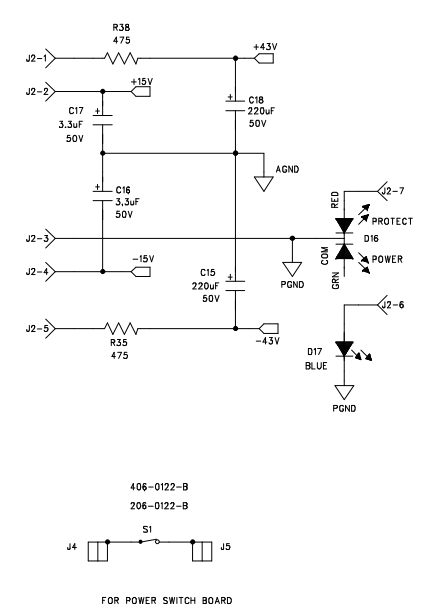
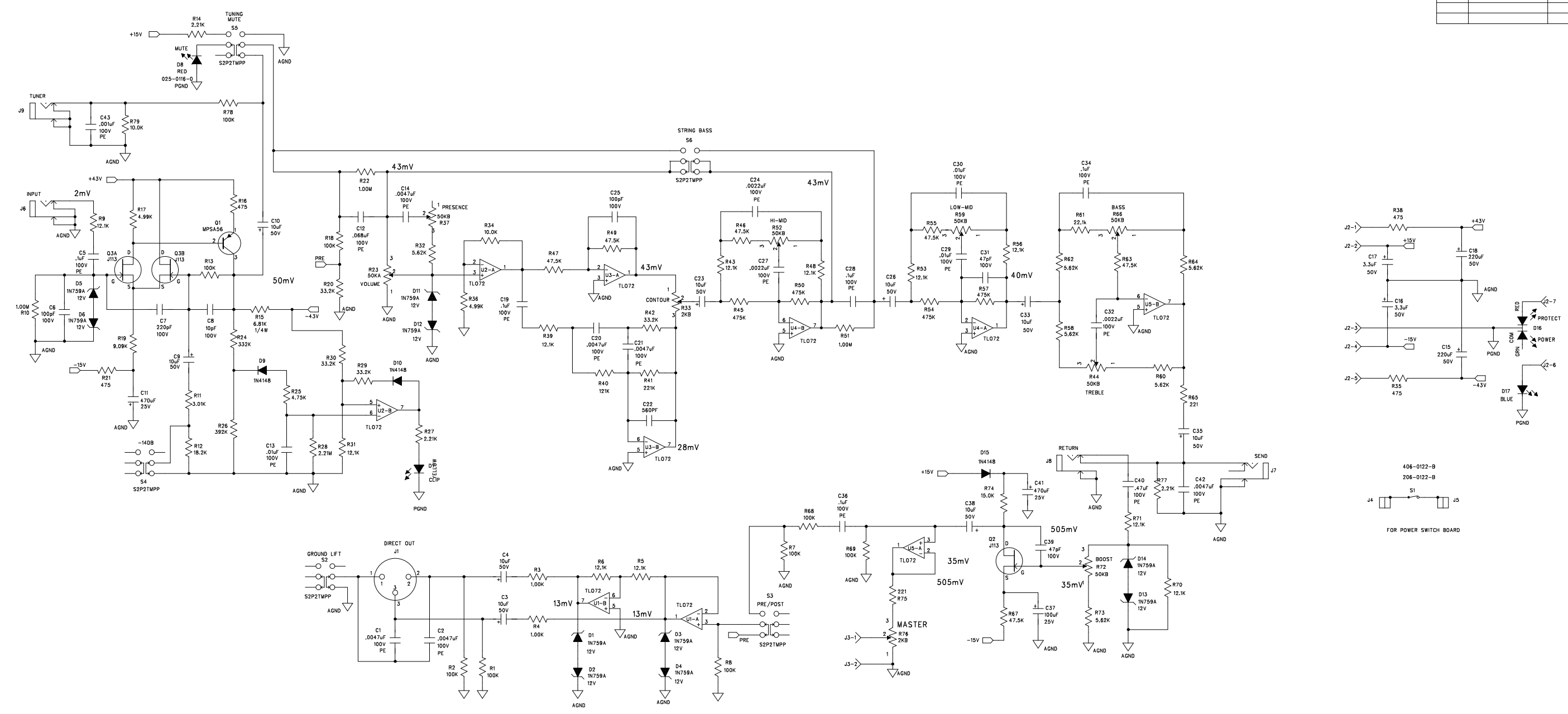


REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:



NOTES: UNLESS OTHERWISE SPECIFIED,
 1. All test point voltages are in RMS,
 with 200 Hz, 2 mV (-53.9 dBV) sine wave input.
 2. CONTOUR and PRESENCE on zero (off).
 Switches out, all tones, boost and volume on 10

MH125NP X1

NOT VALID UNLESS STAMP IS RED

gallien technology

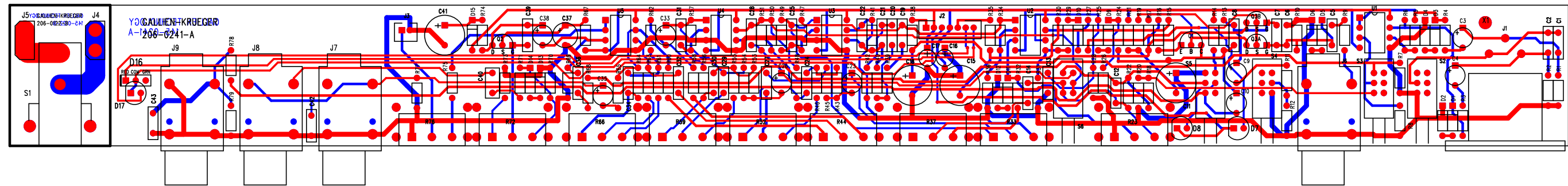
2240 PARAGON DRIVE
 SAN JOSE CA. 95131
 VOICE: 408-441-8081
 FAX: 408-441-8085

1. UPDATE HOLE & PAD SIZE.		2. CHANGE BOARD # FROM 0120-E1 TO 0241-A.	
DESIGNED: R.A.G.	DATE: 5/19/99	TITLE: 400RB-IV PREAMP	REV: A
DRAWN: R.A.G.	DATE: 11/27/02	DRAWING NO: 406-0241-A	PART NO: 206-0241-A
ELEC:		COMPANY: GALLIEN-KRUEGER	FILENAME: 6241A
MECH:			
Q/A:			
RELEASED:			

