

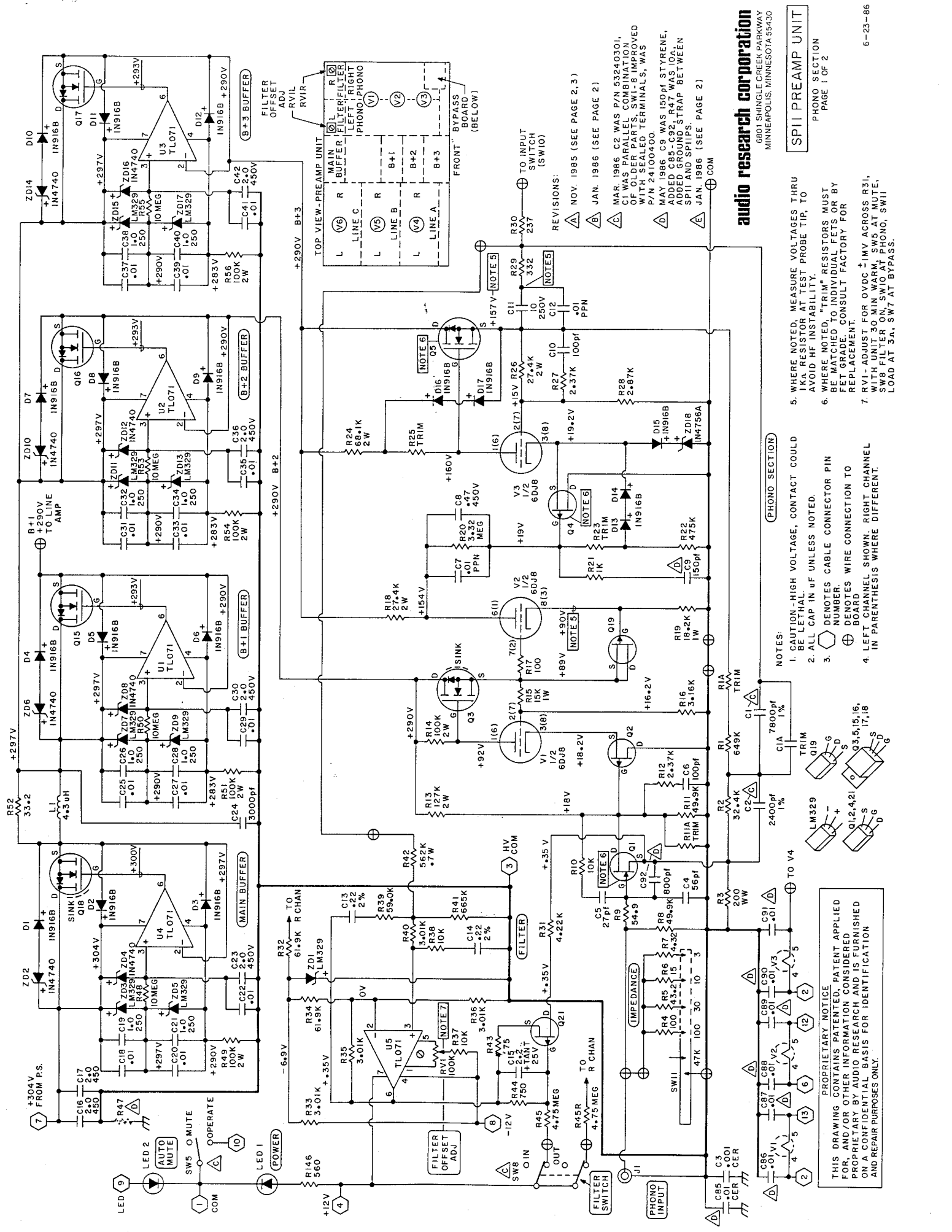
SP11 PREAMPLIFIER  
SP11PS POWER SUPPLY

SCHEMATIC

6/23/86

**audio research corporation**

6801 SHINGLE CREEK PARKWAY  
MINNEAPOLIS, MINNESOTA 55430

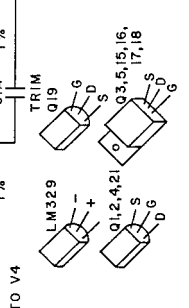


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**SPIII PREAMP UNIT**  
 PHONO SECTION  
 PAGE 1 OF 2

