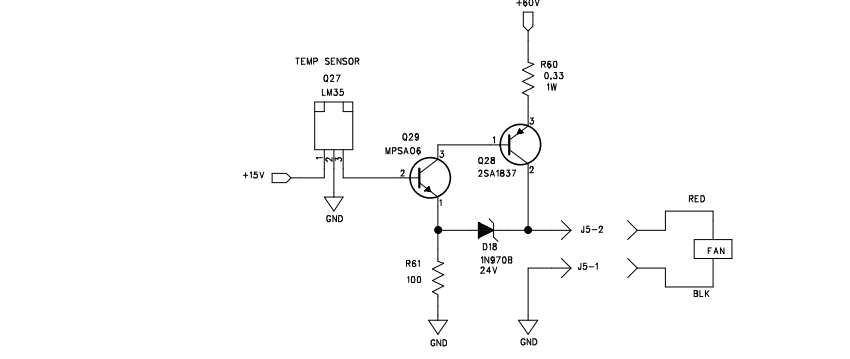
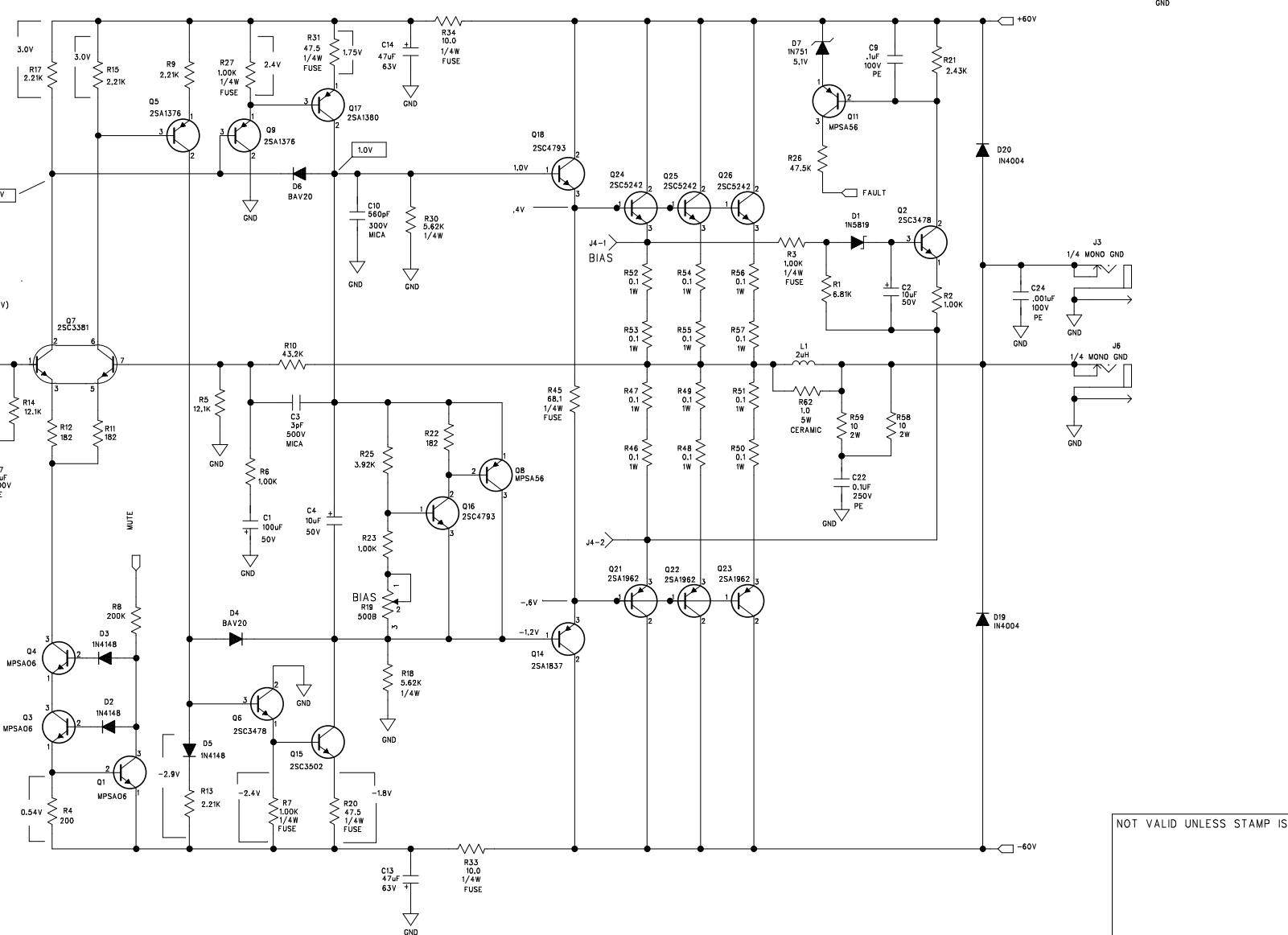
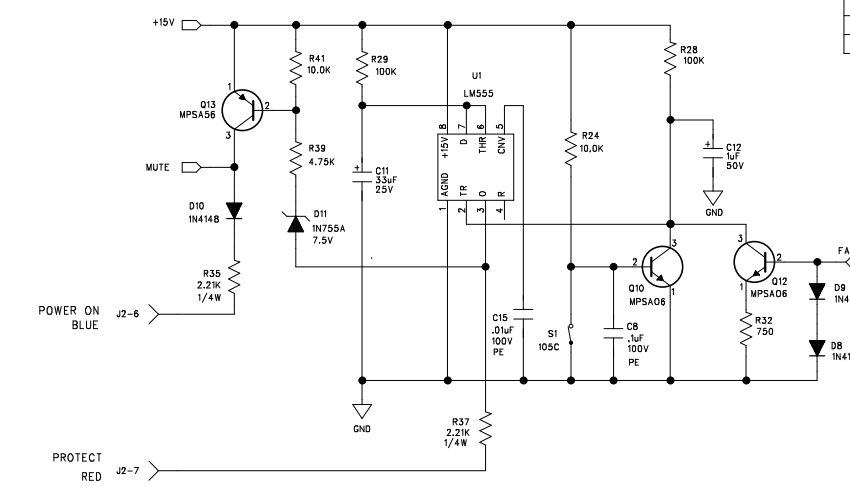
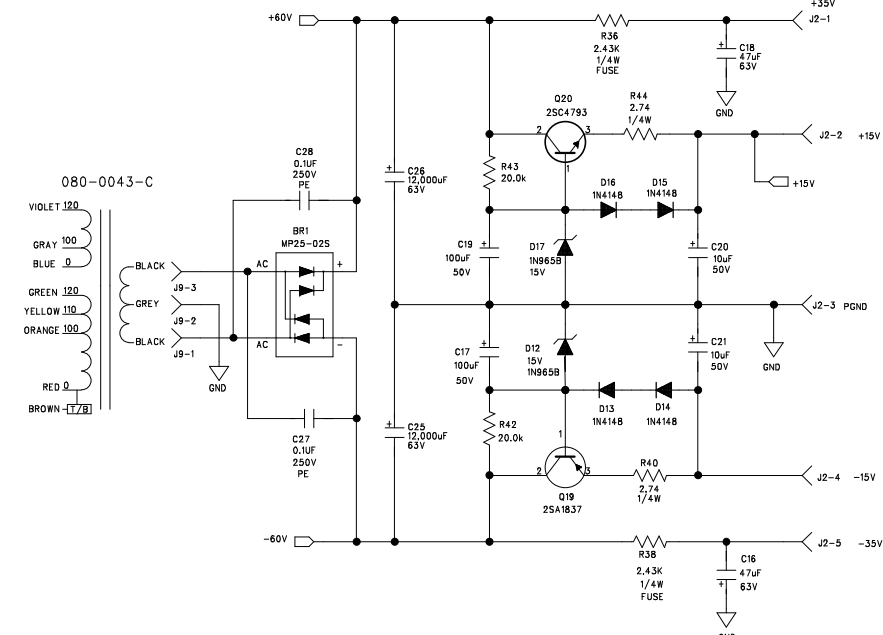
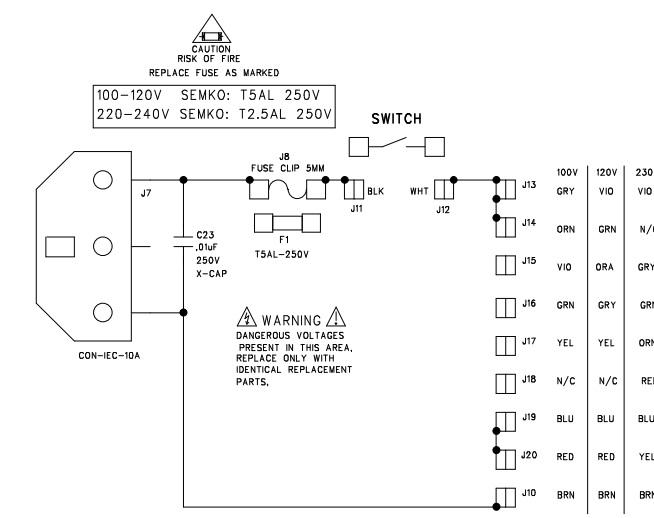


REVISION RECORD			
LTR	ECCO NO:	APPROVED:	DATE:

6 5 4 3 2 1



- NOTES: UNLESS OTHERWISE SPECIFIED,
- TEST CONDITIONS: 100mV 1kHz SINE, DIRECT INPUT (PRE-AMP BYPASSED) NO LOAD
 - DENOTES RMS AC VOLTAGE

BIAS ADJUSTMENT PROCEDURE:
WITH POWER OFF, ADJUST POT R21 TO FULL COUNTER-CLOCKWISE POSITION.
TURN ON POWER AND WAIT 5 SECONDS FOR TURN ON DELAY.
TURN R21 CLOCKWISE UNTIL VOLTAGE ACROSS P3 READS 10 mVDC.

MH,200V 1 X6	MH,200V 1 X5	MH,125/220 1 X7
MH,200V 1 X4	MH,200V 1 X3	MH,125/220 1 X2
		MH,125/220 1 X1

NOT VALID UNLESS STAMP IS RED

gallien technology

2240 PARAGON DRIVE
SAN JOSE CA. 95131
VOICE: 408-441-8081
FAX: 408-441-8085

TITEL: 400RB-IV POWER AMP		REV. A
DESIGNED: R.A.G.	DATE: 11/9/99	DRAWING NO: 406-0240-A
DRAWN: R.A.G.	DATE: 11/26/02	PART NO: 206-0240-A
ELEC:		COMPANY: GALLIEN KRUEGER
MECH:		FILENAME: 6240A.sch
Q/A:		
RELEASED:		

NOTES THIS REV:
1. TRANSFERRED FROM 206-0121-E1, NEW SYSTEM
2. ADD 5.1V ZEN TO Q1-E.
3. REMOVE R1 FROM REV 0121-E1.