GALLIEN-KRUEGER

400RB-IV Preamp 206-0241-A

Part No.	Reference	Description	Manufacturer	Mfr. Part No.
001-1030-1	U1-5	TLO72CP, LOW NOISE JFET OPAMP	MOTOROLA	TL072CP
010-1013-0	Q1	MPSA56 PNP 80V 500MA TO-92	MOTOROLA	MPS-A56
010-2010-0	Q2 Q3A Q3B	J113,N-JFET,35V,2MA,TO-92	NATIONAL	J113
020-0120-0	D1-6 D11-14	1N759A, ZENER,12V,5%,400MW, DO-35	MOTOROLA	1N759A
020-1000-0	D9-10 D15	1N4148, RECT-FAST, 200MA, 100V	MOTOROLA	1N4148
025-0012-0	D16	LED,RED/GRN,5MM,630NM/560NM,15MCD/1	STANLEY	VRPG5614S
025-0023-0	D7	LED,YELLOW, 3MM, 585NM, 5MCD, 10MA	EVERLIGHT	EL204YD
025-0030-2	D17	LED,BLUE, 10MA	LITEON	LTL-42B6
025-0116-0	D8	LED,RED, 3MM, 635NM, 6MCD, 10MA, 40DE	EVERLIGHT	EL2041D
031-1107-0	C37	CAP,ELEC,RAD,107,20%,25V	UNITED CHEMI-CON	SMG25VB101M6X11LL
031-1477-0	C11 C41	CAP, ELEC, RAD, 470uF, 20%, 25V	UNITED CHEMI-CON	SMG25VB471M10X12LL
031-2106-0	C3,4,9,10,23,26,33,35 C38	CAP,ELEC,RAD, 106, 20%, 50V	UNITED CHEMI-CON	SMG50VB10RM5X11LL
031-2227-0	C15 C18	CAP, ELEC, 220uF, 20%, 50V	UNITED CHEMI-CON	SMG50VB221M10X12LL
031-2335-0	C16-17	CAP,ELEC,RAD,335,20%,50V	UNITED CHEMI-CON	SMG50VB3R3M5X11LL
032-4102-0	C43	CAP,PE,102,5%,100V,	PANASONIC	ECQB1102JF
032-4103-0	C13 C29-30	CAP,PE,103,5%,100V,	PANASONIC	ECQV1103JM
032-4104-0	C5 C19 C28 C34 C36	CAP,PE,104,5%,100V,	PANASONIC	ECQV1104JM
032-4222-0	C24 C27 C32	CAP,PE,222,5%,100V,	PANASONIC	ECQB1222JF
032-4472-0	C1-2 C14 C20-21 C42	CAP,PE,472,5%,100V,	PANASONIC	ECQB1472JF
032-4474-0	C40	CAP,PE,474,5%,100V,	PANASONIC	ECQV1474JM
032-4683-0	C12	CAP,PE,683,5%,100V,	PANASONIC	ECQV1683JM
034-4100-0	C8	CAP, MCR,10pF,5%,100V,NPO	TAITRON	TMRS100J100NPOB
034-4101-0	C6 C25	CAP,MCR,100pF,5%,100V,	TAITRON	TMRS101J100NPOB
034-4221-0	C7	CAP,MCR,220pF,5%,100V,	TAITRON	TMRS221J100NPOB
034-4470-0	C31 C39	CAP,MCR,47PF,5%,100V,NPO	TAITRON	TMRS470J100NPOB
034-4561-0	C22	CAP,MCR,560pF,5%,100V,	TAITRON	TMRS561J100NPOB
052-6812-0	R15	RES, METAL FILM, 6.81K, 1/4W, 1%	ECI	M2F1AK006.81
060-1002-0	R3-4	RES,METAL FILM, 1.00K, 1/8W, 1%	ECI	M1F1AK001.00
060-1003-0	R34 R79	RES,METAL FILM, 10.0K, 1/8W,1%	ECI	M1F1AK010.00
060-1004-0	R1,2,7,8,13,18,68,69,78	RES,METAL FILM, 100K, 1/8W, 1%	ECI	M1F1AK100.00
060-1005-0	R10 R22 R51	RES, METAL FILM, 1.00M, 1%, 1/8W	ECI	M1F1AM001.00
060-1213-0	R5,6,9,31,39,43,48,53 R56,70,71	RES,METAL FILM, 12.1K, 1/8W, 1%	ECI	M1F1AK012.10
060-1214-0	R40	RES,METAL FILM, 121K, 1/8W, 1%	ECI	M1F1AK121.00
060-1503-0	R74	RES,METAL FILM, 15.0K, 1/8W, 1%	ECI	M1F1AK015.00
060-1823-0	R12	RES,METAL FILM, 18.2K, 1/8W, 1%	ECI	M1F1AK018.20
060-2211-0	R65 R75	RES,METAL FILM, 221, 1/8W, 1%	ECI	M1F1AJ221.00
060-2212-0	R14 R27 R77	RES,METAL FILM, 2.21K, 1/8W, 1%	ECI	M1F1AK002.21
060-2213-0	R61	RES,METAL FILM, 22.1K, 1/8W, 1%	ECI	M1F1AK022.10
060-2214-0	R41	RES,METAL FILM, 221K, 1/8W, 1%	ECI	M1F1AK221.00
060-2215-0	R28	RES, METAL FILM, 2.21M, 1/8W, 1%	ECI	M1F1AM002.21
060-3012-0	R11	RES,METAL FILM, 3.01K, 1/8W, 1%	ECI	M1F1AK003.01
060-3323-0	R20 R29-30 R42	RES,METAL FILM, 33.2K, 1/8W, 1%	ECI	M1F1AK033.20
060-3324-0	R24	RES,METAL FILM, 332K, 1/8W, 1%	ECI	M1F1AK332.00
060-3924-0	R26	RES,METAL FILM, 392K, 1/8W, 1%	ECI	M1F1AK392.00
060-4751-0	R16 R21 R35 R38	RES,METAL FILM, 475, 1/8W, 1%	ECI	M1F1AJ475.00
060-4752-0	R25	RES,METAL FILM, 4.75K, 1/8W, 1%	ECI	M1F1AK004.75
060-4753-0	R46,47,49,55,63,67	RES,METAL FILM, 47.5K, 1/8W, 1%	ECI	M1F1AK047.50
060-4754-0	R45 R50 R54 R57	RES,METAL FILM, 475K, 1/8W, 1%	ECI	M1F1AK475.00
060-4992-0	R17 R36	RES,METAL FILM, 4.99K, 1/8W, 1%	ECI	M1F1AK004.99
060-5622-0	R32,58,60,62,64,73	RES,METAL FILM, 5.62K, 1/8W, 1%	ECI	M1F1AK005.62
060-9092-0	R19	RES,METAL FILM, 9.09K, 1/8W, 1%	ECI	M1F1AK009.09
070-1513-0	R23	POT,50K-15A,7MM,KNURL,1W	SONG HUEI	16K1-A50K-L15KC
070-1514-0	R37,44,52,59,66,72	POT,50KB,7MM,KNURL,1W	SONG HUEI	16K1-B50K-L15KC
070-1522-0	R33 R76	POT,2KB,7MM,KNURL,1W	SONG HUEI	16K1-B2K-L15KC
090-0007-0	S1	SWITCH, 8A/128A,250V,PP,PCB	TECX	KDC-A04-10-B, B2-F
090-0012-0	S2-6	SWITCH,MIMI PP,DPDT,1A BRK/MAKE	ELKELECTRONIC COMP	MTH2UEE-1D911
092-0066-0	J4-5	FASTON, M, PC, .250"	KEYSTONE	1021
092-0081-0	J6-9	JACK,1/4",MONO,PC,NON GROUNDING	NEUTRIK	S102-84
092-0084-0	J1	CON,XLR,MALE,PC,PL, SCREW MNT	NEUTRIK	X906-05
093-0051-0	J3	HDR, 2MMX2, VERT, LOCK	JST	B2B-PH-K-S
093-2005-0	J2	HDR, 2MMX7, VERT, SHROUDED	JST	B7B-PH-K-S
145-0241-A		400RB-IV PREAMP RAW BOARD		



PCB WORK INSTRUCTIONS

DWG #420-0241-A

NOTES:

UNLESS OTHERWISE SPECIFIED:

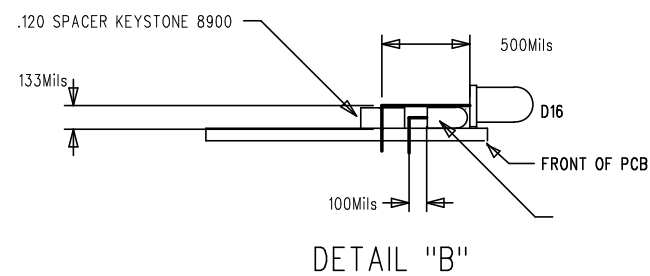
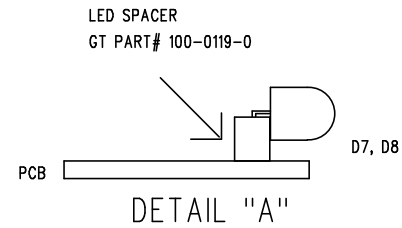
1. SQUARE PADS ON THRU HOLE PARTS (ie: CONNECTORS, DIPS, SIPS, LEDS) DENOTE PIN 1.
2. ALL BOARDS REQUIRE A COMPLETE AND THOROUGH VISUAL INSPECTION.
3. ALL BOARDS MUST BE BARE BOARD TESTED.
4. ASSEMBLE AND SOLDER PER ANSI/IPC-A-610B.