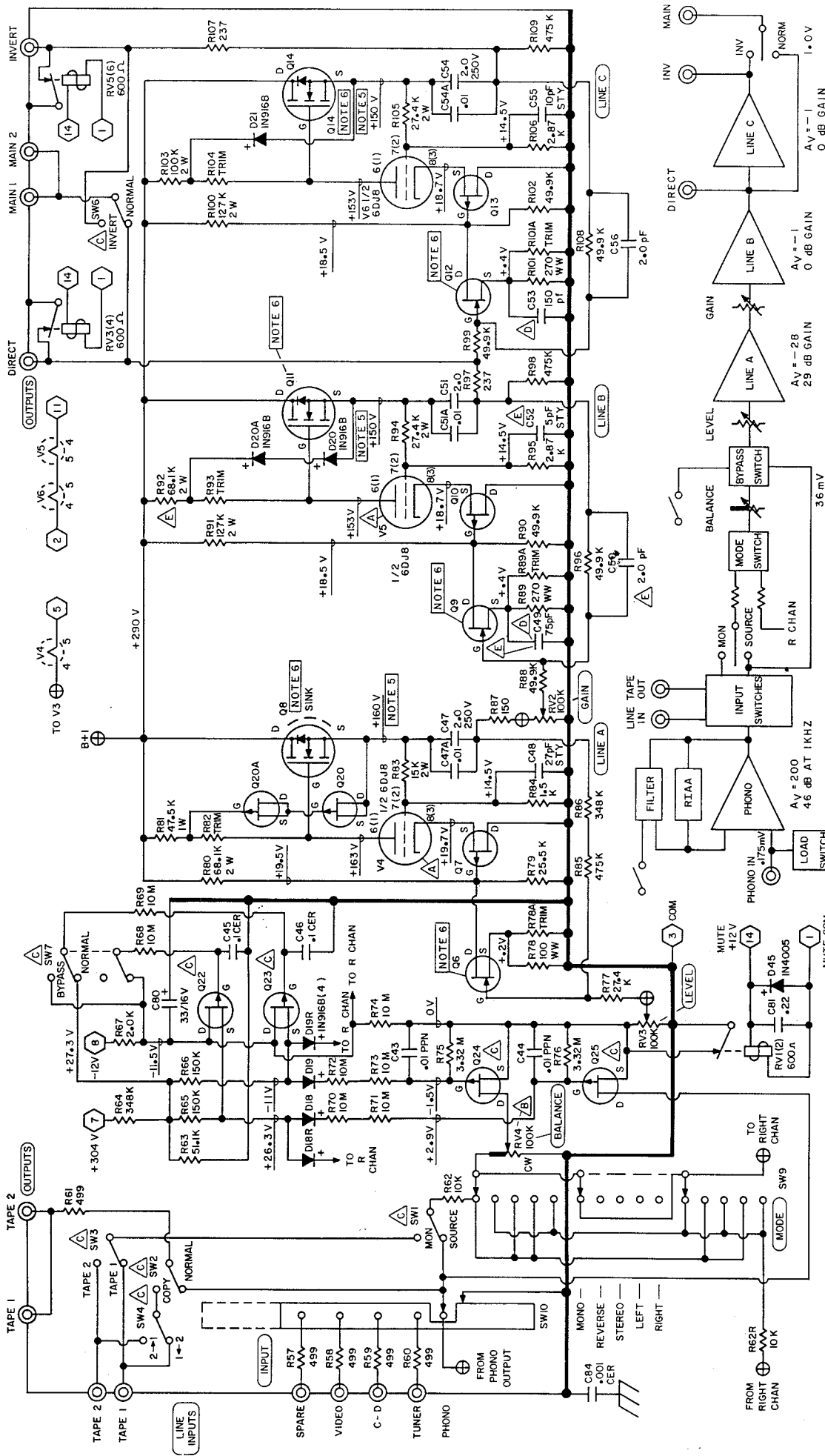
- WHERE NOTED, MEASURE VOLTAGES THRU 1KA HF INSTABILITY.
- ALL CAP IN U.F. UNLESS NOTED.
- DENOTES CABLE CONNECTOR PIN NUMBER.
- LEFT CHANNEL SHOWN, RIGHT CHANNEL IN PARENTHESIS WHERE DIFFERENT.

