

audio research

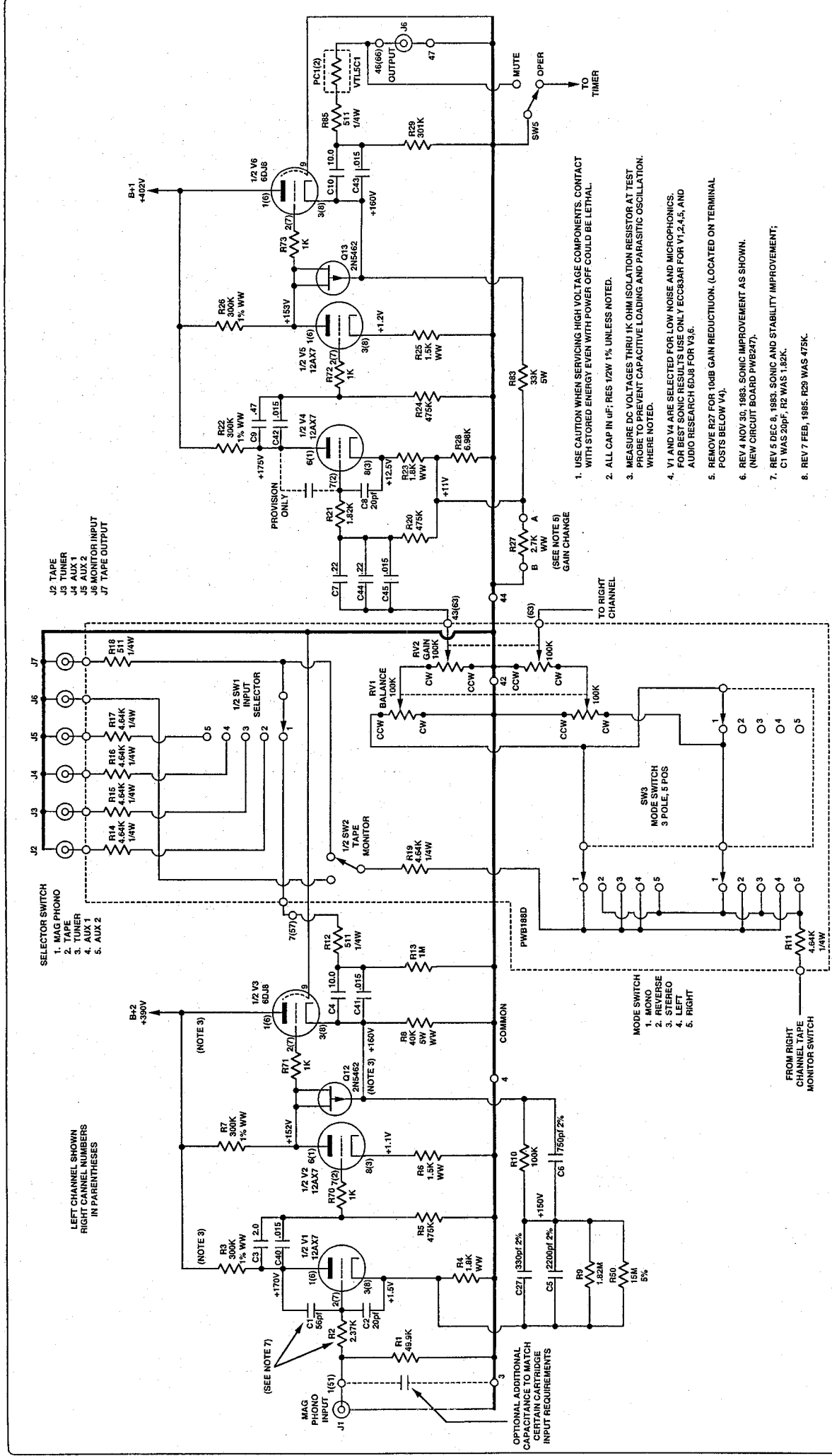
H I G H D E F I N I T I O N[®]

