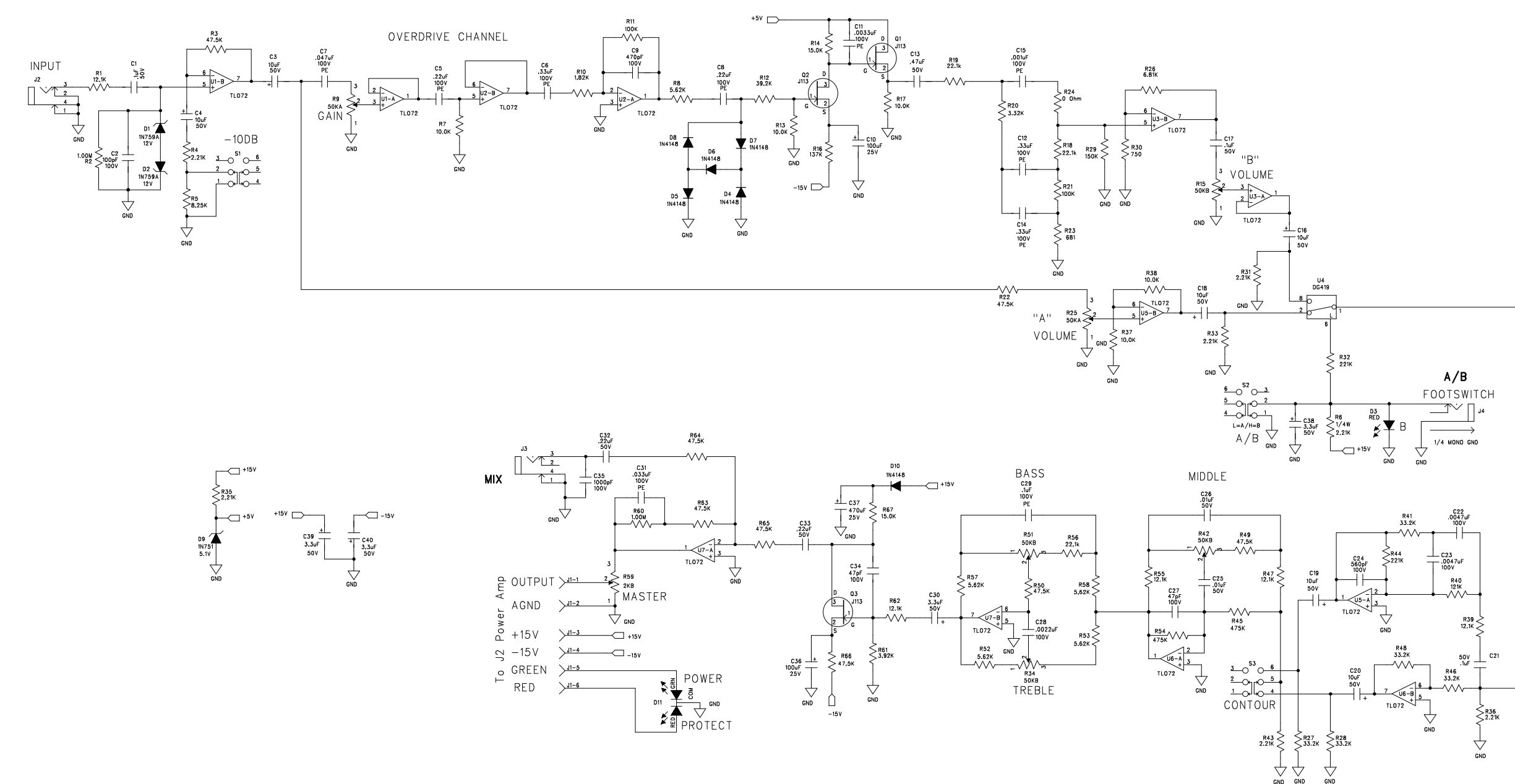


REVISION RECORD			
LTR	ECO NO.	APPROVED:	DATE:



NOT VALID UNLESS STAMP IS RED

**gallien technology**

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

1. O1 & O2 POWERED FROM +5V. 2. OUTPUT MIXER ADDED. 3. POP CIRCUIT FOR CONTOUR 4. POP CIRCUIT FOR A/B SWITCH 5. REMOVE LED DRIVE CKT. 6. OP-AMP FOR CONTOUR OFF 7. OUTPUT BASS BOOST CKT ADDED. 8. NOTCH MODIFIED 9. TAPER OF GAIN & VOL B CHANGED.		APPROVALS INIT: R.A.G. DATE: 10/01/01 DRAWN: R.A.G. DATE: 10/8/01 ELEC: MECH: Q/A: RELEASED:	TITLE: BACKLINE 112 PRE-AMP SIZE: B DRAWING NO: 406-0150-A PART NO: 206-0150-A COMPANY: GALLIEN-KRUEGER FILENAME: 6150A Backline 112 Preamp.sch	REV. A
---	--	--	--	--------

**Bill of Materials Backline 112/110 Preamp 206-0150-A**

Qty	Reference	Description	Part No.	Mfr	Mfr Part No.
1	C15	CAP,PE,102,5%,100V,	036-4102-0	PANASONIC	ECQB1102JF
1	C11	CAP,PE,332,5%,100V,	036-4332-0	PANASONIC	ECQB1332JF
2	C25-26	CAP CER AXIAL,103,10%,50V,X7R	030-2103-0	KEMET	C410C103K5R5CA
1	C31	CAP,PE,333,5%,100V,	032-4333-0	PANASONIC	ECQV1333JM
1	C7	CAP,PE,473,5%,100V,	032-4473-0	PANASONIC	ECQV1473JM
1	C29	CAP,PE,104,5%,100V,	032-4104-0	PANASONIC	ECQV1104JM
3	C1 C17 C21	CAP CER AXIAL,104,10%,50V,X7R	030-2104-0	KEMET	C412C104K5R5CA
2	C5 C8	CAP,PE,224,5%,100V,	032-4224-0	PANASONIC	ECQV1224JM
2	C32-33	CAP CER AXIAL,224,20%,50V,Z5U	030-2224-0	KEMET	C410C224M5U5CA
3	C6 C12 C14	CAP,PE,334,5%,100V,	032-4334-0	PANASONIC	ECQV1334JM
1	C13	CAP CER AXIAL,474,20%,50V,Z5U	030-2474-0	AVX	SA305E474MAA
1	C35	CAP CER AXIAL,102,10%,100V,X7R	030-4102-0	KEMET	C410C102K1R5CA
1	C2	CAP CER AXIAL,101,5%,100V,COG	030-4101-0	KEMET	C410C101J1G5CA
2	C10 C36	CAP,ELEC,RAD,107,20%,25V	031-1107-0	UNITED CHEMI-CON	SMG25VB101M6X11LL
6	C3-4 C16 C18-20	CAP,ELEC,RAD, 106, 20%, 50V	031-2106-0	UNITED CHEMI-CON	SMG50VB10RM5X11LL
1	C28	CAP CER AXIAL,222,10%,100V,X7R	030-2222-0	KEMET	C410C222K1R5CA
4	C30 C38-40	CAP,ELEC,RAD,335,20%,50V	031-2335-0	UNITED CHEMI-CON	SMG50VB3R3M5X11LL
2	C22-23	CAP CER AXIAL, 472, 10%, 100V,,X7R	030-4472-0	KEMET	C410C472K1R5CA
1	C9	CAP CER AXIAL,471,5%,100V,NPO	030-4471-0	KEMET	C410C471J1G5CA
1	C37	CAP, ELEC, RAD, 470uF, 20%, 25V	031-1477-0	UNITED CHEMI-CON	SMG25VB101M6X11LL
2	C27 C34	CAP CER AXIAL,47PF,5%,100V,NPO	030-4470-0	KEMET	C410C470J1G5CA
1	C24	CAP CER AXIAL,561,10%,100V,X7R	030-4561-0	KEMET	C410C561K1R5CA
2	J2-3	JACK,1/4",MONO,PC,NON GROUNDING	092-0081-0	NEUTRIK	S102-84
1	J4	JACK,1/4",MONO,PC, GROUNDING	092-0082-0	NEUTRIK	S102-84G
6	D4-8 D10	1N4148, RECT-FAST, 200MA, 100V	020-1000-0	MOTOROLA	1N4148
1	D9	1N751, ZENER,5.1V,10%,400MW,DO-35	020-0050-0	NATIONAL	1N751A
2	D1-2	1N759A, ZENER,12V,5%,400MW, DO-35	020-0120-0	MOTOROLA	1N759A
1	J1	HDR,2MMX6,VERT,SHROUDED	093-2002-0		
1	U4	DG419, SPDT Analog Switch	001-3029-0		
6	U1-3 U5-7	TLO72CP, LOW NOISE JFET OPAMP	001-1030-1		
1	D11	LED,RED/GRN,5MM,630NM/560NM	025-0012-0	STANLEY	VRPG5614S
1	D3	LED,RED, 3MM, 635NM, 6MCD, 10MA	025-0116-0	EVERLIGHT	EL204ID
1	R59	POT,2KB,7MM,KNURL,.1W	070-1522-0	SONG HUEI	16K1-B2K-L15KC
2	R9 R25	POT,50K-15A,7MM,KNURL,.1W	070-1513-0	SONG HUEI	16K1-A50K-L15KC
4	R15 R34 R42 R51	POT,50KB,7MM,KNURL,.1W	070-1514-0	SONG HUEI	16K1-B50K-L15KC
1	R24	RES, ZERO OHM, 1/8W	062-0000-0		
2	R2 R60	RES, MF, 1.00M, 1%,1/8W, 060-1005-0	060-1005-0		
1	R10	RES,METAL FILM, 1.82K, 1/8W, 1%	060-1822-0		
5	R7 R13 R17 R37-38	RES,METAL FILM, 10.0K, 1/8W,1%	060-1003-0		
2	R11 R21	RES,METAL FILM, 100K, 1/8W, 1%	060-1004-0		
5	R1 R39 R47 R55 R62	RES,METAL FILM, 12.1K OHM, 1/8W, 1%	060-1213-0		
1	R40	RES,METAL FILM, 121K, 1/8W, 1%	060-1214-0		
1	R16	RES,METAL FILM, 137K, 1/8W, 1%	060-1374-0		
2	R14 R67	RES,METAL FILM, 15.0K, 1/8W, 1%	060-1503-0		
1	R29	RES,METAL FILM, 150K, 1/8W, 1%	060-1504-0		
1	R6	RES,METAL FILM,2.21k,1/4W,1%	052-2212-0		
6	R4 R31 R33 R35-36 R43	RES,METAL FILM, 2.21K, 1/8W, 1%	060-2212-0		
3	R18-19 R56	RES,METAL FILM, 22.1K, 1/8W, 1%	060-2213-0		
2	R32 R44	RES,METAL FILM, 221K, 1/8W, 1%	060-2214-0		
1	R20	RES,METAL FILM, 3.32K, 1/8W, 1%	060-3322-0		
1	R61	RES,METAL FILM, 3.92K, 1/8W, 1%	060-3922-0		
5	R27-28 R41 R46 R48	RES,METAL FILM, 33.2K, 1/8W, 1%	060-3323-0		
1	R12	RES,METAL FILM,39.2K,1/8W,1%	060-3923-0		
8	R3 R22 R49-50 R63-66	RES,METAL FILM, 47.5K, 1/8W, 1%	060-4753-0		
2	R45 R54	RES,METAL FILM, 475K, 1/8W, 1%	060-4754-0		
5	R8 R52-53 R57-58	RES,METAL FILM, 5.62K, 1/8W, 1%	060-5622-0		
1	R26	RES,METAL FILM, 6.81K, 1/8W, 1%	060-6812-0		
1	R23	RES,METAL FILM, 681 ohm, 1/8W, 1%	060-6811-0		
1	R30	RES,METAL FILM, 750 OHM, 1/8W, 1%	060-7501-0		

1	R5	RES,METAL FILM, 8.25K, 1/8W, 1%	060-8252-0		
3	S1-3	SWITCH,MIMI PP,DPDT,.1A BRK/MAKE	090-0012-0	ELKECTRONIC COMP	MTH2UEE-1D911
3	Q1-3	J113,N-JFET,35V,2MA,TO-92	010-2010-0	NATIONAL	J113

# PCB WORK INSTRUCTIONS

DWG #420-0150-A

## NOTES:

UNLESS OTHERWISE SPECIFIED:

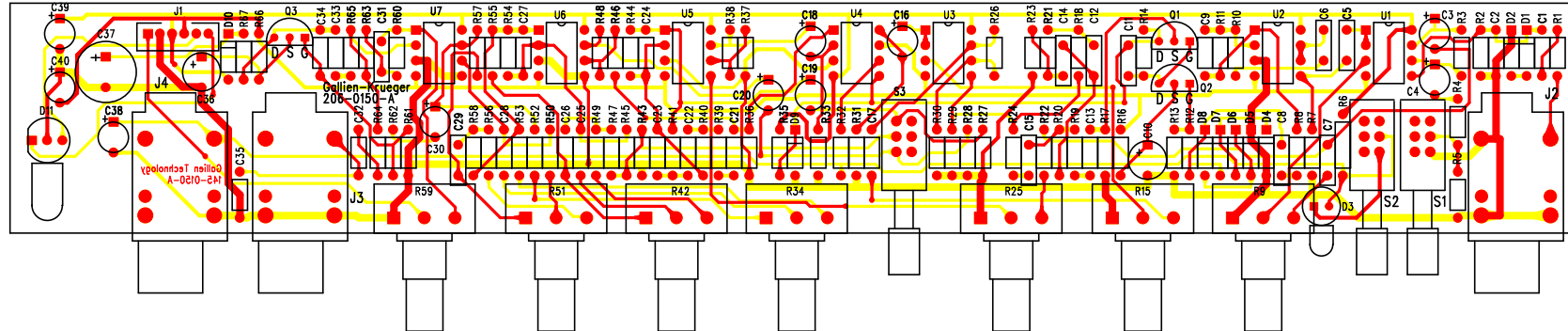
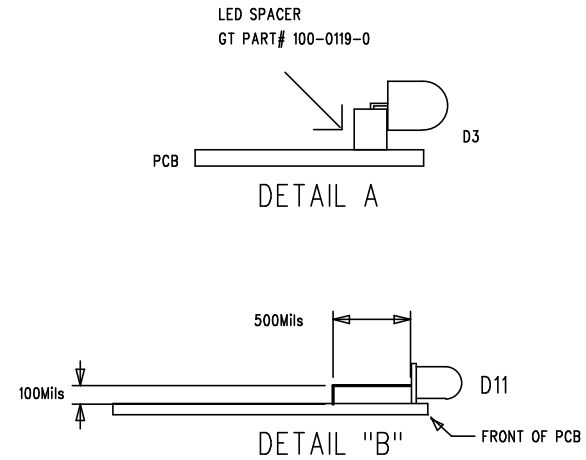
1. SQUARE PADS ON THRU HOLE PARTS (ie: CONNECTORS, DIPS, SIPS, LEDES) DENOTE PIN 1.
2. ALL BOARDS REQUIRE A COMPLETE AND THOROUGH VISUAL INSPECTIONS.
3. ALL BOARDS MUST BE BARE BOARD TESTED.
4. ASSEMBLE AND SOLDER PER ANSI/IPC-A-610B.

LOADING

5. CLIP BUSHING TABS OFF ON POTS R9, 14, 23, 31, 41, 49, 56
6. SEE DETAIL A FOR MOUNTING D3
7. SEE DETAIL "B" FOR MOUNTING D11

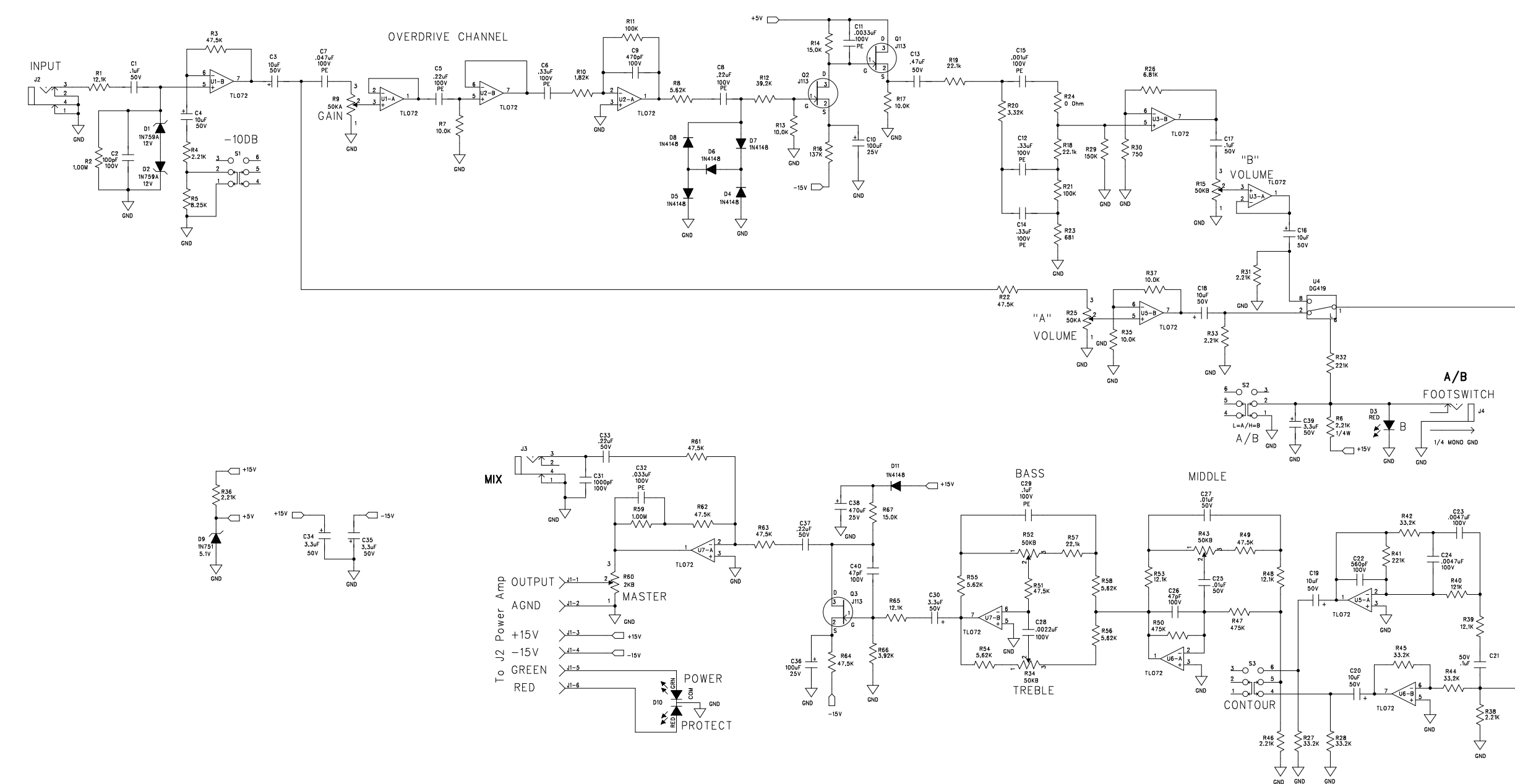
FINAL QA

8. CHECK TO SEE ALL POTS, JACKS, AND SWITCHES ARE MOUNTED FLUSH AND STRAIGHT



NOT VALID UNLESS STAMP IS RED	<b>gallien technology</b>		2240 PARAGON DRIVE SAN JOSE CA. 95131 VOICE: 408-441-8081 FAX: 408-441-8085		
	APPROVALS		TITLE: <b>BACKLINE PREAMP BD</b>		
	INIT	DATE	SIZE	DRAWING NO: <b>405-0150-A</b>	REV. <b>A</b>
	DESIGNED: <b>R.A.C.</b>	<b>10/01/01</b>		PART NO: <b>145-0150-A</b>	
DRAWN: <b>R.A.C.</b>		<b>10/08/01</b>	COMPANY: <b>GALLIEN-KRUEGER</b>		
ELEC:		MECH:	FILENAME: <b>5150A Backline 112 Preamp.pcb</b>		
LAYER DESCRIPTION: <b>TOP SOFT ENL &amp; SOFT EN</b>		GERBER FILE NAME: <b>ssd0219r.ppt</b>			

REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:



D  
C  
B  
A

D  
C  
B  
A

NOT VALID UNLESS STAMP IS RED

**gallien technology**

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

1. Moved parts and added notch for Transformer.

APPROVALS		TITLE:	
INIT	DATE	REV.	DRAWING NO:
			BACKLINE 112 PRE-AMP
DESIGNED: R.A.G.	10/01/01		406-0150-A1
DRAWN: R.A.G.	11/13/01		206-0150-A1
ELEC:			
MECH:			
Q/A:			
RELEASED:			

COMPANY: **GALLIEN-KRUEGER**  
FILENAME: 6150A1 Backline 112 Preamp.sch

**Bill of Materials Backline Pre Amp 206-0150-A1**

Qty	Reference	Description	Part No.	Mfr	Mfr Part No.
1	C15	CAP,PE,102,5%,100V,	036-4102-0	PANASONIC	ECQB1102JF
1	C11	CAP,PE,332,5%,100V,	036-4332-0	PANASONIC	ECQB1332JF
2	C25 C27	CAP CER AXIAL,103,10%,50V,X7R	030-2103-0	KEMET	C410C103K5R5CA
1	C32	CAP,PE,333,5%,100V,	032-4333-0	PANASONIC	ECQV1333JM
1	C7	CAP,PE,473,5%,100V,	032-4473-0	PANASONIC	ECQV1473JM
1	C29	CAP,PE,104,5%,100V,	032-4104-0	PANASONIC	ECQV1104JM
3	C1 C17 C21	CAP CER AXIAL,104,10%,50V,X7R	030-2104-0	KEMET	C412C104K5R5CA
2	C5 C8	CAP,PE,224,5%,100V,	032-4224-0	PANASONIC	ECQV1224JM
2	C33 C37	CAP CER AXIAL,224,20%,50V,Z5U	030-2224-0	KEMET	C410C224M5U5CA
3	C6 C12 C14	CAP,PE,334,5%,100V,	032-4334-0	PANASONIC	ECQV1334JM
1	C13	CAP CER AXIAL,474,20%,50V,Z5U	030-2474-0	AVX	SA305E474MAA
1	C31	CAP CER AXIAL,102,10%,100V,X7R	030-4102-0	KEMET	C410C102K1R5CA
1	C2	CAP CER AXIAL,101,5%,100V,COG	030-4101-0	KEMET	C410C101J1G5CA
2	C10 C36	CAP,ELEC,RAD,107,20%,25V	031-1107-0	UNITED CHEMI-CON	SMG25VB101M6X11LL
6	C3-4 C16 C18-20	CAP,ELEC,RAD, 106, 20%, 50V	031-2106-0	UNITED CHEMI-CON	SMG50VB10RM5X11LL
1	C28	CAP CER AXIAL,222,10%,100V,X7R	030-2222-0	KEMET	C410C222K1R5CA
4	C30 C34-35 C39	CAP,ELEC,RAD,335,20%,50V	031-2335-0	UNITED CHEMI-CON	SMG50VB3R3M5X11LL
2	C23-24	CAP CER AXIAL, 472, 10%, 100V,,X7R	030-4472-0	KEMET	C410C472K1R5CA
1	C9	CAP CER AXIAL,471,5%,100V,NPO	030-4471-0	KEMET	C410C471J1G5CA
1	C38	CAP, ELEC, RAD, 470uF, 20%, 25V	031-1477-0	UNITED CHEMI-CON	SMG25VB101M6X11LL
2	C26 C40	CAP CER AXIAL,47PF,5%,100V,NPO	030-4470-0	KEMET	C410C470J1G5CA
1	C22	CAP CER AXIAL,561,10%,100V,X7R	030-4561-0	KEMET	C410C561K1R5CA
2	J2-3	JACK,1/4",MONO,PC,NON GROUNDING	092-0081-0	NEUTRIK	S102-84
1	J4	JACK,1/4",MONO,PC, GROUNDING	092-0082-0	NEUTRIK	S102-84G
6	D4-8 D11	1N4148, RECT-FAST, 200MA, 100V	020-1000-0	MOTOROLA	1N4148
1	D9	1N751, ZENER,5.1V,10%,400MW,DO-35	020-0050-0	NATIONAL	1N751A
2	D1-2	1N759A, ZENER,12V,5%,400MW, DO-35	020-0120-0	MOTOROLA	1N759A
1	J1	HDR,2MMX6,VERT,SHROUDED	093-2002-0	JST	B6B-PH-K-S
1	U4	DG419, Analog Switch	001-3029-0	MAXIM	DG419DJ
6	U1-3 U5-7	TLO72CP, LOW NOISE JFET OPAMP	001-1030-1	MOTOROLA	TL072CP
1	D10	LED,RED/GRN,5MM,630NM/560NM	025-0012-0	STANLEY	VRPG5614S
1	D3	LED,RED, 3MM, 635NM, 6MCD, 10MA	025-0116-0	EVERLIGHT	EL204ID
1	R60	POT,2KB,7MM,KNURL,.1W	070-1522-0	SONG HUEI	16K1-B2K-L15KC
2	R9 R25	POT,50K-15A,7MM,KNURL,.1W	070-1513-0	SONG HUEI	16K1-A50K-L15KC
4	R15 R34 R43 R52	POT,50KB,7MM,KNURL,.1W	070-1514-0	SONG HUEI	16K1-B50K-L15KC
1	R24	RES, WIRE, 0.0 Ohm, 1/8W	062-0000-0	ECI	R1 0.0 OHM
2	R2 R59	RES, MF, 1.00M, 1%,1/8W, 060-1005-0	060-1005-0	ECI	M1F1AM001.00
1	R10	RES,METAL FILM, 1.82K, 1/8W, 1%	060-1822-0	ECI	M1F1AK001.82
5	R7 R13 R17 R35 R37	RES,METAL FILM, 10.0K, 1/8W,1%	060-1003-0	ECI	M1F1AK010.00
2	R11 R21	RES,METAL FILM, 100K, 1/8W, 1%	060-1004-0	ECI	M1F1AK100.00
5	R1 R39 R48 R53 R65	RES,METAL FILM, 12.1K OHM, 1/8W, 1%	060-1213-0	ECI	M1F1AK012.10
1	R40	RES,METAL FILM, 121K, 1/8W, 1%	060-1214-0	ECI	M1F1AK121.00
1	R16	RES,METAL FILM, 137K, 1/8W, 1%	060-1374-0	ECI	M1F1AK137.00
2	R14 R67	RES,METAL FILM, 15.0K, 1/8W, 1%	060-1503-0	ECI	M1F1AK015.00
1	R29	RES,METAL FILM, 150K, 1/8W, 1%	060-1504-0	ECI	M1F1AK150.00
1	R6	RES,METAL FILM,2.21k,1/4W,1%	052-2212-0	ECI	M2F1AK002.21
6	R4 R31 R33 R36 R38 R46	RES,METAL FILM, 2.21K, 1/8W, 1%	060-2212-0	ECI	M1F1AK002.21
3	R18-19 R57	RES,METAL FILM, 22.1K, 1/8W, 1%	060-2213-0	ECI	M1F1AK022.10
2	R32 R41	RES,METAL FILM, 221K, 1/8W, 1%	060-2214-0	ECI	M1F1AK221.00
1	R20	RES,METAL FILM, 3.32K, 1/8W, 1%	060-3322-0	ECI	M1F1AK003.32
1	R66	RES,METAL FILM, 3.92K, 1/8W, 1%	060-3922-0	ECI	M1F1AK003.92
5	R27-28 R42 R44-45	RES,METAL FILM, 33.2K, 1/8W, 1%	060-3323-0	ECI	M1F1AK033.20
1	R12	RES,METAL FILM,39.2K,1/8W,1%	060-3923-0	ECI	M1F1AK039.2
8	R3 R22 R49 R51 R61-64	RES,METAL FILM, 47.5K, 1/8W, 1%	060-4753-0	ECI	M1F1AK047.50
2	R47 R50	RES,METAL FILM, 475K, 1/8W, 1%	060-4754-0	ECI	M1F1AK475.00
5	R8 R54-56 R58	RES,METAL FILM, 5.62K, 1/8W, 1%	060-5622-0	ECI	M1F1AK005.62
1	R26	RES,METAL FILM, 6.81K, 1/8W, 1%	060-6812-0	ECI	M1F1AK006.81
1	R23	RES,METAL FILM, 681 ohm, 1/8W, 1%	060-6811-0	ECI	M1F1AJ681.00
1	R30	RES,METAL FILM, 750 OHM, 1/8W, 1%	060-7501-0	ECI	M1F1AJ750.00
1	R5	RES,METAL FILM, 8.25K, 1/8W, 1%	060-8252-0	ECI	M1F1AK008.25
3	S1-3	SWITCH,MIMI PP,DPDT,.1A BRK/MAKE	090-0012-0	ELKECTRONIC COMP	MTH2UEE-1D911
3	Q1-3	J113,N-JFET,35V,2MA,TO-92	010-2010-0	NATIONAL	J113

# PCB WORK INSTRUCTIONS

DWG #420-0150-A1

## NOTES:

### UNLESS OTHERWISE SPECIFIED:

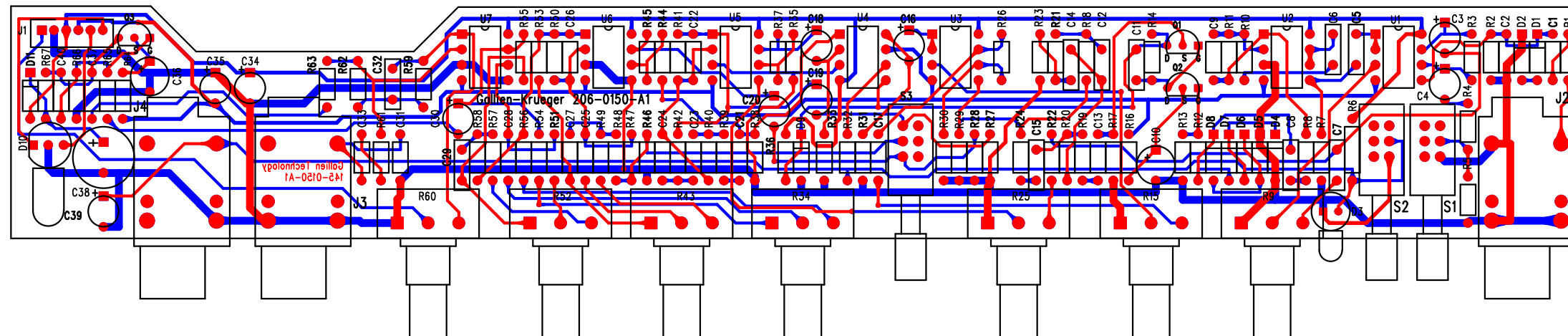
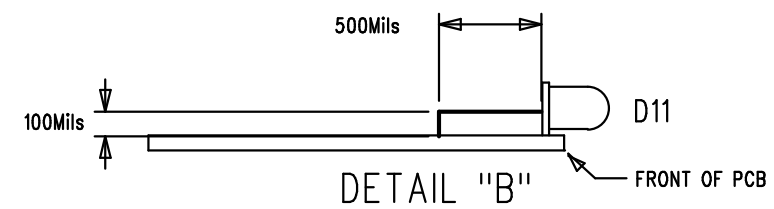
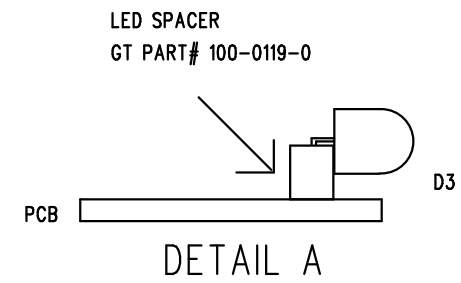
1. SQUARE PADS ON THRU HOLE PARTS (ie: CONNECTORS, DIPS, SIPS, LEDS) DENOTE PIN 1.
2. ALL BOARDS REQUIRE A COMPLETE AND THOROUGH VISUAL INSPECTIONS.
3. ALL BOARDS MUST BE BARE BOARD TESTED.
4. ASSEMBLE AND SOLDER PER ANSI/IPC-A-610B.

### LOADING

5. CLIP BUSHING TABS OFF ON POTS R9, 14, 23, 31, 41, 49, 56
6. SEE DETAIL A FOR MOUNTING D3
7. SEE DETAIL "B" FOR MOUNTING D11

### FINAL QA

8. CHECK TO SEE ALL POTS, JACKS, AND SWITCHES ARE MOUNTED FLUSH AND STRAIGHT

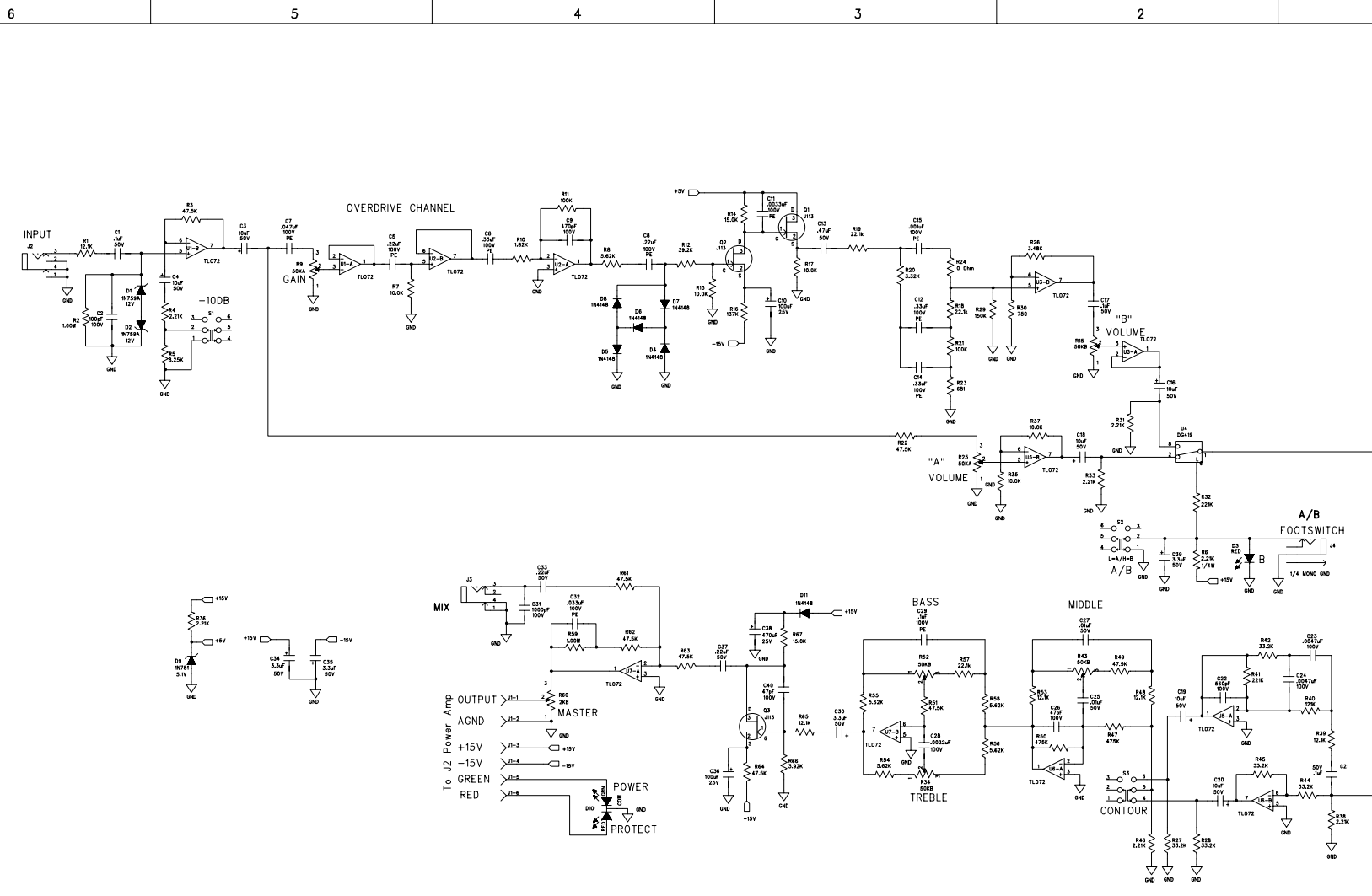


NOT VALID UNLESS STAMP IS RED	<b>gallien technology</b>		2240 PARAGON DRIVE SAN JOSE CA. 95131 VOICE: 408-441-8081 FAX: 408-441-8085	
	APPROVALS		TITLE: BACKLINE 112 PREAMP BD	
Put notch in board for transformer.	INIT	DATE	SIZE	REV.
	DESIGNED: R.A.G.	10/01/01	DRAWING NO: 405-0150-A1	A1
	DRAWN: R.A.G.	11/13/01	PART NO: 145-0150-A1	
LAYER DESCRIPTION: <b>TOP SIDE IS NOT TO BE MOUNTED</b>		MECH:	COMPANY: GALLIEN-KRUEGER	
		GERBER FILE NAME: 5150A1.pcb	FILENAME: 5150A1 Backline 112 Preamp.pcb	