- CAUTION-HIGH VOLTAGE, CONTACT COULD BE LETHAL.
- ALL CAP IN U.F. UNLESS NOTED.
- DENOTES CABLE CONNECTOR PIN NUMBER.
- LEFT CHANNEL SHOWN, RIGHT CHANNEL IN PARENTHESIS WHERE DIFFERENT.



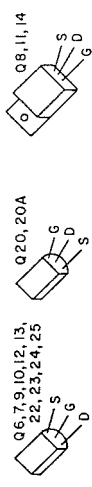
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 THIS DRAWING CONTAINS PATENTED, PATENT APPLIED FOR, AND/OR OTHER INFORMATION CONSIDERED PROPRIETARY BY AUDIO RESEARCH AND IS FURNISHED ON A CONFIDENTIAL BASIS FOR IDENTIFICATION AND REPAIR PURPOSES ONLY.

- REVISIONS:
- NOV. 1985 (SEE PAGE 2, 3)
  - JAN. 1986 (SEE PAGE 2)
  - MAR. 1986 C2 WAS P/N 53240301, C1 WAS PARALLEL COMBINATION WITH SEALED TERMINALS, WAS P/N 24100400.
  - MAY 1986 C9 WAS 150P1 STYRENE, ADDED GROUND STRAP BETWEEN SP11 AND SP12S.
  - JAN. 1986 (SEE PAGE 2)



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- REVISIONS:
- 1. CAUTION - HIGH VOLTAGE - CONTACT COULD BE LETHAL.
  - 2. CAP. IN  $\mu$ F UNLESS NOTED.
  - 3.  $\square$  DENOTES CABLE CONNECTOR PIN NUMBERS.
  - 4. LEFT CHANNEL SHOWN, RIGHT CHANNEL IN PARENTHESIS WHERE DIFFERENT.
  - 5. WHERE NOTED, MEASURE VOLTAGE THRU IKA RESISTOR AT TEST PROBE TIP, TO AVOID HF INSTABILITY.
  - 6. WHERE NOTED, "TRIM" RESISTORS MUST BE MATCHED TO INDIVIDUAL FEES, OR BY FET GRADE. CONSULT FACTORY FOR REPLACEMENT.
- REVISONS:
- 1. NOV 1965 V4,5 SELECTED FOR TRANSCONDUCTANCE.
  - 2. JAN 1966 RV4 OLDER TYPES REPLACED BY P/N 45100529.
  - 3. MAR 1986 SW1-8 IMPROVED WITH SEALED TERMINALS, WAS P/N 24100400.
  - 4. R22,23,24,25 CHANGED, WAS P/N 30006410. (SEE PARTS LIST)
  - 5. MAY 1986 C49, 53 WERE 150PF STYRENE.
  - 6. JUN 1986 C49 WAS 150 PF PPN, C50 WAS (2) 5PF STYRENE IN SERIES OR (2) 4 PF PPN IN SERIES, C52 WAS 10PF STYRENE. R92 WAS 100K 2W.



SP11 PREAMP UNIT

audio research corporation  
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 MINNEAPOLIS, MINNESOTA 55430



