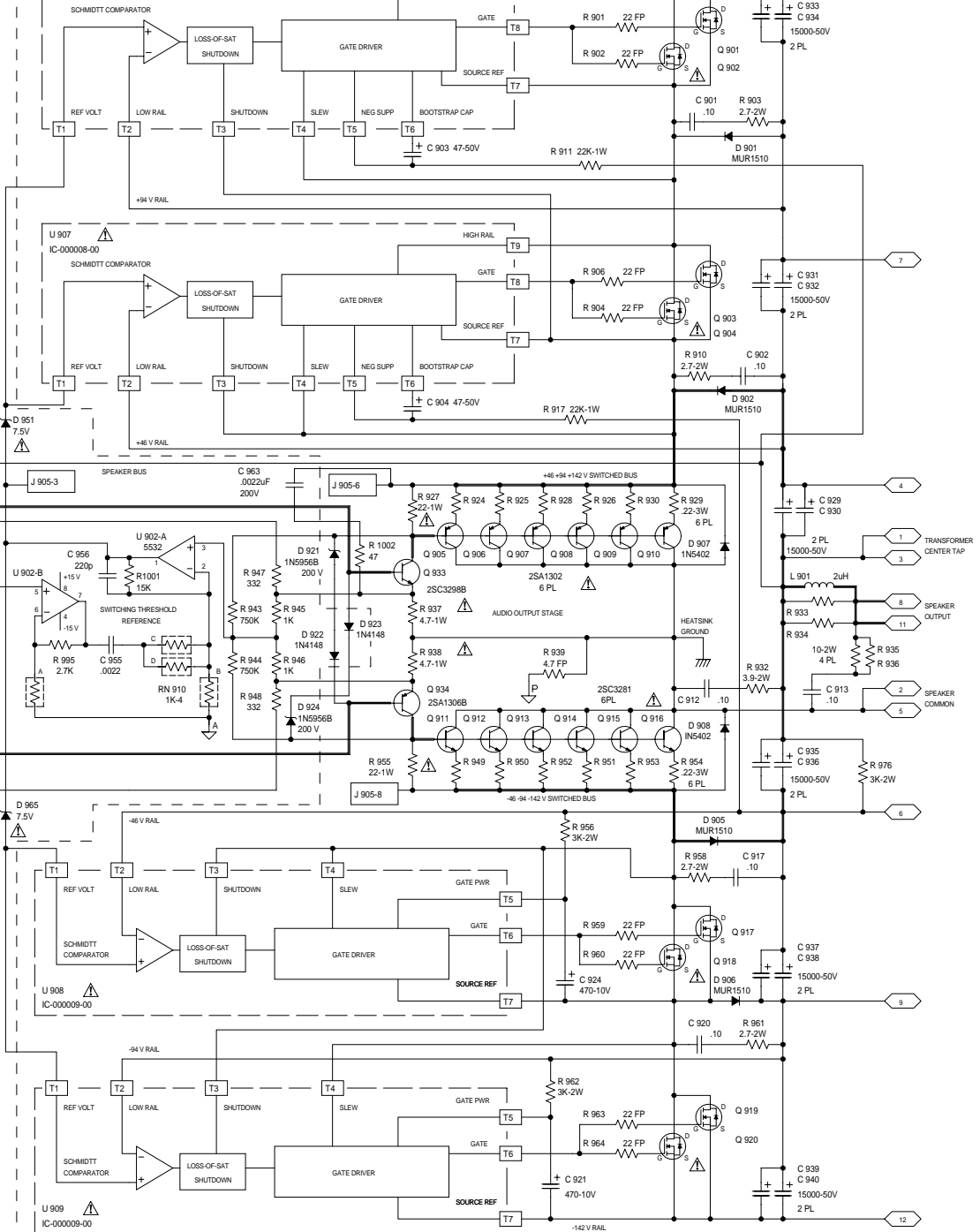
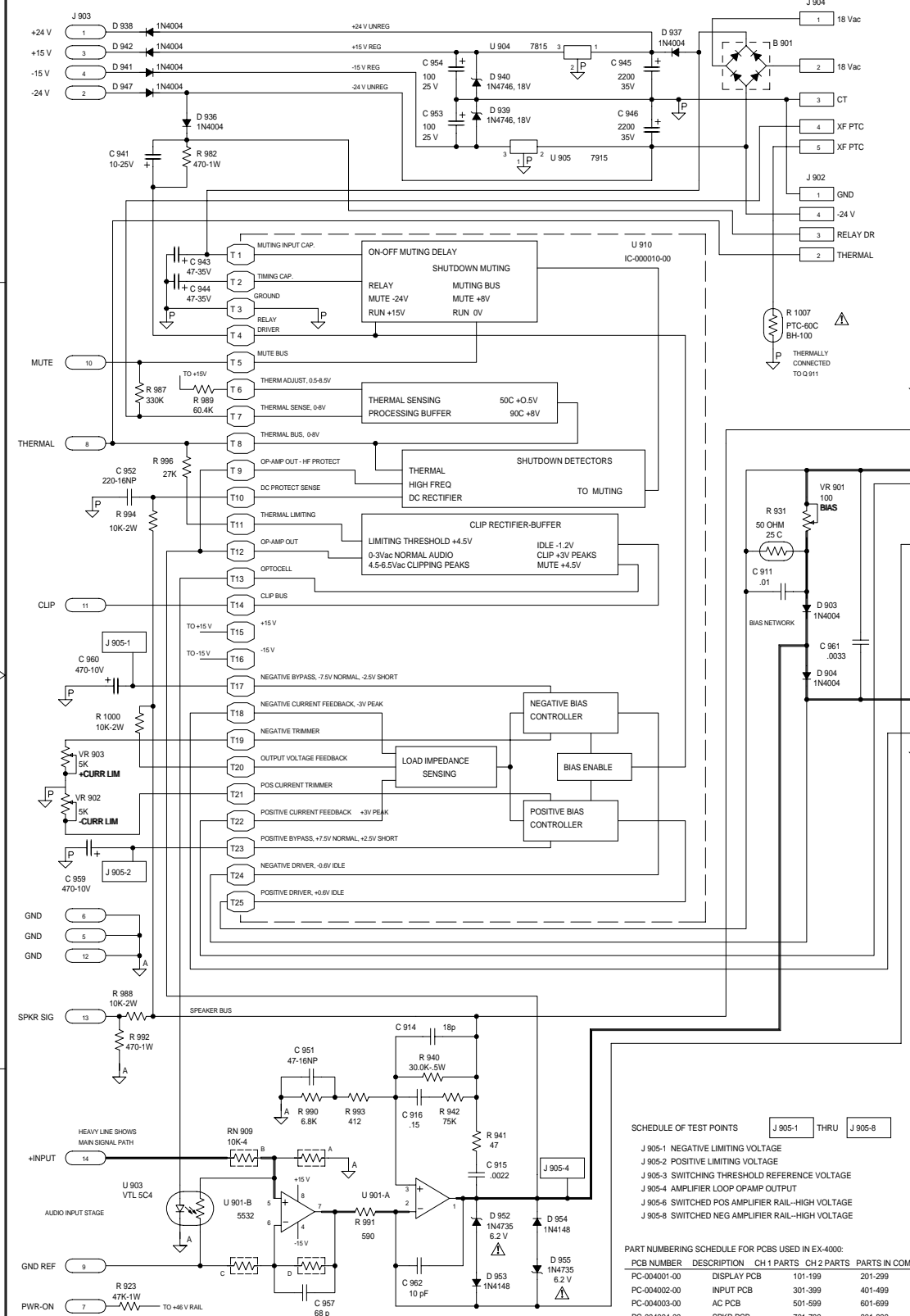