D

C

B

A

D

C

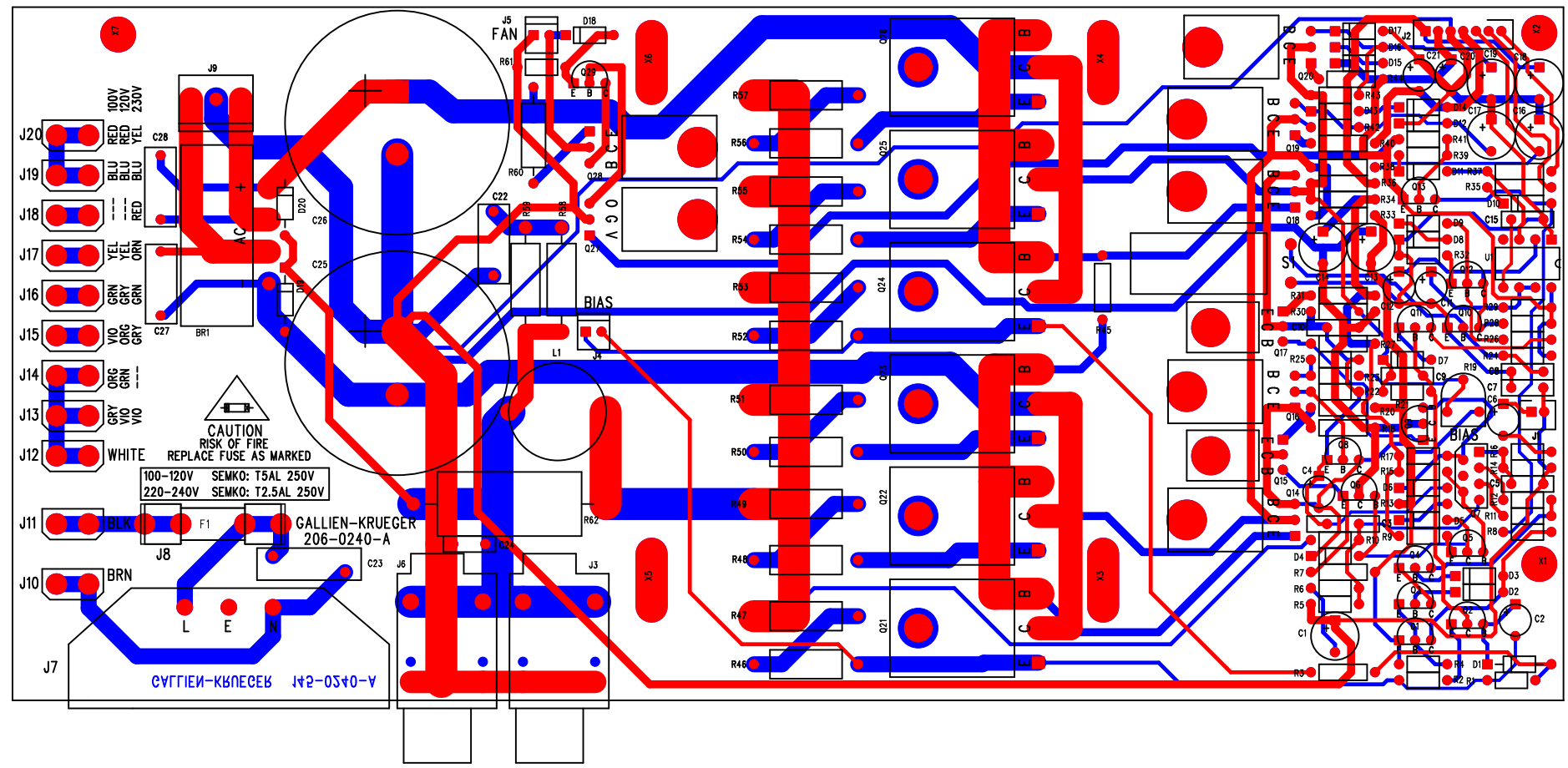
B

A

GK GALLIEN-KRUEGER

400RB-IV Power Amp

Part No.	Reference	Description	Manufacturer	Mfr. Part No.
001-2060-0	U1	LM555, TIMER	NATIONAL	LM555CN
010-0000-0	Q7	2SC3381BL,NPNX2,80V,100MA,2-10M1B	TOSHIBA	2SC3281BL
010-0001-0	Q2 Q6	2SC3478, NPN, 180V, 100MA, TO-92	NEC	2SC3478-K
010-0003-0	Q15	2SC3502-F,NPN,200V,100MA,TO-126	TOSHIBA	2SC3502
010-0012-0	Q1 Q3-4 Q10 Q12 Q29	MPSAO6, NPN,80V,500MA,TO-92	MOTOROLA	MPS-A06
010-0035-0	Q27	LM35DT, TEMPERATURE SENSOR, TO-220	NATIONAL	LM35DT
010-1002-0	Q5 Q9	2SA1376, PNP,180V,100MA,TO-92	NEC	2SA1376-K
010-1003-0	Q17	2SA1380-F,PNP,200V,100MA,TO-126	SANYO/TOSHIBA	2SA1380-F/E
010-1013-0	Q8 Q11 Q13	MPSA56 PNP 80V 500MA TO-92	MOTOROLA	MPS-A56
012-0002-0	Q16 Q18 Q20	2SC4793,NPN,200V,1.5A,2-10R1A	TOSHIBA	2SC4793
012-0003-0	Q24-26	2SC5242,NPN,230V,15A,2-16C1A	TOSHIBA	2SC5242-O
012-1002-0	Q14 Q19 Q28	2SA1837,PNP,200V,1.5A,2-10R1A	TOSHIBA	2SA1837
012-1003-0	Q21-23	2SA1962,PNP,230V,15A,2-16C1A	TOSHIBA	2SA1962
020-0004-0	D11	1N755A, ZENER,7.5V,500MW ,D035	TAITRON	1N755A
020-0050-0	D7	1N751, ZENER,5.1V,10%,400MW,DO-35	NATIONAL	1N751
020-0150-0	D12 D17	1N965B, ZENER, 15V, 5%, 500mW, DO-35	TAITRON	1N965B
020-0240-0	D18	1N970B, ZENER, 24V, 5%, 500MW, DO-35	TAITRON	1N970B
020-1000-0	D2-3 D5 D8-10 D13-16	1N4148, RECT-FAST, 200MA, 100V	MOTOROLA	1N4148
020-1022-0	D4 D6	BAV20, RECT, 200V, DO-35	NATIONAL	BAV20
020-1104-0	D1	SHOTTKY, 1A, 40V, 10NS, DO-41	MOTOROLA	1N5819
020-2106-0	D19-20	1N4004,RECT,1A,400V,DO-41	TAITRON	1N4004
023-0112-0	BR1	BRIDGE, 25A, 200V, VERT, PC, MO25S-02	CHENG-YI	MP25-02S
031-1336-0	C11	CAP,ELEC,RAD,336,20%,25V	UNITED CHEMI-CON	SRG25VB33RM5X7LL
031-2105-0	C12	CAP,ELEC,RAD, 105, 20%, 50V	UNITED CHEMI-CON	C440C105M5U5CA
031-2106-0	C2 C4 C6 C20-21	CAP,ELEC,RAD, 106, 20%, 50V	UNITED CHEMI-CON	SMG50VB10RM5X11LL
031-2107-0	C1 C17 C19	CAP,ELEC,RAD,107, 20%, 50V	UNITED CHEMI-CON	SMG50VB101M8X11LL
031-3129-0	C25-26	CAP, ELEC, RAD, 129, 20%, 63V	UNITED CHEMI-CON	SMH63VN123M35X45T2
031-3476-0	C13-14 C16 C18	CAP,ELEC,RAD,476,20%,63V	UNITED CHEMI-CON	SMG63VB47RM6X11LL
032-4102-0	C24	CAP,PE,102,5%,100V,	PANASONIC	ECQB1102JF
032-4103-0	C15	CAP,PE,103,5%,100V,	PANASONIC	ECQV1103JM
032-4104-0	C7-9	CAP,PE,104,5%,100V,	PANASONIC	ECQV1104JM
032-7104-0	C22 C27-28	CAP,PE,104,10%, 250V	ILLINOIS CAPACITOR	104MSR250K
034-4471-0	C5	CAP,MCR,470pF,5%,100V,	TAITRON	TMRS471J100NPOB
034-7103-0	C23	CAP, CERMIC DISK, 103, 10%, X-250V	PANASONIC	ECK-DRS103ZV
035-8030-0	C3	CAP MICA AXIAL , 3pF, 10%, 500V	CORNELL	CD10CD030D03
035-8561-0	C10	CAP MICA RADIAL, 561, 5%, 300V	CORNELL	CD15FC561J103
052-2.74-0	R40 R44	RES,METAL FILM, 2.74, 1/4W, 1%	ECI	M2F1AJ002.74
052-2212-0	R35 R37	RES,METAL FILM,2.21k,1/4W,1%	ECI	M2F1AK002.21
052-5622-0	R18 R30	RES,METAL FILM,5.62K,1/4W,1%	ECI	M5F1AK005.62
054-.100-0	R46-57	RES, METAL OXIDE, 0.1 Ohm, 1W, 5%	ECI	MO10J3AJ000.10
054-.330-0	R60	RES, METAL OXIDE, 0.33 OHM, 1W, 5%	ECI	MO10J3AJ000.33
055-0101-0	R58-59	RES, METAL OXIDE, 10 OHM, 2W, 5%	ECI	MOM20J3AJ010.00
056-0100-0	R62	RES, CERAMIC WW, 1.0 OHM, 5W, 10%	ECI	WWC50J3AJ001.00
059-1000-0	R33-34	RES,MF,FUSE,10.0 OHM, 1/4W,1%	JUKN.OHM	FR25-10.0
059-1002-0	R3 R7 R27	RES,MF,FUSE,1.00K,1/4W,1%	JUKN.OHM	FR25-1.00K
059-2432-0	R36 R38	RES,MF,FUSE,2.43K, 1/4W,1%	JUKN.OHM	FR25-2.43K
059-4750-0	R20 R31	RES,MF,FUSE,47.5 OHM, 1/4W,1%	JUKN.OHM	FR25-47.5
059-6810-0	R45	RES,MF,FUSE,68.1 OHM, 1/4W,1%	JUKN.OHM	FR25-68.1
060-1001-0	R61	RES, METAL FILM, 100 OHM, 1/8W, 1%	ECI	M1F1AJ100.00
060-1002-0	R2 R6 R16 R23	RES,METAL FILM, 1.00K, 1/8W, 1%	ECI	M1F1AK001.00
060-1003-0	R24 R41	RES,METAL FILM, 10.0K, 1/8W,1%	ECI	M1F1AK010.00
060-1004-0	R28-29	RES,METAL FILM, 100K, 1/8W, 1%	ECI	M1F1AK100.00
060-1213-0	R5 R14	RES,METAL FILM, 12.1K OHM, 1/8W, 1%	ECI	M1F1AK012.10
060-1821-0	R11-12 R22	RES,METAL FILM, 182, 1/8W, 1%	ECI	M1F1AJ182.00
060-2001-0	R4	RES,METAL FILM, 200, 1/8W, 1%	ECI	M1F1AJ200.00
060-2003-0	R42-43	RES,METAL FILM, 20.0K, 1/8W, 1%	ECI	M1F1AK020.00
060-2004-0	R8	RES,METAL FILM, 200K, 1/8W, 1%	ECI	M1F1AK200.00
060-2212-0	R9 R13 R15 R17	RES,METAL FILM, 2.21K, 1/8W, 1%	ECI	M1F1AK002.21
060-2432-0	R21	RES,METAL FILM, 2.43K, 1/8W, 1%	ECI	M1F1AK002.43
060-3922-0	R25	RES,METAL FILM, 3.92K, 1/8W, 1%	ECI	M1F1AK003.92
060-4323-0	R10	RES,METAL FILM, 43.2K, 1/8W, 1%	ECI	M1F1AK043.20
060-4752-0	R39	RES,METAL FILM, 4.75K, 1/8W, 1%	ECI	M1F1AK004.75
060-4753-0	R26	RES,METAL FILM, 47.5K, 1/8W, 1%	ECI	M1F1AK047.50
060-6812-0	R1	RES,METAL FILM, 6.81K, 1/8W, 1%	ECI	M1F1AK006.81
060-7501-0	R32	RES,METAL FILM, 750 OHM, 1/8W, 1%	ECI	M1F1AJ750.00



PCB WORK INSTRUCTIONS

DWG 420-0240-A

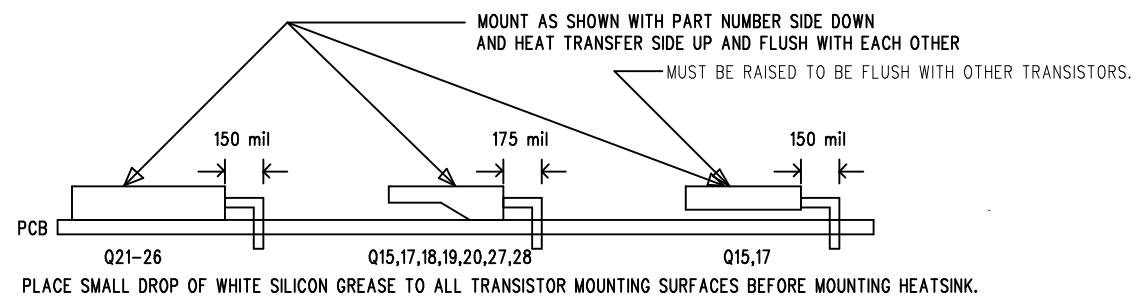
NOTES:

UNLESS OTHERWISE SPECIFIED:

1. SQUARE PADS ON PARTS DENOTE PIN 1.
2. ALL BOARDS REQUIRE A COMPLETE VISUAL INSPECTION.
3. ALL BOARDS MUST BE BARE BOARD TESTED.
4. ASSEMBLE AND SOLDER PER ANSI/IPC-A-610B.

LOADING

5. SEE FORMING AND LOADING INSTRUCTIONS BELOW FOR INSTALLING SPECIFIED COMPONENTS.
6. CHECK THAT R45-56 ARE FULSH WITH PCB.
7. CHECK THAT J3, 6, 7, & S1 ARE FLUSH WITH PCB.
8. MAKE CERTAIN ALL POWER TRANSISTOR MOUNTING HOLES ARE PROPERLY ALIGNED FOR HEAT SINK.



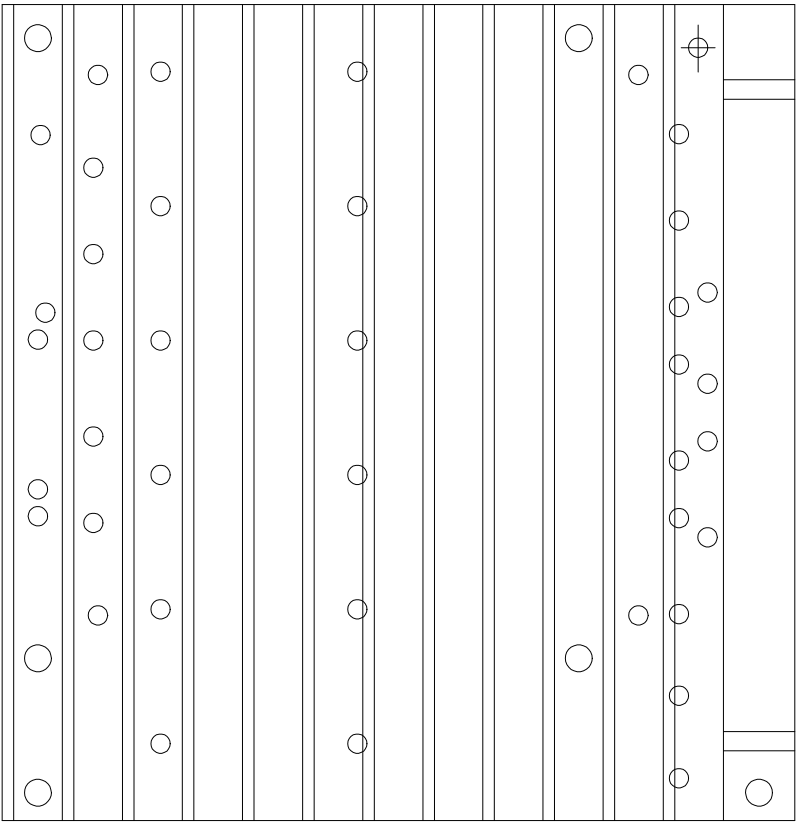
PLACE SMALL DROP OF WHITE SILICON GREASE TO ALL TRANSISTOR MOUNTING SURFACES BEFORE MOUNTING HEATSINK.