Customer Name:	Gallien-Krueger	Current Rev #:	A1	New ECO Rev #:	A2
Model:	Backline 110/112	Page:	1	Of:	1
Assembly Description:	Preamp Assembly	Originator:	Bob Gallien		
Assembly Numbers:	206-0150-A1	Approved by:			
		Effective Date:	12/21/2001		
Effective		Document Update		Date	Initials
<input checked="" type="checkbox"/>	All in Process	<input checked="" type="checkbox"/>	Artwork		
<input type="checkbox"/>	All in Service	<input checked="" type="checkbox"/>	Assembly Dwg.		
<input type="checkbox"/>	All in Stock	<input type="checkbox"/>	Auto Insert Pgm		
Beginning Serial Number:		<input type="checkbox"/>	Board Artwork		
Reason For Change		<input checked="" type="checkbox"/>	BOM	#####	AV
The Overdrive B channel has too much gain and is too noisy.		<input type="checkbox"/>	Control Form		
Match volume levels between A and B channels		<input type="checkbox"/>	Costing		
No Rev change is required for the 303 and 290 levels since all units have shipped with this modification.		<input type="checkbox"/>	Fab Drawing		
		<input type="checkbox"/>	Inspection Proc.		
		<input checked="" type="checkbox"/>	Part Master File		
		<input type="checkbox"/>	Punch Program		
		<input checked="" type="checkbox"/>	Schematic	#####	AV
		<input type="checkbox"/>	Service Manual		
		<input checked="" type="checkbox"/>	Test Procedure		
		<input type="checkbox"/>			
		<input type="checkbox"/>			
		<input type="checkbox"/>			
<input type="checkbox"/>	Continued on ECO Supplement Page	<input type="checkbox"/>			
Description Of Change		Distribution		Date	Initials
Reduce gain by a factor of two.		<input type="checkbox"/>	Accounting		
Change R26 from 6.81k to 3.48k		<input type="checkbox"/>	Assembly		
For product in current production add a 6.81K resistor in parallel with R26 on the back of the board.		<input type="checkbox"/>	Customer		
		<input checked="" type="checkbox"/>	Engineering		
		<input type="checkbox"/>	Fabrication		
		<input checked="" type="checkbox"/>	Incoming Q.C.		
		<input type="checkbox"/>	Planning		
		<input checked="" type="checkbox"/>	Production Eng.		
		<input checked="" type="checkbox"/>	Purchasing		
		<input type="checkbox"/>	Q.A.		
		<input type="checkbox"/>	Receiving		
		<input type="checkbox"/>	Service		
		<input type="checkbox"/>	Vendor		
		<input checked="" type="checkbox"/>	Test		
		<input type="checkbox"/>			
<input type="checkbox"/>	Continued on ECO Supplement Page	<input type="checkbox"/>	Drawing(s) attached		
Part Number	Description	Parts Added		Parts Deleted	
		Qty	Ref. Designator	Qty	Ref. Designator
060-6812-0	6.81k, 1/8W, 1%			1	R26
060-3482-0	3.48k, 1/8W, 1%	1	R26		



REVISION RECORD			
LTR	ECO NO.	APPROVED	DATE
	42		12-25-01



NOT VALID UNLESS STAMP IS RED

**gallien technology**

2240 PARAGON DRIVE  
SAN JOSE CA. 95131  
VOICE: 408-441-8081  
FAX: 408-445-8085

1. Reduced gain in overdrive channel

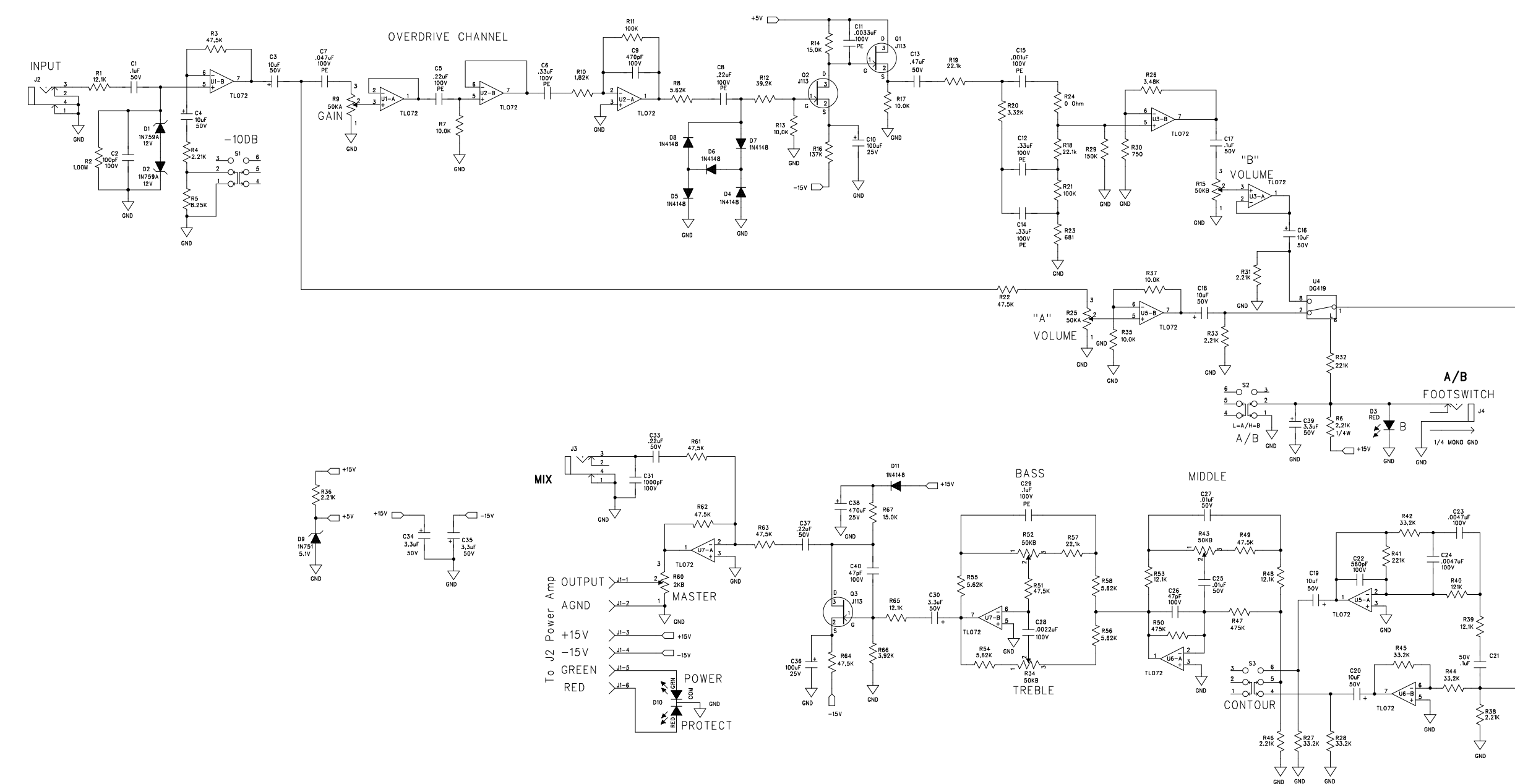
APPROVALS		DATE		TITLE	
DESIGNED: R.A.G.		10/10/01		BACKLINE 110/112 PRE-AMP	
DRAWN: R.A.G.		12/21/01		BR	BR
ELEC:				DRAWING NO: 406-0150-A2	REV: A2
				PART NO: 206-0150-A2	
MECH:				COMPANY: GALLIEN-KRUEGER	
S/A:				FILENAME: 6150A2 Backline 112 Preamp.sch	
RELEASED:					

**Bill of Materials Backline Pre Amp 206-0150-A2**

Qty	Reference	Description	Part No.	Mfr	Mfr Part No.
1	C15	CAP,PE,102,5%,100V,	036-4102-0	PANASONIC	ECQB1102JF
1	C11	CAP,PE,332,5%,100V,	036-4332-0	PANASONIC	ECQB1332JF
2	C25 C27	CAP CER AXIAL,103,10%,50V,X7R	030-2103-0	KEMET	C410C103K5R5CA
1	C32	CAP,PE,333,5%,100V,	032-4333-0	PANASONIC	ECQV1333JM
1	C7	CAP,PE,473,5%,100V,	032-4473-0	PANASONIC	ECQV1473JM
1	C29	CAP,PE,104,5%,100V,	032-4104-0	PANASONIC	ECQV1104JM
3	C1 C17 C21	CAP CER AXIAL,104,10%,50V,X7R	030-2104-0	KEMET	C412C104K5R5CA
2	C5 C8	CAP,PE,224,5%,100V,	032-4224-0	PANASONIC	ECQV1224JM
2	C33 C37	CAP CER AXIAL,224,20%,50V,Z5U	030-2224-0	KEMET	C410C224M5U5CA
3	C6 C12 C14	CAP,PE,334,5%,100V,	032-4334-0	PANASONIC	ECQV1334JM
1	C13	CAP CER AXIAL,474,20%,50V,Z5U	030-2474-0	AVX	SA305E474MAA
1	C31	CAP CER AXIAL,102,10%,100V,X7R	030-4102-0	KEMET	C410C102K1R5CA
1	C2	CAP CER AXIAL,101,5%,100V,COG	030-4101-0	KEMET	C410C101J1G5CA
2	C10 C36	CAP,ELEC,RAD,107,20%,25V	031-1107-0	UNITED CHEMI-CON	SMG25VB101M6X11LL
6	C3-4 C16	CAP,ELEC,RAD, 106, 20%, 50V	031-2106-0	UNITED CHEMI-CON	SMG50VB10RM5X11LL
1	C28	CAP CER AXIAL,222,10%,100V,X7R	030-2222-0	KEMET	C410C222K1R5CA
4	C30 C34-35 C39	CAP,ELEC,RAD,335,20%,50V	031-2335-0	UNITED CHEMI-CON	SMG50VB3R3M5X11LL
2	C23-24	CAP CER AXIAL, 472, 10%, 100V,,X7R	030-4472-0	KEMET	C410C472K1R5CA
1	C9	CAP CER AXIAL,471,5%,100V,NPO	030-4471-0	KEMET	C410C471J1G5CA
1	C38	CAP, ELEC, RAD, 470uF, 20%, 25V	031-1477-0	UNITED CHEMI-CON	SMG25VB101M6X11LL
2	C26 C40	CAP CER AXIAL,47PF,5%,100V,NPO	030-4470-0	KEMET	C410C470J1G5CA
1	C22	CAP CER AXIAL,561,10%,100V,X7R	030-4561-0	KEMET	C410C561K1R5CA
2	J2-3	JACK,1/4",MONO,PC,NON GROUNDING	092-0081-0	NEUTRIK	S102-84
1	J4	JACK,1/4",MONO,PC, GROUNDING	092-0082-0	NEUTRIK	S102-84G
6	D4-8 D11	1N4148, RECT-FAST, 200MA, 100V	020-1000-0	MOTOROLA	1N4148
1	D9	1N751, ZENER,5.1V,10%,400MW,DO-35	020-0050-0	NATIONAL	1N751A
2	D1-2	1N759A, ZENER,12V,5%,400MW, DO-35	020-0120-0	MOTOROLA	1N759A
1	J1	HDR,2MMX6,VERT,SHROUDED	093-2002-0	JST	B6B-PH-K-S
1	U4	DG419, Analog Switch	001-3029-0	MAXIM	DG419DJ
6	U1-3 U5-7	TLO72CP, LOW NOISE JFET OPAMP	001-1030-1	MOTOROLA	TL072CP
1	D10	LED,RED/GRN,5MM,630NM/560NM	025-0012-0	STANLEY	VRPG5614S
1	D3	LED,RED, 3MM, 635NM, 6MCD, 10MA	025-0116-0	EVERLIGHT	EL204ID
1	R60	POT,2KB,7MM,KNURL,.1W	070-1522-0	SONG HUEI	16K1-B2K-L15KC
2	R9 R25	POT,50K-15A,7MM,KNURL,.1W	070-1513-0	SONG HUEI	16K1-A50K-L15KC
4	R15 R34 R43	POT,50KB,7MM,KNURL,.1W	070-1514-0	SONG HUEI	16K1-B50K-L15KC
1	R24	RES, WIRE, 0.0 Ohm, 1/8W	062-0000-0	ECI	R1 0.0 OHM
2	R2 R59	RES, MF, 1.00M, 1%,1/8W, 060-1005-0	060-1005-0	ECI	M1F1AM001.00
1	R10	RES,METAL FILM, 1.82K, 1/8W, 1%	060-1822-0	ECI	M1F1AK001.82
5	R7 R13 R17 R35	RES,METAL FILM, 10.0K, 1/8W,1%	060-1003-0	ECI	M1F1AK010.00
2	R11 R21	RES,METAL FILM, 100K, 1/8W, 1%	060-1004-0	ECI	M1F1AK100.00
5	R1 R39 R48 R53	RES,METAL FILM, 12.1K OHM, 1/8W, 1%	060-1213-0	ECI	M1F1AK012.10
1	R40	RES,METAL FILM, 121K, 1/8W, 1%	060-1214-0	ECI	M1F1AK121.00
1	R16	RES,METAL FILM, 137K, 1/8W, 1%	060-1374-0	ECI	M1F1AK137.00
2	R14 R67	RES,METAL FILM, 15.0K, 1/8W, 1%	060-1503-0	ECI	M1F1AK015.00
1	R29	RES,METAL FILM, 150K, 1/8W, 1%	060-1504-0	ECI	M1F1AK150.00
1	R6	RES,METAL FILM,2.21k,1/4W,1%	052-2212-0	ECI	M2F1AK002.21
6	R4 R31 R33 R36	RES,METAL FILM, 2.21K, 1/8W, 1%	060-2212-0	ECI	M1F1AK002.21
3	R18-19 R57	RES,METAL FILM, 22.1K, 1/8W, 1%	060-2213-0	ECI	M1F1AK022.10
2	R32 R41	RES,METAL FILM, 221K, 1/8W, 1%	060-2214-0	ECI	M1F1AK221.00
1	R20	RES,METAL FILM, 3.32K, 1/8W, 1%	060-3322-0	ECI	M1F1AK003.32
1	R26	RES,METAL FILM, 3.48K, 1/8W, 1%	060-3482-0	ECI	M1F1AK003.48
1	R66	RES,METAL FILM, 3.92K, 1/8W, 1%	060-3922-0	ECI	M1F1AK003.92
5	R27-28 R42	RES,METAL FILM, 33.2K, 1/8W, 1%	060-3323-0	ECI	M1F1AK033.20
1	R12	RES,METAL FILM,39.2K,1/8W,1%	060-3923-0	ECI	M1F1AK039.2
8	R3 R22 R49 R51	RES,METAL FILM, 47.5K, 1/8W, 1%	060-4753-0	ECI	M1F1AK047.50
2	R47 R50	RES,METAL FILM, 475K, 1/8W, 1%	060-4754-0	ECI	M1F1AK475.00
5	R8 R54-56 R58	RES,METAL FILM, 5.62K, 1/8W, 1%	060-5622-0	ECI	M1F1AK005.62
1	R23	RES,METAL FILM, 681 ohm, 1/8W, 1%	060-6811-0	ECI	M1F1AJ681.00
1	R30	RES,METAL FILM, 750 OHM, 1/8W, 1%	060-7501-0	ECI	M1F1AJ750.00
1	R5	RES,METAL FILM, 8.25K, 1/8W, 1%	060-8252-0	ECI	M1F1AK008.25
3	S1-3	SWITCH,MIMI PP,DPDT,.1A BRK/MAKE	090-0012-0	ELKECTRONIC COMP	MTH2UEE-1D911
3	Q1-3	J113,N-JFET,35V,2MA,TO-92	010-2010-0	NATIONAL	J113

Customer Name:	Gallien-Krueger		Current Rev #:	A2	New ECO Rev #:	A3	
Model:	Backline 110/112			Page:	1	Of:	1
Assembly Description:	Preamp		Originator:	R. Gallien			
Assembly Numbers:	206-0150-A		Approved by:				
			Effective Date:	3/26/2002			
Effective			Document Update		Date	Initials	
<input checked="" type="checkbox"/>	All in Process	<input checked="" type="checkbox"/>	Next Buy	<input type="checkbox"/>	Artwork		
<input checked="" type="checkbox"/>	All in Service	<input checked="" type="checkbox"/>	Next Production Run	<input type="checkbox"/>	Assembly Dwg.		
<input checked="" type="checkbox"/>	All in Stock	<input type="checkbox"/>		<input type="checkbox"/>	Board Artwork		
Beginning Serial Number:			<input checked="" type="checkbox"/>	BOM			RAG
Reason For Change			<input type="checkbox"/>	Control Form			
To reduce flap at low frequencies.			<input type="checkbox"/>	Costing			
			<input type="checkbox"/>	Fab Drawing			
			<input type="checkbox"/>	Inspection Proc.			
			<input checked="" type="checkbox"/>	Part Master File			RAG
			<input checked="" type="checkbox"/>	Schematic			RAG
			<input type="checkbox"/>	Service Manual			
			<input checked="" type="checkbox"/>	Test Procedure			Noli
			<input type="checkbox"/>				
			<input type="checkbox"/>				
Other Affected Assemblies							
			290-0190-A4, 290-200-A2				
			303-0190-A4, 303-200-A2				
<input type="checkbox"/>	Continued on ECO Supplement Page						
Description Of Change			Distribution		Date	Initials	
			<input type="checkbox"/>	Accounting			
Short out R59 on current boards.			<input type="checkbox"/>	Assembly			
Load short for R59 and remove C32 on future runs.			<input type="checkbox"/>	Customer			
			<input checked="" type="checkbox"/>	Engineering			
			<input checked="" type="checkbox"/>	Incoming Q.C.			
			<input type="checkbox"/>	Planning			
			<input checked="" type="checkbox"/>	Production Eng.			
			<input checked="" type="checkbox"/>	Purchasing			
			<input type="checkbox"/>	Q.A.			
			<input type="checkbox"/>	Receiving			
			<input checked="" type="checkbox"/>	Service			
			<input checked="" type="checkbox"/>	Test			
			<input type="checkbox"/>	Vendor			
			<input type="checkbox"/>				
			<input type="checkbox"/>				
<input type="checkbox"/>	Continued on ECO Supplement Page		<input type="checkbox"/> Drawing(s) attached				
Part Number	Description	Parts Added		Parts Deleted			
		Qty	Ref. Designator	Qty	Ref. Designator		
060-1005-0	1M 1/8W 1%			1	R59		
032-4333-0	.033uF			1	C32		
060-0000-0	0 Ohm 1/8W	1	R59				

REVISION RECORD		
ECD NO:	Description Of Change	DATE:
A2	R26 to 3.48K from 6.81K	12-21-01



NOT VALID UNLESS STAMP IS RED

**gallien technology**

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

TITLE: BACKLINE 110/112 PRE-AMP

1. Remove R59 and C32.

APPROVALS		DATE	REV.
INIT		10/01/01	
DESIGNED: R.A.G.		3/26/02	
DRAWN: R.A.G.			
ELEC:			
MECH:			
D/A:			
RELEASED:			