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SCHEMATIC, AMPLIFIER CHANNEL, EX 4000-B
REV U, 2-15-95, FOR PC-004200-00 REV K

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	P	REVISED PER ECO 2181 WR	2-17-94	SGM
	R	REVISED PER ECO 2338 WR (EFF. 6-24-94)	6-15-94	SGM
	T	REVISED PER ECO 2474 (EFF. 11-04-94)	10-28-94	SGM
	U	REVISED PER ECO 2584 WR (EFF. -95)		



SCHEDULE OF TEST POINTS

J 905-1 NEGATIVE LIMITING VOLTAGE
 J 905-2 POSITIVE LIMITING VOLTAGE
 J 905-3 SWITCHING THRESHOLD REFERENCE VOLTAGE
 J 905-4 AMPLIFIER LOOP OPAMP OUTPUT
 J 905-6 SWITCHED POS AMPLIFIER RAIL-HIGH VOLTAGE
 J 905-8 SWITCHED NEG AMPLIFIER RAIL-HIGH VOLTAGE

PART NUMBERING SCHEDULE FOR PCBs USED IN EX-4000:

PCB NUMBER	DESCRIPTION	CH 1 PARTS	CH 2 PARTS	PARTS IN COMMON
PC-004001-00	DISPLAY PCB	101-199	201-299	1-29
PC-004002-00	INPUT PCB	301-399	401-499	31-49
PC-004003-00	AC PCB	501-599	601-699	51-69
PC-004004-00	SPKR PCB	701-799	801-899	71-99
PC-004200-00	AMP CHANNEL	901-UP (SAME BOARD FOR CH 1, CH2)		

- NOTES:**
- ALL RESISTORS 1/4-WATT, 5% UNLESS NOTED.
 - ALL CAPACITORS 100V UNLESS NOTED.
 - TOLERANCE 20% FOR ELECTROLYTIC TYPES, 10% ON OTHER TYPES.
 - BRIDGE RECTIFIER B 901, 1.5A, 100V.
 - R 1007 IS POSITIVE TEMPERATURE COEFFICIENT RESISTOR MOUNTED TO HEAT SINK. RESISTANCE 100 OHM COLD, RISING AT 55 C. QSC PIN RE-000006-PT
 - Q 901-904, 917-920 ARE SWITCHING FETS. QSC PIN QD-000013-QD OR QD-000031-QD. 125 V, 60 V MINIMUM, ON-RESISTANCE 0.030 OHMS MAX.
 - ZENERS D 951, 965 MARKED 7.5 V TESTED FOR LOW LEAKAGE, QSC PIN QD-0007.5-ZT.
 - ZENERS D 952, 955, 6.2V-500mW, TESTED FOR LOW LEAKAGE, QSC PIN QD-000024-QD.
 - PARTS MARKED WITH TRIANGLE MUST BE REPLACED WITH EXACT TYPE ONLY.
 - PARTS ENCLOSED WITHIN DOTTED OUTLINE HAVE VOLTAGES GREATER THAN 42V.
 - Q 933 AND Q 934 MUST BE INSULATED FROM THEIR HEATSINK (WHICH ARE CONNECTED TO GROUND).