NOT VALID UNLESS STAMP IS RED

LAYER DESCRIPTION:
TOP SIDE SOLDERSCREEN

<p>gallien technology</p> <p>2240 PARAGON DRIVE SAN JOSE CA. 95131 VOICE: 408-441-8081 FAX: 408-441-8085</p>		TITLE: 400RB-IV POWER AMP	
		DESIGNED: R.A.G. 6/25/02	DATE: 6/25/02
DRAWN: R.A.G. 11/26/02		SIZE: B	DRAWING NO: 405-0240-A
ELEC:		REV: A	PART NO: 145-0240-A
MECH:		COMPANY: GALLIEN-KRUEGER	
GERBER FILE NAME: sst0126.pho		FILENAME: 5240A.PCB	

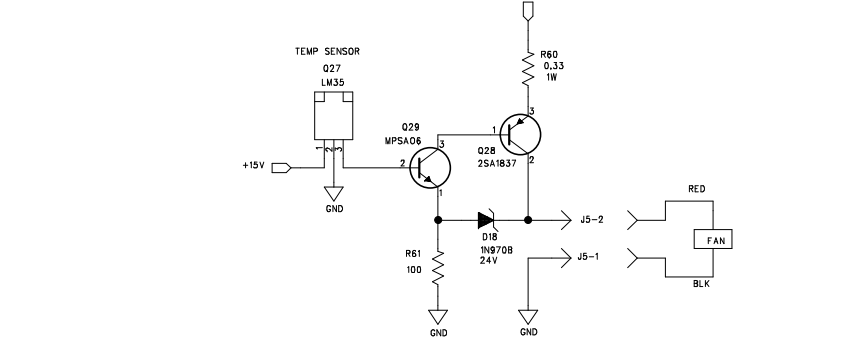
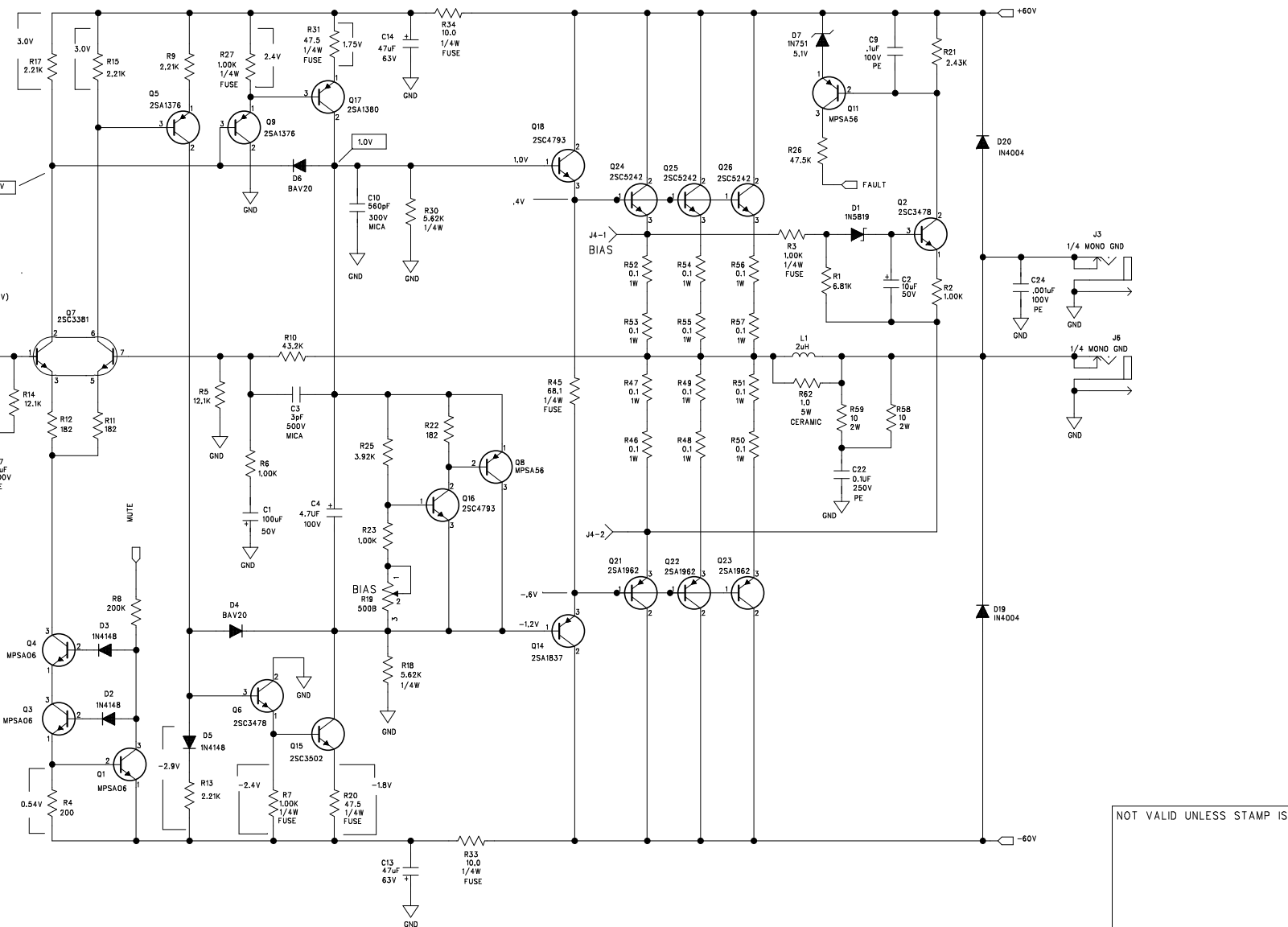
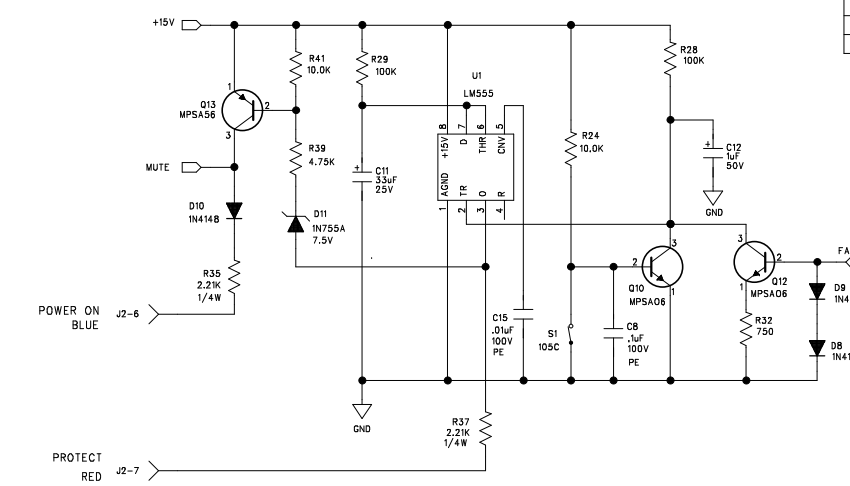
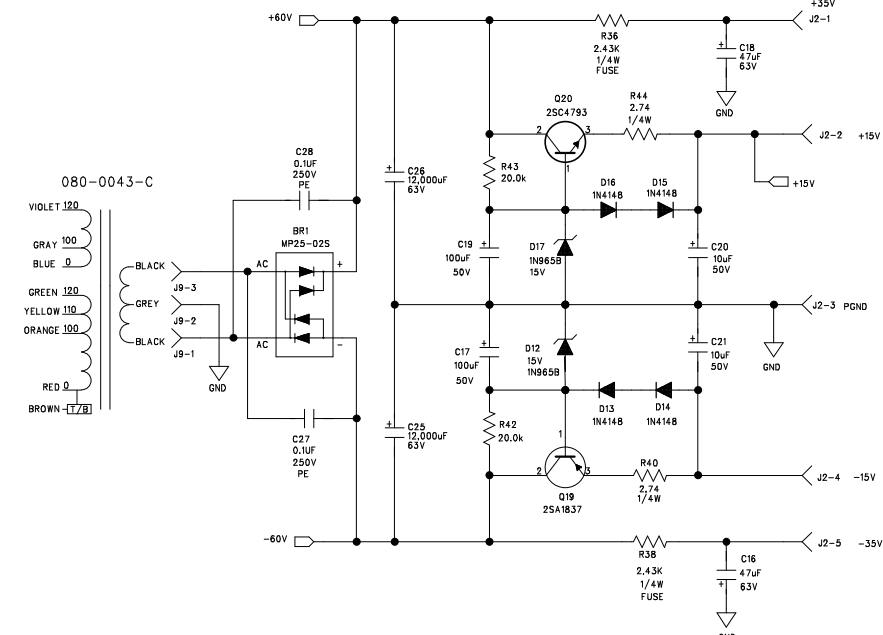
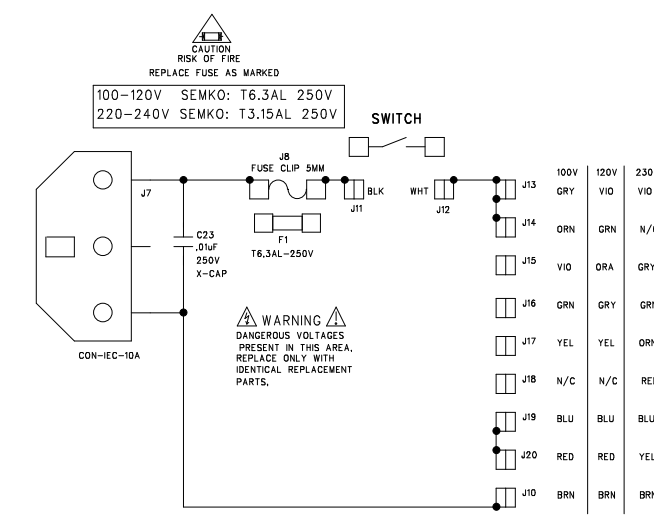
APPLY THERMAL TAPE (105-0014-0) AND ALIGN WITH THIS EDGE.



Customer Name:	Gallien-Krueger	Current Rev #:	A	New ECO Rev #:	A1
Model:	400RB-IV	Distribute To:		Page:	1 Of: 1
Assembly Description:	Power Amp	Originator:	RAG		
Assembly Numbers:	206-0240-A	Approved by:			
		Effective Date:	5/30/2003		
Effective			Document Update		Date
<input type="checkbox"/> All in Process	<input checked="" type="checkbox"/> Next Buy	<input type="checkbox"/>	Artwork		
<input type="checkbox"/> All in Service	<input type="checkbox"/> Next Production Run	<input type="checkbox"/>	Assembly Dwg.		
<input type="checkbox"/> All in Stock	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Board Artwork		
Beginning Serial Number:			<input checked="" type="checkbox"/> BOM		
Reason For Change					
Update to incorporate CSA requirements.			<input type="checkbox"/> Control Form		
			<input type="checkbox"/> Costing		
			<input type="checkbox"/> Fab Drawing		
			<input type="checkbox"/> Inspection Proc.		
			<input checked="" type="checkbox"/> Part Master File		
			<input checked="" type="checkbox"/> Schematic		
			<input checked="" type="checkbox"/> Service Manual		
			<input type="checkbox"/> Test Procedure		
			<input type="checkbox"/>		
Other Affected Assemblies					
290 Assemblies , 302 Assembly (Head)					
303 Assemblies (Combo)					
<input type="checkbox"/>	Continued on ECO Supplement Page				
Description Of Change			Distribution		Date
See changes listed below.			<input type="checkbox"/>	Accounting	
Update board rev to A1.			<input type="checkbox"/>	Assembly	
			<input checked="" type="checkbox"/>	Engineering	
			<input checked="" type="checkbox"/>	Incoming Q.C.	
			<input checked="" type="checkbox"/>	Production Eng.	
			<input checked="" type="checkbox"/>	Purchasing	
			<input type="checkbox"/>	Q.A.	
			<input type="checkbox"/>	Service	
			<input checked="" type="checkbox"/>	Test	
<input type="checkbox"/>	Continued on Supplement Page				<input type="checkbox"/>
<input type="checkbox"/>	Drawing(s) attached				
Part Number	Description	Parts Added		Parts Deleted	
		Qty	Ref. Designator	Qty	Ref. Designator
031-4475-0	4.7uF/100V	1	C4		
091-0013-0	Fuse,T6.3AL	1	F1		
031-2106-0	10uF/50V			1	C4
091-0019-0	Fuse,T5AL			1	F1

REVISION RECORD			
LTR	ECO NO.	APPROVED:	DATE:

6 5 4 3 2 1



NOTES: UNLESS OTHERWISE SPECIFIED,
1. TEST CONDITIONS: 100mV 1kHz SINE, DIRECT INPUT (PRE-AMP BYPASSED) NO LOAD
2. DENOTES RMS AC VOLTAGE

BIAS ADJUSTMENT PROCEDURE:
WITH POWER OFF, ADJUST POT R21 TO FULL COUNTER-CLOCKWISE POSITION.
TURN ON POWER AND WAIT 5 SECONDS FOR TURN ON DELAY.
TURN R21 CLOCKWISE UNTIL VOLTAGE ACROSS P3 READS 10 mVDC.