## BILL OF MATERIALS

PRODUCT SP11PS

As of NOV 29 90

Part Num	Description	Quantity
34300102	L.E.O. COLLAR & RETAINING RING	2
34501000	FUSE, 6-1/4 MDX	1
34501700	FUSE, MDX 1.5 A	1
41100304	RES. 1K 1W 5%	2
41620204	RES. 620 OHM 1W 5%	1
42100203	RES. 100 OHM 1% MK-3 50PPM	4
42100403	RES. 10K+/-1% MK-3 50PPM	2
42100505	RES. 100K 1% MK-3 50PPM	2
42150503	RES. 150K 1% MK-3 50PPM	1
42150514	RES. 150K 1% MK-5 1W 50PPM	2
42150613	RES. 1.5 MEG 1% MK-4 50PPM	1
42200303	RES. 2K MK-3 1% 50PPM	1
42255403	RES. 25.5K 1% MK-3 50PPM	1
42274403	RES. 27.4K 1% MK-3 50PPM	2
42280513	RES. 280K 1% MK-4 50PPM	1
42287303	RES. 2.87K 1% MK-3 50PPM	1
42301503	RES. 301K 1% MK-3 50PPM	1
42332203	RES. 332 OHM 1% MK-3 50PPM	1
42392403	RES. 39.2K 1% MK-3 50PPM	1
42432503	RES. 432K 1% MK-3 50PPM	1
42464603	RES. 4.64 MEG. 1% MK-3 50PPM	1
42499303	RES. 4.99K 1% MK-3 50PPM	2
43100002	RES. 1 OHM 2W 5% W.W.	1
43100105	RES. 10 OHM 2W 5% W.W.	2
43750001	RES. 7.5 OHM 2W W.W.	5
46100201	RES. POWER OX. 100 OHM 5% 3W	1
50150803	CAP. 150 UF 20% 50V	1
50150903	CAP. 1500 UF 30V	1
50200600	CAP. 2 UF 150V "LYTIC"	1
50200802	CAP. 180 UF 400V	2
50600900	CAP. 6000 UF 25V	1
51100700	CAP. 10 UF 20V	1
51330702	CAP. 33 UF+/-10% 16V	1
52100300	CAP. 1000 PF 20% 1000V	4
52100500	CAP. 0.1 UF 100V	2
52470300	CAP. 4700 PF 10% 100V	1
53100403	CAP. .01 UF+/-10% 150V	1
53100406	CAP. .01 UF+/-10% 630V	2
53200602	CAP. 2 UF +/-10% 450V	1
53200603	CAP. 2 UF +/-10% 250V	2
53220507	CAP. .22 UF 10% 160V	5
60007021	XFR. SP11 TOROID REV.A	1
64100600	RELAY, 24V	1
91007510	WARNING LABEL	1
92002401	SP6 OUTER BOX OYSTER WHITE	1
92002402	SP6 INNER CARTON OYSTER WHT	1
92002403	SP6 BOTTOM FILLER	1
92002404	SP6 TOP FILLER	1
92002405	SP6 SIDE PAD CARD BOARD FOLD	2
92002406	SP6 FRONT PANEL PAD	2
92002407	FOAM, SP6 TOP/BTM (1*) EPS	2
92002408	FOAM, SP6 SIDE WHITE (1*) ESP	2
92002409	FOAM, PRE-AMP F/B WHITE (1*)EPS	2
92200600	DESSICANT (SILICA EAGLE GEL)	1
92400700	POLY BAG, D100 AMPLIFIER	1

## BILL OF MATERIALS

As of NOV 29 90

PRODUCT SP11PS

Part Num	Description	Quantity
03000800	STRIP GROMMET 3/4X1 1/2 3/4X4	1
10014930	SP9/15/14 ANGLE BRKT REV.B	1
100152100	PRE-AMP TOP COVER	3
10025020	SP11PS FRONT PANEL	1
10025120	SP11 PS/S15PS SUB FT COMP.	1
10031710	SP11PS CHASSIS	1
13100300	1/2" RUBBER FOOT	4
14003010	INSULATOR HEAT SINK	2
16023910	SP 9/11/15/LS1 SWITCH BD	1
16025810	SP11 PS BOARD REV.A	1
20002610	4" HANDLE	2
20002900	STRAIN RELIEF	1
20004000	HEAT SINK	5
20005100	HEAT SINK	1
21104005	4-40X1/4 MCH.PH.FL.SCR.SP8/10	4
21106006	6-32X1/2 PHILLIPS PAN NICKEL	2
21106007	6-32X3/8 PHIL.PAN HD. M.S.	6
21106020	6-32X3/8"PHIL.PAN BLK NCK PLAT	10
21106030	6-32X1/4 PHIL.COVER SCREW	20
21108000	8-32X3/8 SLOTTED PAN NKL PLATE	4
21108008	8-32X5/8 PHIL.PAN SCREW NICKEL	2
21110014	10-24X5/8 HEX SOCKET	4
21110019	10-24X2 1/2 PHIL. PAN MCH. SCR	1
21206000	6-32X1/4 HEX NUT	12
21208000	8-32X11/32 HEX NUT	2
21306000	#6 LOCKWASHER	12
21308000	#8 LOCKWASHER	2
21310000	#10 INTERNAL TOOTH LOCKWASHER	4
21408001	8/32X3/4 HEX SPACER	2
21500100	CABLE TIE (WHITE)	15
23001400	TRANSISTOR PAD	1
23001700	STRAIGHT FUSE HOLDER	2
23104001	AMP 206043-1 CONNECTOR FEMALE	1
23104002	AMP 206044-1 CONNECTOR MALE	1
23104004	AMP 206322-1	1
23104005	AMP 202507-1 MALE PIN	14
23104006	AMP 202508-1 SOCKET	14
23201200	GRAY GROUNDING PLUG	1
23201300	AC OUTLETS, SP8, 10, 11, 15	4
24100710	TOGGLE SW., PREM.SILVER,PRE AM	2
25000700	POWER CORD #16X3,8',D115,SP11	1
30005301	D4 1K-2	1
30006300	NTM 2N45	1
30500300	1N4740A	1
30500400	1N4005 GENERAL INSTRUMENT	11
30500910	FAIRCHILD 1N916B	4
30501500	MOTOROLA 1N5400	4
30502200	1N4006	4
30503500	1N5359 B	1
30504200	1N5359A	1
31000801	TIMER MC1455P1	2
31001300	MC7812CK	2
31001700	MC7815CK	3
31001800	MOTOROLA LM311N	1
31002100	MOT MC79L12CP	1
31002200	MC34071P MOTOROLA	1