NOTES: UNLESS OTHERWISE SPECIFIED

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DIMENSIONS PER ANSI Y14.5-1982. TOLERANCES ARE: DECIMALS DECIMALS ANGLES .xx ± .02 .xxx ± .010 ± 1/2° DEBURR EDGES .XXX R MAX.

CONTRACT NO.	QSC AUDIO PRODUCTS, INC. COSTA MESA, CALIFORNIA	
APPROVALS	DATE	SCHEMATIC EX 4000B AMPLIFIER CHANNEL
DRAWN FHQ	6-19-90	
CHECKED SGM	11-01-91	SH-004000-00
ISSUED SG MORALES	6-22-94	
CAD SEED FILE NO. SH4000T1.FCD	SCALE NONE	CAD FILE NO. SH4000U1.FCD

REVISIONS: U, D, T, R, P

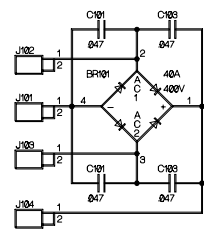
SH-004000-00 1 REV U

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REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	PROD RELEASE PER ECO 2297 WR		

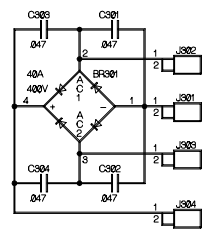
CHANNEL 1

FROM T (CHAN 1) VIO
TO P901-4 VIO/WHT
FROM T (CHAN 1) YEL
TO P901-6 YEL/WHT



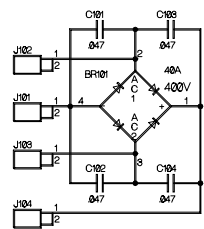
CHANNEL 2

VIO FROM T (CHAN 2)
VIO/WHT TO P901-4
YEL FROM T (CHAN 2)
YEL/WHT TO P901-6



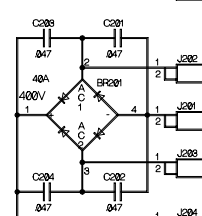
CHANNEL 1

FROM T (CHAN 1) PUR
TO P901-4 PUR/WHT
FROM T (CHAN 1) YEL
TO P901-6 YEL/WHT

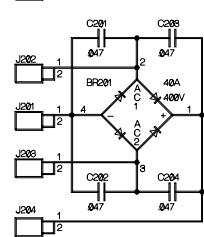


CHANNEL 2

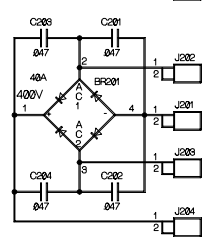
J902
J901
J903
J904
GRN/WHT TO P901-10
RED/WHT TO P901-12



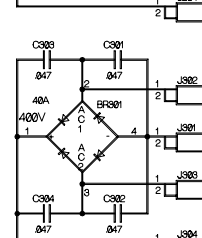
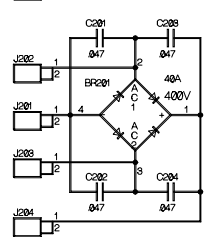
FROM T (CHAN 1) GRA
TO P901-7 GRA/WHT
FROM T (CHAN 1) ORG
TO P901-9 ORG/WHT



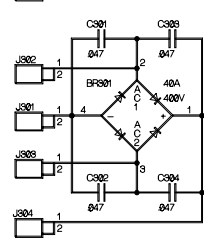
GRA FROM T (CHAN 2)
GRA/WHT TO P901-7
ORG FROM T (CHAN 2)
ORG/WHT TO P901-9



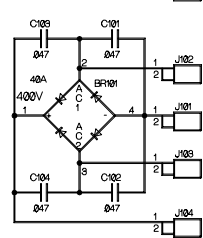
FROM T (CHAN 1) GRY
TO P901-7 GRY/WHT
FROM T (CHAN 1) ORG
TO P901-9 ORG/WHT



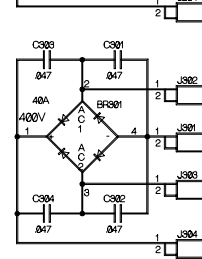
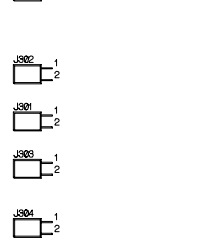
FROM T (CHAN 1) GRN
TO P901-10 GRN
FROM T (CHAN 1) RED
TO P901-12 RED