MH.200V 1 X6	MH.200V 1 X5	MH.125/220 1 X7
MH.200V 1 X4	MH.200V 1 X3	MH.125/220 1 X2
		MH.125/220 1 X1

NOT VALID UNLESS STAMP IS RED

gallien technology

2234 INDUSTRIAL DRIVE
STOCKTON CA. 95206
VOICE: 209-234-7300
FAX: 209-234-8420

NOTES THIS REV:		APPROVALS		TITLE: 400RB-IV POWER AMP	
1. CHANGED C4 TO 4.8uF/100V.		INIT	DATE	REV	
2. CHANGED F1 TO 16.3AL FOR 120V.		DESIGNED: R.A.G.	11/9/99	SIZE	
3. CHANGED F1 TO 3.15AL FOR 230V.		DRAWN: R.A.G.	5/30/03	DRAWING NO:	406-0240-A1
4. UPDATED REV TO A1.		ELEC:		PART NO:	206-0240-A1
		MECH:		COMPANY:	GALLIEN KRUEGER
		Q/A:		FILENAME:	6240A1.sch
		RELEASED:			

D

C

B

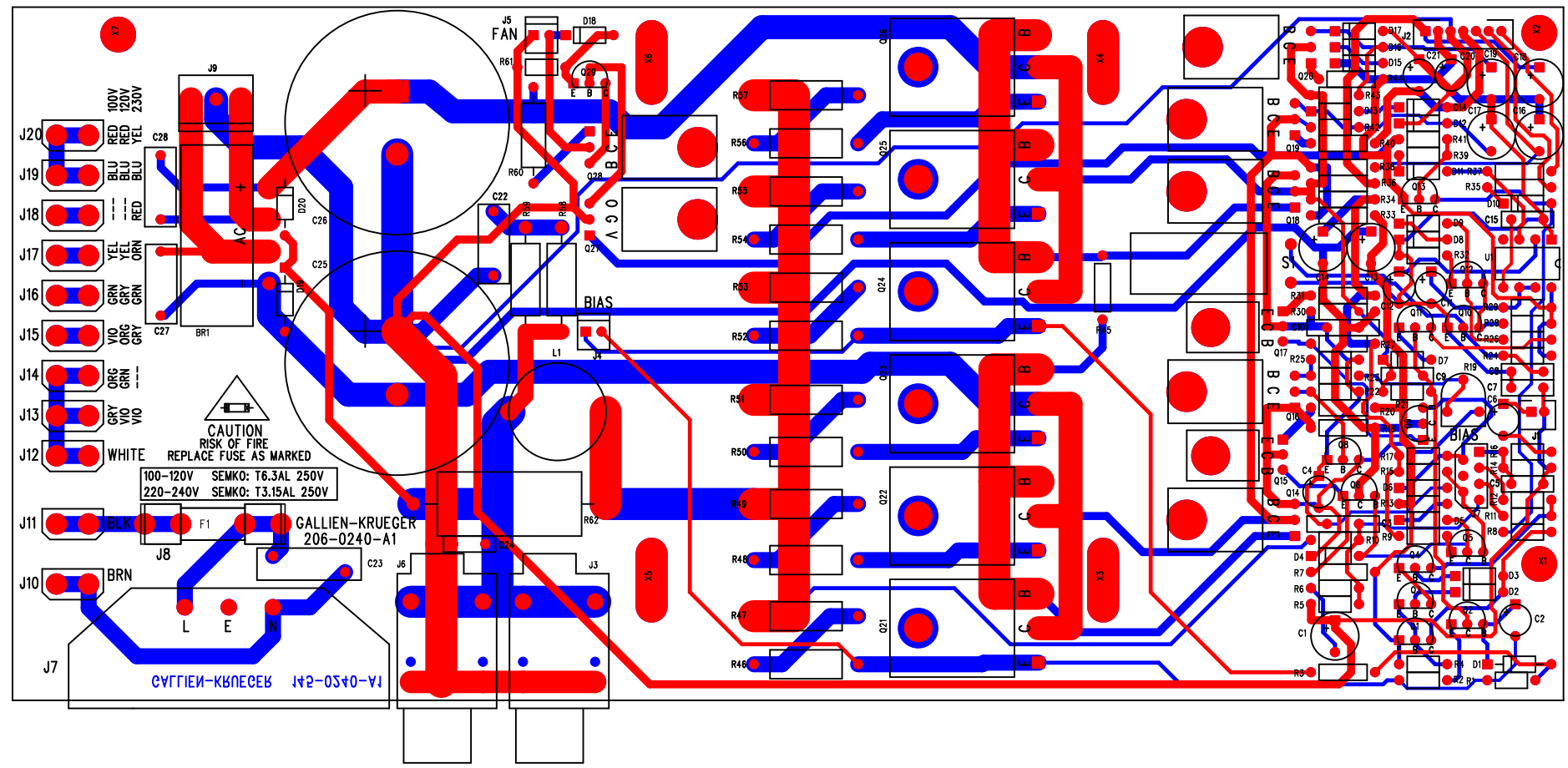
A

D

C

B

A



PCB WORK INSTRUCTIONS

DWG 420-0240-A1

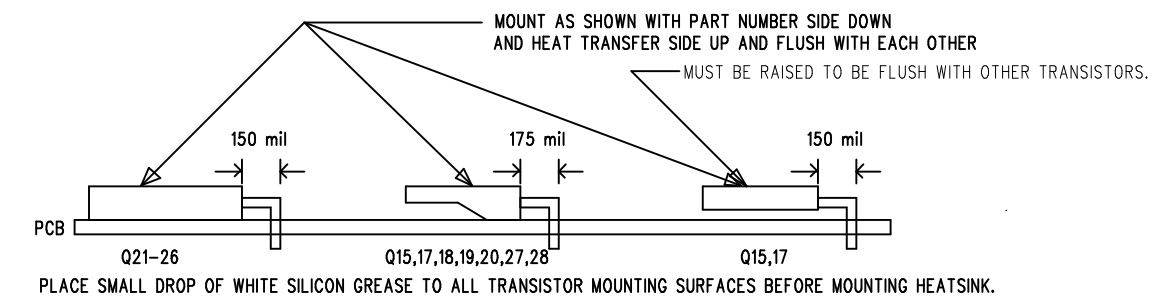
NOTES:

UNLESS OTHERWISE SPECIFIED:

1. SQUARE PADS ON PARTS DENOTE PIN 1.
2. ALL BOARDS REQUIRE A COMPLETE VISUAL INSPECTION.
3. ALL BOARDS MUST BE BARE BOARD TESTED.
4. ASSEMBLE AND SOLDER PER ANSI/IPC-A-610B.

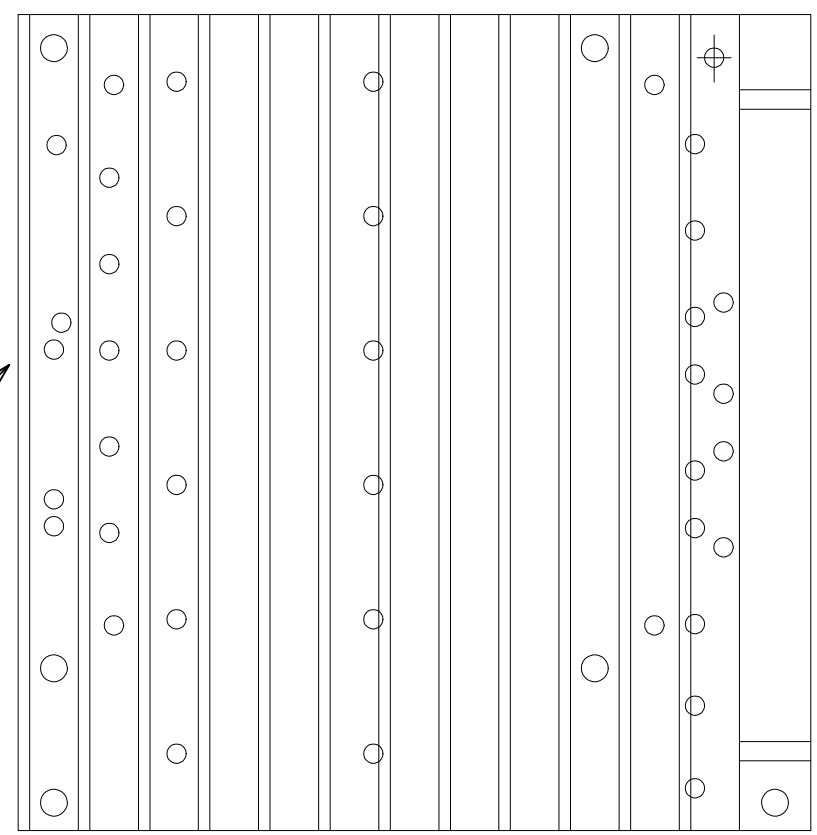
LOADING

5. SEE FORMING AND LOADING INSTRUCTIONS BELOW FOR INSTALLING SPECIFIED COMPONENTS.
6. CHECK THAT R45-56 ARE FLUSH WITH PCB.
7. CHECK THAT J3, 6, 7, & S1 ARE FLUSH WITH PCB.
8. MAKE CERTAIN ALL POWER TRANSISTOR MOUNTING HOLES ARE PROPERLY ALIGNED FOR HEAT SINK.



NOT VALID UNLESS STAMP IS RED		gallien technology 2240 PARAGON DRIVE SAN JOSE CA. 95131 VOICE: 408-441-8081 FAX: 408-441-8085	
APPROVALS		TITLE: 400RB-IV POWER AMP	
INIT	DATE	SIZE	DRAWING NO: 405-0240-A1
DESIGNED: R.A.G.	6/25/02	B	REV. A1
DRAWN: R.A.G.	6/02/03		PART NO: 145-0240-A1
ELEC:		COMPANY:	GALLIEN-KRUEGER
MECH:		FILENAME:	5240A1.PCB
GERBER FILE NAME: st0126.pho			
LAYER DESCRIPTION: TOP SIDE SOLDERSCREEN			