## BILL OF MATERIALS

As of NOV 29 90

PRODUCT SP11MEMK2

Part Num	Description	Quantity
92002406	SP6 FRONT PANEL PAD	2
92002407	FOAM, SP6 TOP/BTM ( 1#) EPS	2
92002408	FOAM, SP6 SIDE WHITE (1#) ESP	2
92002409	FOAM, PRE-AMP F/B WHITE (1#)EPS	2
92200600	DESSICANT (SILICA EAGLE GEL)	1
92400700	POLY BAG, D100 AMPLIFIER	1

## BILL OF MATERIALS

As of NOV 29 90

PRODUCT SP11MBMK2

Part Num	Description	Quantity
42392403	RES. 39.2K 1% MK-3 50PPM	2
42422303	RES. 4.22K 1% MK-3 50PPM	2
42432003	RES. 4.32 OHM 1% MK-3 50PPM	2
42432103	RES. 43.2 OHM 1% MK-3 50PPM	4
42464603	RES. 4.64 MEG. 1% MK-3 50PPM	2
42475503	RES. 475K 1% MK-3 50PPM	8
42475603	RES. 4.75 MEG 1% MK-3 50PPM	2
42499203	RES. 499 OHM 1% MK-3 50PPM	2
42499403	RES. 49.9K 1% MK-3 50PPM	6
42511203	RES. 511 OHM 1% MK-3 50PPM	2
42511403	RES. 51.1K 1% MK-3 50PPM	1
42549103	RES. 54.9 OHM 1% MK-3 50PPM	10
42562513	RES. 562K 1% MK-4 50PPM	2
42590403	RES. 59K 1% MK-3 50PPM	2
42619403	RES. 61.9K 1% MK-3 50 PPM	2
42665503	RES. 665K 1% MK-3 50 PPM	4
42681405	RES. 68.1K 1% MK-3 50PPM	6
42750103	RES. 75 OHM 1% MK-3 50PPM	2
42750203	RES. 750 OHM 1% MK-3 50PPM	4
42750503	RES. 750K 1% MK-3 50PPM	2
43100201	RES. 100 OHM 2W 5%	2
43200200	RES. 200 OHM +/-1% 2W W.W.	6
43270200	RES. 270 OHM 2-3W +/-1%	4
45100527	POT. 100 K 10%	2
45100528	100K DUAL GAIN POT	2
45100529	100K DUAL BALANCE POT	1
51220601	CAP. 2.2 UF +/-10% 25V	2
51330702	CAP. 33 UF +/-10% 16V	1
52100402	CAP. .01 UF 500V DISC.	2
52100500	CAP. 0.1 UF 100V	2
52200400	CAP. .02 UF 20% 300VAC/2000VD	2
53100101	CAP. 10 PF +/-1 PF 630V PPM	4
53100202	CAP. 100 PF +/-2 1/2% 630 V PPM	2
53100406	CAP. .01 UF +/-10% 630V	32
53100606	CAP. 1.0 UF +/-10% 250V	8
53100700	CAP. 10 UF +/-10% 250V	2
53150202	CAP. 150 PF 2 1/2% 630V PPM	12
53200003	CAP. 2 PF STY.	2
53200005	CAP. 2 PF STY.	2
53200602	CAP. 2 UF +/-10% 450V	6
53200603	CAP. 2 UF +/-10% 250V	6
53200604	CAP. 2.0 UF +/-20% 425V	2
53220506	CAP. .22 UF 100V	5
53240300	CAP. .0024 UF 630V	2
53270101	CAP. 27 PF +/-1PF 630V PNP	8
53300303	CAP. 3000 PF +/-2.5% 630V DPN	1
53470509	CAP. .47 UF +/-10% 450V	2
53500001	CAP. 5 PF +/-1PF 630V DPN	2
53560103	CAP. 56 PF +/-2% 630V DPN	8
53780300	CAP. 7800 PF 630V	2
64101000	RELAY, 12V REED 51P 1200 OHM	6
91007510	WARNING LABEL	1
92002401	SP6 OUTER BOX OYSTER WHITE	1
92002402	SP6 INNER CARTON OYSTER WHT	1
92002403	SP6 BOTTOM FILLER	1
92002404	SP6 TOP FILLER	1
92002405	SP6 SIDE PAD CARD BOARD FOLD	2