GRN FROM T (CHAN 2)
GRN/WHT TO P901-10
RED FROM T (CHAN 2)
RED/WHT TO P901-12



TO P901-10 GRN
TO P901-12 RED



SCHEMATIC -00

SCHEMATIC -01

SCHEMATIC -02

TAB BLOCK		
DASH NO.	DESCRIPTION	USED ON
-00	CHAN 1 & 2	MPA1100, MPX1200, EX 4000
-01	CHAN 1	MPA750, EX 2500
-02	CHAN 2	MPA750, EX 2500

NOTES: UNLESS OTHERWISE SPECIFIED

APPLICATION	USED ON
X	X

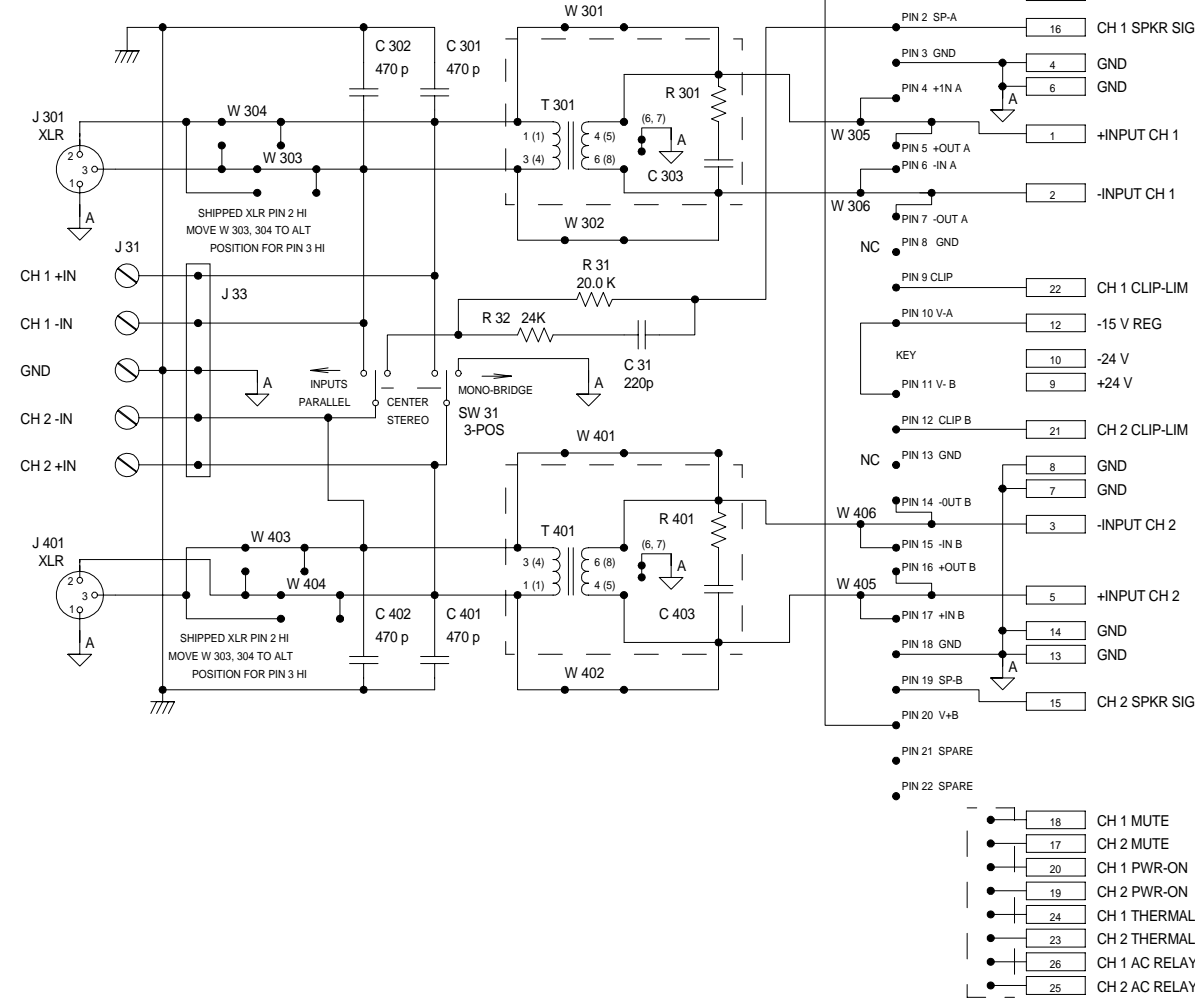
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DIMENSIONS PER ANSI Y14.5-1982	CONTRACT NO.
TOLERANCES ARE: DECIMALS DECIMALS ANGLES XX ± .02 XXX ± .010 ± 1/2 °	APPROVALS
DEBURR EDGES .XXX R MAX	DATE
MATERIAL	DRAWN Warren R.
FINISH	CHECKED
	ISSUED
	CAD SEED FILE NO.

QSC AUDIO PRODUCTS, INC. COSTA MESA, CALIFORNIA	
SCHEMATIC, BRIDGE RECTIFIER PCB	
SIZE C	REV A
SH-000040-XX	
SCALE NONE	SHEET 1 OF 1

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REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	PROD REL PER ECO 756		
	B	CHANGE VALUE R31, WAS 21 K SEE ECO 1097	6-10-91	SGM
	C	REVISED FOR MIN-SLOT, BR-SW SEE ECO 1297 BY PHQ	1-24-92	SGM
	D	REVISE PER ECO 1916	6.	