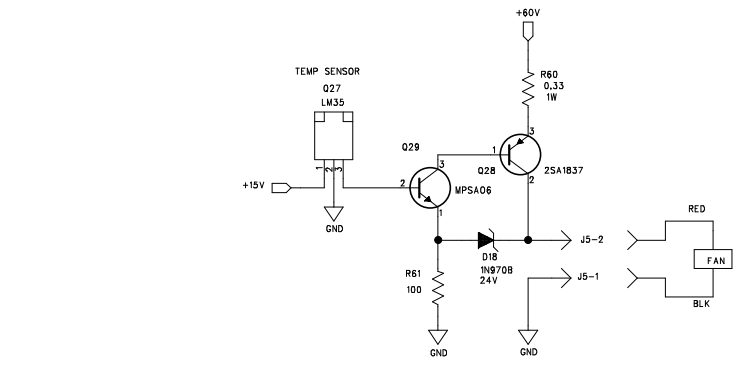
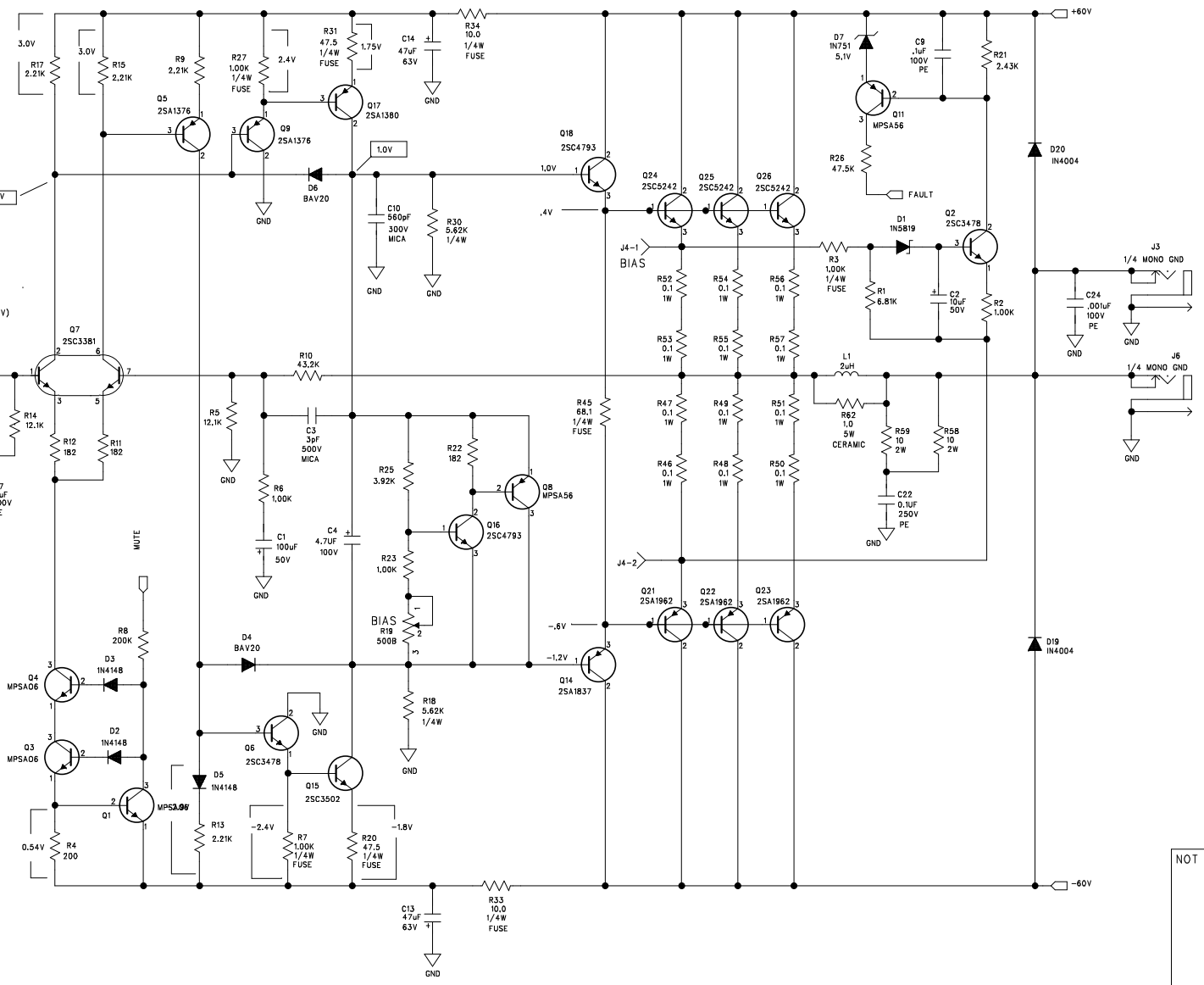
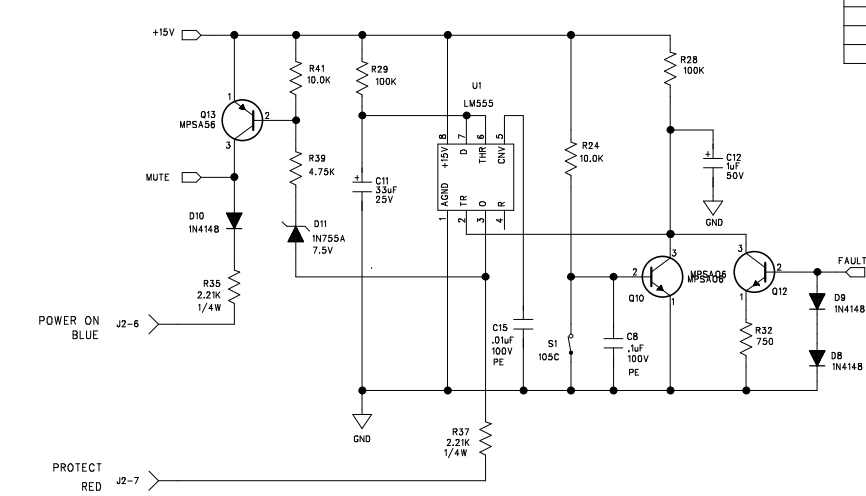
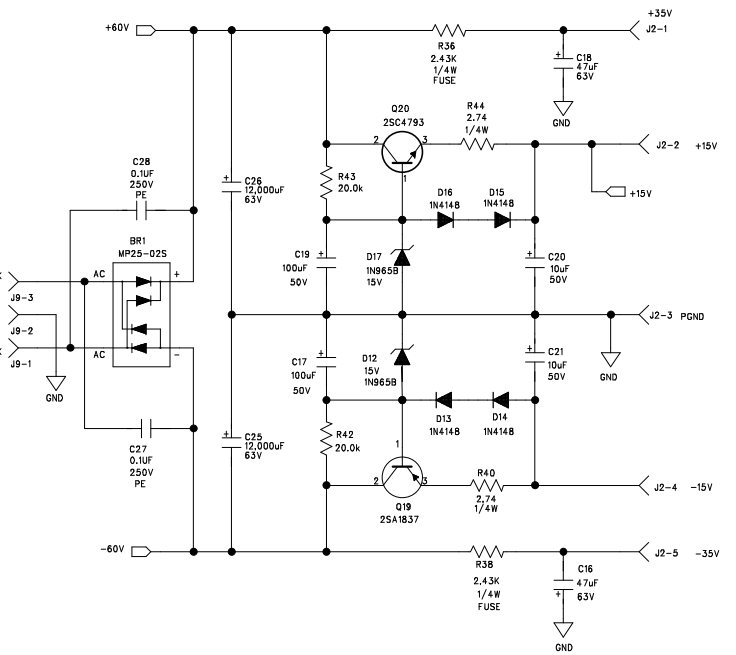
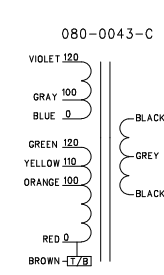
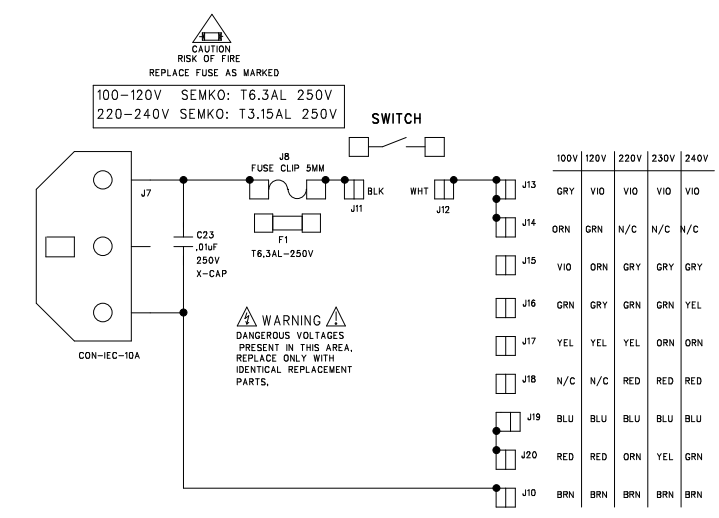
APPLY THERMAL TAPE (105-0014-0) AND ALIGN WITH THIS EDGE.



Customer Name:	Gallien-Krueger	Current Rev #:	A1	New ECO Rev #:	A2
Model:	400RB-IV	Distribute To:		Page:	1
Assembly Description:	Power Amp	Originator:	RAG		
Assembly Numbers:	206-0240-A	Approved by:			
	145-0240-A	Effective Date:			
Effective			Document Update		Date
<input type="checkbox"/> All in Process	<input checked="" type="checkbox"/> Next Buy	<input type="checkbox"/> Artwork			
<input type="checkbox"/> All in Service	<input type="checkbox"/> Next Production Run	<input type="checkbox"/> Assembly Dwg.			
<input type="checkbox"/> All in Stock	<input type="checkbox"/>	<input checked="" type="checkbox"/> Board Artwork			
Beginning Serial Number:		<input checked="" type="checkbox"/> BOM			
Reason For Change			<input type="checkbox"/> Control Form		
Add 240V supply table to board and schematic.			<input type="checkbox"/> Costing		
			<input type="checkbox"/> Fab Drawing		
			<input type="checkbox"/> Inspection Proc.		
			<input checked="" type="checkbox"/> Part Master File		
			<input checked="" type="checkbox"/> Schematic		
			<input checked="" type="checkbox"/> Service Manual		
			<input type="checkbox"/> Test Procedure		
			<input type="checkbox"/>		
			<input type="checkbox"/>		
			Other Affected Assemblies		
			290 Assemblies , 302 Assembly (Head)		
			303 Assemblies (Combo)		
<input type="checkbox"/> Continued on ECO Supplement Page					
Description Of Change			Distribution		Date
			<input type="checkbox"/> Accounting		
			<input type="checkbox"/> Assembly		
			<input checked="" type="checkbox"/> Engineering		
			<input checked="" type="checkbox"/> Incoming Q.C.		
			<input checked="" type="checkbox"/> Production Eng.		
			<input checked="" type="checkbox"/> Purchasing		
			<input type="checkbox"/> Q.A.		
			<input type="checkbox"/> Service		
			<input checked="" type="checkbox"/> Test		
<input type="checkbox"/> Continued on Supplement Page <input type="checkbox"/> Drawing(s) attached					
Part Number	Description	Parts Added		Parts Deleted	
		Qty	Ref. Designator	Qty	Ref. Designator

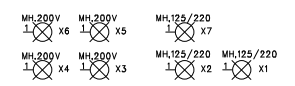
REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

6 5 4 3 2 1



- NOTES: UNLESS OTHERWISE SPECIFIED,
- TEST CONDITIONS: 100mV 1kHz SINE, DIRECT INPUT (PRE-AMP BYPASSED) NO LOAD
 - DENOTES RMS AC VOLTAGE

BIAS ADJUSTMENT PROCEDURE:
 WITH POWER OFF, ADJUST POT R21 TO FULL COUNTER-CLOCKWISE POSITION.
 TURN ON POWER AND WAIT 5 SECONDS FOR TURN ON DELAY.
 TURN R21 CLOCKWISE UNTIL VOLTAGE ACROSS P3 READS 10 mVDC.



NOT VALID UNLESS STAMP IS RED

gallien technology

2234 INDUSTRIAL DRIVE
 STOCKTON CA. 95206
 VOICE: 209-234-7300
 FAX: 209-234-8420

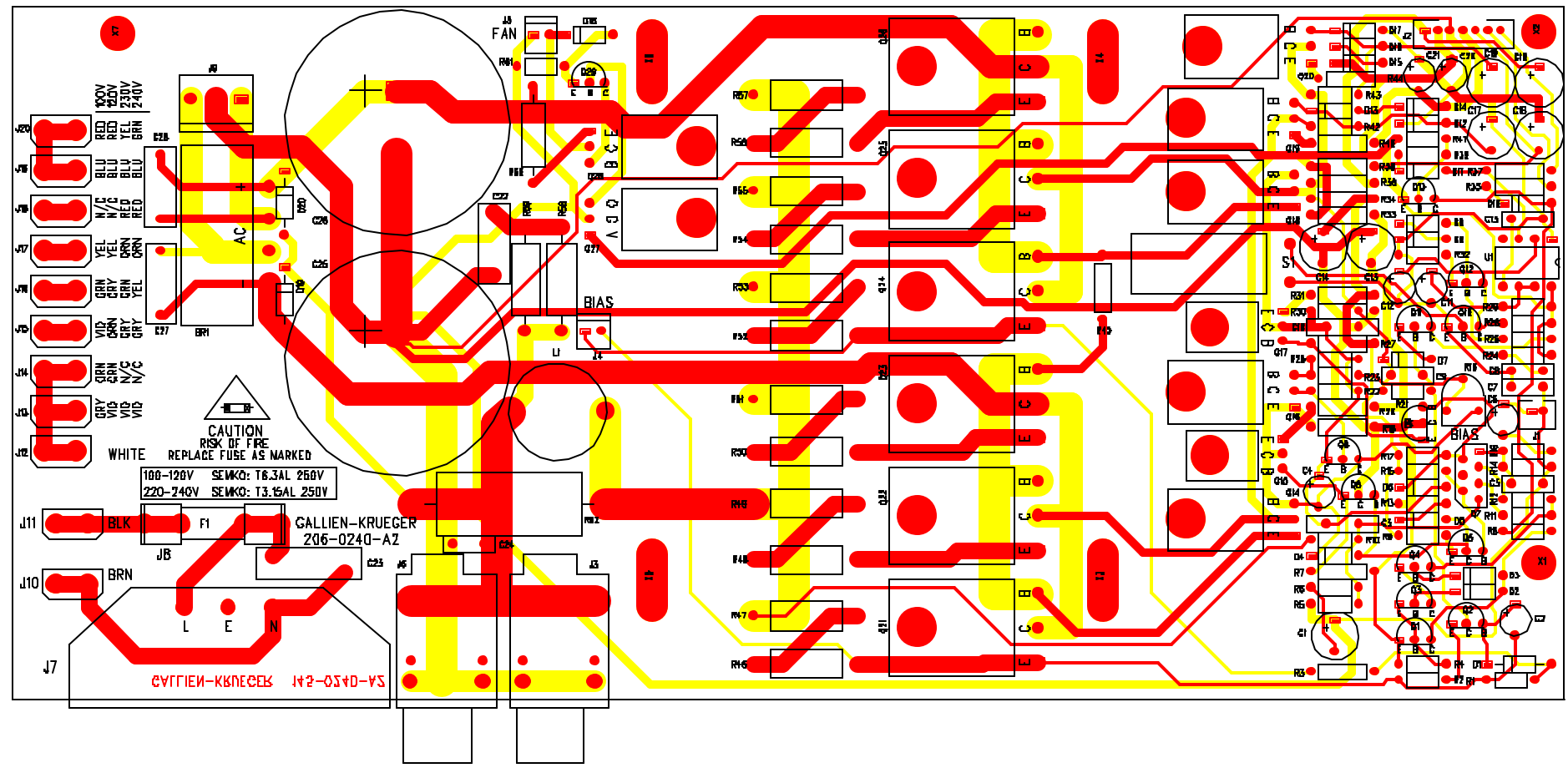
NOTES REV A2: 1. ADD 240V SUPPLY TABLE TO LAYOUT.	APPROVALS	TITLE: 400RB-IV POWER AMP
DESIGNED: R.A.G.	DATE: 11/9/99	DRAWING NO: 406-0240-A2
DRAWN: R.A.G.	DATE: 11/19/03	PART NO: 206-0240-A2
ELEC:		COMPANY: GALLIEN KRUEGER
MECH:		FILENAME: 6240A2.sch
Q/A:		
RELEASED:		