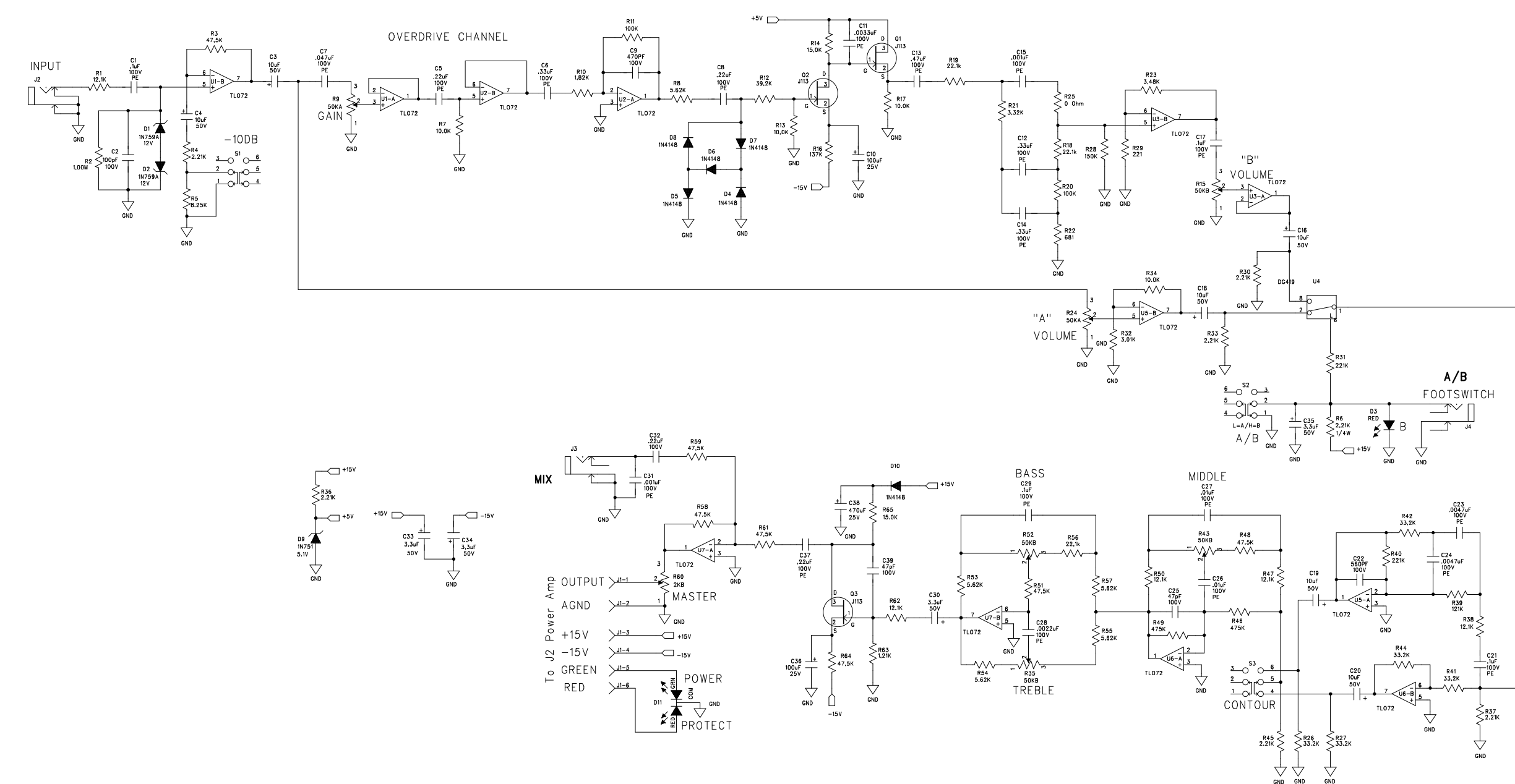
PART NO: 206-0150-A3  
COMPANY: GALLIEN-KRUEGER  
FILENAME: 6150A3 Backline 112 Preamp.sch

A3

**Bill of Materials Backline Pre Amp 206-0150-A3**

Qty	Reference	Description	Part No.	Mfr	Mfr Part No.
1	C15	CAP,PE,102,5%,100V,	036-4102-0	PANASONIC	ECQB1102JF
1	C11	CAP,PE,332,5%,100V,	036-4332-0	PANASONIC	ECQB1332JF
2	C25 C27	CAP CER AXIAL,103,10%,50V,X7R	030-2103-0	KEMET	C410C103K5R5CA
1	C7	CAP,PE,473,5%,100V,	032-4473-0	PANASONIC	ECQV1473JM
1	C29	CAP,PE,104,5%,100V,	032-4104-0	PANASONIC	ECQV1104JM
3	C1 C17 C21	CAP CER AXIAL,104,10%,50V,X7R	030-2104-0	KEMET	C412C104K5R5CA
2	C5 C8	CAP,PE,224,5%,100V,	032-4224-0	PANASONIC	ECQV1224JM
2	C33 C37	CAP CER AXIAL,224,20%,50V,Z5U	030-2224-0	KEMET	C410C224M5U5CA
3	C6 C12 C14	CAP,PE,334,5%,100V,	032-4334-0	PANASONIC	ECQV1334JM
1	C13	CAP CER AXIAL,474,20%,50V,Z5U	030-2474-0	AVX	SA305E474MAA
1	C31	CAP CER AXIAL,102,10%,100V,X7R	030-4102-0	KEMET	C410C102K1R5CA
1	C2	CAP CER AXIAL,101,5%,100V,COG	030-4101-0	KEMET	C410C101J1G5CA
2	C10 C36	CAP,ELEC,RAD,107,20%,25V	031-1107-0	UNITED CHEMI-CON	SMG25VB101M6X11LL
6	C3-4 C16	CAP,ELEC,RAD, 106, 20%, 50V	031-2106-0	UNITED CHEMI-CON	SMG50VB10RM5X11LL
	C18-20				
1	C28	CAP CER AXIAL,222,10%,100V,X7R	030-2222-0	KEMET	C410C222K1R5CA
4	C30 C34-35 C39	CAP,ELEC,RAD,335,20%,50V	031-2335-0	UNITED CHEMI-CON	SMG50VB3R3M5X11LL
2	C23-24	CAP CER AXIAL, 472, 10%, 100V,,X7R	030-4472-0	KEMET	C410C472K1R5CA
1	C9	CAP CER AXIAL,471,5%,100V,NPO	030-4471-0	KEMET	C410C471J1G5CA
1	C38	CAP, ELEC, RAD, 470uF, 20%, 25V	031-1477-0	UNITED CHEMI-CON	SMG25VB101M6X11LL
2	C26 C40	CAP CER AXIAL,47PF,5%,100V,NPO	030-4470-0	KEMET	C410C470J1G5CA
1	C22	CAP CER AXIAL,561,10%,100V,X7R	030-4561-0	KEMET	C410C561K1R5CA
2	J2-3	JACK,1/4",MONO,PC,NON GROUNDING	092-0081-0	NEUTRIK	S102-84
1	J4	JACK,1/4",MONO,PC, GROUNDING	092-0082-0	NEUTRIK	S102-84G
6	D4-8 D11	1N4148, RECT-FAST, 200MA, 100V	020-1000-0	MOTOROLA	1N4148
1	D9	1N751, ZENER,5.1V,10%,400MW,DO-35	020-0050-0	NATIONAL	1N751A
2	D1-2	1N759A, ZENER,12V,5%,400MW, DO-35	020-0120-0	MOTOROLA	1N759A
1	J1	HDR,2MMX6,VERT,SHROUDED	093-2002-0	JST	B6B-PH-K-S
1	U4	DG419, Analog Switch	001-3029-0	MAXIM	DG419DJ
6	U1-3 U5-7	TL072CP, LOW NOISE JFET OPAMP	001-1030-1	MOTOROLA	TL072CP
1	D10	LED,RED/GRN,5MM,630NM/560NM	025-0012-0	STANLEY	VRPG5614S
1	D3	LED,RED, 3MM, 635NM, 6MCD, 10MA	025-0116-0	EVERLIGHT	EL204ID
1	R60	POT,2KB,7MM,KNURL,.1W	070-1522-0	SONG HUEI	16K1-B2K-L15KC
2	R9 R25	POT,50K-15A,7MM,KNURL,.1W	070-1513-0	SONG HUEI	16K1-A50K-L15KC
4	R15 R34 R43	POT,50KB,7MM,KNURL,.1W	070-1514-0	SONG HUEI	16K1-B50K-L15KC
	R52				
2	R24, R59	RES, WIRE, 0.0 Ohm, 1/8W	060-0000-0	ECI	R1 0.0 OHM
1	R2	RES, MF, 1.00M, 1%,1/8W, 060-1005-0	060-1005-0	ECI	M1F1AM001.00
1	R10	RES,METAL FILM, 1.82K, 1/8W, 1%	060-1822-0	ECI	M1F1AK001.82
5	R7 R13 R17 R35	RES,METAL FILM, 10.0K, 1/8W,1%	060-1003-0	ECI	M1F1AK010.00
	R37				
2	R11 R21	RES,METAL FILM, 100K, 1/8W, 1%	060-1004-0	ECI	M1F1AK100.00
5	R1 R39 R48 R53	RES,METAL FILM, 12.1K OHM, 1/8W, 1%	060-1213-0	ECI	M1F1AK012.10
	R65				
1	R40	RES,METAL FILM, 121K, 1/8W, 1%	060-1214-0	ECI	M1F1AK121.00
1	R16	RES,METAL FILM, 137K, 1/8W, 1%	060-1374-0	ECI	M1F1AK137.00
2	R14 R67	RES,METAL FILM, 15.0K, 1/8W, 1%	060-1503-0	ECI	M1F1AK015.00
1	R29	RES,METAL FILM, 150K, 1/8W, 1%	060-1504-0	ECI	M1F1AK150.00
1	R6	RES,METAL FILM,2.21k,1/4W,1%	052-2212-0	ECI	M2F1AK002.21
6	R4 R31 R33 R36	RES,METAL FILM, 2.21K, 1/8W, 1%	060-2212-0	ECI	M1F1AK002.21
	R38 R46				
3	R18-19 R57	RES,METAL FILM, 22.1K, 1/8W, 1%	060-2213-0	ECI	M1F1AK022.10
2	R32 R41	RES,METAL FILM, 221K, 1/8W, 1%	060-2214-0	ECI	M1F1AK221.00
1	R20	RES,METAL FILM, 3.32K, 1/8W, 1%	060-3322-0	ECI	M1F1AK003.32
1	R26	RES,METAL FILM, 3.48K, 1/8W, 1%	060-3482-0	ECI	M1F1AK003.48
1	R66	RES,METAL FILM, 3.92K, 1/8W, 1%	060-3922-0	ECI	M1F1AK003.92
5	R27-28 R42	RES,METAL FILM, 33.2K, 1/8W, 1%	060-3323-0	ECI	M1F1AK033.20
	R44-45				
1	R12	RES,METAL FILM,39.2K,1/8W,1%	060-3923-0	ECI	M1F1AK039.2
8	R3 R22 R49 R51	RES,METAL FILM, 47.5K, 1/8W, 1%	060-4753-0	ECI	M1F1AK047.50
	R61-64				
2	R47 R50	RES,METAL FILM, 475K, 1/8W, 1%	060-4754-0	ECI	M1F1AK475.00
5	R8 R54-56 R58	RES,METAL FILM, 5.62K, 1/8W, 1%	060-5622-0	ECI	M1F1AK005.62
1	R23	RES,METAL FILM, 681 ohm, 1/8W, 1%	060-6811-0	ECI	M1F1AJ681.00
1	R30	RES,METAL FILM, 750 OHM, 1/8W, 1%	060-7501-0	ECI	M1F1AJ750.00
1	R5	RES,METAL FILM, 8.25K, 1/8W, 1%	060-8252-0	ECI	M1F1AK008.25
3	S1-3	SWITCH,MIMI PP,DPDT,.1A BRK/MAKE	090-0012-0	ELKECTRONIC COMP	MTH2UEE-1D911
3	Q1-3	J113,N-JFET,35V,2MA,TO-92	010-2010-0	NATIONAL	J113

REVISION RECORD		
ECD NO:	Description Of Change	DATE:
A2	R26 to 3.48K from 6.81K	12-21-01



NOT VALID UNLESS STAMP IS RED

**gallien technology**

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

1. Change all axial ceramic caps to polyester or radial ceramic.		APPROVALS		TITLE: BACKLINE 110/112 PRE-AMP	
DESIGNED: R.A.G.	DATE: 10/01/01	INIT	DATE	DRAWING NO: 406-0150-B	REV.
DRAWN: R.A.G.	DATE: 5/28/02			PART NO: 206-0150-B	B
ELEC:				COMPANY: GALLIEN-KRUEGER	
MECH:				FILENAME: 6150B	
Q/A:					
RELEASED:					

# GK GALLIEN-KRUEGER

Backline 112 Preamp 206-0150-B

Part No.	Reference	Description	Manufacturer	Mfr. Part No.
001-1030-1	U1-3 U5-7	TLO72CP, LOW NOISE JFET OPAMP	MOTOROLA	TL072CP
001-3029-0	U4	DG419, Analog Switch	MAXIM	DG419DJ
010-2010-0	Q1-3	J113,N-JFET,35V,2MA,TO-92	NATIONAL	J113
020-0050-0	D9	1N751, ZENER,5.1V,10%,400MW,DO-35	NATIONAL	1N751
020-0120-0	D1-2	1N759A, ZENER,12V,5%,400MW, DO-35	MOTOROLA	1N759A
020-1000-0	D4-8 D10	1N4148, RECT-FAST, 200MA, 100V	MOTOROLA	1N4148
025-0012-0	D11	LED,RED/GRN,5MM,630NM/560NM,15MCD/15M	STANLEY	VRPG5614S
025-0116-0	D3	LED,RED, 3MM, 635NM, 6MCD, 10MA, 40DEG	EVERLIGHT	EL2041D
031-1107-0	C10 C36	CAP,ELEC,RAD,107,20%,25V	UNITED CHEMI-CON	SMG25VB101M6X11LL
031-1477-0	C38	CAP, ELEC, RAD, 470uF, 20%, 25V	UNITED CHEMI-CON	SMG25VB471M10X12LL
031-2106-0	C3-4 C16 C18-20	CAP,ELEC,RAD, 106, 20%, 50V	UNITED CHEMI-CON	SMG50VB10RM5X11LL
031-2335-0	C30 C33-35	CAP,ELEC,RAD,335,20%,50V	UNITED CHEMI-CON	SMG50VB3R3M5X11LL
032-4102-0	C15 C31	CAP,PE,102,5%,100V,	PANASONIC	ECQB1102JF
032-4103-0	C26-27	CAP,PE,103,5%,100V,	PANASONIC	ECQV1103JM
032-4104-0	C1 C17 C21 C29	CAP,PE,104,5%,100V,	PANASONIC	ECQV1104JM
032-4222-0	C28	CAP,PE,222,5%,100V,	PANASONIC	ECQB1222JF
032-4224-0	C5 C8 C32 C37	CAP,PE,224,5%,100V,	PANASONIC	ECQV1224JM
032-4332-0	C11	CAP,PE,332,5%,100V,	PANASONIC	ECQB1332JF
032-4334-0	C6 C12 C14	CAP,PE,334,5%,100V,	PANASONIC	ECQV1334JM
032-4472-0	C23-24	CAP,PE,472,5%,100V,	PANASONIC	ECQB1472JF
032-4473-0	C7	CAP,PE,473,5%,100V,	PANASONIC	ECQV1473JM
032-4474-0	C13	CAP,PE,474,5%,100V,	PANASONIC	ECQV1474JM
034-4101-0	C2	CAP,MCR,100pF,5%,100V,	TAITRON	TMRS101J100NPOB
034-4470-0	C25 C39	CAP,MCR,47PF,5%,100V,NPO	TAITRON	TMRS470J100NPOB
034-4471-0	C9	CAP,MCR,470pF,5%,100V,	TAITRON	TMRS471J100NPOB
034-4561-0	C22	CAP,MCR,560pF,5%,100V,	TAITRON	TMRS561J100NPOB
052-2212-0	R6	RES,METAL FILM,2.21k,1/4W,1%	ECI	M2F1AK002.21
060-1003-0	R7 R13 R17 R34	RES,METAL FILM, 10.0K, 1/8W,1%	ECI	M1F1AK010.00
060-1004-0	R11 R20	RES,METAL FILM, 100K, 1/8W, 1%	ECI	M1F1AK100.00
060-1005-0	R2	RES, MF, 1.00M, 1%,1/8W, 060-1005-0	ECI	M1F1AM001.00
060-1212-0	R63	RES,METAL FILM, 1.21K, 1/8W, 1%	ECI	M1F1AK001.21
060-1213-0	R1 R38 R47 R50 R62	RES,METAL FILM, 12.1K OHM, 1/8W, 1%	ECI	M1F1AK012.10
060-1214-0	R39	RES,METAL FILM, 121K, 1/8W, 1%	ECI	M1F1AK121.00
060-1374-0	R16	RES,METAL FILM, 137K, 1/8W, 1%	ECI	M1F1AK137.00
060-1503-0	R14 R65	RES,METAL FILM, 15.0K, 1/8W, 1%	ECI	M1F1AK015.00
060-1504-0	R28	RES,METAL FILM, 150K, 1/8W, 1%	ECI	M1F1AK150.00
060-1822-0	R10	RES,METAL FILM, 1.82K, 1/8W, 1%	ECI	M1F1AK001.82
060-2211-0	R29	RES,METAL FILM, 221 ohm, 1/8W, 1%	ECI	M1F1AJ221.00
060-2212-0	R4 R30 R33 R36-37 R45	RES,METAL FILM, 2.21K, 1/8W, 1%	ECI	M1F1AK002.21
060-2213-0	R18-19 R56	RES,METAL FILM, 22.1K, 1/8W, 1%	ECI	M1F1AK022.10
060-2214-0	R31 R40	RES,METAL FILM, 221K, 1/8W, 1%	ECI	M1F1AK221.00
060-3012-0	R32	RES,METAL FILM, 3.01K, 1/8W, 1%	ECI	M1F1AK003.01
060-3322-0	R21	RES,METAL FILM, 3.32K, 1/8W, 1%	ECI	M1F1AK003.32
060-3323-0	R26-27 R41-42 R44	RES,METAL FILM, 33.2K, 1/8W, 1%	ECI	M1F1AK033.20
060-3482-0	R23	RES,METAL FILM, 3.48K, 1/8W, 1%	ECI	M1F1AK003.48
060-3923-0	R12	RES,METAL FILM,39.2K,1/8W,1%	ECI	M1F1AK039.2
060-4753-0	R3 R48 R51 R58-59 R61 R	RES,METAL FILM, 47.5K, 1/8W, 1%	ECI	M1F1AK047.50
060-4754-0	R46 R49	RES,METAL FILM, 475K, 1/8W, 1%	ECI	M1F1AK475.00
060-5622-0	R8 R53-55 R57	RES,METAL FILM, 5.62K, 1/8W, 1%	ECI	M1F1AK005.62
060-6811-0	R22	RES,METAL FILM, 681 ohm, 1/8W, 1%	ECI	M1F1AJ681.00
060-8252-0	R5	RES,METAL FILM, 8.25K, 1/8W, 1%	ECI	M1F1AK008.25
062-0000-0	R25	RES, WIRE, 0.0 Ohm, 1/8W	ECI	R1 0.0 OHM
070-1513-0	R9 R24	POT,50K-15A,7MM,KNURL,.1W	SONG HUEI	16K1-A50K-L15KC
070-1514-0	R15 R35 R43 R52	POT,50KB,7MM,KNURL,.1W	SONG HUEI	16K1-B50K-L15KC
070-1522-0	R60	POT,2KB,7MM,KNURL,.1W	SONG HUEI	16K1-B2K-L15KC
090-0012-0	S1-3	SWITCH,MIMI PP,DPDT,.1A BRK/MAKE,PC TER	ELKECTRONIC COMP	MTH2UEE-1D911
092-0081-0	J2-4	JACK,1/4",MONO,PC,NON GROUNDING	NEUTRIK	S102-84
093-2002-0	J1	HDR,2MMX6,VERT,SHROUDED	JST	B6B-PH-K-S