3900 ANNAPOLIS LANE NORTH / PLYMOUTH, MINNESOTA 55447-5447 / PHONE: 763-577-9700 FAX 763-577-0323

SP8 PREAMPLIFIER

SCHEMATIC

Rev. 7
12-27-01



LEFT CHANNEL SHOWN
RIGHT CHANNEL NUMBERS
IN PARENTHESES

SELECTOR SWITCH
1. MAG PHONO
2. TAPE
3. TUNER
4. AUX 1
5. AUX 2

J2 TAPE
J3 TUNER
J4 AUX 1
J5 AUX 2
J6 MAG PHONO INPUT
J7 TAPE OUTPUT

(SEE NOTE 7)
MAG PHONO INPUT (151)
J1

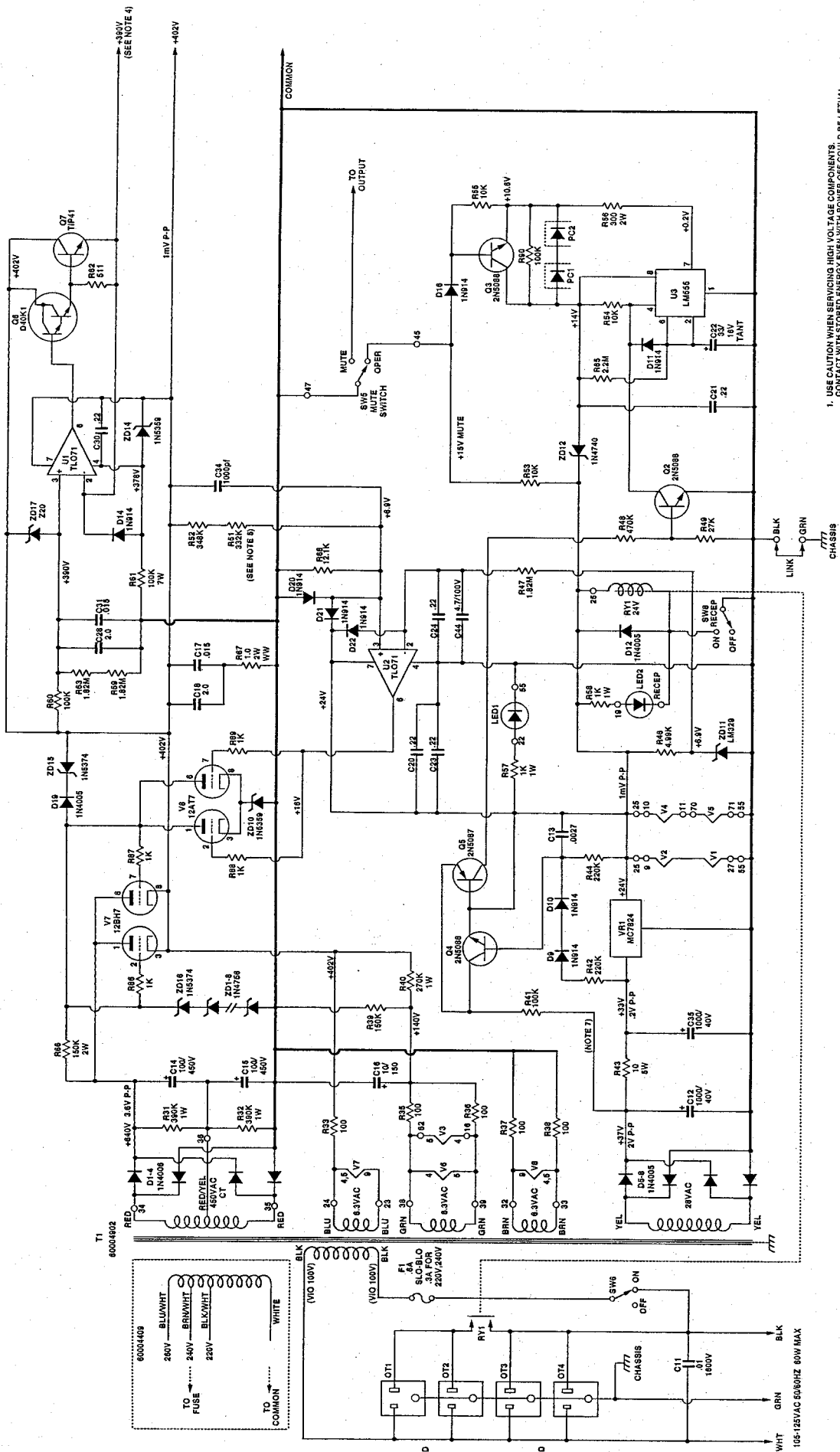
OPTIONAL ADDITIONAL CAPACITANCE TO MATCH CERTAIN CARTRIDGE INPUT REQUIREMENTS
C7 330pf 2%
C5 2200pf 2%
R0 1.82M
R60 15M 5%