A2

GALLIEN-KRUEGER

400RB-IV Power Amp

Part No.	Reference	Description	Manufacturer	Mfr. Part No.
001-2060-0	U1	LM555, TIMER	NATIONAL	LM555CN
010-0000-0	Q7	2SC3381BL,NPNX2,80V,100MA,2-10M1B	TOSHIBA	2SC3281BL
010-0001-0	Q2 Q6	2SC3478, NPN, 180V, 100MA, TO-92	NEC	2SC3478-K
010-0003-0	Q15	2SC3502-F,NPN,200V,100MA,TO-126	TOSHIBA	2SC3502
010-0012-0	Q1 Q3-4 Q10 Q12 Q29	MPSAO6, NPN,80V,500MA,TO-92	MOTOROLA	MPS-A06
010-0035-0	Q27	LM35DT, TEMPERATURE SENSOR, TO-220	NATIONAL	LM35DT
010-1002-0	Q5 Q9	2SA1376, PNP,180V,100MA,TO-92	NEC	2SA1376-K
010-1003-0	Q17	2SA1380-F,PNP,200V,100MA,TO-126	SANYO/TOSHIBA	2SA1380-F/E
010-1013-0	Q8 Q11 Q13	MPSA56 PNP 80V 500MA TO-92	MOTOROLA	MPS-A56
012-0002-0	Q16 Q18 Q20	2SC4793,NPN,200V,1.5A,2-10R1A	TOSHIBA	2SC4793
012-0003-0	Q24-26	2SC5242,NPN,230V,15A,2-16C1A	TOSHIBA	2SC5242-O
012-1002-0	Q14 Q19 Q28	2SA1837,PNP,200V,1.5A,2-10R1A	TOSHIBA	2SA1837
012-1003-0	Q21-23	2SA1962,PNP,230V,15A,2-16C1A	TOSHIBA	2SA1962
020-0004-0	D11	1N755A, ZENER,7.5V,500MW ,D035	TAITRON	1N755A
020-0050-0	D7	1N751, ZENER,5.1V,10%,400MW,DO-35	NATIONAL	1N751
020-0150-0	D12 D17	1N965B, ZENER, 15V, 5%, 500mW, DO-35	TAITRON	1N965B
020-0240-0	D18	1N970B, ZENER, 24V, 5%, 500MW, DO-35	TAITRON	1N970B
020-1000-0	D2-3 D5 D8-10 D13-16	1N4148, RECT-FAST, 200MA, 100V	MOTOROLA	1N4148
020-1022-0	D4 D6	BAV20, RECT, 200V, DO-35	NATIONAL	BAV20
020-1104-0	D1	SHOTTKY, 1A, 40V, 10NS, DO-41	MOTOROLA	1N5819
020-2106-0	D19-20	1N4004,RECT,1A,400V,DO-41	TAITRON	1N4004
023-0112-0	BR1	BRIDGE, 25A, 200V, VERT, PC, MO25S-02	CHENG-YI	MP25-02S
031-1336-0	C11	CAP,ELEC,RAD,336,20%,25V	UNITED CHEMI-CON	SRG25VB33RM5X7LL
031-2105-0	C12	CAP,ELEC,RAD, 105, 20%, 50V	UNITED CHEMI-CON	C440C105M5U5CA
031-2106-0	C2,6,20,21	CAP,ELEC,RAD, 106, 20%, 50V	UNITED CHEMI-CON	SMG50VB10RM5X11LL
031-2107-0	C1 C17 C19	CAP,ELEC,RAD,107, 20%, 50V	UNITED CHEMI-CON	SMG50VB101M8X11LL
031-3129-0	C25-26	CAP, ELEC, RAD, 129, 20%, 63V	UNITED CHEMI-CON	SMH63VN123M35X45T2
031-3476-0	C13-14 C16 C18	CAP,ELEC,RAD,476,20%,63V	UNITED CHEMI-CON	SMG63VB47RM6X11LL
031-4475-0	C4	CAP,ELEC,RAD, 475, 20%, 100V	UNITED CHEMI-CON	SMG100VB47RM5X11LL
032-4102-0	C24	CAP,PE,102,5%,100V,	PANASONIC	ECQB1102JF
032-4103-0	C15	CAP,PE,103,5%,100V,	PANASONIC	ECQV1103JM
032-4104-0	C7-9	CAP,PE,104,5%,100V,	PANASONIC	ECQV1104JM
032-7104-0	C22 C27-28	CAP,PE,104,10%, 250V	ILLINOIS CAPACITOR	104MSR250K
034-4471-0	C5	CAP,MCR,470pF,5%,100V,	TAITRON	TMRS471J100NPOB
034-7103-0	C23	CAP, CERMIC DISK, 103, 10%, X-250V	PANASONIC	ECK-DRS103ZV
035-8030-0	C3	CAP MICA AXIAL , 3pF, 10%, 500V	CORNELL	CD10CD030D03
035-8561-0	C10	CAP MICA RADIAL, 561, 5%, 300V	CORNELL	CD15FC561J103
052-2.74-0	R40 R44	RES,METAL FILM, 2.74, 1/4W, 1%	ECI	M2F1AJ002.74
052-2212-0	R35 R37	RES,METAL FILM,2.21k,1/4W,1%	ECI	M2F1AK002.21
052-5622-0	R18 R30	RES,METAL FILM,5.62K,1/4W,1%	ECI	M5F1AK005.62
054-100-0	R46-57	RES, METAL OXIDE, 0.1 Ohm, 1W, 5%	ECI	MO10J3AJ000.10
054-330-0	R60	RES, METAL OXIDE, 0.33 OHM, 1W, 5%	ECI	MO10J3AJ000.33
055-0101-0	R58-59	RES, METAL OXIDE, 10 OHM, 2W, 5%	ECI	MOM20J3AJ010.00
056-0100-0	R62	RES, CERAMIC WW, 1.0 OHM, 5W, 10%	ECI	VWC50J3AJ001.00
059-1000-0	R33-34	RES,MF,FUSE,10.0 OHM, 1/4W,1%	JUKN.OHM	FR25-10.0
059-1002-0	R3 R7 R27	RES,MF,FUSE,1.00K,1/4W,1%	JUKN.OHM	FR25-1.00K
059-2432-0	R36 R38	RES,MF,FUSE,2.43K, 1/4W,1%	JUKN.OHM	FR25-2.43K
059-4750-0	R20 R31	RES,MF,FUSE,47.5 OHM, 1/4W,1%	JUKN.OHM	FR25-47.5
059-6810-0	R45	RES,MF,FUSE,68.1 OHM, 1/4W,1%	JUKN.OHM	FR25-68.1
060-1001-0	R61	RES, METAL FILM, 100 OHM, 1/8W, 1%	ECI	M1F1AJ100.00
060-1002-0	R2 R6 R16 R23	RES,METAL FILM, 1.00K, 1/8W, 1%	ECI	M1F1AK001.00
060-1003-0	R24 R41	RES,METAL FILM, 10.0K, 1/8W,1%	ECI	M1F1AK010.00
060-1004-0	R28-29	RES,METAL FILM, 100K, 1/8W, 1%	ECI	M1F1AK100.00
060-1213-0	R5 R14	RES,METAL FILM, 12.1K OHM, 1/8W, 1%	ECI	M1F1AK012.10
060-1821-0	R11-12 R22	RES,METAL FILM, 182, 1/8W, 1%	ECI	M1F1AJ182.00
060-2001-0	R4	RES,METAL FILM, 200, 1/8W, 1%	ECI	M1F1AJ200.00
060-2003-0	R42-43	RES,METAL FILM, 20.0K, 1/8W, 1%	ECI	M1F1AK020.00
060-2004-0	R8	RES,METAL FILM, 200K, 1/8W, 1%	ECI	M1F1AK200.00
060-2212-0	R9 R13 R15 R17	RES,METAL FILM, 2.21K, 1/8W, 1%	ECI	M1F1AK002.21
060-2432-0	R21	RES,METAL FILM, 2.43K, 1/8W, 1%	ECI	M1F1AK002.43
060-3922-0	R25	RES,METAL FILM, 3.92K, 1/8W, 1%	ECI	M1F1AK003.92
060-4323-0	R10	RES,METAL FILM, 43.2K, 1/8W, 1%	ECI	M1F1AK043.20
060-4752-0	R39	RES,METAL FILM, 4.75K, 1/8W, 1%	ECI	M1F1AK004.75
060-4753-0	R26	RES,METAL FILM, 47.5K, 1/8W, 1%	ECI	M1F1AK047.50
060-6812-0	R1	RES,METAL FILM, 6.81K, 1/8W, 1%	ECI	M1F1AK006.81
060-7501-0	R32	RES,METAL FILM, 750 OHM, 1/8W, 1%	ECI	M1F1AJ750.00



PCB WORK INSTRUCTIONS

DWG 420-0240-A2

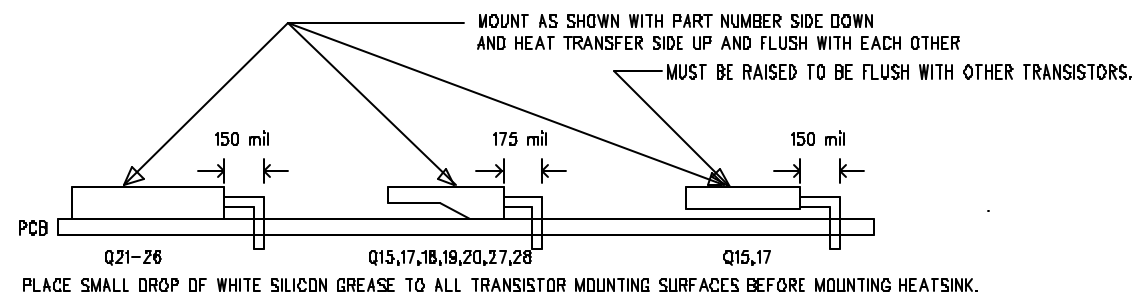
NOTES:

UNLESS OTHERWISE SPECIFIED:

1. SQUARE PADS ON PARTS DENOTE PIN 1.
2. ALL BOARDS REQUIRE A COMPLETE VISUAL INSPECTION.
3. ALL BOARDS MUST BE BARE BOARD TESTED.
4. ASSEMBLE AND SOLDER PER ANSI/IPC-A-610B.

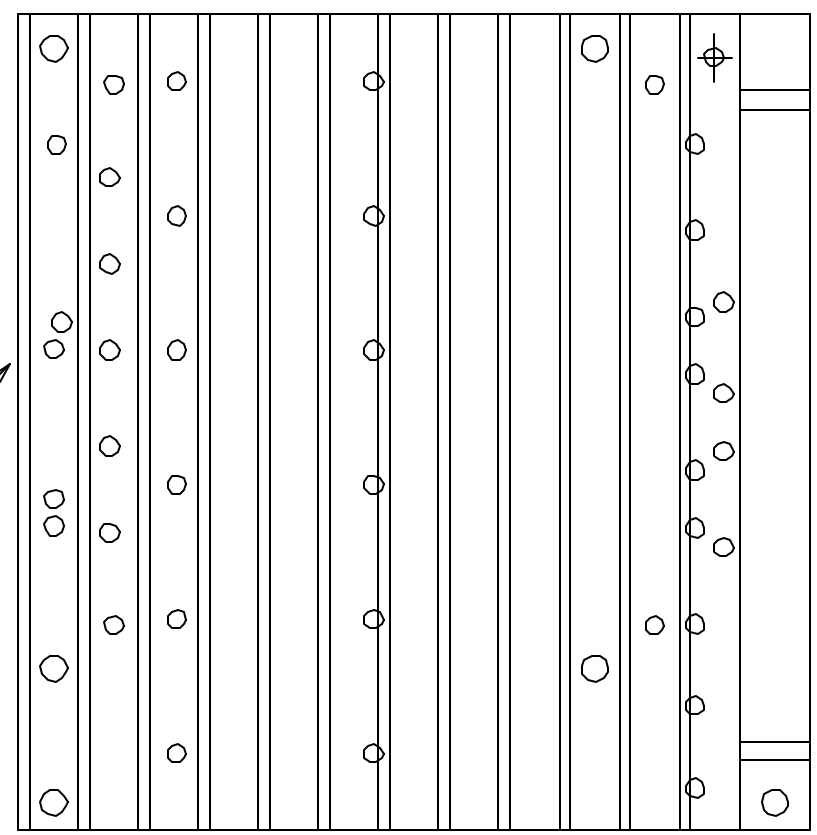
LOADING

5. SEE FORMING AND LOADING INSTRUCTIONS BELOW FOR INSTALLING SPECIFIED COMPONENTS.
6. CHECK THAT R45-56 ARE FLUSH WITH PCB.
7. CHECK THAT J3, 6, 7, & S1 ARE FLUSH WITH PCB.
8. MAKE CERTAIN ALL POWER TRANSISTOR MOUNTING HOLES ARE PROPERLY ALIGNED FOR HEAT SINK.