## BILL OF MATERIALS

As of NOV 29 90

PRODUCT SP11MBNK2

Part Num	Description	Quantity
30006424	FET, GRAY YELLOW	4
30006506	FET, WHITE BLUE	2
30006526	FET, WHITE RED BLUE	2
30006627	FET, VIOLET RED VIOLET	4
30006705	FET, ORANGE GREEN	8
30006706	FET, ORANGE BLUE	2
30006805	FET, YELLOW GREEN	1
30006836	FET, GREEN BLUE	1
30007106	FET, YELLOW BLUE	2
30007107	FET, YELLOW VIOLET	1
30007501	FET, ORANGE WHITE BROWN	4
30500300	IN4740A	4
30500400	IN4005 GENERAL INSTRUMENT	1
30500910	FAIRCHILD IN916B	36
30502700	IN4742-A	4
30503700	DIODE, 220 10%	4
31000703	LM329DZ ORANGE	4
31000705	LM329DZ GREEN	5
31001900	TLD71CP	6
32001110	VAC.TUBE, 6DJ8 RUSSIAN	6
34300102	L.E.D. COLLAR & RETAINING RING	2
41560203	RES. 560 OHM +/- 5% 1/2W	1
42100103	RES. 10 OHM 1% MK-3 50PPM	2
42100203	RES. 100 OHM 1% MK-3 50PPM	4
42100303	RES. 1K 1% MK-3 50PPM	4
42100403	RES. 10K +/- 1% MK-3 50PPM	8
42100505	RES. 100K 1% MK-8 50PPM	16
42100702	RES. 10 NEG 1% MK-2 50PPM	12
42100703	RES. 10 NEG 1% MK-3 50PPM	4
42127403	RES. 12.7K 1% MK-3 50PPM	4
42127505	RES. 127K 1% MK-8 50PPM	4
42150103	RES. 15 OHM 1% MK-3 50PPM	4
42150203	RES. 150 OHM 1% MK-3 50PPM	2
42150403	RES. 15K 1% MK-3 50PPM	4
42150405	RES. 15K 1% MK-8 50PPM	2
42150414	RES. 15K 1% MK-5 50PPM	2
42150503	RES. 150K 1% MK-3 50PPM	4
42182303	RES. 1.82K 1% MK-3 50PPM	16
42182413	RES. 18.2K 1% MK-4 50PPM	2
42200205	RES. 200 OHM +/- 1% MK8 50PPM	2
42200303	RES. 2K MK-3 1% 50PPM	1
42237203	RES. 237 OHM 1% MK-3 50PPM	4
42237303	RES. 2.37K 1% MK-3 50PPM	4
42267203	RES. 267 OHM 1% MK-3 50PPM	2
42274403	RES. 27.4K 1% MK-3 50PPM	2
42274405	RES. 27.4K 1% MK-8 50PPM	8
42287303	RES. 2.87K 1% MK-3 50PPM	12
42301303	RES. 3.01K 1% MK-3 50PPM	5
42301503	RES. 301K 1% MK-3 50PPM	2
42316303	RES. 3.16K 1% MK-3 50PPM	2
42332103	RES. 33.2 OHM 1% MK-3 50PPM	1
42332203	RES. 332 OHM 1% MK-3 50PPM	2
42332602	RES. 3.32 NEG 1% MK-2 50PPM	4
42332603	RES. 3.32 NEG 1% MK-3 50PPM	2
42348503	RES. 348K 1% MK-3 50PPM	2
42348513	RES. 348K 1% MK-4 50PPM	3
42357403	RES. 35.7K 1% MK-3 50PPM	16