SCHEMATIC, EX-SERIES STANDARD INPUT BOARD.
FOR PC-004005-00 REV B 7-15-93



NOTES, ALL REV LEVELS

1. ALL RESISTORS 1/4W, 5%.
2. ALL CAPACITORS 100V
3. J 32, 26-PIN CONNECTOR, TO J 1 ON FRONT DISPLAY BOARD PC-004001-00.
4. PARTS FOR CH 1 NUMBERED 301-399.
5. PARTS FOR CH 2 NUMBERED 401-499.
6. PARTS IN COMMON TO BOTH CHANNELS NUMBERED 31-49.
7. BOARD SHIPPED WITH W 301-304, W 401-404 MOUNTED AS SHOWN.
8. PARTS WITHIN DOTTED OUTLINE FOR USER MODIFICATION. SEE MANUAL.

NOTES, REV LEVELS A-B

1. THE FIRST YEAR OF PRODUCTION EX AMPLIFIERS SHIPPED WITH PC-004002-00 REV A OR B
2. FOR PC-004005-00 REV A, ADDED PADS 1-20 FOR LEVEL 1-A, 2-A INPUT ACCESSORY PCB
3. ADDED J33, 5-PIN INPUT EXTENDER HEADER AND W305,306,405 & 406.
4. NO CHANGE IN PINOUT OF J32, PINS 1-26
5. SW-31 WAS REVISED ON PC-004005-00 REV A, BUT WILL NOT AFFECT FUNCTION OF UPPER SLOT PCB.

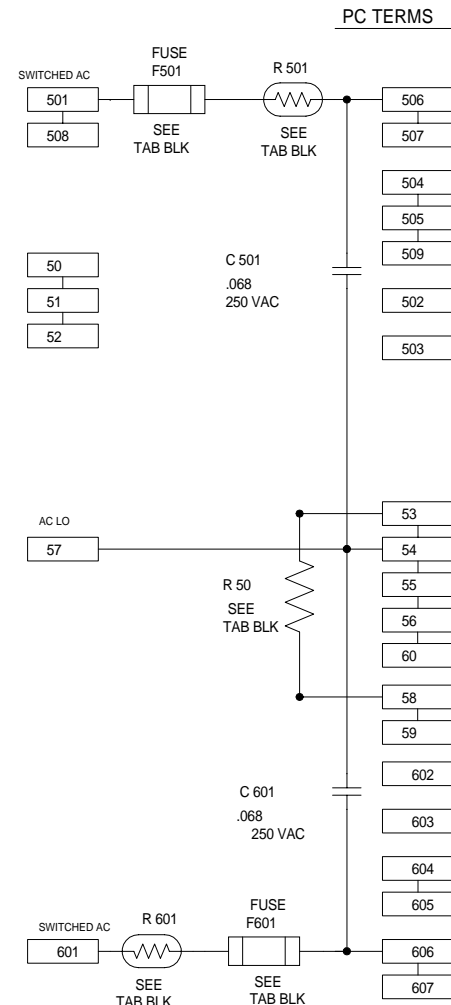
NOTES: UNLESS OTHERWISE SPECIFIED

APPLICATION		PARTS LIST		QSC AUDIO PRODUCTS, INC. COSTA MESA, CALIFORNIA	
PC-004005-00	EX/MPA SERIES	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DIMENSIONS PER ANSI Y14.5-1982 TOLERANCES ARE: DECIMALS .XX ± .XXX ± ANGLES °	CONTRACT NO.	APPROVALS	
NEXT ASSY	USED ON	DEBURR EDGES .XXX R MAX	DATE	DATE	
		MATERIAL	DRAWN	PAT QUILTER 6-18-90	
		FINISH	CHECKED		
			ISSUED		
			CAD SEED FILE NO.	SH4002C1.FCD	
			SCALE	NONE	
			CAD FILE NO.	SH4002D1.FCD	
			SIZE	C	
			FIG. NO.	SH-004002-00	
			DWG. NO.	D	
			SHEET	1 OF 1	

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REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	PROD RELEASE PER ECO 1846	5-18-93	SGM
	B	REVISED PER ECO 2201 (EFF 8-5-94)	6-15-94	SGM
	C	REV PER ECO 2699 (EFF. 8-18-95)		

SCHEMATIC FOR PC-004003-00 REV B



TABULATION BLOCK			
MODEL (V)	FUSE	R 50	R 501 / R 601
MX 2000a (100V)	15A 250V	330 15W	1.0 OHM COLD 30A
MX 2000a (120V)	15A 250V	330 15W	1.0 OHM COLD 30A
MX 2000a (230V)	12A 250V	470 15W	2.5 OHM 15A
EX 2500 (100V)	20A 250V		1.0 OHM COLD 30A
EX 2500 (120V)	20A 250V		1.0 OHM COLD 30A
EX 2500 (230V)	12A 250V		2.5 OHM 15A
EX 4000 (100V)	20A 250V		1.0 OHM COLD 30A
EX 4000 (120V)	20A 250V		1.0 OHM COLD 30A