1. USE CAUTION WHEN SERVICING HIGH VOLTAGE COMPONENTS. CONTACT WITH STORED ENERGY EVEN WITH POWER OFF COULD BE LETHAL.
2. ALL CAP IN UF; RES 1/2W 1% UNLESS NOTED.
3. MEASURE DC VOLTAGES THRU 1K OHM ISOLATION RESISTOR AT TEST PROBE TO PREVENT CAPACITIVE LOADING AND PARASITIC OSCILLATION. WHERE NOTED.
4. V1 AND V4 ARE SELECTED FOR LOW NOISE AND MICROPHONICS. FOR BEST SONIC RESULTS USE ONLY ECC63AR FOR V1,2,4,5, AND AUDIO RESEARCH 6D3J FOR V3,6.
5. REMOVE R27 FOR 10dB GAIN REDUCTION. (LOCATED ON TERMINAL POSTS BELOW V4).
6. REV 4 NOV 30, 1983. SONIC IMPROVEMENT AS SHOWN. (NEW CIRCUIT BOARD PWB247).
7. REV 5 DEC 6, 1983. SONIC AND STABILITY IMPROVEMENT; C1 WAS 20pf, R2 WAS 1.8K.
8. REV 7 FEB, 1985. R28 WAS 475K.

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SP8
AUDIO REV 7
PAGE 1 OF 2
12/27/01

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1. USE CAUTION WHEN SERVICING HIGH VOLTAGE COMPONENTS. CONTACT WITH STORED ENERGY EVEN WITH POWER OFF COULD BE LETHAL.
2. ALL VOLTAGES ARE WITH POWER ON UNLESS NOTED.
3. ALL VOLTAGES AT 120VAC RICH LINE.
4. MEASURE DC VOLTAGES THRU 1K OHM ISOLATION RESISTOR WHERE NOTED TO MINIMIZE CAPACITIVE LOADING EFFECTS.
5. REV 4 NOV 83. ADDS 300 OHM ISOLATION IMPROVEMENT WITH SOME ZD11.
6. REV 4 NOV 83. ADDS 300 OHM ISOLATION IMPROVEMENT AS BROWN. (NEW CIRCUIT BOARD PWB247).
7. REV 5 DEC 8. 1883 CORRECTION TO ACTIVATE LOW LINE VOLTAGE MUTING. (R41) WAS INCORRECTLY CONNECTED TO C35.
8. REV 7 FEB. 1985 IN SLOW'S START. (R14) WAS WERE 270K. ADDED D21, R49, C44.