PCB WORK INSTRUCTIONS

DWG #420-0150-B

NOTES:

UNLESS OTHERWISE SPECIFIED:

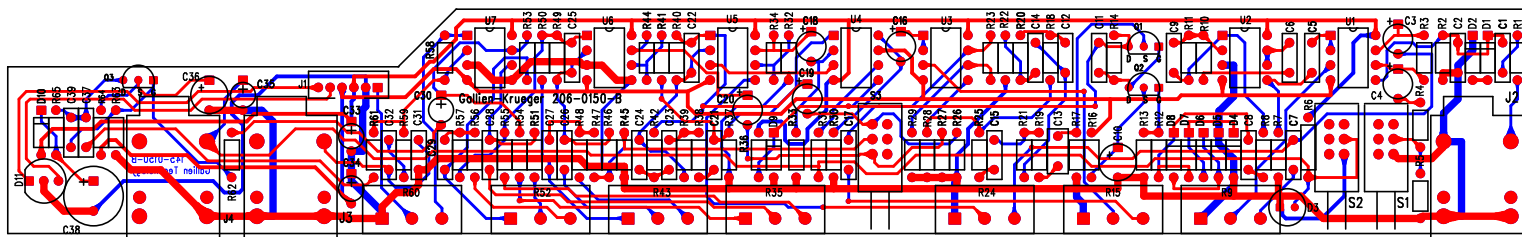
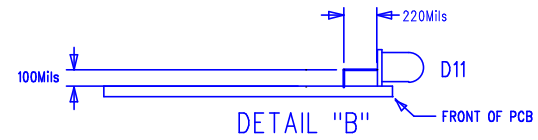
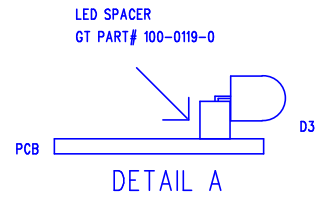
1. SQUARE PADS ON THRU HOLE PARTS (ie: CONNECTORS, DIPS, SIPS, LEDES) DENOTE PIN 1.
2. ALL BOARDS REQUIRE A COMPLETE AND THOROUGH VISUAL INSPECTIONS.
3. ALL BOARDS MUST BE BARE BOARD TESTED.
4. ASSEMBLE AND SOLDER PER ANSI/IPC-A-610B.

LOADING

5. CLIP BUSHING TABS OFF ON POTS 15, 25, 36, 44, 53, 61
6. SEE DETAIL A FOR MOUNTING D3
7. SEE DETAIL "B" FOR MOUNTING D11

FINAL QA

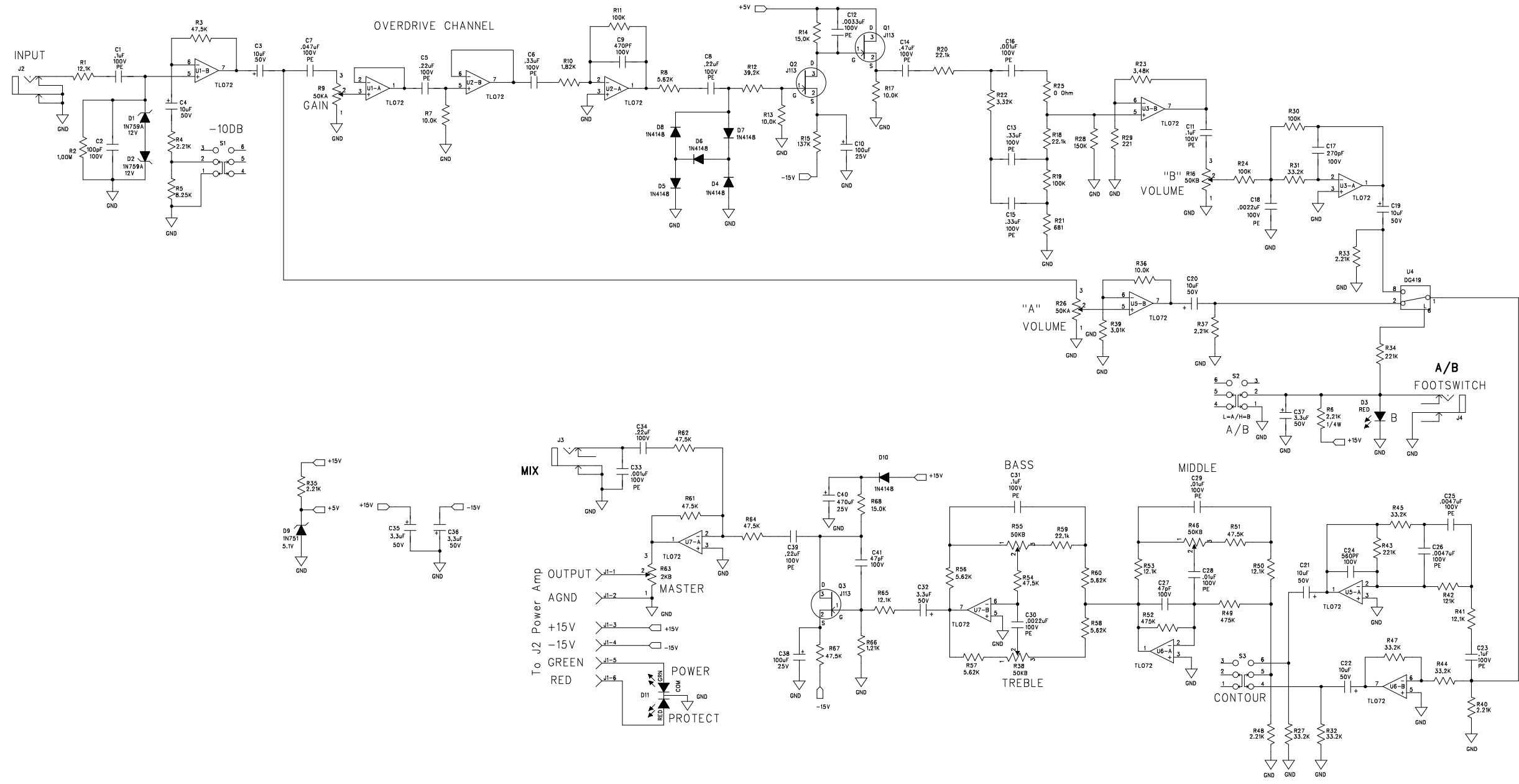
8. CHECK TO SEE ALL POTS, JACKS, AND SWITCHES ARE MOUNTED FLUSH AND STRAIGHT



NOT VALID UNLESS STAMP IS RED	<b>gallien technology</b>		2240 PARAGON DRIVE SAN JOSE, CA, 95131 VOICE: 408-441-8081 FAX: 408-441-8085	
	APPROVALS		TITLE: BACKLINE 112 PREAMP BD	
Put notch in board for transformer.	INIT	DATE	SIZE	DRAWING NO: 405-0150-B
	DESIGNED: R.A.G.	10/01/01	B	PART NO: 145-0150-B
	DRAWN: R.A.G.	11/13/01		REV. B
ELEC:				
LAYER DESCRIPTION:	MECH:		COMPANY: GALLIEN-KRUEGER	
<b>TOP SIDE BAKERSCREEN</b>	GERBER FILE NAME: sot026prph		FILENAME: 5150B	



REVISION RECORD		
ECD NO:	Description Of Change	DATE:
A2	R26 to 3.48K from 6.81K	12-21-01



NOT VALID UNLESS STAMP IS RED

**gallien technology**

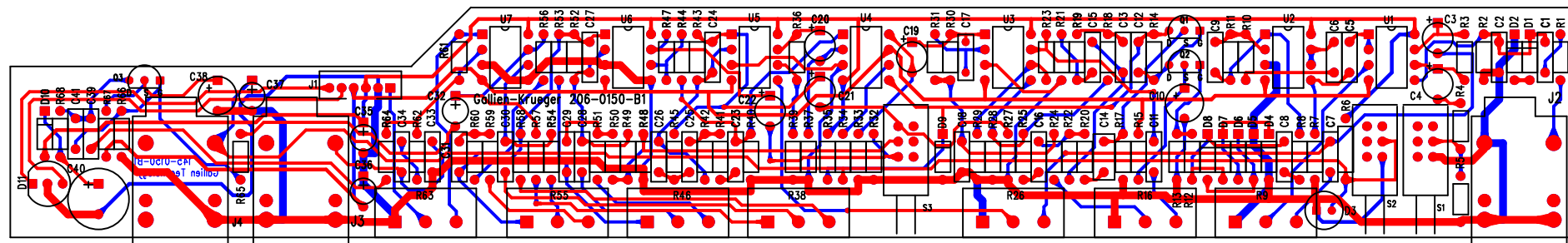
2240 PARAGON DRIVE  
SAN JOSE CA. 95131  
VOICE: 408-441-8081  
FAX: 408-441-8085

1. ADD CAB SIMULATOR CKT TO USA.		APPROVALS		TITLE: BACKLINE 110/112 PRE-AMP	
INIT	DATE				
DESIGNED: R.A.G.	10/01/01			DRAWING NO: 406-0150-B1	REV. B1
DRAWN: R.A.G.	8/28/02			PART NO: 206-0150-B1	
ELEC:					
MECH:				COMPANY: GALLIEN-KRUEGER	
D/A:				FILENAME: 6150B1	
RELEASED:					

# GK GALLIEN-KRUEGER

Backline 112 Preamp 206-0150-B1

Part No.	Reference	Description	Manufacturer	Mfr. Part No.
001-1030-1	U1-3 U5-7	TLO72CP, LOW NOISE JFET OPAMP	MOTOROLA	TL072CP
001-3029-0	U4	DG419, Analog Switch	MAXIM	DG419DJ
010-2010-0	Q1-3	J113,N-JFET,35V,2MA,TO-92	NATIONAL	J113
020-0050-0	D9	1N751, ZENER,5.1V,10%,400MW,DO-35	NATIONAL	1N751
020-0120-0	D1-2	1N759A, ZENER,12V,5%,400MW, DO-35	MOTOROLA	1N759A
020-1000-0	D4-8 D10	1N4148, RECT-FAST, 200MA, 100V	MOTOROLA	1N4148
025-0012-0	D11	LED,RED/GRN,5MM,630NM/560NM,15MCD	STANLEY	VRPG5614S
025-0116-0	D3	LED,RED, 3MM, 635NM, 6MCD, 10MA	EVERLIGHT	EL2041D
031-1107-0	C10 C38	CAP,ELEC,RAD,107,20%,25V	UNITED CHEMI-CON	SMG25VB101M6X11LL
031-1477-0	C40	CAP, ELEC, RAD, 470uF, 20%, 25V	UNITED CHEMI-CON	SMG25VB471M10X12LL
031-2106-0	C3-4 C19-22	CAP,ELEC,RAD, 106, 20%, 50V	UNITED CHEMI-CON	SMG50VB10RM5X11LL
031-2335-0	C32 C35-37	CAP,ELEC,RAD,335,20%,50V	UNITED CHEMI-CON	SMG50VB3R3M5X11LL
032-4102-0	C16 C33	CAP,PE,102,5%,100V,	PANASONIC	ECQB1102JF
032-4103-0	C28-29	CAP,PE,103,5%,100V,	PANASONIC	ECQV1103JM
032-4104-0	C1 C11 C23 C31	CAP,PE,104,5%,100V,	PANASONIC	ECQV1104JM
032-4222-0	C18 C30	CAP,PE,222,5%,100V,	PANASONIC	ECQB1222JF
032-4224-0	C5 C8 C34 C39	CAP,PE,224,5%,100V,	PANASONIC	ECQV1224JM
032-4332-0	C12	CAP,PE,332,5%,100V,	PANASONIC	ECQB1332JF
032-4334-0	C6 C13 C15	CAP,PE,334,5%,100V,	PANASONIC	ECQV1334JM
032-4472-0	C25-26	CAP,PE,472,5%,100V,	PANASONIC	ECQB1472JF
032-4473-0	C7	CAP,PE,473,5%,100V,	PANASONIC	ECQV1473JM
032-4474-0	C14	CAP,PE,474,5%,100V,	PANASONIC	ECQV1474JM
034-4101-0	C2	CAP,MCR,100pF,5%,100V,	TAITRON	TMRS101J100NPOB
034-4271-0	C17	CAP,MCR,270pF,5%,100V,	TAITRON	TMRS271J100NPOB
034-4470-0	C27 C41	CAP,MCR,47PF,5%,100V,NPO	TAITRON	TMRS470J100NPOB
034-4471-0	C9	CAP,MCR,470pF,5%,100V,	TAITRON	TMRS471J100NPOB
034-4561-0	C24	CAP,MCR,560pF,5%,100V,	TAITRON	TMRS561J100NPOB
052-2212-0	R6	RES,METAL FILM, 2.21K,1/4W,1%	ECI	M2F1AK002.21
060-1003-0	R7 R13 R17 R36	RES,METAL FILM, 10.0K, 1/8W,1%	ECI	M1F1AK010.00
060-1004-0	R11 R19 R24 R30	RES,METAL FILM, 100K, 1/8W, 1%	ECI	M1F1AK100.00
060-1005-0	R2	RES,METAL FILM, 1.00M, 1/8W,1%	ECI	M1F1AM001.00
060-1212-0	R66	RES,METAL FILM, 1.21K, 1/8W, 1%	ECI	M1F1AK001.21
060-1213-0	R1 R41 R50 R53 R65	RES,METAL FILM, 12.1K, 1/8W, 1%	ECI	M1F1AK012.10
060-1214-0	R42	RES,METAL FILM, 121K, 1/8W, 1%	ECI	M1F1AK121.00
060-1374-0	R15	RES,METAL FILM, 137K, 1/8W, 1%	ECI	M1F1AK137.00
060-1503-0	R14 R68	RES,METAL FILM, 15.0K, 1/8W, 1%	ECI	M1F1AK015.00
060-1504-0	R28	RES,METAL FILM, 150K, 1/8W, 1%	ECI	M1F1AK150.00
060-1822-0	R10	RES,METAL FILM, 1.82K, 1/8W, 1%	ECI	M1F1AK001.82
060-2211-0	R29	RES,METAL FILM, 221, 1/8W, 1%	ECI	M1F1AJ221.00
060-2212-0	R4,33,35,37,40,48	RES,METAL FILM, 2.21K, 1/8W, 1%	ECI	M1F1AK002.21
060-2213-0	R18 R20 R59	RES,METAL FILM, 22.1K, 1/8W, 1%	ECI	M1F1AK022.10
060-2214-0	R34 R43	RES,METAL FILM, 221K, 1/8W, 1%	ECI	M1F1AK221.00
060-3012-0	R39	RES,METAL FILM, 3.01K, 1/8W, 1%	ECI	M1F1AK003.01
060-3322-0	R22	RES,METAL FILM, 3.32K, 1/8W, 1%	ECI	M1F1AK003.32
060-3323-0	R27,31,32,44,45,47	RES,METAL FILM, 33.2K, 1/8W, 1%	ECI	M1F1AK033.20
060-3482-0	R23	RES,METAL FILM, 3.48K, 1/8W, 1%	ECI	M1F1AK003.48
060-3923-0	R12	RES,METAL FILM, 39.2K,1/8W,1%	ECI	M1F1AK039.2
060-4753-0	R3,51,54,61,62,64,67	RES,METAL FILM, 47.5K, 1/8W, 1%	ECI	M1F1AK047.50
060-4754-0	R49 R52	RES,METAL FILM, 475K, 1/8W, 1%	ECI	M1F1AK475.00
060-5622-0	R8 R56-58 R60	RES,METAL FILM, 5.62K, 1/8W, 1%	ECI	M1F1AK005.62
060-6811-0	R21	RES,METAL FILM, 681 ohm, 1/8W, 1%	ECI	M1F1AJ681.00
060-8252-0	R5	RES,METAL FILM, 8.25K, 1/8W, 1%	ECI	M1F1AK008.25
062-0000-0	R25	RES, WIRE, 0.0 Ohm, 1/8W	ECI	R1 0.0 OHM
070-1513-0	R9 R26	POT,50K-15A,7MM,KNURL	SONG HUEI	16K1-A50K-L15KC
070-1514-0	R16 R38 R46 R55	POT,50KB,7MM,KNURL	SONG HUEI	16K1-B50K-L15KC
070-1522-0	R63	POT,2KB,7MM,KNURL	SONG HUEI	16K1-B2K-L15KC
090-0012-0	S1-3	SWITCH,MIMI PP,DPDT,.1A BRK/MAKE	ELKECTRONIC COMP	MTH2UEE-1D911
092-0081-0	J2-4	JACK,1/4",MONO,PC,NON GROUNDING	NEUTRIK	S102-84
093-2002-0	J1	HDR,2MMX6,VERT,SHROUDED	JST	B6B-PH-K-S



PCB WORK INSTRUCTIONS

DWG #420-0150-B1

NOTES:

UNLESS OTHERWISE SPECIFIED:

1. SQUARE PADS ON THRU HOLE PARTS (ie: CONNECTORS, DIPS, SIPS, LEDES) DENOTE PIN 1.
2. ALL BOARDS REQUIRE A COMPLETE AND THOROUGH VISUAL INSPECTIONS.
3. ALL BOARDS MUST BE BARE BOARD TESTED.
4. ASSEMBLE AND SOLDER PER ANSI/IPC-A-610B.