LOADING

5. CLIP BUSHING TABS OFF ON POTS R23, 33, 37, 44, 52, 59, 66, 72, 76
6. SEE DETAIL A FOR MOUNTING D7 AND 8
7. SEE DETAIL "B" FOR MOUNTING D16 AND D17

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	
<p style="text-align: center;">gallien technology</p>		TITLE: 400RB-IV PRE-AMP BD	
		DESIGNED: R.A.G. 1/6/98	SIZE: B
DRAWN: R.A.G. 11/27/02		DRAWING NO: 405-0241-A	REV. A
ELEC:		PART NO: 145-0241-A	
MECH:		COMPANY:	
GERBER FILE NAME: sst0126.pho		FILENAME: 5241A	
LAYER DESCRIPTION: TOP SIDE ROUTING			

Customer Name:	Gallien-Krueger	Current Rev #:	A	New ECO Rev #:	A1
Model:	400RB-IV	Distribute To:		Page:	1
Assembly Description:	Preamp	Originator:	RAG		
Assembly Numbers:	206-0241-A1	Approved by:			
		Effective Date:	8/8/2003		

Effective		Document Update		Date	Initials
<input 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	<input type="checkbox"/>			

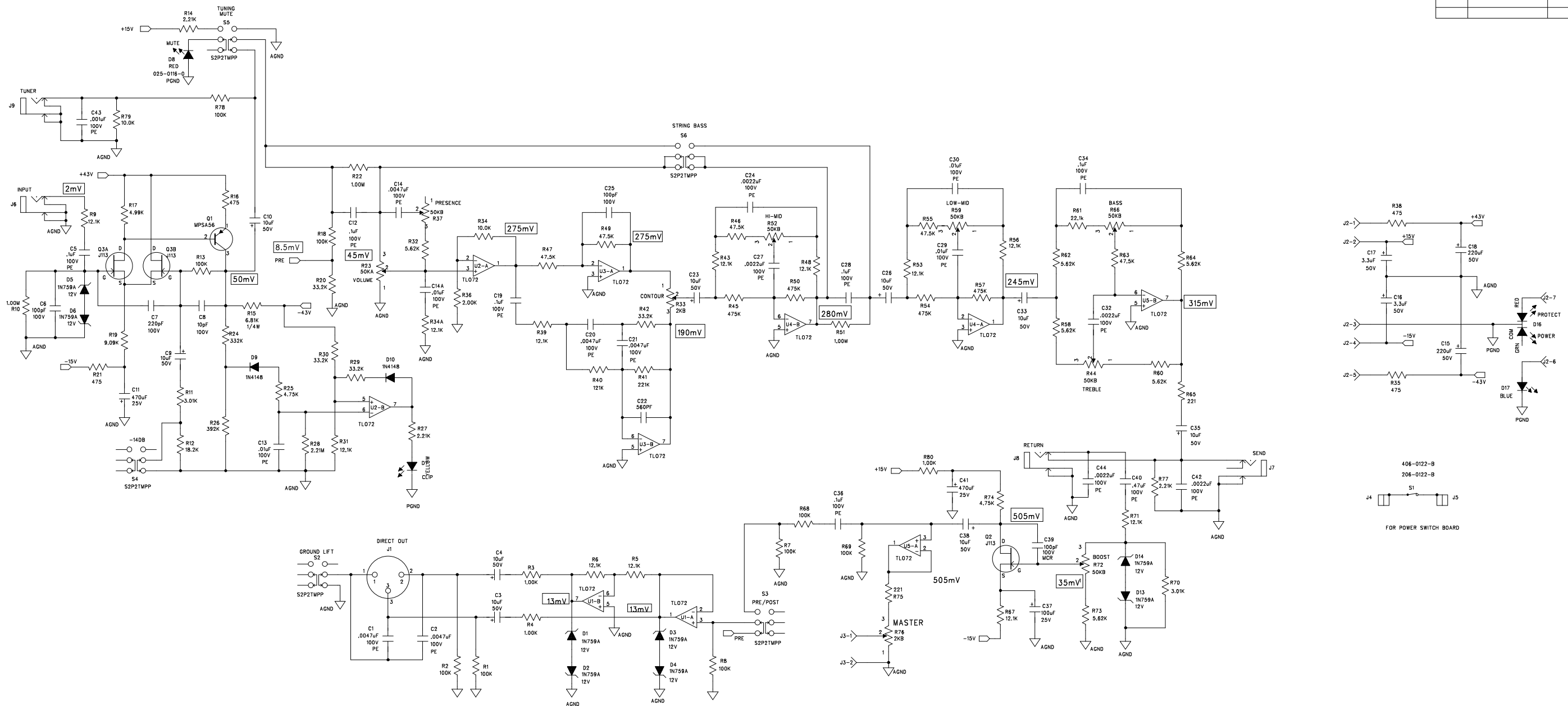
Beginning Serial Number:		<input checked="" type="checkbox"/>	BOM		
Reason For Change		<input type="checkbox"/>	Control Form		
Update boost and gain structure to match 800RB.		<input type="checkbox"/>	Costing		
		<input type="checkbox"/>	Fab Drawing		
		<input checked="" type="checkbox"/>	Inspection Proc.		
		<input checked="" type="checkbox"/>	Part Master File		
		<input checked="" type="checkbox"/>	Schematic		
		<input type="checkbox"/>	Service Manual		
		<input checked="" type="checkbox"/>	Test Procedure		
		<input type="checkbox"/>			

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

Description Of Change		Distribution		Date	Initials
Make changes as indicated below.		<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
060-1002-0	1K, 1/8W, MF	1	R80		
060-4752-0	4.75K, 1/8W, MF	1	R74		
060-1213-0	12.1K, 1/8W, MF	2	R67, 34A		
060-3012-0	3.01K, 1/8W, MF	1	R70		
060-2002-0	2.00K, 1/8W, MF	1	R36		
032-4222-0	.0022uF/100V	2	C42, 44		
034-4101-0	100pF/100V	1	C39		
032-4104-0	.1uF/100V	1	C12		
032-4103-0	.01uF/100V	1	C14A		
020-1000-0	1N4148			1	D15
060-1503-0	15K, 1/8W			1	R74
060-4753-0	47.5K, 1/8W			1	R67
060-1213-0	12.1K, 1/8W, MF			1	R70
060-4992-0	4.99K, 1/8W			1	R36
034-4470-0	47pF/100V			1	C39
032-4472-0	.0047uF/100V			1	C42
020-0120-0	1N759A			2	D11, 12
032-4683-0	.068uF/100V			1	C12

REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:



TEST CONDITIONS:
 1. All test point voltages are in RMS, with 200 Hz, 2 mV (-53.9 dBV) sine wave input.
 2. CONTOUR and PRESENCE on zero (off).
 Switches out, all tones, boost and volume on 10

MH125NP X1

NOT VALID UNLESS STAMP IS RED

gallien technology

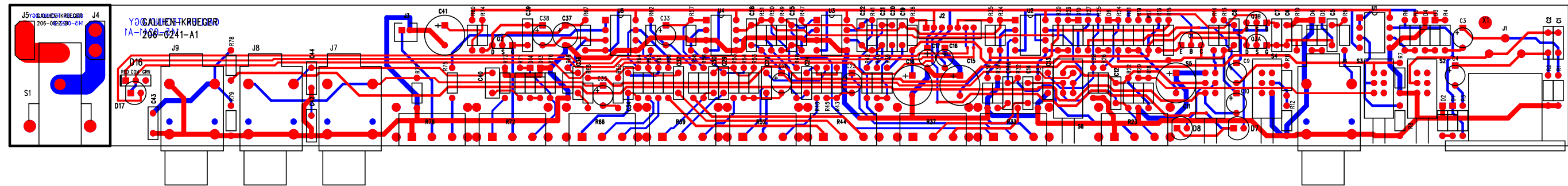
2234 INDUSTRIAL DRIVE
 STOCKTON CA, 95206
 VOICE: 209-234-7300
 FAX: 209-234-8420