NOT VALID UNLESS STAMP IS RED				2234 INDUSTRIAL DRIVE STOCKTON CA. 95208 VOICE: 209-234-7300 FAX: 209-234-8420	
APPROVALS			TITLE: 400RB-IV POWER AMP		
INIT	DATE		SIZE	DRAWING NO:	REV.
DESIGNED: R.A.G.	6/25/02		B	405-0240-A2	A2
DRAWN: R.A.G.	11/19/03			PART NO:	
ELEC:				145-0240-A2	
MECH:			COMPANY: GALLIEN-KRUEGER		
GERBER FILE NAME: st0120.pho			FILENAME: 5240A2.PCB		
LAYER DESCRIPTION: TOP SIDE MASK/SCREEN					

APPLY THERMAL TAPE (105-0014-0) AND ALIGN WITH THIS EDGE.



Customer Name:	Gallien-Krueger	Current Rev #:	A2	New ECO Rev #:	A3
Model:	400RB-IV	Distribute To:		Page:	1
Assembly Description:	Power Amp	Originator:	RAG	Of:	1
Assembly Numbers:	206-0240-A	Approved by:			
	145-0240-A	Effective Date:	12/14/2003		

Effective		Document Update		Date	Initials
<input checked="" type="checkbox"/>	All in Process	<input checked="" type="checkbox"/>	Next Buy		
<input type="checkbox"/>	All in Service	<input type="checkbox"/>	Next Production Run		
<input type="checkbox"/>	All in Stock				

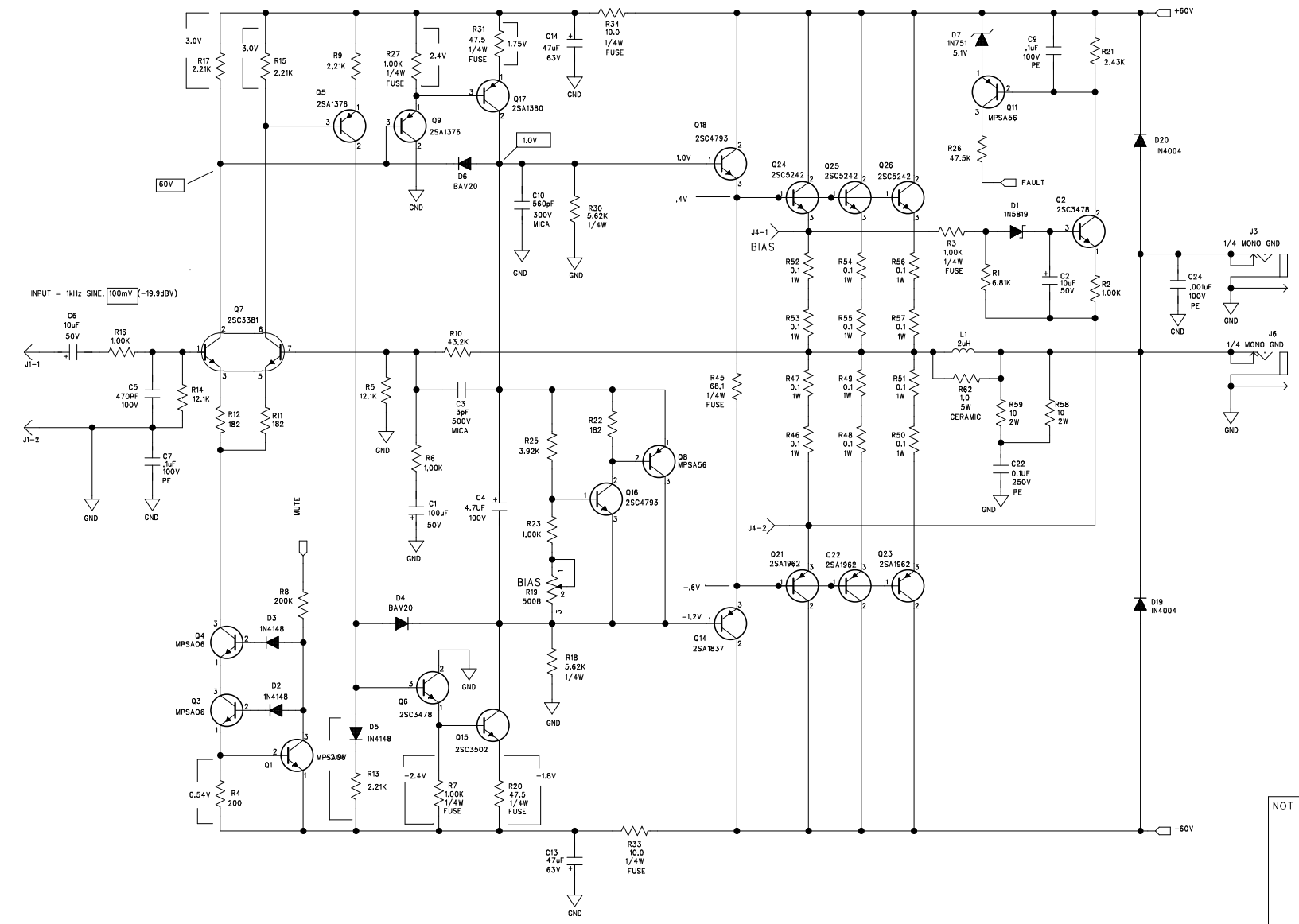
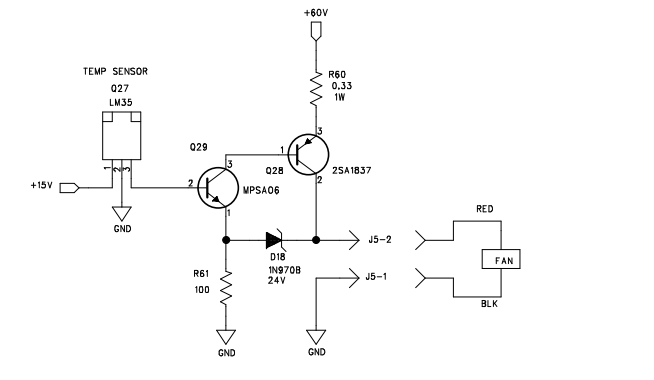
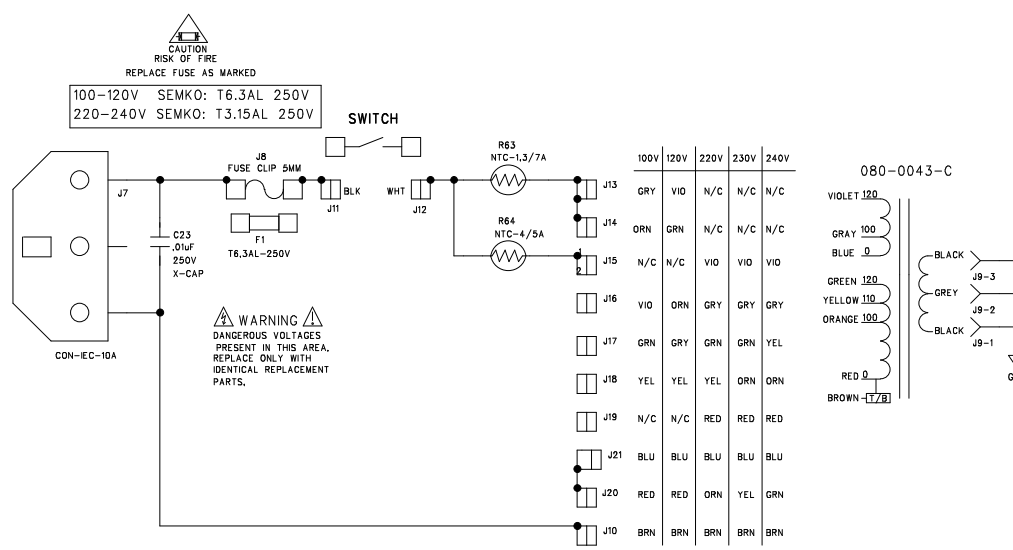
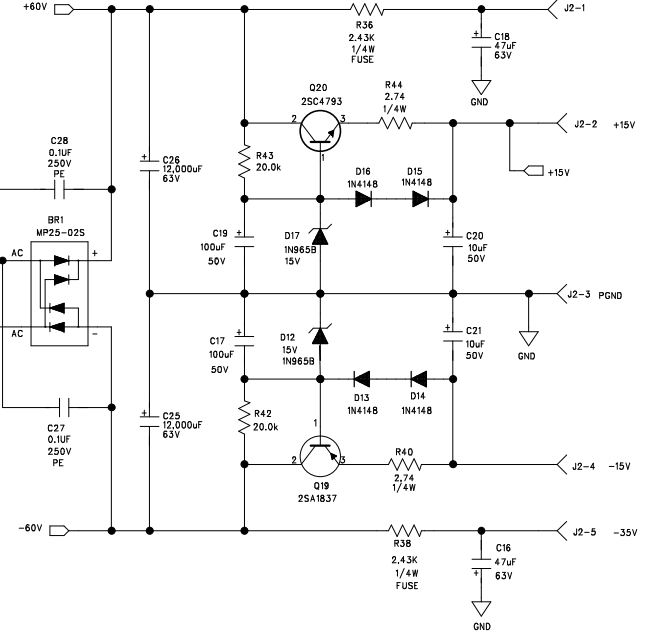
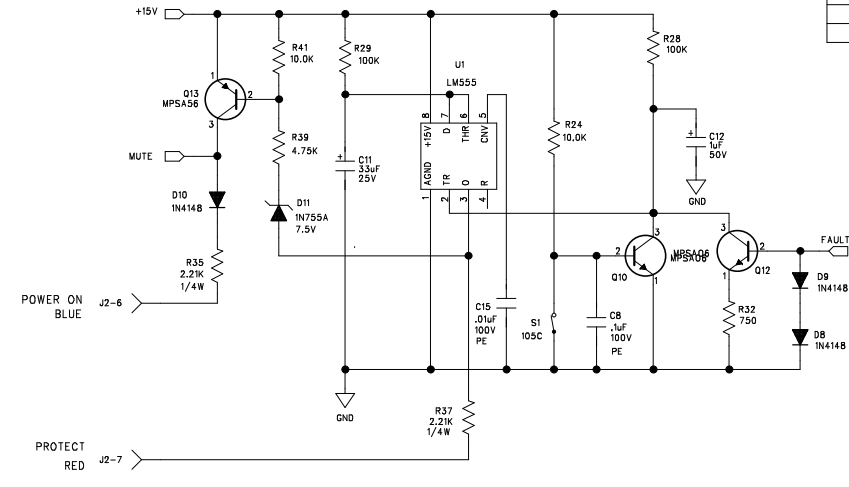
Beginning Serial Number:	<input checked="" type="checkbox"/>	BOM		
Reason For Change		<input type="checkbox"/>	Control Form	
Prevent fuse failure due to inrush current at turn on. An improvement to A2 which was not put into production.		<input checked="" type="checkbox"/>	Costing	
		<input type="checkbox"/>	Fab Drawing	
		<input type="checkbox"/>	Inspection Proc.	
		<input checked="" type="checkbox"/>	Part Master File	
		<input checked="" type="checkbox"/>	Schematic	
		<input checked="" type="checkbox"/>	Service Manual	
		<input type="checkbox"/>	Test Procedure	

Other Affected Assemblies	
290 Assemblies , 302 Assembly (Head)	
303 Assemblies (Combo)	
<input type="checkbox"/>	Continued on ECO Supplement Page

Description Of Change		Distribution		Date	Initials
Add NTC thermistors to the primary side of the transformer. One for 120V and another for 230V. An additional primary terminal is added to accommodate the wiring. For current production a thermistor of the proper value will be added to the bottom of the board. For 220V-240V use NTC-4R/5A. For 100V-120V use NTC-1.3R/7A.		<input type="checkbox"/>	Accounting		
		<input type="checkbox"/>	Assembly		
		<input checked="" type="checkbox"/>	Engineering		
		<input checked="" type="checkbox"/>	Incoming Q.C.		
		<input checked="" type="checkbox"/>	Production Eng.		
		<input checked="" type="checkbox"/>	Purchasing		
		<input type="checkbox"/>	Q.A.		
<input type="checkbox"/>	Service				
<input type="checkbox"/>	Test				
<input type="checkbox"/>	Continued on Supplement Page	<input type="checkbox"/>	Drawing(s) attached		

Part Number	Description	Parts Added		Parts Deleted	
		Qty	Ref. Designator	Qty	Ref. Designator
022-3003-0	THR NTC-1.3R/7A	1	R63		
022-3006-0	THER NTC-4R/5A	1	R64		
092-0066-0	FASTON	1	J21		

REVISION RECORD			
LTR	ECCO NO:	APPROVED:	DATE:



- NOTES: UNLESS OTHERWISE SPECIFIED,
- TEST CONDITIONS: 100mV 1kHz SINE, DIRECT INPUT (PRE-AMP BYPASSED) NO LOAD
 - [Symbol] DENOTES RMS AC VOLTAGE

BIAS ADJUSTMENT PROCEDURE:
 WITH POWER OFF, ADJUST POT R21 TO FULL COUNTER-CLOCKWISE POSITION.
 TURN ON POWER AND WAIT 5 SECONDS FOR TURN ON DELAY.
 TURN R21 CLOCKWISE UNTIL VOLTAGE ACROSS P3 READS 10 mVDC.