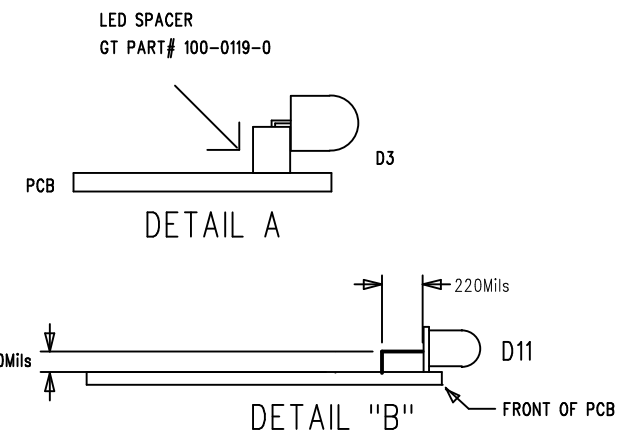
LOADING

5. CLIP BUSHING TABS OFF ON POTS R9, 16, 26, 38, 46, 55, 63
6. SEE DETAIL A FOR MOUNTING D3
7. SEE DETAIL "B" FOR MOUNTING D11

FINAL QA

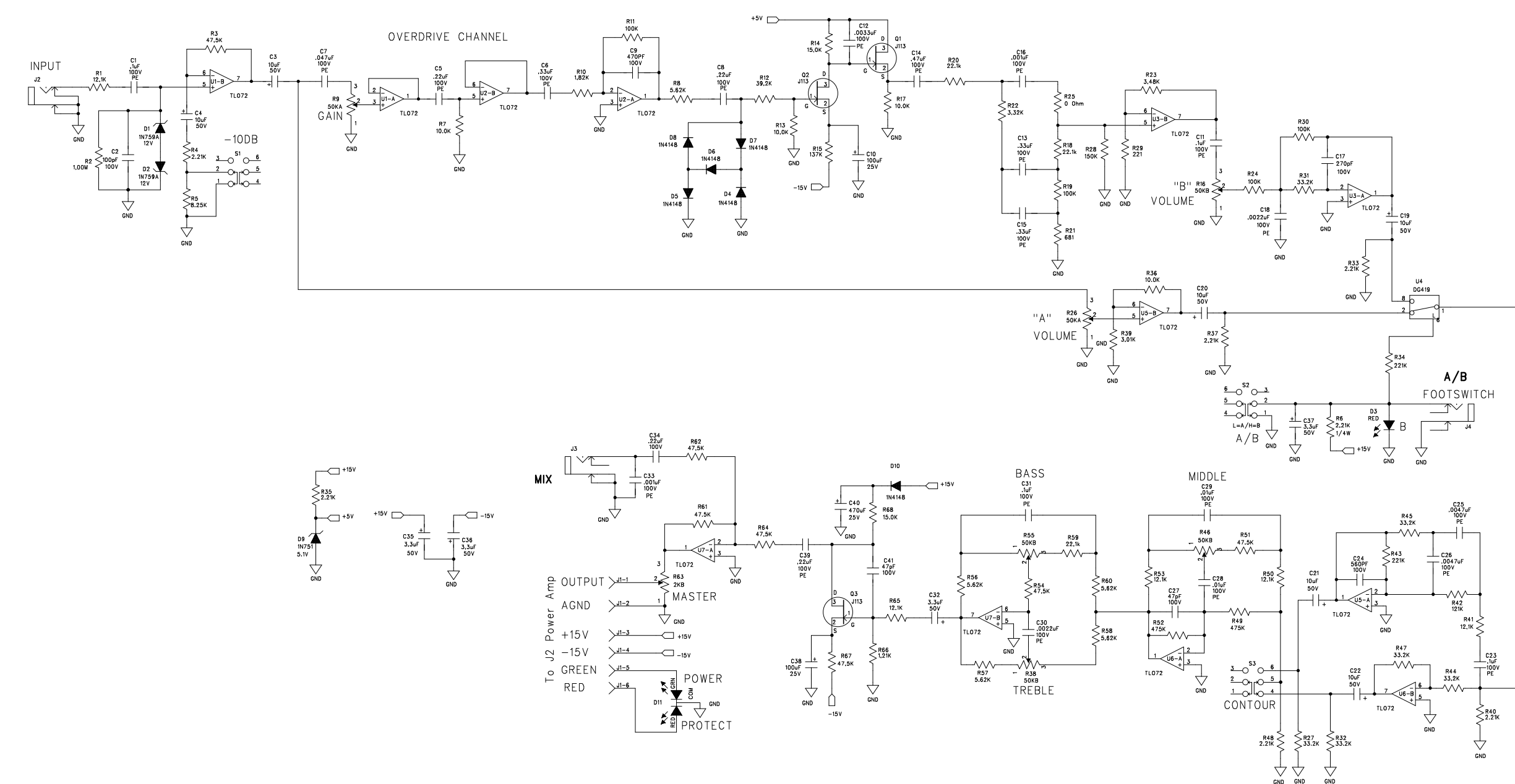
8. CHECK TO SEE ALL POTS, JACKS, AND SWITCHES ARE MOUNTED FLUSH AND STRAIGHT

NOT VALID UNLESS STAMP IS RED			2240 PARAGON DRIVE SAN JOSE CA. 95131 VOICE: 408-441-8081 FAX: 408-441-8085	
			TITLE: BACKLINE 112 PREAMP BD	
Put notch in board for transformer.	APPROVALS		SIZE	REV.
	INIT	DATE	DRAWING NO:	B1
	DESIGNED: R.A.G.	10/01/01	405-0150-B1	
	DRAWN: R.A.G.	9/3/02	PART NO:	145-0150-B1
ELEC:				
LAYER DESCRIPTION:	MECH:	COMPANY: GALLIEN-KRUEGER		
TOP SIDE SOLDERGREEN	GERBER FILE NAME:	FILENAME: 5150B1		
		sort026rpho		



Customer Name:	<b>Gallien-Krueger</b>	Current Rev #:	<b>A3</b>	New ECO Rev #:	<b>B2</b>
Model:	Backline 110/112			Page:	1 Of: 1
Assembly Description:	Backline 110/112 preamp	Originator:	R. Gallien		
Assembly Numbers:	206-0150-B2	Approved by:			
		Effective Date:	9/10/2002		
Effective		Document Update		Date	Initials
<input type="checkbox"/>	All in Process	<input checked="" type="checkbox"/>	Next Buy		
<input type="checkbox"/>	All in Service	<input checked="" type="checkbox"/>	Next Production Run		
<input type="checkbox"/>	All in Stock	<input type="checkbox"/>			
Beginning Serial Number:		<input checked="" type="checkbox"/>	BOM	8/28/2002	RAG
Reason For Change		<input type="checkbox"/>	Control Form		
B -Change all axial ceramic caps to polyester.		<input type="checkbox"/>	Costing		
Enlarge transformer notch.		<input type="checkbox"/>	Fab Drawing		
Increase post Volume gain on Channel B.		<input type="checkbox"/>	Inspection Proc.		
Increase post Volume gain on Channel A.		<input checked="" type="checkbox"/>	Part Master File		RAG
Reduce post EQ gain before Boost.		<input checked="" type="checkbox"/>	Schematic	8/28/2002	RAG
Increase Pre Volume-A gain.		<input type="checkbox"/>	Service Manual		
Updated A3 changes to board layout.		<input checked="" type="checkbox"/>	Test Procedure		Noli
B1-Add cabinet simulator circuits.		<input type="checkbox"/>			
B2-Add pots with support brackets.		<input type="checkbox"/>			
Other Affected Assemblies					
290-0200,303-2200,303-0200					
303-1200					
<input type="checkbox"/>	Continued on ECO Supplement Page				
Description Of Change		Distribution		Date	Initials
B -Set R29=221.		<input type="checkbox"/>	Accounting		
Set R32=3.01K		<input type="checkbox"/>	Assembly		
Set R63=1.21K		<input type="checkbox"/>	Customer		
Delete R22 (as on Rev A3).		<input checked="" type="checkbox"/>	Engineering		
B1-Add R24,30,31,C17,18.		<input checked="" type="checkbox"/>	Incoming Q.C.		
B2-Change layout to accommodate pot brackets.		<input type="checkbox"/>	Planning		
		<input checked="" type="checkbox"/>	Production Eng.		
		<input checked="" type="checkbox"/>	Purchasing		
		<input type="checkbox"/>	Q.A.		
		<input type="checkbox"/>	Receiving		
		<input checked="" type="checkbox"/>	Service		
		<input checked="" type="checkbox"/>	Test		
Use B2 BOM.		<input type="checkbox"/>	Vendor		
		<input type="checkbox"/>			
		<input type="checkbox"/>			
<input type="checkbox"/>	Continued on ECO Supplement Page		<input type="checkbox"/> Drawing(s) attached		
Part Number	Description	Parts Added		Parts Deleted	
		Qty	Ref. Designator	Qty	Ref. Designator

REVISION RECORD		
ECD NO:	Description Of Change	DATE:
A2	R26 to 3.48K from 6.81K	12-21-01



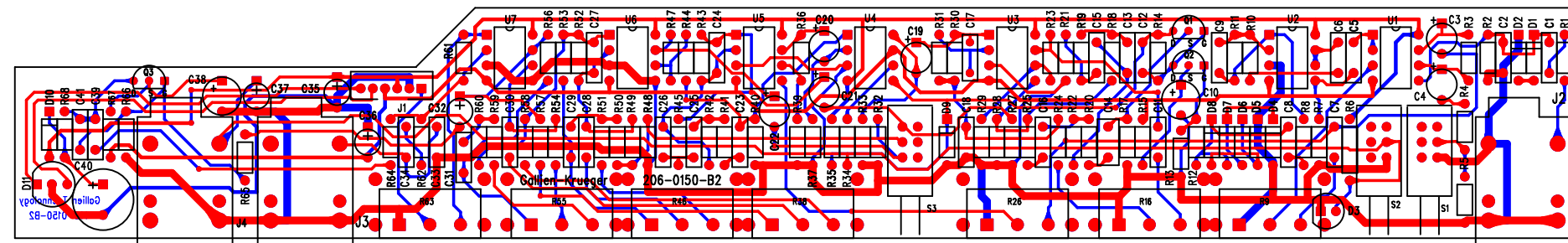
NOT VALID UNLESS STAMP IS RED

**gallien technology**

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

L. CHANGE ALL POTS TO BRACKET STYLE.		APPROVALS		TITLE: BACKLINE 110/112 PRE-AMP	
INIT	DATE				
DESIGNED: R.A.G.	10/01/01			DRAWING NO: 406-0150-B2	REV. B2
DRAWN: R.A.G.	9/10/02			PART NO: 206-0150-B2	
ELEC:				COMPANY: GALLIEN-KRUEGER	
MECH:				FILENAME: 6150B2	
Q/A:					
RELEASED:					

Part No.	Reference	Description	Manufacturer	Mfr. Part No.
001-1030-1	U1-3 U5-7	TLO72CP, LOW NOISE JFET OPAMP	MOTOROLA	TLO72CP
001-3029-0	U4	DG419, Analog Switch	MAXIM	DG419DJ
010-2010-0	Q1-3	J113,N-JFET,35V,2MA,TO-92	NATIONAL	J113
020-0050-0	D9	1N751, ZENER,5.1V,10%,400MW,DO-35	NATIONAL	1N751
020-0120-0	D1-2	1N759A, ZENER,12V,5%,400MW, DO-35	MOTOROLA	1N759A
020-1000-0	D4-8 D10	1N4148, RECT-FAST, 200MA, 100V	MOTOROLA	1N4148
025-0012-0	D11	LED,RED/GRN,5MM,630NM/560NM,15MCD	STANLEY	VRPG5614S
025-0116-0	D3	LED,RED, 3MM, 635NM, 6MCD, 10MA	EVERLIGHT	EL2041D
031-1107-0	C10 C38	CAP,ELEC,RAD,107,20%,25V	UNITED CHEMI-CON	SMG25VB101M6X11LL
031-1477-0	C40	CAP, ELEC, RAD, 470uF, 20%, 25V	UNITED CHEMI-CON	SMG25VB471M10X12LL
031-2106-0	C3-4 C19-22	CAP,ELEC,RAD, 106, 20%, 50V	UNITED CHEMI-CON	SMG50VB10RM5X11LL
031-2335-0	C32 C35-37	CAP,ELEC,RAD,335,20%,50V	UNITED CHEMI-CON	SMG50VB3R3M5X11LL
032-4102-0	C16 C33	CAP,PE,102,5%,100V,	PANASONIC	ECQB1102JF
032-4103-0	C28-29	CAP,PE,103,5%,100V,	PANASONIC	ECQV1103JM
032-4104-0	C1 C11 C23 C31	CAP,PE,104,5%,100V,	PANASONIC	ECQV1104JM
032-4222-0	C18 C30	CAP,PE,222,5%,100V,	PANASONIC	ECQB1222JF
032-4224-0	C5 C8 C34 C39	CAP,PE,224,5%,100V,	PANASONIC	ECQV1224JM
032-4332-0	C12	CAP,PE,332,5%,100V,	PANASONIC	ECQB1332JF
032-4334-0	C6 C13 C15	CAP,PE,334,5%,100V,	PANASONIC	ECQV1334JM
032-4472-0	C25-26	CAP,PE,472,5%,100V,	PANASONIC	ECQB1472JF
032-4473-0	C7	CAP,PE,473,5%,100V,	PANASONIC	ECQV1473JM
032-4474-0	C14	CAP,PE,474,5%,100V,	PANASONIC	ECQV1474JM
034-4101-0	C2	CAP,MCR,100pF,5%,100V,	TAITRON	TMRS101J100NPOB
034-4271-0	C17	CAP,MCR,270pF,5%,100V,	TAITRON	TMRS271J100NPOB
034-4470-0	C27 C41	CAP,MCR,47PF,5%,100V,NPO	TAITRON	TMRS470J100NPOB
034-4471-0	C9	CAP,MCR,470pF,5%,100V,	TAITRON	TMRS471J100NPOB
034-4561-0	C24	CAP,MCR,560pF,5%,100V,	TAITRON	TMRS561J100NPOB
052-2212-0	R6	RES,METAL FILM, 2.21k,1/4W,1%	ECI	M2F1AK002.21
060-1003-0	R7 R13 R17 R36	RES,METAL FILM, 10.0K, 1/8W,1%	ECI	M1F1AK010.00
060-1004-0	R11 R19 R24 R30	RES,METAL FILM, 100K, 1/8W, 1%	ECI	M1F1AK100.00
060-1005-0	R2	RES,METAL FILM, 1.00M, 1/8W,1%	ECI	M1F1AM001.00
060-1212-0	R66	RES,METAL FILM, 1.21K, 1/8W, 1%	ECI	M1F1AK001.21
060-1213-0	R1 R41 R50 R53 R65	RES,METAL FILM, 12.1K, 1/8W, 1%	ECI	M1F1AK012.10
060-1214-0	R42	RES,METAL FILM, 121K, 1/8W, 1%	ECI	M1F1AK121.00
060-1374-0	R15	RES,METAL FILM, 137K, 1/8W, 1%	ECI	M1F1AK137.00
060-1503-0	R14 R68	RES,METAL FILM, 15.0K, 1/8W, 1%	ECI	M1F1AK015.00
060-1504-0	R28	RES,METAL FILM, 150K, 1/8W, 1%	ECI	M1F1AK150.00
060-1822-0	R10	RES,METAL FILM, 1.82K, 1/8W, 1%	ECI	M1F1AK001.82
060-2211-0	R29	RES,METAL FILM, 221, 1/8W, 1%	ECI	M1F1AJ221.00
060-2212-0	R4,33,35,37,40,48	RES,METAL FILM, 2.21K, 1/8W, 1%	ECI	M1F1AK002.21
060-2213-0	R18 R20 R59	RES,METAL FILM, 22.1K, 1/8W, 1%	ECI	M1F1AK022.10
060-2214-0	R34 R43	RES,METAL FILM, 221K, 1/8W, 1%	ECI	M1F1AK221.00
060-3012-0	R39	RES,METAL FILM, 3.01K, 1/8W, 1%	ECI	M1F1AK003.01
060-3322-0	R22	RES,METAL FILM, 3.32K, 1/8W, 1%	ECI	M1F1AK003.32
060-3323-0	R27,31,32,44,45,47	RES,METAL FILM, 33.2K, 1/8W, 1%	ECI	M1F1AK033.20
060-3482-0	R23	RES,METAL FILM, 3.48K, 1/8W, 1%	ECI	M1F1AK003.48
060-3923-0	R12	RES,METAL FILM, 39.2K,1/8W,1%	ECI	M1F1AK039.2
060-4753-0	R3,51,54,61,62,64,67	RES,METAL FILM, 47.5K, 1/8W, 1%	ECI	M1F1AK047.50
060-4754-0	R49 R52	RES,METAL FILM, 475K, 1/8W, 1%	ECI	M1F1AK475.00
060-5622-0	R8 R56-58 R60	RES,METAL FILM, 5.62K, 1/8W, 1%	ECI	M1F1AK005.62
060-6811-0	R21	RES,METAL FILM, 681 ohm, 1/8W, 1%	ECI	M1F1AJ681.00
060-8252-0	R5	RES,METAL FILM, 8.25K, 1/8W, 1%	ECI	M1F1AK008.25
062-0000-0	R25	RES, WIRE, 0.0 Ohm, 1/8W	ECI	R1 0.0 OHM
070-1513-0	R9 R26	POT,50K-15A,7MMB,KNURL,BRACKET	SONG HUEI	16K1-A50K-L15KC
070-1514-0	R16 R38 R46 R55	POT,50KB,7MMB,KNURL,BRACKET	SONG HUEI	16K1-B50K-L15KC
070-1522-0	R63	POT,2KB,7MMB,KNURL,BRACKET	SONG HUEI	16K1-B2K-L15KC
090-0012-0	S1-3	SWITCH,MIMI PP,DPDT,1A BRK/MAKE	ELKELECTRONIC COMP	MTH2UEE-1D911
092-0081-0	J2-4	JACK,1/4",MONO,PC,NON GROUNDING	NEUTRIK	S102-84
093-2002-0	J1	HDR,2MMX6,VERT,SHROUDED	JST	B6B-PH-K-S



PCB WORK INSTRUCTIONS

DWG #420-0150-B2

NOTES:

UNLESS OTHERWISE SPECIFIED:

1. SQUARE PADS ON THRU HOLE PARTS (ie: CONNECTORS, DIPS, SIPS, LEDS) DENOTE PIN 1.
2. ALL BOARDS REQUIRE A COMPLETE AND THOROUGH VISUAL INSPECTIONS.
3. ALL BOARDS MUST BE BARE BOARD TESTED.
4. ASSEMBLE AND SOLDER PER ANSI/IPC-A-610B.