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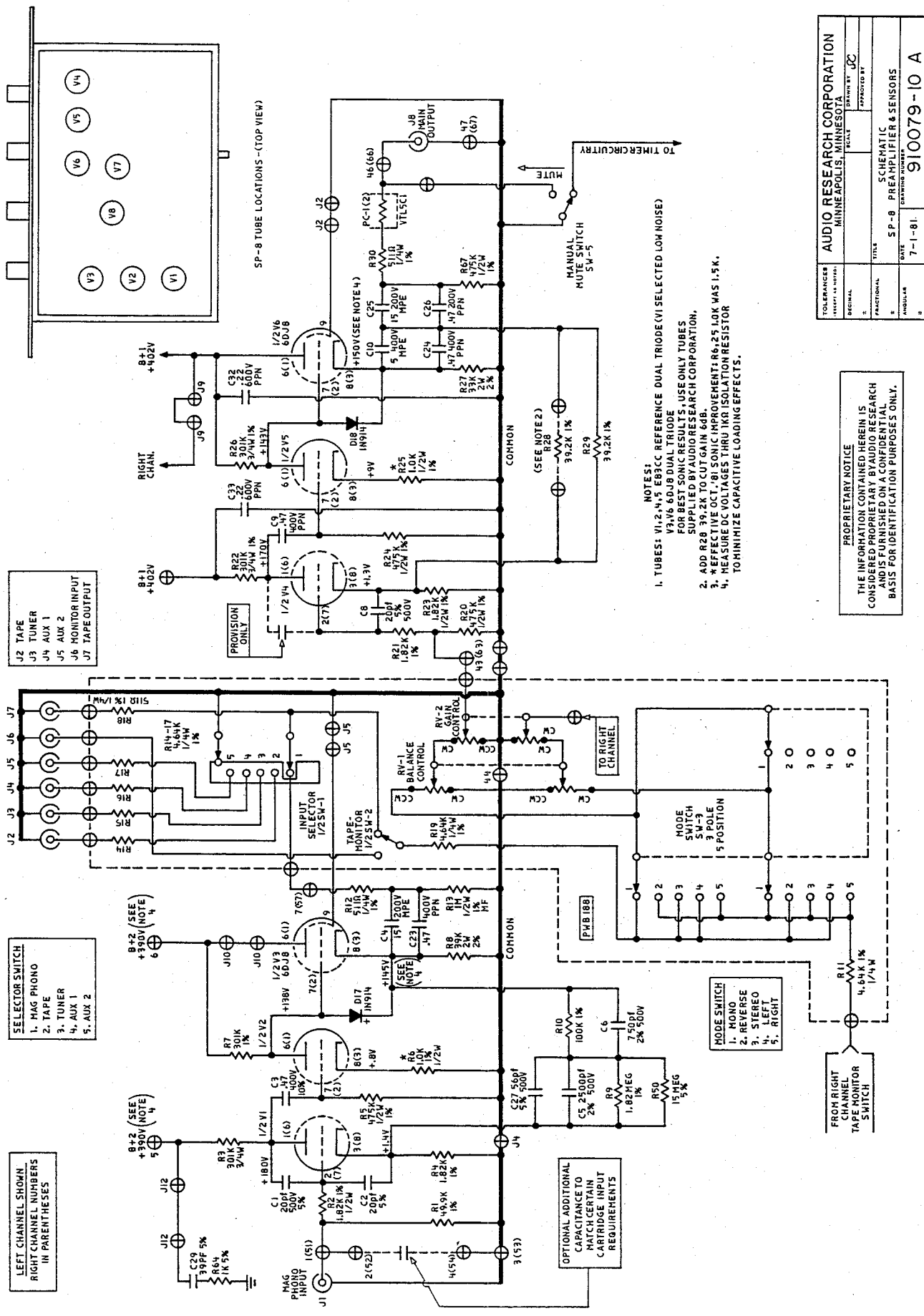
SP-8 PARTS LIST