1. THIS DRAWING USED IN CONJUNCTION WITH SCHEMATIC DIAGRAMS : SH-004000-00, SH-004001-00, SH-004002-00, SH-004003-00, SH-004004-00, SH-004006-00, SH-002500-00, SH-002010-00, AND SH-002011-00

NOTES: UNLESS OTHERWISE SPECIFIED

APPLICATION	DO NOT SCALE DRAWING
PC-004003-00	EX 3 SP
NEXT ASSY	USED ON

PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DIMENSIONS PER ANSI Y14.5-1982		CONTRACT NO.	
TOLERANCES ARE: DECIMALS DECIMALS ANGLES XX ± .XXX ± °		APPROVALS DATE	
DEBURR EDGES .XXX R MAX		DRAWN LEORA 5-10-93	
MATERIAL		CHECKED SGM 5-17-93	
FINISH		ISSUED SG MORALES 5-18-93	
CAD SEED FILE NO.		SCALE NONE CAD FILE NO. SH4005C1.FCD SHEET 1 OF 1	

QSC AUDIO PRODUCTS, INC.
COSTA MESA, CALIFORNIA

**SCHEMATIC,
AC PCB EX/MXa 3 SP**

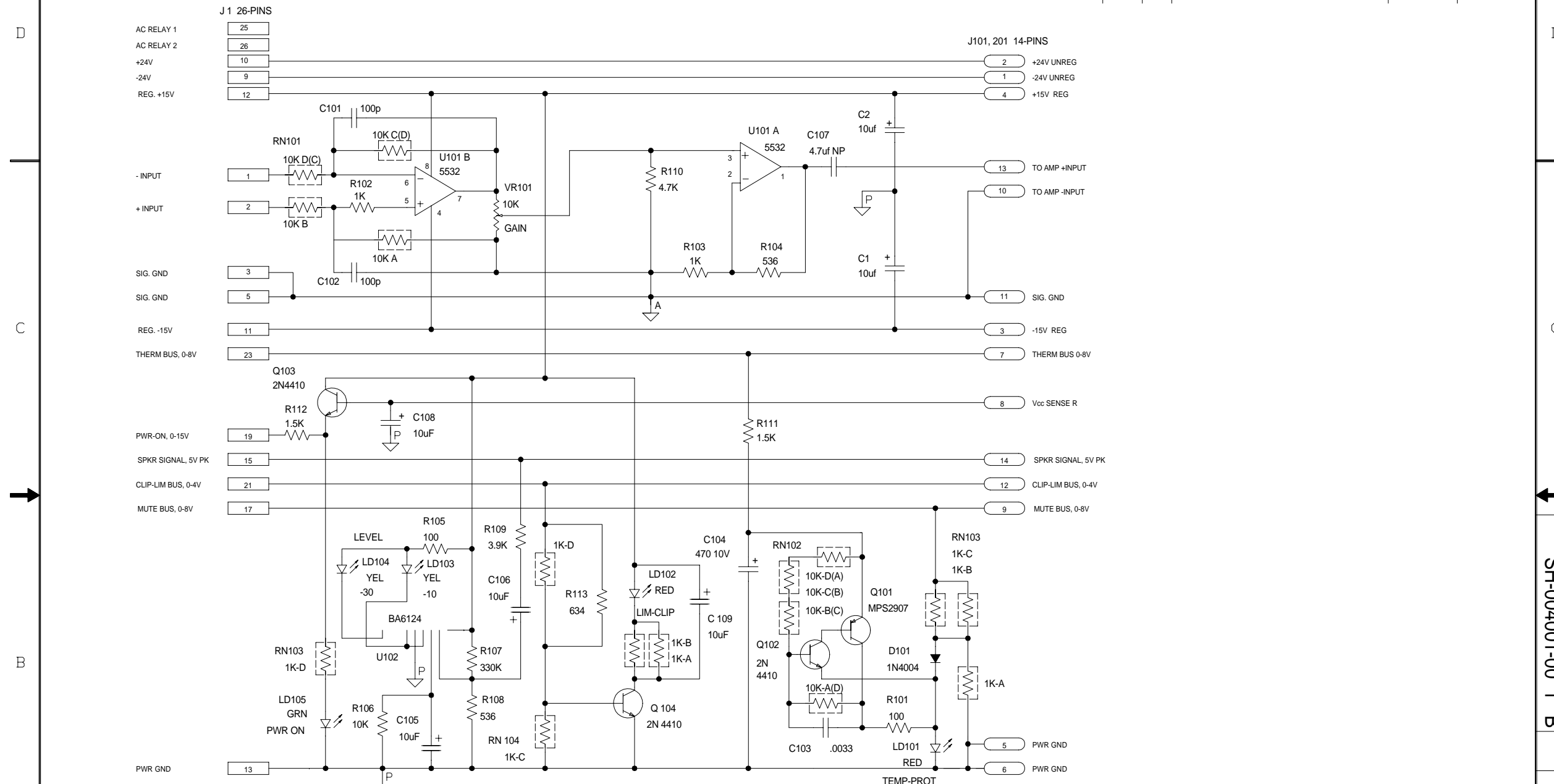
SIZE F30M NO. DWG NO. SH-004005-00 REV C

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SCHEMATIC, EX-SERIES DISPLAY BOARD.