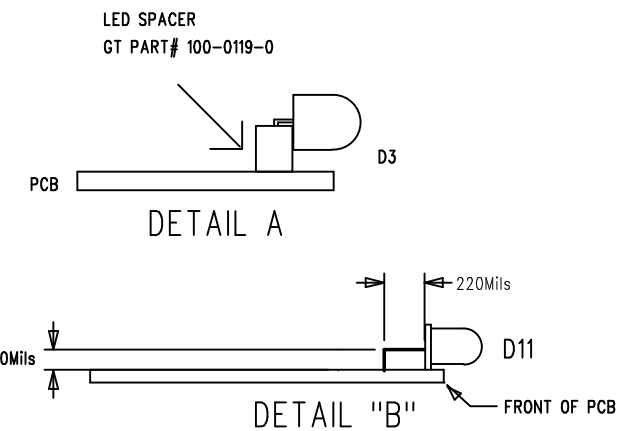
LOADING

5. CLIP BUSHING TABS OFF ON POTS R9, 16, 26, 38, 46, 55, 63
6. SEE DETAIL A FOR MOUNTING D3
7. SEE DETAIL "B" FOR MOUNTING D11
8. CLIP BRACKET FROM RIGHT SIDE OF R9 TO CLEAR D3.

FINAL QA

8. CHECK TO SEE ALL POTS, JACKS, AND SWITCHES ARE MOUNTED FLUSH AND STRAIGHT

NOT VALID UNLESS STAMP IS RED	<b>gallien technology</b>		2240 PARAGON DRIVE SAN JOSE CA. 95131 VOICE: 408-441-8081 FAX: 408-441-8085	
	APPROVALS		TITLE: BACKLINE 112 PREAMP BD	
Put notch in board for transformer.	INIT	DATE	SIZE	DRAWING NO: 405-0150-B2
	DESIGNED: R.A.G.	10/01/01	B	REV. B2
	DRAWN: R.A.G.	9/10/02	PART NO: 145-0150-B2	
ELEC:			COMPANY: GALLIEN-KRUEGER	
LAYER DESCRIPTION: <b>TOP SIDE SOLDERSCREEN</b>	MECH:	FILENAME: 5150B2		
GERBER FILE NAME: sot026rpho				



Customer Name:	Gallien-Krueger	Current Rev #:		New ECO Rev #:	A
Model:	Backline 110/112			Page:	1 Of: 1
Assembly Description:	Preamp Assembly	Originator:	Bob Gallien		
Assembly Numbers:	206-0191-A	Approved by:			
		Effective Date:	12/6/2002		

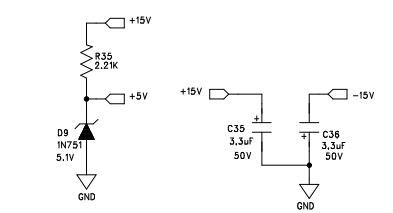
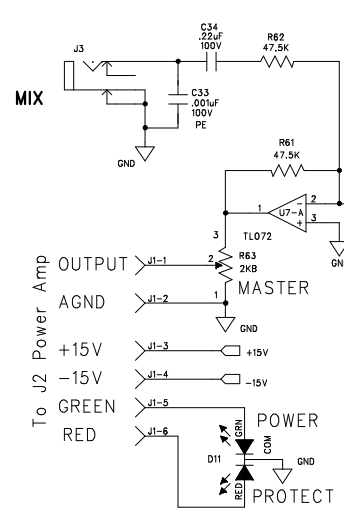
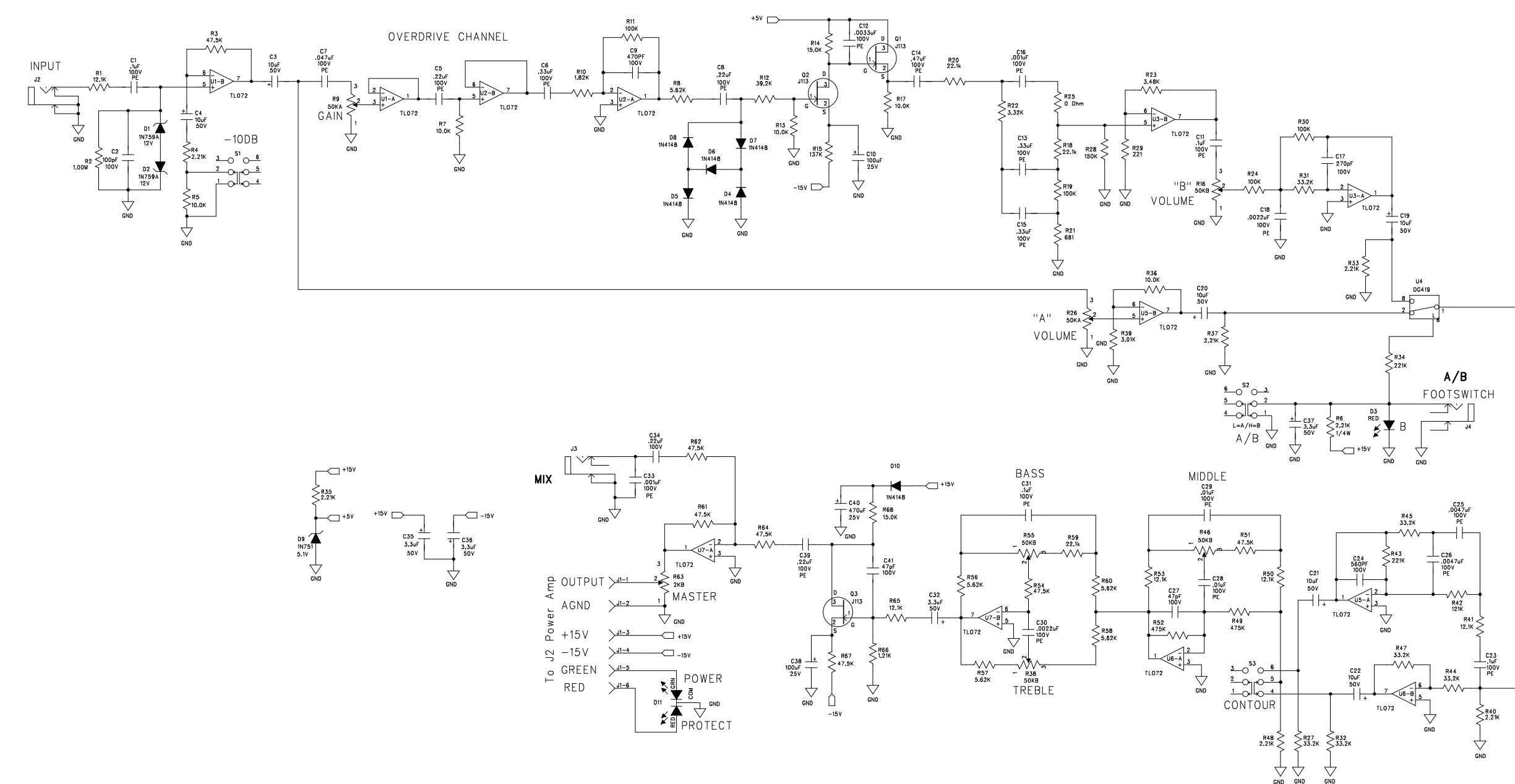
Effective		Document Update		Date	Initials
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<input type="checkbox"/>	All in Service	<input checked="" type="checkbox"/>	Assembly Dwg.		
<input type="checkbox"/>	All in Stock	<input type="checkbox"/>	Auto Insert Pgm		
Beginning Serial Number:		<input type="checkbox"/>	Board Artwork		
Reason For Change		<input checked="" type="checkbox"/>	BOM	12/21/2001	AV
		<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 type="checkbox"/>	Punch Program		
		<input checked="" type="checkbox"/>	Schematic	12/21/2001	AV
		<input type="checkbox"/>	Service Manual		
		<input checked="" type="checkbox"/>	Test Procedure		
		<input type="checkbox"/>			
		<input type="checkbox"/>			
<input type="checkbox"/>	Continued on ECO Supplement Page	<input type="checkbox"/>			

Description Of Change		Distribution		Date	Initials
1. Change R5 from 8.25K to 10.0K.		<input type="checkbox"/>	Accounting		
2. Update all pad and hole sizes.		<input type="checkbox"/>	Assembly		
3. Change board number from 206-0150-B2 to 206-0191-A.		<input type="checkbox"/>	Customer		
		<input checked="" type="checkbox"/>	Engineering		
		<input type="checkbox"/>	Fabrication		
		<input checked="" type="checkbox"/>	Incoming Q.C.		
		<input type="checkbox"/>	Planning		
		<input checked="" type="checkbox"/>	Production Eng.		
		<input checked="" type="checkbox"/>	Purchasing		
		<input type="checkbox"/>	Q.A.		
		<input type="checkbox"/>	Receiving		
		<input type="checkbox"/>	Service		
		<input type="checkbox"/>	Vendor		
		<input checked="" type="checkbox"/>	Test		
		<input type="checkbox"/>			
<input type="checkbox"/>	Continued on ECO Supplement Page	<input type="checkbox"/>	Drawing(s) attached		

Part Number	Description	Parts Added		Parts Deleted	
		Qty	Ref. Designator	Qty	Ref. Designator
060-8252-0	8.251k, 1/8W, 1%			1	R5
060-1003-0	10.0K, 1/8W, 1%	1	R5		



REVISION RECORD		
ECD NO:	Description Of Change	DATE:
A2	R26 to 3.48K from 6.81K	12-21-01



NOT VALID UNLESS STAMP IS RED

**gallien technology**

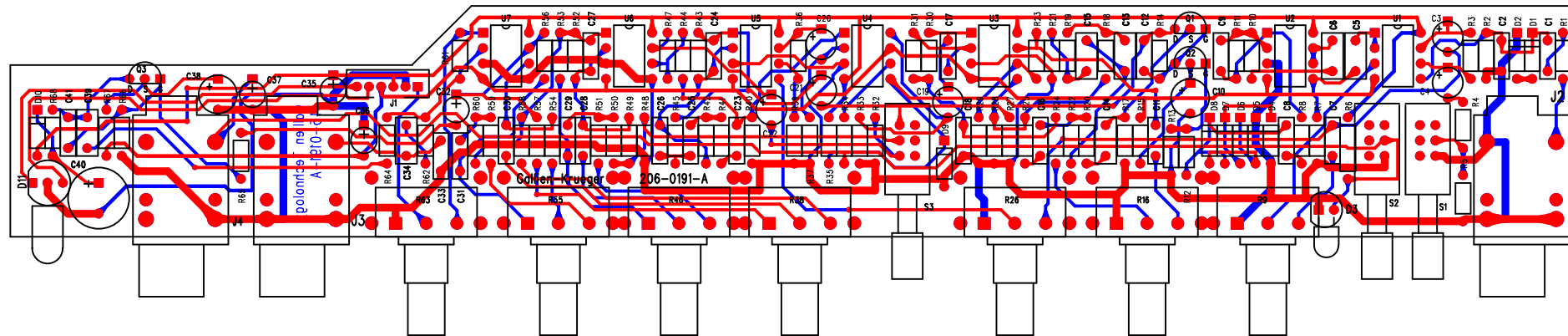
2240 PARAGON DRIVE  
SAN JOSE CA. 95131  
VOICE: 408-441-8081  
FAX: 408-441-8085

TITL: BACKLINE 110/112 PRE-AMP		REV. A
DESIGNED: R.A.G.	DATE: 10/01/01	DRAWING NO: 406-0191-A
DRAWN: R.A.G.	DATE: 12/6/02	PART NO: 206-0191-A
ELEC:		
MECH:		
D/A:		
RELEASED:		
COMPANY: GALLIEN-KRUEGER		FILENAME: 6191A

1. CHANGE R5 TO 10.0K FROM 8.25K.
2. UPDATE ALL PAD AND HOLE SIZES.
3. CHANGE BOARD NO. TO 206-0191-A FROM 206-0150-B2.

**Backline 112 Preamp 206-0191-A**

Part No.	Reference	Description	Manufacturer	Mfr. Part No.
001-1030-1	U1-3 U5-7	TLO72CP, LOW NOISE JFET OPAMP	MOTOROLA	TL072CP
001-3029-0	U4	DG419, Analog Switch	MAXIM	DG419DJ
010-2010-0	Q1-3	J113,N-JFET,35V,2MA,TO-92	NATIONAL	J113
020-0050-0	D9	1N751, ZENER,5.1V,10%,400MW,DO-35	NATIONAL	1N751
020-0120-0	D1-2	1N759A, ZENER,12V,5%,400MW, DO-35	MOTOROLA	1N759A
020-1000-0	D4-8 D10	1N4148, RECT-FAST, 200MA, 100V	MOTOROLA	1N4148
025-0012-0	D11	LED,RED/GRN,5MM,630NM/560NM,15MCD	STANLEY	VRPG5614S
025-0116-0	D3	LED,RED, 3MM, 635NM, 6MCD, 10MA	EVERLIGHT	EL2041D
031-1107-0	C10 C38	CAP,ELEC,RAD,107,20%,25V	UNITED CHEMI-CON	SMG25VB101M6X11LL
031-1477-0	C40	CAP, ELEC, RAD, 470uF, 20%, 25V	UNITED CHEMI-CON	SMG25VB471M10X12LL
031-2106-0	C3-4 C19-22	CAP,ELEC,RAD, 106, 20%, 50V	UNITED CHEMI-CON	SMG50VB10RM5X11LL
031-2335-0	C32 C35-37	CAP,ELEC,RAD,335,20%,50V	UNITED CHEMI-CON	SMG50VB3R3M5X11LL
032-4102-0	C16 C33	CAP,PE,102,5%,100V,	PANASONIC	ECQB1102JF
032-4103-0	C28-29	CAP,PE,103,5%,100V,	PANASONIC	ECQV1103JM
032-4104-0	C1 C11 C23 C31	CAP,PE,104,5%,100V,	PANASONIC	ECQV1104JM
032-4222-0	C18 C30	CAP,PE,222,5%,100V,	PANASONIC	ECQB1222JF
032-4224-0	C5 C8 C34 C39	CAP,PE,224,5%,100V,	PANASONIC	ECQV1224JM
032-4332-0	C12	CAP,PE,332,5%,100V,	PANASONIC	ECQB1332JF
032-4334-0	C6 C13 C15	CAP,PE,334,5%,100V,	PANASONIC	ECQV1334JM
032-4472-0	C25-26	CAP,PE,472,5%,100V,	PANASONIC	ECQB1472JF
032-4473-0	C7	CAP,PE,473,5%,100V,	PANASONIC	ECQV1473JM
032-4474-0	C14	CAP,PE,474,5%,100V,	PANASONIC	ECQV1474JM
034-4101-0	C2	CAP,MCR,100pF,5%,100V,	TAITRON	TMRS101J100NPOB
034-4271-0	C17	CAP,MCR,270pF,5%,100V,	TAITRON	TMRS271J100NPOB
034-4470-0	C27 C41	CAP,MCR,47PF,5%,100V,NPO	TAITRON	TMRS470J100NPOB
034-4471-0	C9	CAP,MCR,470pF,5%,100V,	TAITRON	TMRS471J100NPOB
034-4561-0	C24	CAP,MCR,560pF,5%,100V,	TAITRON	TMRS561J100NPOB
052-2212-0	R6	RES,METAL FILM, 2.21K,1/4W,1%	ECI	M2F1AK002.21
060-1003-0	R7 R13 R17 R36	RES,METAL FILM, 10.0K, 1/8W,1%	ECI	M1F1AK010.00
060-1004-0	R11 R19 R24 R30	RES,METAL FILM, 100K, 1/8W, 1%	ECI	M1F1AK100.00
060-1005-0	R2	RES,METAL FILM, 1.00M, 1/8W,1%	ECI	M1F1AM001.00
060-1212-0	R66	RES,METAL FILM, 1.21K, 1/8W, 1%	ECI	M1F1AK001.21
060-1213-0	R1 R41 R50 R53 R65	RES,METAL FILM, 12.1K, 1/8W, 1%	ECI	M1F1AK012.10
060-1214-0	R42	RES,METAL FILM, 121K, 1/8W, 1%	ECI	M1F1AK121.00
060-1374-0	R15	RES,METAL FILM, 137K, 1/8W, 1%	ECI	M1F1AK137.00
060-1503-0	R14 R68	RES,METAL FILM, 15.0K, 1/8W, 1%	ECI	M1F1AK015.00
060-1504-0	R28	RES,METAL FILM, 150K, 1/8W, 1%	ECI	M1F1AK150.00
060-1822-0	R10	RES,METAL FILM, 1.82K, 1/8W, 1%	ECI	M1F1AK001.82
060-2211-0	R29	RES,METAL FILM, 221, 1/8W, 1%	ECI	M1F1AJ221.00
060-2212-0	R4,33,35,37,40,48	RES,METAL FILM, 2.21K, 1/8W, 1%	ECI	M1F1AK002.21
060-2213-0	R18 R20 R59	RES,METAL FILM, 22.1K, 1/8W, 1%	ECI	M1F1AK022.10
060-2214-0	R34 R43	RES,METAL FILM, 221K, 1/8W, 1%	ECI	M1F1AK221.00
060-3012-0	R39	RES,METAL FILM, 3.01K, 1/8W, 1%	ECI	M1F1AK003.01
060-3322-0	R22	RES,METAL FILM, 3.32K, 1/8W, 1%	ECI	M1F1AK003.32
060-3323-0	R27,31,32,44,45,47	RES,METAL FILM, 33.2K, 1/8W, 1%	ECI	M1F1AK033.20
060-3482-0	R23	RES,METAL FILM, 3.48K, 1/8W, 1%	ECI	M1F1AK003.48
060-3923-0	R12	RES,METAL FILM, 39.2K,1/8W,1%	ECI	M1F1AK039.2
060-4753-0	R3,51,54,61,62,64,67	RES,METAL FILM, 47.5K, 1/8W, 1%	ECI	M1F1AK047.50
060-4754-0	R49 R52	RES,METAL FILM, 475K, 1/8W, 1%	ECI	M1F1AK475.00
060-5622-0	R8 R56-58 R60	RES,METAL FILM, 5.62K, 1/8W, 1%	ECI	M1F1AK005.62
060-6811-0	R21	RES,METAL FILM, 681 ohm, 1/8W, 1%	ECI	M1F1AJ681.00
060-8252-0	R5	RES,METAL FILM, 8.25K, 1/8W, 1%	ECI	M1F1AK008.25
062-0000-0	R25	RES, WIRE, 0.0 Ohm, 1/8W	ECI	R1 0.0 OHM
070-1513-0	R9 R26	POT,50K-15A,7MMB,KNURL,BRACKET	SONG HUEI	16K1-A50K-L15KC
070-1514-0	R16 R38 R46 R55	POT,50KB,7MMB,KNURL,BRACKET	SONG HUEI	16K1-B50K-L15KC
070-1522-0	R63	POT,2KB,7MMB,KNURL,BRACKET	SONG HUEI	16K1-B2K-L15KC
090-0012-0	S1-3	SWITCH,MIMI PP,DPDT,.1A BRK/MAKE	ELKECTRONIC COMP	MTH2UEE-1D911
092-0081-0	J2-4	JACK,1/4",MONO,PC,NON GROUNDING	NEUTRIK	S102-84
093-2002-0	J1	HDR,2MMX6,VERT,SHROUDED	JST	B6B-PH-K-S



PCB WORK INSTRUCTIONS

DWG #420-0191-A

NOTES:

UNLESS OTHERWISE SPECIFIED:

1. SQUARE PADS ON THRU HOLE PARTS (ie: CONNECTORS, DIPS, SIPS, LEDS) DENOTE PIN 1.
2. ALL BOARDS REQUIRE A COMPLETE AND THOROUGH VISUAL INSPECTIONS.
3. ALL BOARDS MUST BE BARE BOARD TESTED.
4. ASSEMBLE AND SOLDER PER ANSI/IPC-A-610B.