1. CHANGE BOARD # FROM 0241-A TO 0241-A1.		APPROVALS		TITLE: 400RB-IV PREAMP	
2. REPLACE D15 WITH R80-1K.		INIT	DATE	REV	DRAWING NO: 406-0241-A1
3. CHANGE R74-4.75K, R67-12.1K, C39-100pF.		DESIGNED: R.A.G.	5/19/99	B	PART NO: 206-0241-A1
4. CHANGE R70-3.0K, R36 TO 2.00K.		DRAWN: R.A.G.	8/05/03		REV: A1
5. CHANGE C42 TO .0022uF, C12 TO .1uF.		ELEC:			
6. ADD C44-.0022uF.		MECH:			
7. REPLACE D11 WITH C14A-.01uF.		COMPANY:			GALLIEN-KRUEGER
8. REPLACE D12 WITH R34A-12.1K.		FILENAME:			6241A1
		RELEASED:			

GALLIEN-KRUEGER

400RB-IV Preamp 206-0241-A1

Part No.	Reference	Description	Manufacturer	Mfr. Part No.
001-1030-1	U1-5	TLO72CP, LOW NOISE JFET OPAMP	MOTOROLA	TL072CP
010-1013-0	Q1	MPSA56 PNP 80V 500MA TO-92	MOTOROLA	MPS-A56
010-2010-0	Q2 Q3A Q3B	J113,N-JFET,35V,2MA,TO-92	NATIONAL	J113
020-0120-0	D1-6 D13-14	1N759A, ZENER,12V,5%,400MW, DO-35	MOTOROLA	1N759A
020-1000-0	D9-10	1N4148, RECT-FAST, 200MA, 100V	MOTOROLA	1N4148
025-0012-0	D16	LED,RED/GRN,5MM,630NM/560NM,	STANLEY	VRPG5614S
025-0023-0	D7	LED,YELLOW, 3MM, 585NM, 5MCD, 10MA	EVERLIGHT	EL204YD
025-0030-2	D17	LED,BLUE, 10MA	LITEON	LTL-42B6
025-0116-0	D8	LED,RED, 3MM, 635NM, 6MCD, 10MA,	EVERLIGHT	EL2041D
031-1107-0	C37	CAP,ELEC,RAD,107,20%,25V	UNITED CHEMI-CON	SMG25VB101M6X11LL
031-1477-0	C11 C41	CAP, ELEC, RAD, 470uF, 20%, 25V	UNITED CHEMI-CON	SMG25VB471M10X12LL
031-2106-0	C3,4,9,10,23,26,33	CAP,ELEC,RAD, 106, 20%, 50V	UNITED CHEMI-CON	SMG50VB10RM5X11LL
	C35 C38			
031-2227-0	C15 C18	CAP, ELEC, 220uF, 20%, 50V	UNITED CHEMI-CON	SMG50VB221M10X12LL
031-2335-0	C16-17	CAP,ELEC,RAD,335,20%,50V	UNITED CHEMI-CON	SMG50VB3R3M5X11LL
032-4102-0	C43	CAP,PE,102,5%,100V,	PANASONIC	ECQB1102JF
032-4103-0	C13 C29-30 C14A	CAP,PE,103,5%,100V,	PANASONIC	ECQV1103JM
032-4104-0	C5,12,19,28,34,36	CAP,PE,104,5%,100V,	PANASONIC	ECQV1104JM
032-4222-0	C24 C27 C32 C42 C44	CAP,PE,222,5%,100V,	PANASONIC	ECQB1222JF
032-4472-0	C1-2 C14 C20-21	CAP,PE,472,5%,100V,	PANASONIC	ECQB1472JF
032-4474-0	C40	CAP,PE,474,5%,100V,	PANASONIC	ECQV1474JM
034-4100-0	C8	CAP, MCR,10pF,5%,100V,NPO	TAITRON	TMRS100J100NPOB
034-4101-0	C6 C25 C39	CAP,MCR,100pF,5%,100V,	TAITRON	TMRS101J100NPOB
034-4221-0	C7	CAP,MCR,220pF,5%,100V,	TAITRON	TMRS221J100NPOB
034-4561-0	C22	CAP,MCR,560pF,5%,100V,	TAITRON	TMRS561J100NPOB
052-6812-0	R15	RES, METAL FILM, 6.81K, 1/4W, 1%	ECI	M2F1AK006.81
060-1002-0	R3-4 R80	RES,METAL FILM, 1.00K, 1/8W, 1%	ECI	M1F1AK001.00
060-1003-0	R34 R79	RES,METAL FILM, 10.0K, 1/8W,1%	ECI	M1F1AK010.00
060-1004-0	R1-2 R7-8 R13 R18	RES,METAL FILM, 100K, 1/8W, 1%	ECI	M1F1AK100.00
	R68-69 R78			
060-1005-0	R10 R22 R51	RES, MF, 1.00M, 1%,1/8W,	ECI	M1F1AM001.00
060-1213-0	R5,6,9,31,39,43,48,53	RES,METAL FILM, 12.1K, 1/8W, 1%	ECI	M1F1AK012.10
	R56,71,34A			
060-1213-0	R67	RES,METAL FILM, 12.1K, 1/8W, 1%	ECI	M1F1AK012.10
060-1214-0	R40	RES,METAL FILM, 121K, 1/8W, 1%	ECI	M1F1AK121.00
060-1823-0	R12	RES,METAL FILM, 18.2K, 1/8W, 1%	ECI	M1F1AK018.20
060-2002-0	R36	RES,METAL FILM, 2.00K, 1/8W, 1%	ECI	M1F1AK002.00
060-2211-0	R65 R75	RES,METAL FILM, 221 ohm, 1/8W, 1%	ECI	M1F1AJ221.00
060-2212-0	R14 R27 R77	RES,METAL FILM, 2.21K, 1/8W, 1%	ECI	M1F1AK002.21
060-2213-0	R61	RES,METAL FILM, 22.1K, 1/8W, 1%	ECI	M1F1AK022.10
060-2214-0	R41	RES,METAL FILM, 221K, 1/8W, 1%	ECI	M1F1AK221.00
060-2215-0	R28	RES, METAL FILM, 2.21M, 1/8W, 1%	ECI	M1F1AM002.21
060-3012-0	R11 R70	RES,METAL FILM, 3.01K, 1/8W, 1%	ECI	M1F1AK003.01
060-3323-0	R20 R29-30 R42	RES,METAL FILM, 33.2K, 1/8W, 1%	ECI	M1F1AK033.20
060-3324-0	R24	RES,METAL FILM, 332K, 1/8W, 1%	ECI	M1F1AK332.00
060-3924-0	R26	RES,METAL FILM, 392K, 1/8W, 1%	ECI	M1F1AK392.00
060-4751-0	R16 R21 R35 R38	RES,METAL FILM, 475 ohm, 1/8W, 1%	ECI	M1F1AJ475.00
060-4752-0	R25 R74	RES,METAL FILM, 4.75K, 1/8W, 1%	ECI	M1F1AK004.75
060-4753-0	R46-47 R49 R55 R63	RES,METAL FILM, 47.5K, 1/8W, 1%	ECI	M1F1AK047.50
060-4754-0	R45 R50 R54 R57	RES,METAL FILM, 475K, 1/8W, 1%	ECI	M1F1AK475.00
060-4992-0	R17	RES,METAL FILM, 4.99K, 1/8W, 1%	ECI	M1F1AK004.99
060-5622-0	R32,58,60,62,64,73	RES,METAL FILM, 5.62K, 1/8W, 1%	ECI	M1F1AK005.62
060-9092-0	R19	RES,METAL FILM, 9.09K, 1/8W, 1%	ECI	M1F1AK009.09
070-1513-0	R23	POT,50K-15A,7MM,KNURL.,1W	SONG HUEI	16K1-A50K-L15KC
070-1514-0	R37,44,52,59,66,72	POT,50KB,7MM,KNURL.,1W	SONG HUEI	16K1-B50K-L15KC
070-1522-0	R33 R76	POT,2KB,7MM,KNURL.,1W	SONG HUEI	16K1-B2K-L15KC
090-0007-0	S1	SWITCH, 8A/128A,250V,PP,PCB	TECX	KDC-A04-10-B, B2-F
090-0012-0	S2-6	SWITCH,MIMI PP,DPDT.,1A BRK/MAKE,	ELKECTRONIC COMP	MTH2UEE-1D911
092-0066-0	J4-5	FASTON, M, PC, .250"	KEYSTONE	1021
092-0081-0	J6-9	JACK,1/4",MONO,PC,NON GROUNDING	NEUTRIK	S102-84
092-0084-0	J1	CON,XLR,MALE,PC,PL, SCREW MNT	NEUTRIK	X906-05
093-0051-0	J3	HDR, 2MMX2, VERT, LOCK	JST	B2B-PH-K-S
093-2005-0	J2	HDR, 2MMX7, VERT, SHROUDED	JST	B7B-PH-K-S
145-0241-A		400RB-IV PREAMP RAW BOARD		