PC-004001-00, REV A.

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	PROD REL PER ECO 756	6-19-90	
	B	REVISED PER ECO 1603 WR	9-29-92	



CH 2 PINS

- INPUT	4
+ INPUT	6
SIG. GND	7
SIG. GND	8
THERM BUS, 0-8V	24
PWR-ON, 0-15V	19
SPKR SIGNAL, 5V PK	16
CLIP-LIM BUS, 0-4V	22
MUTE BUS, 0-8V	18
PWR GND	14

- NOTES
1. ALL RESISTORS 1/4 WATT UNLESS SPECIFIED.
 2. ALL CAPACITORS 25V UNLESS SPECIFIED.
 3. CH 2 RESISTOR NETWORK SECTIONS () WHEN DIFFERENT.
 4. CH 1 COMPONENTS NUMBERED 101-199
 5. CH 2 COMPONENTS NUMBERED 201-299.
 6. PARTS IN COMMON TO BOTH CHANNELS NUMBERED 1-99.
 7. U102, 202 ROHM BA6124 OR SAMSUNG KA2284/85
 8. LD 101, 102, HIGH-EFFICIENCY RED LED.
 9. LD 103, 104, HIGH-EFFICIENCY YELLOW LED.
 10. LD 105, HIGH-EFFICIENCY GREEN LED.

PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO.	
FRACTIONS	DECIMALS	ANGLES	0
+/-	.XX +/-	+/-	
	.XXX +/-		
MATERIAL	ISSUED	APPROVALS	DATE
FINISH	FCAD: 004001SH	DRAWN	PAT QUILTER 6-19-90
DO NOT SCALE DRAWING	SCALE	CHECKED	
	SIZE	ISSUED	
	FSCH NO.	FCAD: 004001SH	
	DWG NO.	FCAD: 004001SH	
	SH-004001-00 B	FCAD: 004001SH	
	SH4001B1.FDC	FCAD: 004001SH	
	SHEET 1 OF 1	FCAD: 004001SH	

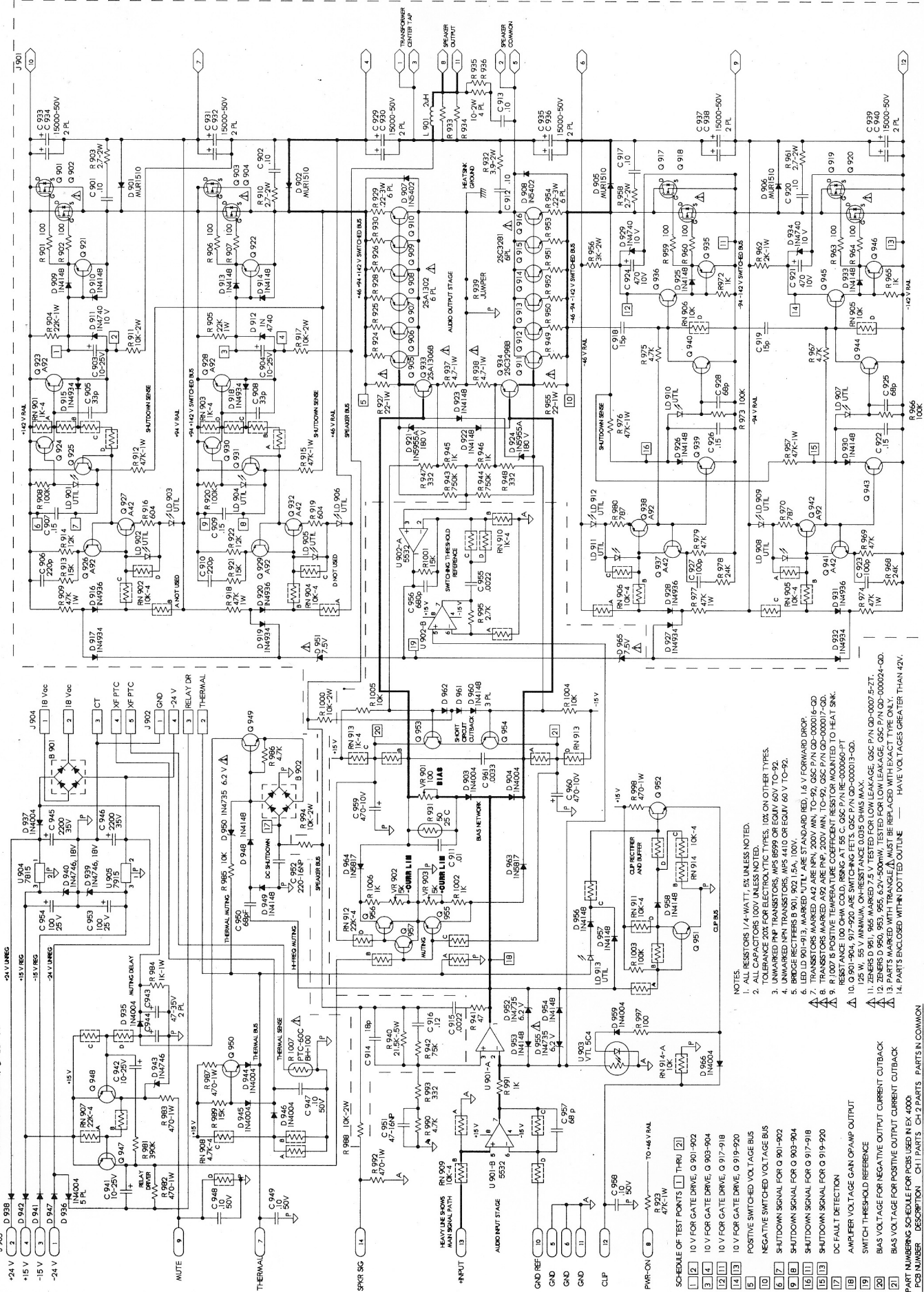
QSC AUDIO PRODUCTS
COSTA MESA, CALIFORNIA