COMPONENT	QUAN.	DESCRIPTION	VALUE	RATING	TOL.	PART NO.	ARC
V1,2,4,5	4	ECG83MR				32001300	
V3,6	2	6DUB				32001100	
V7	1	12B7A				32001200	
V8	1	12A77				32000900	
01-4	4	1N4006	1A	800V		30502200	
05-8,12,19	6	1N4005	1A	600V		30500400	
09,10,11,14,16	7	1N914		100V		30500900	
20,21	8	1N4756A Zener	47V	1W		30503200	
ZD1-8	2	1N5359A Zener	24V	5W		30503500	
ZD10,14	2	1N4329Z Zener Ref.	6.0V			31000700	
ZD11	1	1N4740A Zener	10V	1W		30500300	
ZD12	1	1N5374A Zener	75V	5W		30502900	
ZD15,16	2	Z20 Zener	20V	1W		34300100	
ZD17	1	LED Green				30003100	
ZD1,2	2	2N5088 Trans	NPN			30003100	
02,3,4	3	2N5087 Trans	PNP			30005200	
05	1	DA0K1 Trans	Dar1 NPN			30005000	
06	1	T1P41 Trans				30005900	
07	1	2N5462 FET				45100525	
Q12, 13	4	Balance Control				45100528	
RV1	1	Gain Control	100K	LogTaper	10%	31001200	
RV2	1	MC7824CK	24V			31001900	
VR1	1	TL071CP Op Amp				31000800	
U1,2	2	1N555CH Timer				34400100	
PC1,2	1	VTL55C1 Photocoupler				42299403	
R1	2	Metal Film	49.9K	1/2W	1%	42237302	
R2	2	Metal Film	2.37K	1/4W	1%	42182303	
R3,7,22,26	8	Metal Film	1.82K	1/2W	1%	43300501	
R4,23	4	Wirewound	300K	0.2W	1%	43182300	
R5,20,24,29	8	Wirewound	1.8K	1W	1%	42475503	
R6,25	4	Metal Film	475K	1/2	1%	43150302	
R8	2	Wirewound	1.5K	2W	1%	43400400	
R9,47,59,63	5	Wirewound	40K	5W	3%	42182603	
R10,60	3	Metal Film	1.82Meg	1/2W	1%	42100503	
R11,14-17,19	10	Metal Film	100K	1/2W	1%	42464302	
R12,18,62,85	7	Metal Film	4.64K	1/4W	1%	42511202	
R13	2	Metal Film	511	1/4W	1%	42100603	
R21	2	Metal Film	1Meg	1/2W	1%	42182303	
R27	2	Wirewound	1.82K	1/2W	1%	43270301	
R28	2	Wirewound	2.70K	2W	1%	42698303	
R31,32	2	Metal Film	6.98K	1/2W	1%	40270505	
R33,35-38	5	Carbon	270K	2W	10%	40100203	
R39	1	Carbon	100	1/2W	10%	41150503	
R40	1	Carbon	150K	1/2W	5%	41270504	
R41	1	Carbon	270K	1W	5%	41100502	
R42,44	2	Carbon	100K	1/4W	5%	41220502	
R43	1	Carbon	41220K	1/4W	5%	43100104	
R45	1	Wirewound	10	5W	5%	42499303	
R46	1	Metal Film	4.99K	1/2W	1%	41470502	
R48	1	Carbon	470K	1/4W	5%	41270402	
R49	1	Carbon	27K	1/4W	5%	41150703	
R50	2	Carbon	15Meg	1/2W	5%	42332503	
R51	1	Carbon	332K	1/2W	1%	42348503	
R52	1	Metal Film	348K	1/2W	1%	41100402	
R53-55	3	Metal Film	10K	1/4W	5%		