PCB WORK INSTRUCTIONS

DWG #420-0241-A1

NOTES:

UNLESS OTHERWISE SPECIFIED:

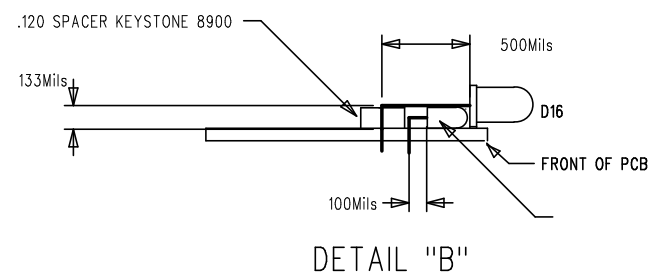
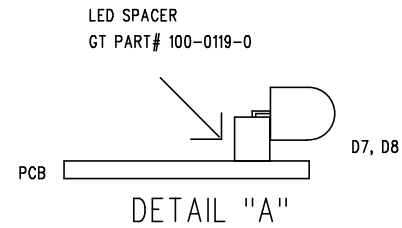
1. SQUARE PADS ON THRU HOLE PARTS (ie: CONNECTORS, DIPS, SIPS, LEDS) DENOTE PIN 1.
2. ALL BOARDS REQUIRE A COMPLETE AND THOROUGH VISUAL INSPECTION.
3. ALL BOARDS MUST BE BARE BOARD TESTED.
4. ASSEMBLE AND SOLDER PER ANSI/IPC-A-610B.

LOADING

5. CLIP BUSHING TABS OFF ON POTS R23, 33, 37, 44, 52, 59, 66, 72, 76
6. SEE DETAIL A FOR MOUNTING D7 AND 8
7. SEE DETAIL "B" FOR MOUNTING D16 AND D17

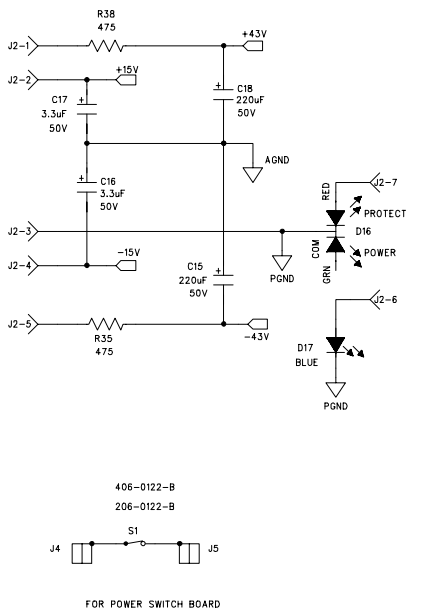
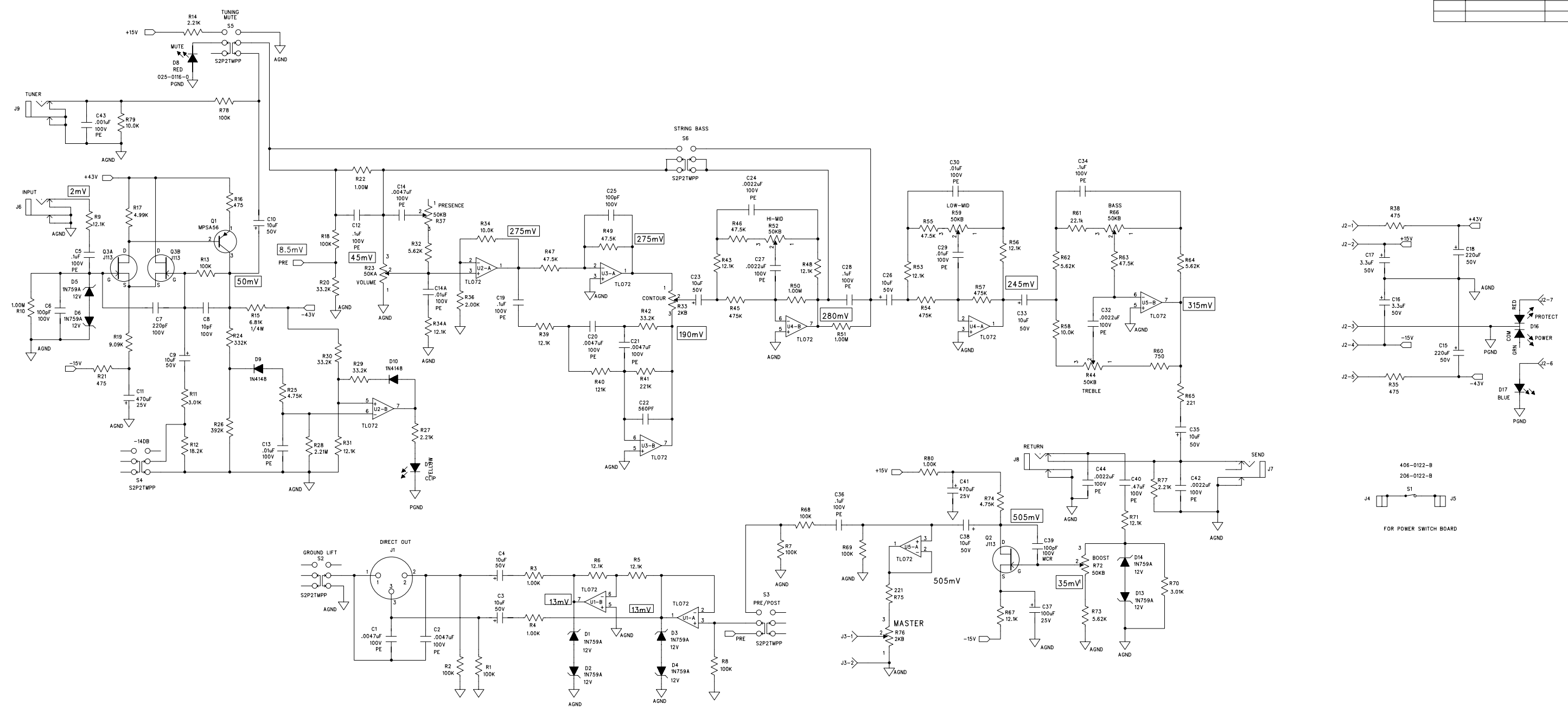
FINAL QA

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



NOT VALID UNLESS STAMP IS RED		2234 INDUSTRIAL DRIVE STOCKTON CA, 95206 VOICE: 209-234-7300 FAX: 209-234-8420	
<p style="text-align: center;">gallien technology</p>		TITLE: 400RB-IV PRE-AMP BD	
		DESIGNED: R.A.G. 1/6/98	SIZE: B
DRAWN: R.A.G. 8/06/03		DRAWING NO: 405-0241-A1	REV. A1
ELEC:		PART NO: 145-0241-A1	
MECH:		COMPANY:	
GERBER FILE NAME: sst0126.pho		FILENAME: 5241A1	
LAYER DESCRIPTION: TOP SIDE ROUTING			

REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:



TEST CONDITIONS:
 1. All test point voltages are in RMS, with 200 Hz, 2 mV (-53.9 dBV) sine wave input.
 2. CONTOUR and PRESENCE on zero (off).
 Switches out, all tones, boost and volume on 10