SCHEMATIC DIAGRAM
EX-SERIES DISPLAY BOARD

SIZE: C
SCALE: SH4001B1.FDC
SHEET 1 OF 1

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SCHEMATIC, AMPLIFIER CHANNEL, EX 4000
PC-004000-00 REV. 6-20-90



- NOTES:
1. ALL RESISTORS 1/4-WATT, 5% UNLESS NOTED.
 2. ALL CAPACITORS 100V UNLESS NOTED.
 3. TOLERANCE 20% FOR ELECTROLYTIC TYPES, 10% ON OTHER TYPES.
 4. UNMARKED PNP TRANSISTORS, MPS 8599 OR EQUIV 60V TO-92.
 5. UNMARKED NPN TRANSISTORS, MPS 4410 OR EQUIV 60V TO-92.
 6. BRIDGE RECTIFIERS B 901, 902, 15A, 100V.
 7. LED LD 901-913, MARKED "UTL" ARE STANDARD RED, 1.6 V FORWARD DROP.
 8. TRANSISTORS MARKED "A2" ARE PNP, 300V MAX, TO-92, GSC P/N QD-000016-QD.
 9. R 1007 IS POSITIVE TEMPERATURE COEFFICIENT RESISTOR FOR MOUNTED TO HEAT SINK. RESISTANCE 100 OHM COLD, RING AT 55 C, GSC P/N DR-000060-PT.
 10. Q 901-904, 917-920 ARE SWITCHING FETS, GSC P/N QD-000013-QD.
 11. ZENERS D 951, 965 MARKED 7.5 V TESTED FOR LOW LEAKAGE, GSC P/N QD-00075-27.
 12. ZENERS D 950, 953, 955, 6.2V-500mW, TESTED FOR LOW LEAKAGE, GSC P/N QD-000024-QD.
 13. ZENERS D 952, 954, 5.1V-500mW, TESTED FOR LOW LEAKAGE, GSC P/N QD-000024-QD.
 14. PARTS ENCLOSED WITHIN DOTTED OUTLINE HAVE VOLTAGES GREATER THAN 42V.

- SCHEDULE OF TEST POINTS 1 THRU 21
- 1 10 V FOR GATE DRIVE, Q 901-902
 - 2 10 V FOR GATE DRIVE, Q 903-904
 - 3 10 V FOR GATE DRIVE, Q 917-918
 - 4 10 V FOR GATE DRIVE, Q 919-920
 - 5 POSITIVE SWITCHED VOLTAGE BUS
 - 6 NEGATIVE SWITCHED VOLTAGE BUS
 - 7 SHUTDOWN SIGNAL FOR Q 901-902
 - 8 SHUTDOWN SIGNAL FOR Q 903-904
 - 9 SHUTDOWN SIGNAL FOR Q 917-918
 - 10 SHUTDOWN SIGNAL FOR Q 919-920
 - 11 DC FAULT DETECTION
 - 12 AMP LIFT VOLTAGE GAIN OF AMP OUTPUT
 - 13 BIAS VOLTAGE FOR NEGATIVE OUTPUT CURRENT CUTBACK
 - 14 BIAS VOLTAGE FOR POSITIVE OUTPUT CURRENT CUTBACK
 - 15 SWITCH THRESHOLD REFERENCE
 - 16 BIAS VOLTAGE FOR NEGATIVE OUTPUT CURRENT CUTBACK
 - 17 BIAS VOLTAGE FOR POSITIVE OUTPUT CURRENT CUTBACK
 - 18 PART NUMBER DESCRIPTION
 - 19 CH 1 PARTS
 - 20 CH 2 PARTS
 - 21 PARTS IN COMMON

PCB NUMBER	DESCRIPTION	CH 1 PARTS	CH 2 PARTS	PARTS IN COMMON
PC-004001-00	DISPLAY PCB	101-199	201-299	31-49
PC-004002-00	INFLY PCB	301-399	401-499	51-59
PC-004003-00	AC PCB	501-599	601-699	71-79
PC-004004-00	SR PCB	701-799	801-899	91-99
PC-004005-00	AMP CHANNEL	901-999	1001-1099	