MH,200V X6	MH,200V X5	MH,125/220 X7
MH,200V X4	MH,200V X3	MH,125/220 X2
		MH,125/220 X1

NOT VALID UNLESS STAMP IS RED

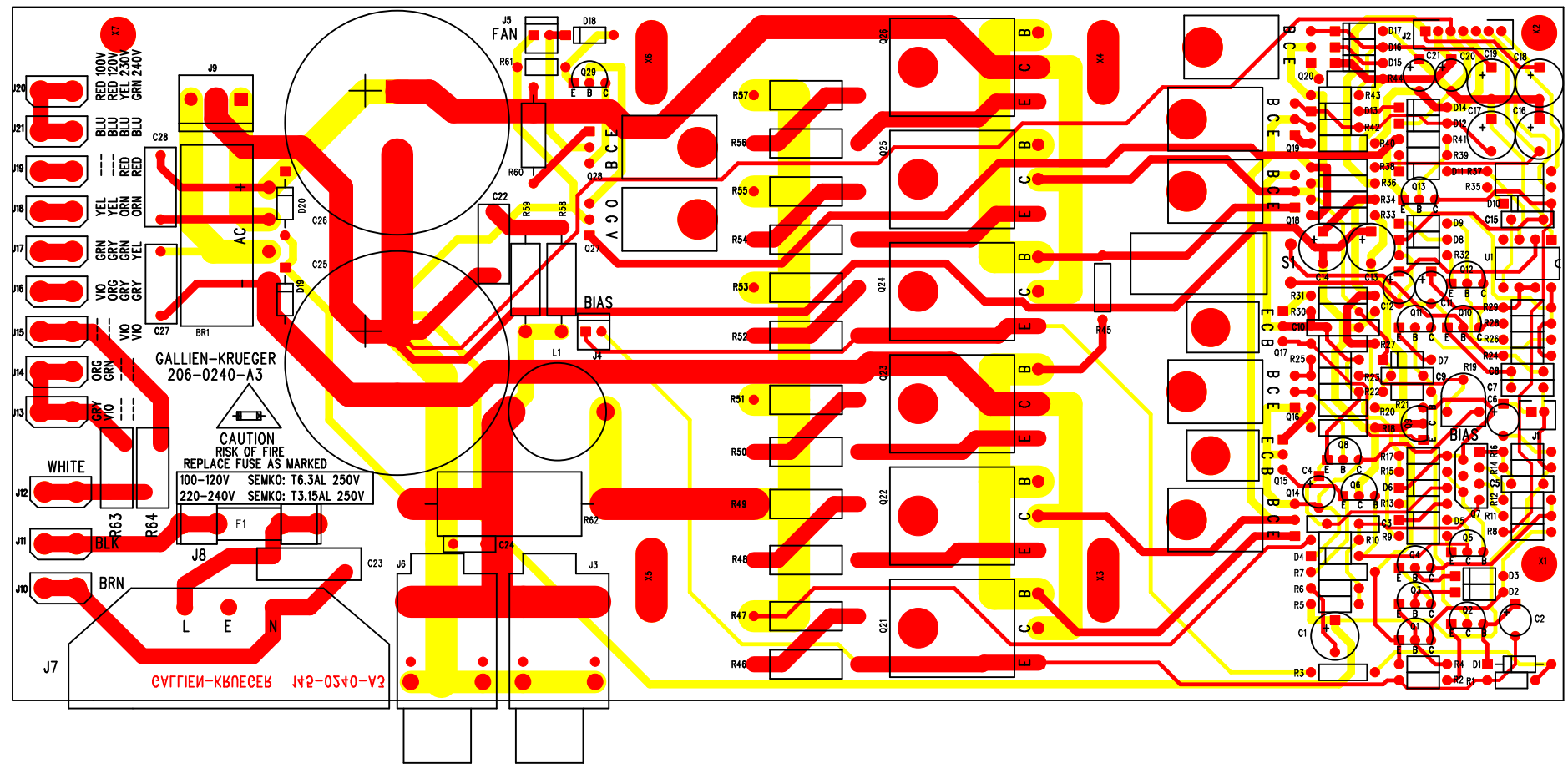
gallien technology

2234 INDUSTRIAL DRIVE
 STOCKTON CA. 95206
 VOICE: 209-234-7300
 FAX: 209-234-8420

TITLE: 400RB-IV POWER AMP

DESIGNED: R.A.G.	DATE: 11/9/99	REV: A3
DRAWN: R.A.G.	DATE: 12/10/03	
ELEC:		
MECH:		
Q/A:		
RELEASED:		

COMPANY: GALLIEN KRUEGER
 PART NO: 206-0240-A3
 FILENAME: 6240A3.sch



PCB WORK INSTRUCTIONS

DWG 420-0240-A3

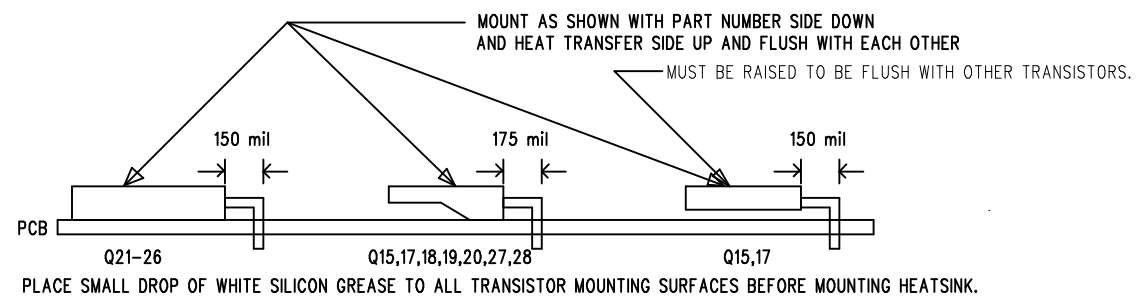
NOTES:

UNLESS OTHERWISE SPECIFIED:

1. SQUARE PADS ON PARTS DENOTE PIN 1.
2. ALL BOARDS REQUIRE A COMPLETE VISUAL INSPECTION.
3. ALL BOARDS MUST BE BARE BOARD TESTED.
4. ASSEMBLE AND SOLDER PER ANSI/IPC-A-610B.

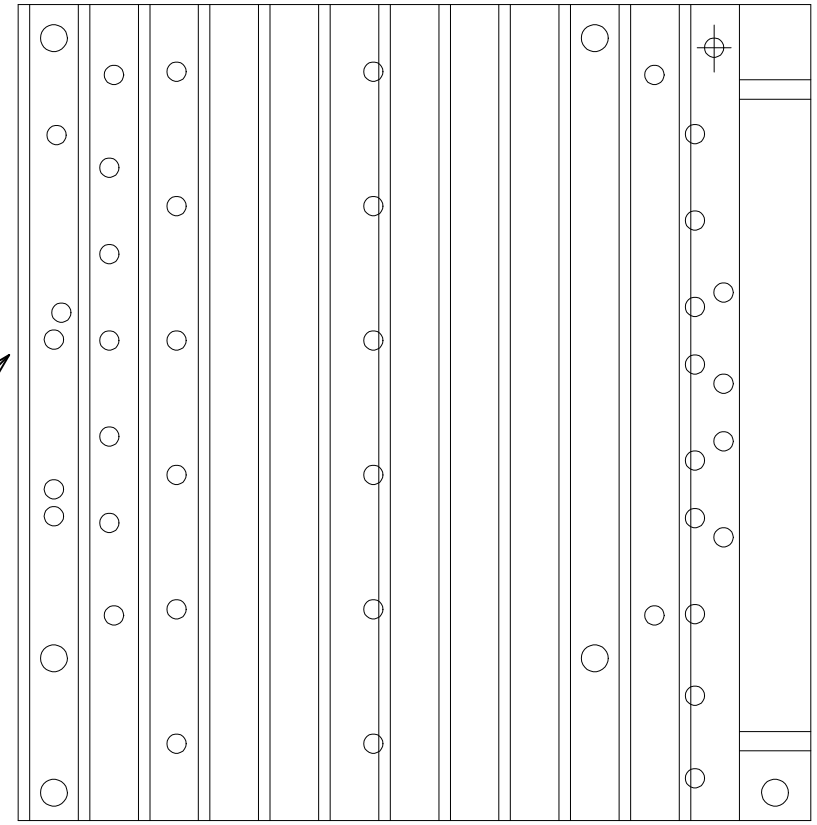
LOADING

5. SEE FORMING AND LOADING INSTRUCTIONS BELOW FOR INSTALLING SPECIFIED COMPONENTS.
6. CHECK THAT R45-56 ARE FULSH WITH PCB.
7. CHECK THAT J3, 6, 7, & S1 ARE FLUSH WITH PCB.
8. MAKE CERTAIN ALL POWER TRANSISTOR MOUNTING HOLES ARE PROPERLY ALIGNED FOR HEAT SINK.



NOT VALID UNLESS STAMP IS RED		2234 INDUSTRIAL DRIVE STOCKTON CA. 95206 VOICE: 209-234-7300 FAX: 209-234-8420	
gallien technology		TITLE: 400RB-IV POWER AMP	
APPROVALS		SIZE: B	
INIT	DATE	DRAWING NO:	REV.
DESIGNED: R.A.G.	6/25/02	405-0240-A3	A3
DRAWN: R.A.G.	12/10/03	PART NO:	
ELEC:		145-0240-A3	
MECH:		COMPANY: GALLIEN-KRUEGER	
GERBER FILE NAME: sst0126.pho		FILENAME: 5240A3.PCB	
LAYER DESCRIPTION: TOP SIDE SOLDERSCREEN			

APPLY THERMAL TAPE (105-0014-0) AND ALIGN WITH THIS EDGE.



This document is generated to address fuse failure due to excessive inrush current during turn on. It is applicable to 400RB-IV power amp boards with part number 206-0240-A1. To correct the problem, a thermistor with part number 022-3006-0 is soldered in series with the primary side of the transformer.

The following is a guideline on how to modify the unit with the thermistor :

STEP I:

If the unit is a head version of 400RB-IV, remove the top cover then remove the power amp board from the chassis assembly.
 If the unit is a combo version of 400RB-IV, remove the chassis assembly from the cabinet, then remove the power amp board. Please see figure 1.



Chassis Assembly
figure 1

STEP II:

Locate J13 and J12 on the power amp board (figure 2a). Turn the power amp board over as per figure 2b.

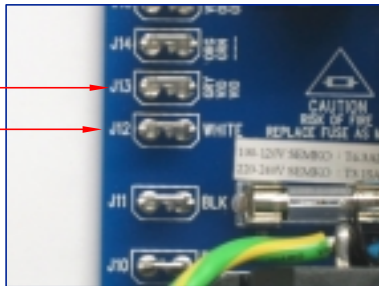
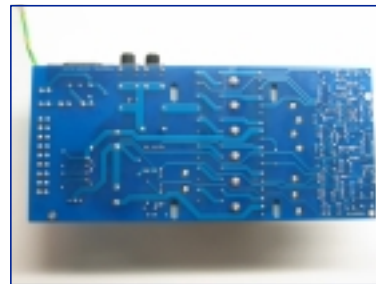


figure 2a



Power Amp Board
figure 2b

STEP III:

Locate J12 and J13 on the bottom/solder side of the board (figure 3a). Cut the trace between J12 and J13 as shown in figure 3b.

location of J12 and J13 on the bottom/solder side of the board

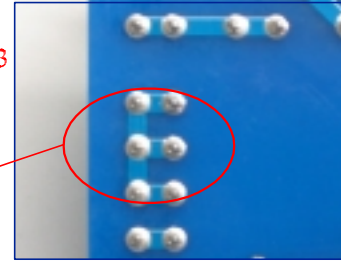


figure 3a

cut the trace here

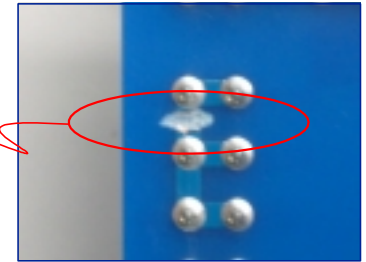


figure 3b

STEP IV:

Solder one lead of Thermistor (022-3006-0) to J12 and the other to J14 on the bottom/solder side of the power amp board, as shown in figure 4.

Note: Make sure that no portion or part of the thermistor is touching any terminal on the board except terminals J12 and J14.

Thermistor NTC 4 ohms, 5 amperes
 P.N: 022-3006-0
 for 400RB-IV power amp board

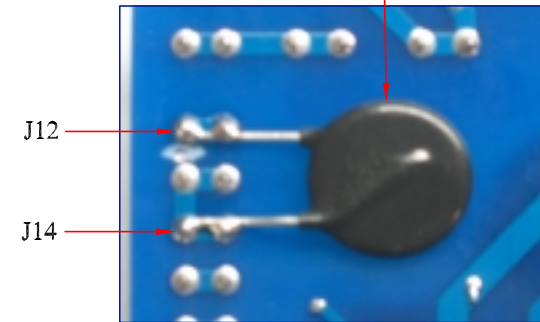


figure 4

PROPRIETARY THE DRAWING CONTAINS INFORMATION WHICH IS PROPRIETARY TO GALLIEN TECHNOLOGY CORPORATION. DO NOT REPRODUCE IN ANY FORM OR DISTRIBUTE IN ANY FASHION WITHOUT THE EXPRESS WRITTEN PERMISSION OF GALLIEN TECHNOLOGY CORPORATION.		
APPROVAL		
DEPT.	INITIAL	DATE
PRODUCTION	NOLLVAIDZ	12/18/2003

gallien technology 2234 INDUSTRIAL DRIVE STOCKTON, CA, 95207	
TITLE THERMISTOR MODIFICATION	
FILE NAME	REV.
DOCUMENT NUMBER	SIZE
SCALE NOT TO SCALE	SHEET 1 OF 1