NOT VALID UNLESS STAMP IS RED

gallien technology

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

REV A2: PREAMP REVISED.	APPROVALS	TITLE:	400RB-IV PREAMP
1. CHANGE BOARD # FROM 0241-A1 TO 0241-A2.	INIT	DATE	DRAWING NO: 400RB-IV PREAMP
2. CHANGE R50 TO 1M FROM 475K.	DESIGNED: R.A.G.	5/19/99	PART NO: 206-0241-A2
3. CHANGE R58 TO 10K FOM 5.62K.	DRAWN: Noli	8/16/04	REV: A2
4. CHANGE R60 TO 750 FROM 5.62K.	MECH:		COMPANY: GALLIEN-KRUEGER
	Q/A:		FILENAME: 6241A2
	RELEASED:		

GALLIEN-KRUEGER

400RB-IV Preamp		Bill Of Materia	206-0241-A2		
Part No.	Reference	Description	Manufacturer	Mfr. Part No.	Quan
032-4102-0	C43	CAP,PE,102,5%,100V,	PANASONIC	ECQB1102JF	1
032-4222-0	C24 C27 C32 C42 C44	CAP,PE,222,5%,100V,	PANASONIC	ECQB1222JF	5
032-4472-0	C1-2 C14 C20-21	CAP,PE,472,5%,100V,	PANASONIC	ECQB1472JF	5
032-4103-0	C13 C29-30 C14A	CAP,PE,103,5%,100V,	PANASONIC	ECQV1103JM	4
032-4104-0	C5 C12 C19 C28 C34 C36	CAP,PE,104,5%,100V,	PANASONIC	ECQV1104JM	6
032-4474-0	C40	CAP,PE,474,5%,100V,	PANASONIC	ECQV1474JM	1
034-4101-0	C6 C25 C39	CAP,MCR,100pF,5%,100V,	TAITRON	TMRS101J100NPOB	3
031-1107-0	C37	CAP,ELEC,RAD,107,20%,25V	UNITED CHEMI-CON	SMG25VB101M6X11LL	1
034-4100-0	C8	CAP, MCR,10pF,5%,100V,NPO	TAITRON	TMRS100J100NPOB	1
031-2106-0	C3-4 C9-10 C23 C26 C33 C35 C38	CAP,ELEC,RAD, 106, 20%, 50V	UNITED CHEMI-CON	SMG50VB10RM5X11LL	9
034-4221-0	C7	CAP,MCR,220pF,5%,100V,	TAITRON	TMRS221J100NPOB	1
031-2227-0	C15 C18	CAP, ELEC, 220uF, 20%, 50V	UNITED CHEMI-CON	SMG50VB221M10X12LL	2
031-2335-0	C16-17	CAP,ELEC,RAD,335,20%,50V	UNITED CHEMI-CON	SMG50VB3R3M5X11LL	2
031-1477-0	C11 C41	CAP, ELEC, RAD, 470uF, 20%, 25V	UNITED CHEMI-CON	SMG25VB471M10X12LL	2
034-4561-0	C22	CAP,MCR,560pF,5%,100V,	TAITRON	TMRS561J100NPOB	1
092-0081-0	J6-9	JACK,1/4",MONO,PC,NON GROUNDING	NEUTRIK	S102-84	4
092-0066-0	J4-5	FASTON, M, PC, .250"	KEYSTONE		1021 2
092-0084-0	J1	CON,XLR,MALE,PC,PL, SCREW MNT	NEUTRIK	X906-05	1
020-1000-0	D9-10	1N4148, RECT-FAST, 200MA, 100V	MOTOROLA	1N4148	2
020-0120-0	D1-6 D13-14	1N759A, ZENER,12V,5%,400MW, DO-35	MOTOROLA	1N759A	8
093-0051-0	J3	HDR, 2MMX2, VERT, LOCK	JST	B2B-PH-K-S	1
093-2005-0	J2	HDR, 2MMX7, VERT, SHROUDED	JST	B7B-PH-K-S	1
001-1030-1	U1-5	TLO72CP, LOW NOISE JFET OPAMP	MOTOROLA	TL072CP	5
025-0030-2	D17	LED,BLUE, 10MA	LITEON	LTL-42B6	1
025-0012-0	D16	LED,RED/GRN,5MM,630NM/560NM,15MCD/15MCD	STANLEY	VRPG5614S	1
025-0116-0	D8	LED,RED, 3MM, 635NM, 6MCD, 10MA, 40DEG	EVERLIGHT	EL2041D	1
025-0023-0	D7	LED,YELLOW, 3MM, 585NM, 5MCD, 10MA	EVERLIGHT	EL204YD	1
000-0000-0	X1	.125 HOLE, NON-PLATED			1
070-1522-0	R33 R76	POT,2KB,7MM,KNURL,.1W	SONG HUEI	16K1-B2K-L15KC	2
070-1513-0	R23	POT,50K-15A,7MM,KNURL,.1W	SONG HUEI	16K1-A50K-L15KC	1
070-1514-0	R37 R44 R52 R59 R66 R72	POT,50KB,7MM,KNURL,.1W	SONG HUEI	16K1-B50K-L15KC	6
060-1002-0	R3-4 R80	RES,METAL FILM, 1.00K, 1/8W, 1%	ECI	M1F1AK001.00	3
060-1005-0	R10 R22 R51	RES, MF, 1.00M, 1%,1/8W, 060-1005-0	ECI	M1F1AM001.00	3
060-1005-0	R50	RES, METAL FILM, 1.00M, 1/8W, 1%	ECI	M1F1AK475.00	1
060-1003-0	R34 R79	RES,METAL FILM, 10.0K, 1/8W,1%	ECI	M1F1AK010.00	2
060-1003-0	R58	RES,METAL FILM, 10.0K, 1/8W,1%	ECI	M1F1AK005.62	1
060-1004-0	R1-2 R7-8 R13 R18 R68-69 R	78 RES,METAL FILM, 100K, 1/8W, 1%	ECI	M1F1AK100.00	9
060-1213-0	R5-6 R9 R31 R39 R43 R48 R5 R56 R71 R34A	3 RES,METAL FILM, 12.1K OHM, 1/8W, 1%	ECI	M1F1AK012.10	11
060-1213-0	R67	RES,METAL FILM, 12.1K, 1/8W, 1%	ECI	M1F1AK012.10	1
060-1214-0	R40	RES,METAL FILM, 121K, 1/8W, 1%	ECI	M1F1AK121.00	1
060-1823-0	R12	RES,METAL FILM, 18.2K, 1/8W, 1%	ECI	M1F1AK018.20	1
060-2002-0	R36	RES,METAL FILM, 2.00K, 1/8W, 1%	ECI	M1F1AK002.00	1
060-2212-0	R14 R27 R77	RES,METAL FILM, 2.21K, 1/8W, 1%	ECI	M1F1AK002.21	3
060-2215-0	R28	RES, METAL FILM, 2.21M, 1/8W, 1%	ECI	M1F1AM002.21	1
060-2213-0	R61	RES,METAL FILM, 22.1K, 1/8W, 1%	ECI	M1F1AK022.10	1
060-2214-0	R41	RES,METAL FILM, 221K, 1/8W, 1%	ECI	M1F1AK221.00	1
060-2211-0	R65 R75	RES,METAL FILM, 221 ohm, 1/8W, 1%	ECI	M1F1AJ221.00	2
060-3012-0	R11 R70	RES,METAL FILM, 3.01K, 1/8W, 1%	ECI	M1F1AK003.01	2
060-3323-0	R20 R29-30 R42	RES,METAL FILM, 33.2K, 1/8W, 1%	ECI	M1F1AK033.20	4
060-3324-0	R24	RES,METAL FILM, 332K, 1/8W, 1%	ECI	M1F1AK332.00	1
060-3924-0	R26	RES,METAL FILM, 392K, 1/8W, 1%	ECI	M1F1AK392.00	1
060-4752-0	R25 R74	RES,METAL FILM, 4.75K, 1/8W, 1%	ECI	M1F1AK004.75	2
060-4992-0	R17	RES,METAL FILM, 4.99K, 1/8W, 1%	ECI	M1F1AK004.99	1
060-4753-0	R46-47 R49 R55 R63	RES,METAL FILM, 47.5K, 1/8W, 1%	ECI	M1F1AK047.50	5
060-4754-0	R45 R54 R57	RES,METAL FILM, 475K, 1/8W, 1%	ECI	M1F1AK475.00	3
060-4751-0	R16 R21 R35 R38	RES,METAL FILM, 475 ohm, 1/8W, 1%	ECI	M1F1AJ475.00	4
060-5622-0	R32 R62 R64 R73	RES,METAL FILM, 5.62K, 1/8W, 1%	ECI	M1F1AK005.62	4
052-6812-0	R15	RES, METAL FILM, 6.81K OHM, 1/4W, 1%	ECI	M2F1AK006.81	1
060-7501-0	R60	RES,METAL FILM, 750, 1/8W, 1%	ECI	M1F1AK005.62	1
060-9092-0	R19	RES,METAL FILM, 9.09K, 1/8W,1%	ECI	M1F1AK009.09	1
090-0012-0	S2-6	SWITCH,MIMI PP,DPDT,.1A BRK/MAKE,PC TERM	ELKECTRONIC COMP	MTH2UEE-1D911	5
090-0007-0	S1	SWITCH, 8A/128A,250V,PP,PCB	TECX	KDC-A04-10-B, B2-F	1
010-2010-0	Q2 Q3A Q3B	J113,N-JFET,35V,2MA,TO-92	NATIONAL	J113	3
010-1013-0	Q1	MPSA56 PNP 80V 500MA TO-92	MOTOROLA	MPS-A56	1
145-0241-A		400RB-IV PREAMP RAW BOARD			1.00