SP-8 PARTS LIST

COMPONENT	QUAN.	DESCRIPTION	VALUE	RATING	TOL.	PART NO.	ARC
R56	1	Wirewound (fil. Film)	300	2W	5%	43300200	
R57,58	2	Carbon	1K	1W	5%	41100304	
R61	1	Wirewound	100K	7W	5%	43100500	
R65	1	Carbon	2.2Meg	1/4W	5%	41220602	
R66	1	Metal Film	150K	2W	2%	46150500	
R67	1	Wirewound	1.0	2W	5%	43100002	
R68	1	Metal Film	12.1K	1/2W	1%	42121403	
R70,71,86,87	6	Metal Film	1K	1/4W	1%	42100302	
R72,73,88,89	6	Metal Film	1K	1/2W	1%	42100303	
R83	2	Wirewound	33K	5W	1%	43330400	
C1	2	Polystyrene	56PF	630V	1%	53560102	
C2,8	4	Polystyrene	20PF	630V	5%	53200101	
C3,18,28	4	Polystyrene	20PF	630V	5%	53200101	
C4,10	4	Polystyrene	2UF	450V	5%	53200101	
C5	2	Polypropylene	10UF	250V	10%	53100700	
C6	2	Polypropylene	2200PF	160V	2.5%	53220302	
C7,20,21,23	9	Polypropylene	750PF	160V	2.5%	53750200	
C9	2	Polypropylene	.22UF	100V	10%	53220506	
C11	1	Polyester	.47UF	450V	10%	53470509	
C12,35	2	Electrolytic	1000UF	1600V	10%	53100403	
C13	1	Electrolytic	1000UF	40V	10%	50100904	
C14,15	2	Electrolytic	.0027UF	200V	10%	53270301	
C16	1	Electrolytic	100UF	450V	10%	50100802	
C17,31,40-43,45	12	Electrolytic	10UF	150V	5%	50100703	
C22	1	Tantalum	.015UF	630V	5%	51501404	
C27	2	Polystyrene	33UF	10V	10%	51330700	
C34	1	Polystyrene	330PF	160V	10%	53330300	
F1	1	Fuse, S10-D10	1000PF	630V	2.5%	53100301	
T1	1	Fuse, S10-D10	0.6A	250V	5%	34500220	
OT11-4	4	Transformer	0.3A	250V		345004120	
SW1	1	Transformer		120V		60004402	
SW2	1	Transformer		100V		60004403	
SW3	1	Transformer		240V		23201300	
SW5	1	AC Receptacle				24001000	
SW6	1	Input Selector Sw.	2Pole	5Position		24100400	
SW8	1	Tap Monitor Sw.	DPDT	Gold		24100400	
SW9	1	Mode Switch	3Pole	5Position		24100400	
SW10	1	Mute-Operate Sw.	DPDT	Gold		24100400	
SW11	1	On-Off Switch	DPDT	Silver		24100700	
SW12	1	Receptacle Sw.	DPDT	Silver		24100700	
SW13	1	Relay 24V	DPDT	Silver		64100600	
SW14	1	Relay 24V	SPST	N.O.		23201000	

NOTE: Resistor values are in "Ohms" except "K" = x 1,000; "Meg" = x 1,000,000



J2 TAPE
 J3 TUNER
 J4 AUX 1
 J5 AUX 2
 J6 MONITOR INPUT
 J7 TAPE OUTPUT

SELECTOR SWITCH
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LEFT CHANNEL SHOWN
 RIGHT CHANNEL NUMBERS
 IN PARENTHESES

- NOTES:**
1. TUBES: V1,2,4,5 EB3CC REFERENCE DUAL TRIODE (VI SELECTED LOW NOISE)
 V3, V6 6DJ8 DUAL TRIODE
 FOR BEST SONIC RESULTS, USE ONLY TUBES
 SUPPLIED BY AUDIO RESEARCH CORPORATION.
 2. ADD R28 39.2K TO CUT GAIN 6dB.
 3. * EFFECTIVE OCT. 81 SONIC IMPROVEMENT; R6,25 1.0K WAS 1.5K.
 4. MEASURE DC VOLTAGES THRU 1KΩ ISOLATION RESISTOR
 TO MINIMIZE CAPACITIVE LOADING EFFECTS.

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TOLERANCES UNLESS OTHERWISE SPECIFIED	AUDIO RESEARCH CORPORATION MINNEAPOLIS, MINNESOTA
DESIGNER	RECAL
DATE	7-1-61
APPROVED BY	JC
TITLE	SCHEMATIC
MODULE	SP-8 PREAMPLIFIER & SENSORS
PROJECT NO.	910079-10 A