## BILL OF MATERIALS

As of NOV 29 90

PRODUCT SP11MBMK2

Part Num	Description	Quantity
		1
06XXX011	MISC. WIRE SP11	1
10014930	SP9/15/14 ANGLE BRKT REV.B	2
100152100	PRE-AMP TOP COVER	1
10031410	SP11 FRONT PANEL	1
10031520	SP11/SP15 SUB FRONT PANEL	1
10031610	SP11 CHASSIS COMPLETE	1
13001410	KNOB, 6MM	3
13001510	KNOB, 1/4"	3
13100300	1/2" RUBBER FOOT	4
14001510	MODULE SPACER	4
14003100	BOBBINS (POLYCARBONATE)	1
14003400	VIGOR BOTTLE BU234(0-1 COVER)	2
15025010	SP11 CONTROL BD. REV.A	1
15025710	SP11 M. BD. REV.A	1
15025910	SP11 SWITCH BD. REV.A	1
15026010	SP11 BY PASS BOARD	1
20002610	4" HANDLE	2
20002800	SCREW INSULATOR	2
20003800	RUBBER GROMMET	4
20004400	HEAT SINK	2
20004600	VACUUM TUBE DAMPERS	4
20005200	HEAT SINK, CLIP ON	3
21104005	4-40X1/4 MCH. PH. FL. SCR. SP9/10	4
21106005	6-32X1/2 PHIL PAN SCREW	4
21106014	6-32X5/16 PHIL PAN	1
21106020	6-32X3/8"PHIL PAN BLK NCK PLAT	8
21106030	6-32X1/4 PHIL COVER SCREW	20
21108000	8-32X3/8 SLOTTED PAN NKL PLATE	4
21110014	10-24X5/8 HEX SOCKET	4
21206000	6-32X1/4 HEX NUT	12
21306006	#6 FLATWASHER ZINC PLATED .440	8
21308000	#8 LOCKWASHER	1
21310000	#10 INTERNAL TOOTH LOCKWASHER	4
21338006	SP11/15/14/M300 TIF. WSHR SW-2	52
21406011	1/4X3/8 SPACER #6 HOLE	4
21500100	CABLE TIE (WHITE)	35
23000401	9 PIN SM.VAC.TUBE SOCKET	6
23100700	GROUND POST, PRE-AMP	1
23102100	#10 SOLDER LUG	1
23103100	#6 TWO HOLE BENT LUG	3
23104000	AMP 206036-1 CONNECTOR MALE	1
23104003	AMP 206037-1 CONNECTOR FEMALE	1
23104004	AMP 206322-1	1
23104005	AMP 202507-1 MALE PIN	14
23104006	AMP 202508-1 SOCKET	14
23201501	GOLD PHONO JK., W/RD. BND. SP11	13
23201502	GOLD PHONO JK., W/WH. BD. SP11	13
24000700	5 POS MODE SWITCH, SP11	1
24001000	5 POS SOURCE SWITCH, SP11	1
24001500	5 POS IMPED. SWITCH, GOLD, SP11	1
24100420	TOGGLE SW. GOLD PRE. SATIN	8
30005901	FET, RED BROWN	18
30006403	FET, BLUE ORANGE	2
30006405	FET, BLUE GREEN	4
30006406	FET, BLUE BLUE	6
30006407	FET, BLUE VIOLET	2