Customer Name:	Gallien-Krueger	Current Rev #:	A1	New ECO Rev #:	A2
Model:	400RB-IV	Distribute To:		Page:	1
Assembly Description:	Preamp	Originator:	Enrique Hernandez		
Assembly Numbers:	206-0241-A	Approved by:			
		Effective Date:	8/2/2004		

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	<input type="checkbox"/>			
Beginning Serial Number:		<input checked="" type="checkbox"/>	BOM		Noli

Reason For Change		Document Update		Date	Initials
Re-voicing of the Pre-Amp:		<input type="checkbox"/>	Artwork		
Resistors R50, R58, and R60 were replaced with different value resistors, as listed below, to reduce brightness, and increase low end bass efficiency of the amplifier.		<input type="checkbox"/>	Assembly Dwg.		
		<input type="checkbox"/>	Board Artwork		
		<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		Noli
		<input checked="" type="checkbox"/>	Schematic	8/16/04	Noli
		<input type="checkbox"/>	Service Manual		
		<input checked="" type="checkbox"/>	Test Procedure		
		<input type="checkbox"/>			
		<input type="checkbox"/>			

		Other Affected Assemblies			
		302 and 303 Assemblies			
<input type="checkbox"/>	Continued on ECO Supplement Page				

Description Of Change		Distribution		Date	Initials
Update BOM.		<input type="checkbox"/>	Accounting		
		<input type="checkbox"/>	Assembly		
Update Part Master File.		<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 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
060-4754-0	475K, 1/8W, MF			1	R50
060-5622-0	5.62K, 1/8W, MF			1	R58
060-5622-0	5.62K, 1/8W, MF			1	R60
060-1005-0	1M, 1/8W, MF	1	R50		
060-1003-0	10K, 1/8W, MF	1	R58		
060-7501-0	750 ohm, 1/8W, MF	1	R60		