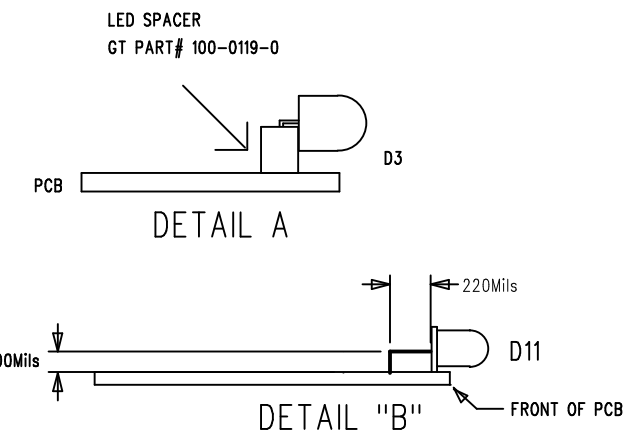
LOADING

6. SEE DETAIL A FOR MOUNTING D3
7. SEE DETAIL "B" FOR MOUNTING D11
8. CLIP BRACKET FROM RIGHT SIDE OF R9 TO CLEAR D3.

FINAL QA

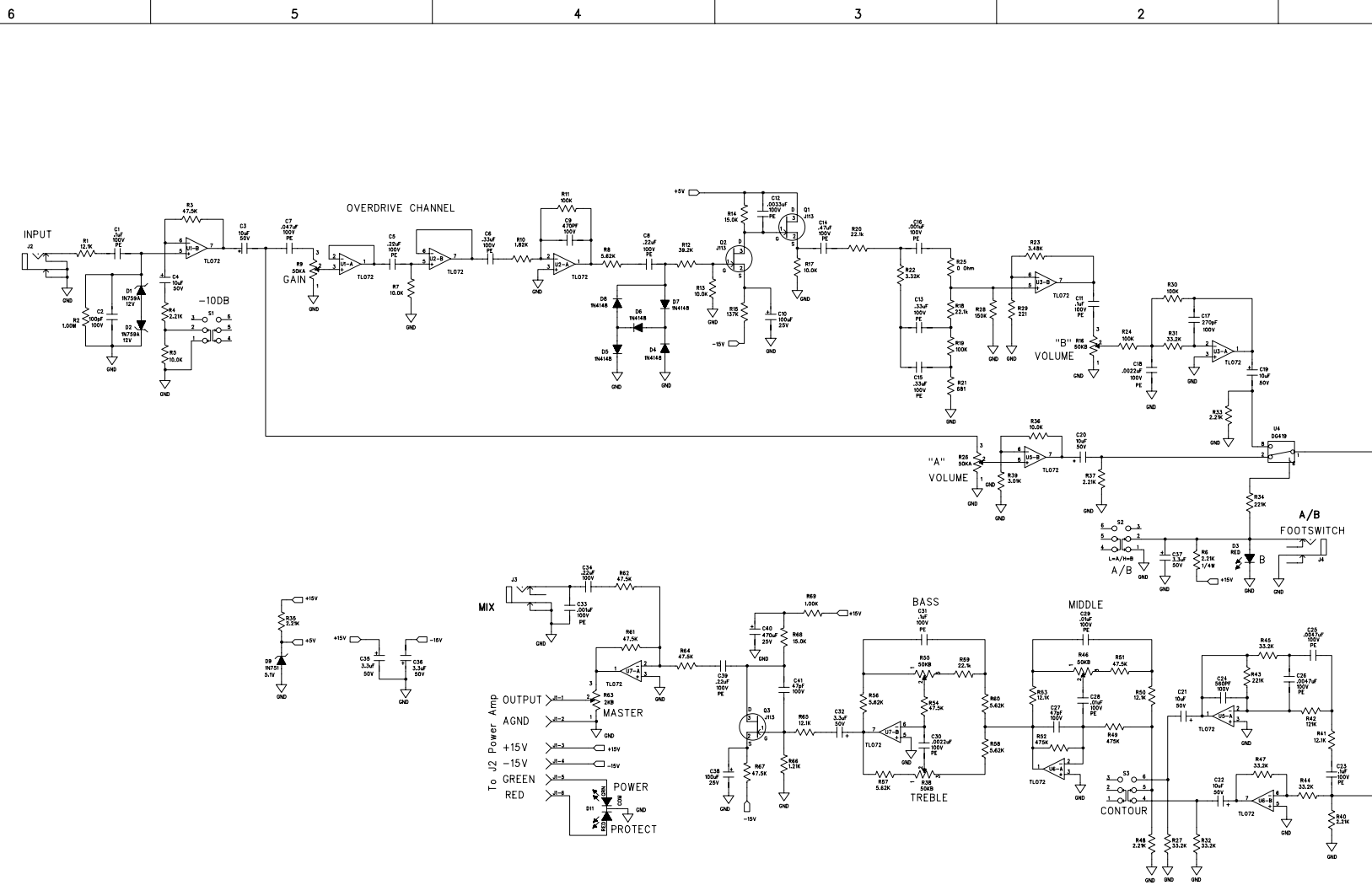
8. CHECK TO SEE ALL POTS, JACKS, AND SWITCHES ARE MOUNTED FLUSH AND STRAIGHT

NOT VALID UNLESS STAMP IS RED	<b>gallien technology</b>		2240 PARAGON DRIVE SAN JOSE CA. 95131 VOICE: 408-441-8081 FAX: 408-441-8085	
	APPROVALS		TITLE: BACKLINE 112 PREAMP BD	
	INIT	DATE	SIZE	DRAWING NO: 405-0191-A
	DESIGNED: R.A.G.	10/01/01	B	REV. A
	DRAWN: R.A.G.	12/6/02		PART NO: 145-0191-A
	ELEC:			
LAYER DESCRIPTION:	MECH:	COMPANY: GALLIEN-KRUEGER		
<del>TOP SIDE IS NOT TO BE MOUNTED</del>	GERBER FILE NAME:	FILENAME: 5191A		
	5191A.pho			



Customer Name:	Gallien-Krueger	Current Rev #:	A	New ECO Rev #:	A1
Model:	Backline 110/112	Page:	1	Of:	1
Assembly Description:	Preamp Assembly	Originator:	Arnel Millet		
Assembly Numbers:	206-0191-A	Approved by:			
		Effective Date:	4/20/2004		
Effective		Document Update		Date	Initials
<input checked="" type="checkbox"/>	All in Process	<input checked="" type="checkbox"/>	Artwork		
<input checked="" type="checkbox"/>	All in Service	<input checked="" type="checkbox"/>	Assembly Dwg.		
<input checked="" type="checkbox"/>	All in Stock	<input type="checkbox"/>	Auto Insert Pgm		
Beginning Serial Number:		<input type="checkbox"/>	Board Artwork		
Reason For Change		<input checked="" type="checkbox"/>	BOM	4/20/2004	AM
The BOOST circuit is loosing its bias causing the amp to loose the signal during normal playing.		<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	4/20/2004	TC
		<input type="checkbox"/>	Punch Program		
		<input checked="" type="checkbox"/>	Schematic	4/20/2004	AM
		<input type="checkbox"/>	Service Manual		
		<input type="checkbox"/>	Test Procedure		
		<input type="checkbox"/>			
		<input type="checkbox"/>			
		<input type="checkbox"/>			
<input type="checkbox"/>	Continued on ECO Supplement Page		<input type="checkbox"/>		
Description Of Change		Distribution		Date	Initials
Replace D10 with 1.0K resistor to bias the BOOST circuit properly.		<input type="checkbox"/>	Accounting		
		<input type="checkbox"/>	Assembly		
		<input type="checkbox"/>	Customer		
New reference designator is R69.		<input checked="" type="checkbox"/>	Engineering		
		<input type="checkbox"/>	Fabrication		
For current production, solder the 1.0K resistor in parallel with D10.		<input checked="" type="checkbox"/>	Incoming Q.C.		
		<input type="checkbox"/>	Planning		
		<input checked="" type="checkbox"/>	Production Eng.		
		<input checked="" type="checkbox"/>	Purchasing		
		<input type="checkbox"/>	Q.A.		
		<input type="checkbox"/>	Receiving		
		<input type="checkbox"/>	Service		
Update board # from 206-0191-A to 206-0191-A1		<input type="checkbox"/>	Vendor		
		<input checked="" type="checkbox"/>	Test		
		<input type="checkbox"/>			
<input type="checkbox"/>	Continued on ECO Supplement Page		<input type="checkbox"/>	Drawing(s) attached	
Part Number	Description	Parts Added		Parts Deleted	
		Qty	Ref. Designator	Qty	Ref. Designator
020-1000-0	1N4148, DIODE			1	D10
060-1002-0	1.0K, 1/8W, 1%	1	R69		

REVISION RECORD		
ECO NO.	Description of Change	DATE
A2	R26 to 5.48K from 5.18K	02-25-02



NOT VALID UNLESS STAMP IS RED

**gallien technology**

2214 INDUSTRIAL DRIVE  
STOCKTON CA 95206  
PHONE: 209-234-7300  
FAX: 209-234-8420

1. Replace D10 with R68, 1.0K resistor.

APPROVALS	DATE	TITLE
DESIGNED: R.A.G.	10/03/01	BACKLINE 110/112 PRE-AMP
DRAWN: A.T.M.	04/07/04	DRAWING NO: 406-0191-A
ELEC:		PART NO: 206-0191-A
MECH:		COMPANY: GALLIEN-KRUEGER
S/A:		FILENAME: 6191A
RELEASED:		

A1

# Backline 112 and 110 Test Wave Forms

## Initial Set up

### Input Condition:

Generator @ 1Khz square wave and @ -43dB level (21 mVrms)

### Scope Set up:

10 V/div and 200 micro second/div

### Unit under test:

No load, All switches out, Gain and Master @ maximum (10),  
Level "A" and "B" @ 12 o'clock, All active equalizer controls @ 12 o'clock

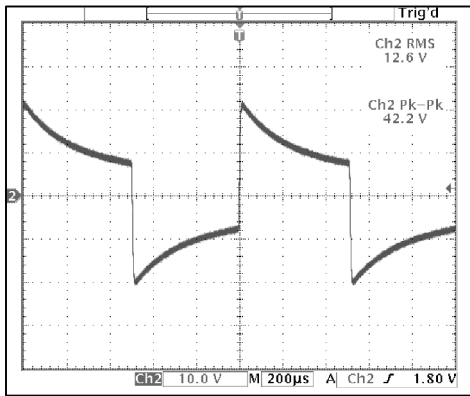


Figure 1

Per initial set up.

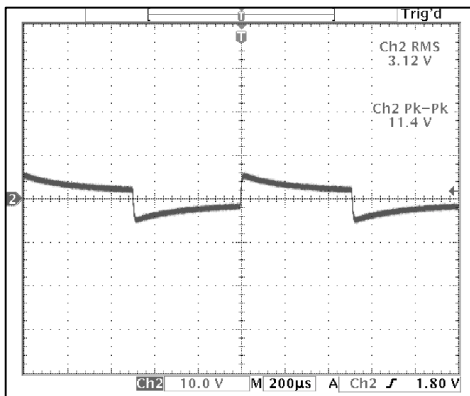


Figure 2

With reference to initial set up  
Engage -10dB switch.

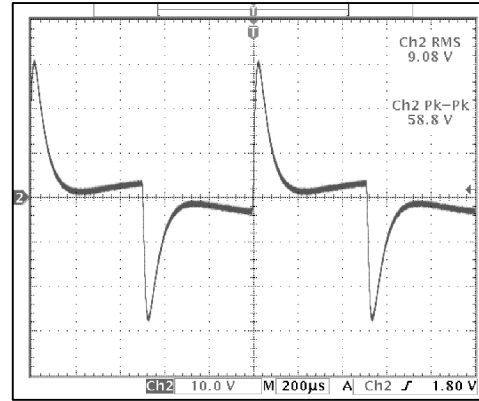


Figure 3

With reference to initial set up  
engage Contour switch

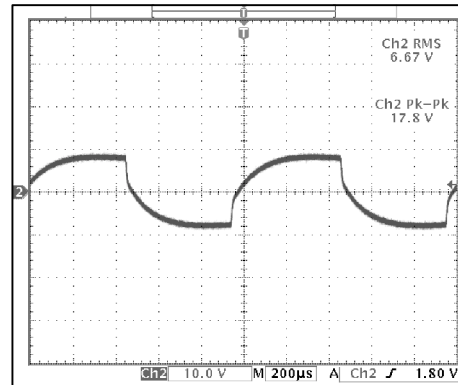


Figure 4

With reference to initial set up  
set Treble to minimum (0)

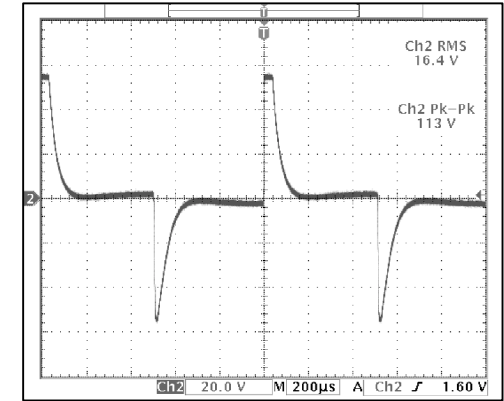


Figure 5

With reference to initial set up  
set Master to 12 o'clock  
set Treble to maximum (10)

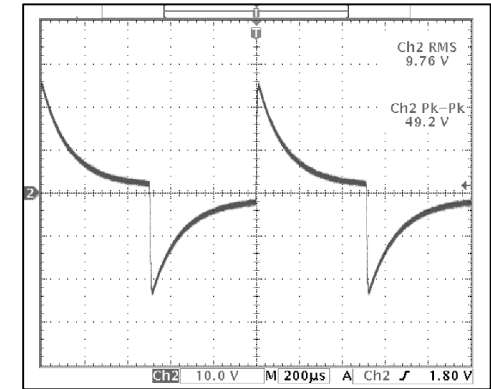



Figure 6

With reference to initial set up  
set Mid to minimum (0)

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APPROVAL		
DEPT.	INITIAL	DATE

<b>gallien technology</b> 2240 PARAGON DRIVE SAN JOSE, CA 95131	
TITLE <b>BACKLINE 112 and 110 TEST WAVE FORMS</b>	
FILE NAME	REV. <b>B2</b>
DOCUMENT NUMBER	SIZE
SCALE	SHRETT  <b>1 OF 2</b>

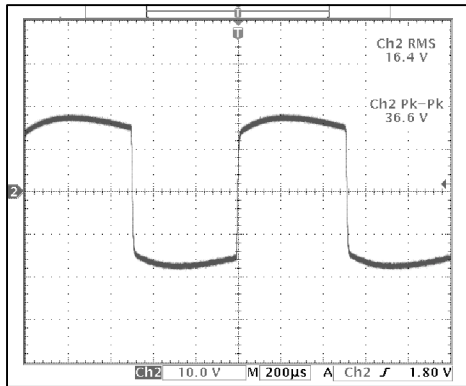


Figure 7

With reference to initial set up  
set Mid to maximum (10)

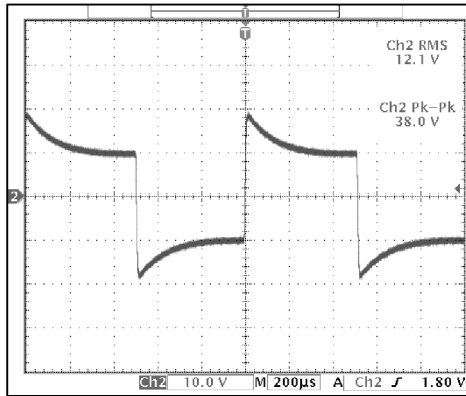


Figure 9

With reference to initial set up  
set Bass to maximum (10)

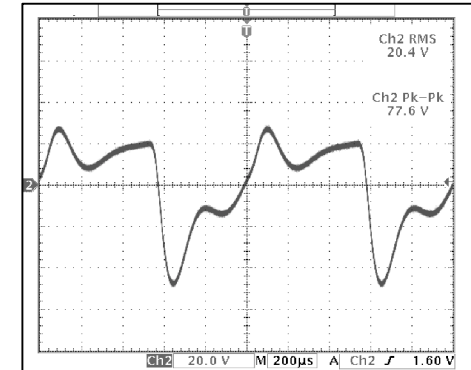


Figure 9

With reference to initial set up  
engage switch A/B  
set scope to 20V/div and set  
Gain to 12 o'clock

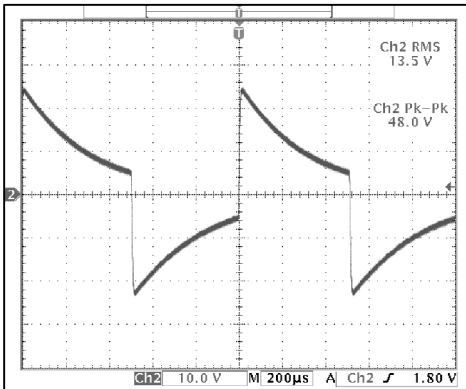


Figure 8

With reference to initial set up  
set Bass to minimum (0)

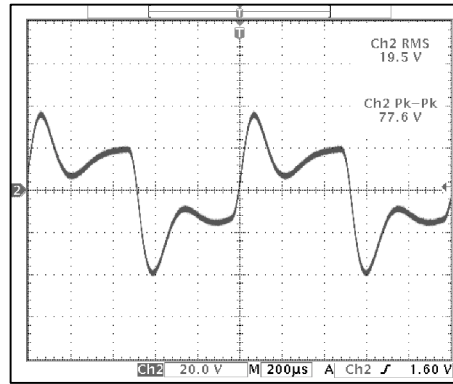


Figure 10

With reference to initial set up  
engage switch A/B and set  
scope to 20V/div

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TECHNOLOGY CORPORATION.

**APPROVAL**

DEPT.	INITIAL	DATE

**gallien technology**  
2240 PARAGON DRIVE  
SAN JOSE, CA 95131

**TITLE**  
**BACKLINE 112 and 110  
TEST WAVE FORMS**

FILE NAME	REV. <b>B2</b>
DOCUMENT NUMBER	SIZE
SCALE	<b>SECRET</b> <b>2 OF 2</b>