THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
 † MEASURED FROM PIN 7 OF V8.
 † MEASURED FROM PIN 8 OF V2.
 † MEASURED FROM PIN 8 OF V3.
 † MEASURED FROM PIN 8 OF V4.
 † MEASURED FROM PIN 8 OF V6.
 † MEASURED FROM PIN 8 OF V7.