ZONE	Dim.	ECO#	Rev.	REVISIONS		Date

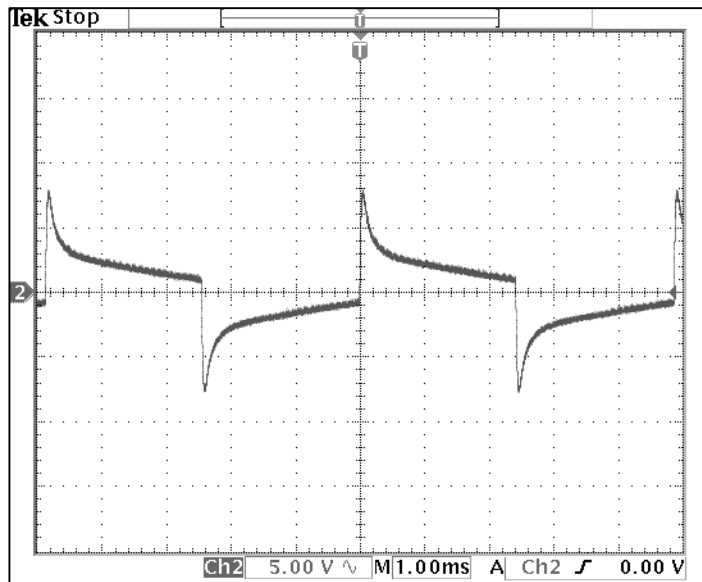


Figure 1
Tones center, Filters OFF

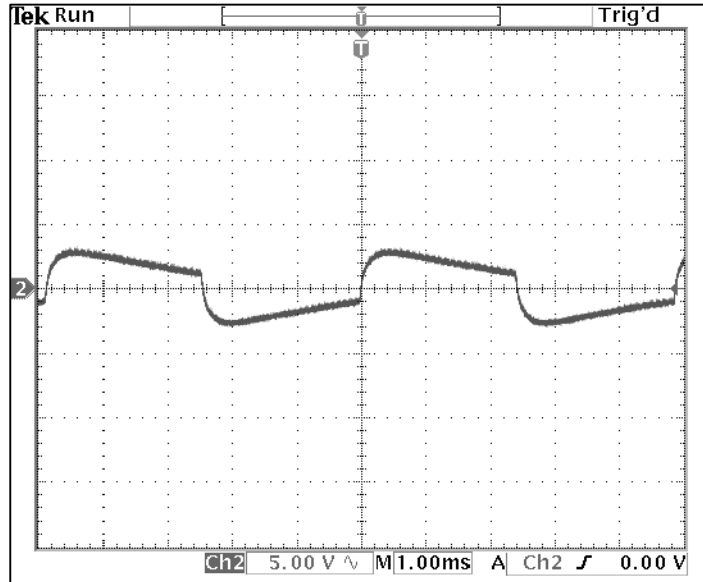


Figure 3
TREBLE to 0

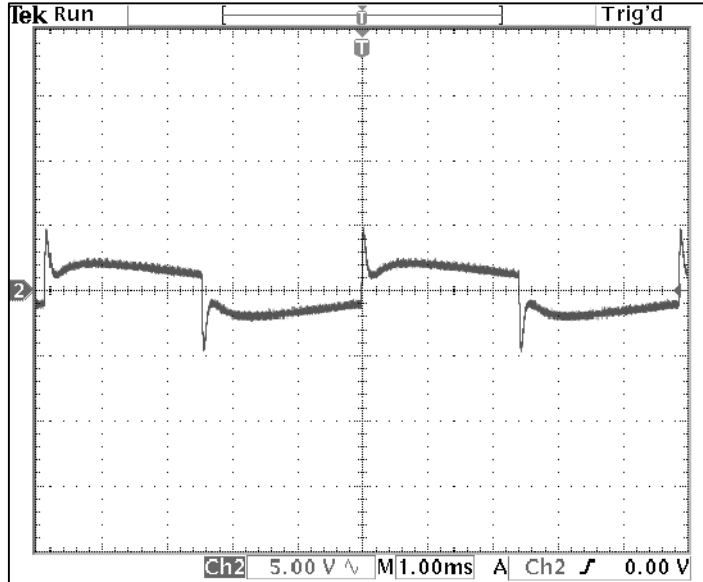


Figure 5
HI-MID to 0

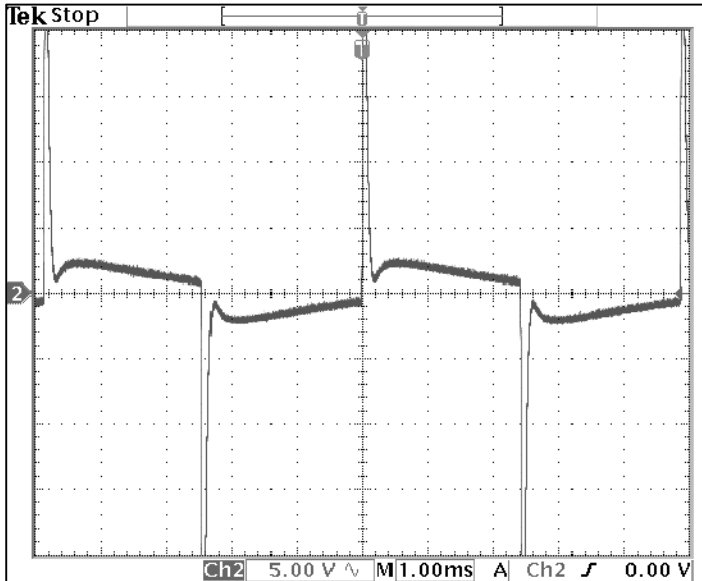


Figure 2
TREBLE to 10

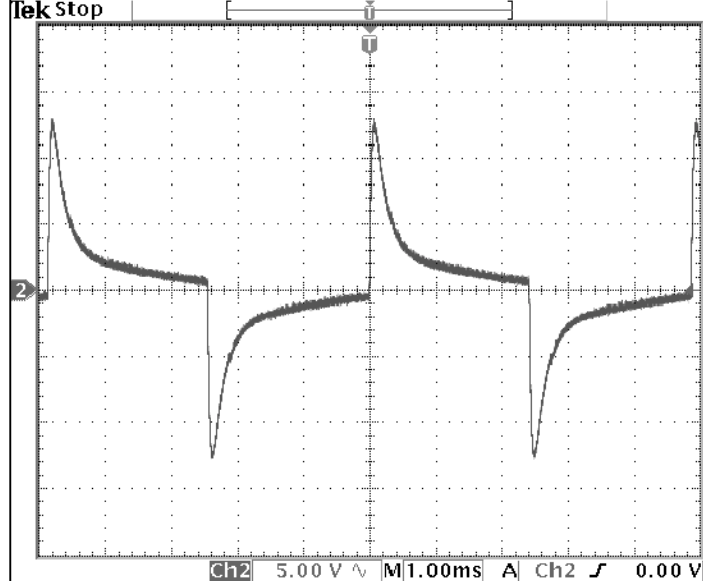


Figure 4
HI-MID to 10

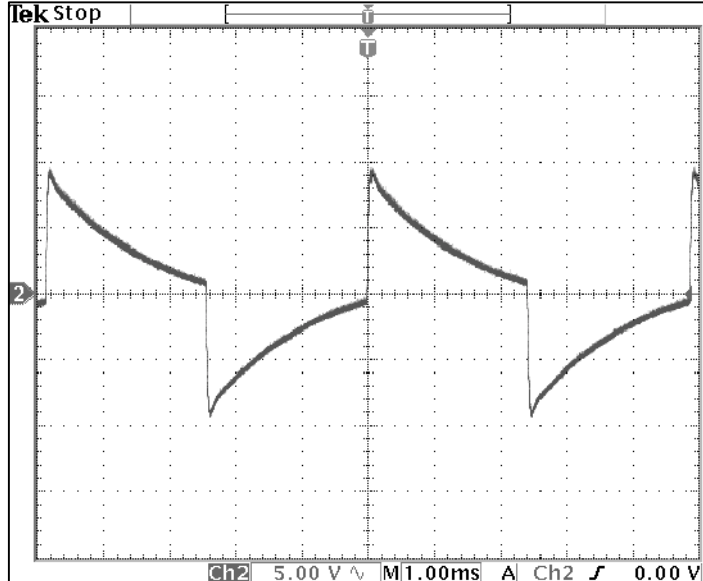


Figure 6
LO-MID to 10

Set up:

1. Apply signal into the input with 200Hz square wave @ -46dBV(5mVrms).
2. Set VOLUME, all ACTIVE EQ's, BOOST and MASTER to center(half way), CONTOUR and PRESENCE to 0.
3. Look at output with scope set on 1mS/div and 5V/div.

QTY PER ASSY	PART NUMBER	DESCRIPTION	DESIGNATION(S)	ITEM NO.
PROPRIETARY				
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<small>TOLERANCES UNLESS OTHERWISE INDICATED DIMENSIONS SHOWN ARE IN INCHES</small> FRACTION ± ANGLES ± .XX ± 0.01 .XXX ± 0.005		gallien technology 2234 INDUSTRIAL DRIVE STOCKTON, CA 95206		
		TITLE: 400RB-IV PREAMP TEST WAVEFORMS		
<small>MATERIAL: (SEE NOTE 1)</small> <small>FINISH: (SEE NOTE 1)</small>		<small>APPROVALS</small> INIT DATE MECH. DESIGN: ATM 04/22/04 DRAWN BY: ATM PROJ. MGR.: Q/A: RELEASED:		<small>SIZE B</small> <small>DRAWING NUMBER: 206-0241-A1</small> <small>REVISION A1</small>
		<small>SCALE: NOT TO SCALE</small>		<small>SHEET 1 OF 2</small>

ZONE	Dim.	ECO#	Rev.	REVISIONS		Date

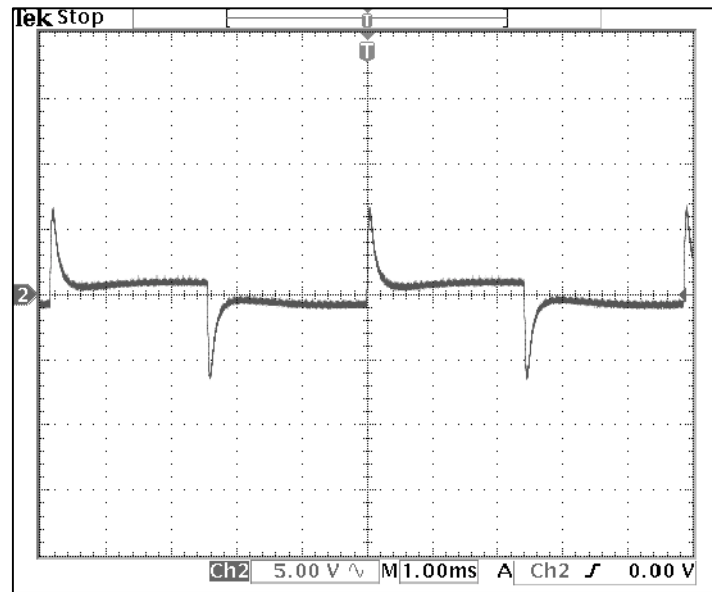


Figure 7
LO-MID to 0

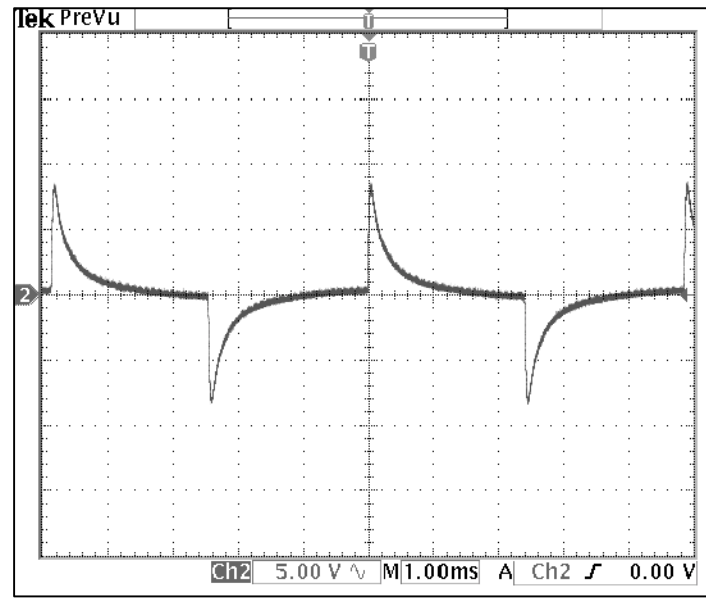


Figure 9
BASS to 0

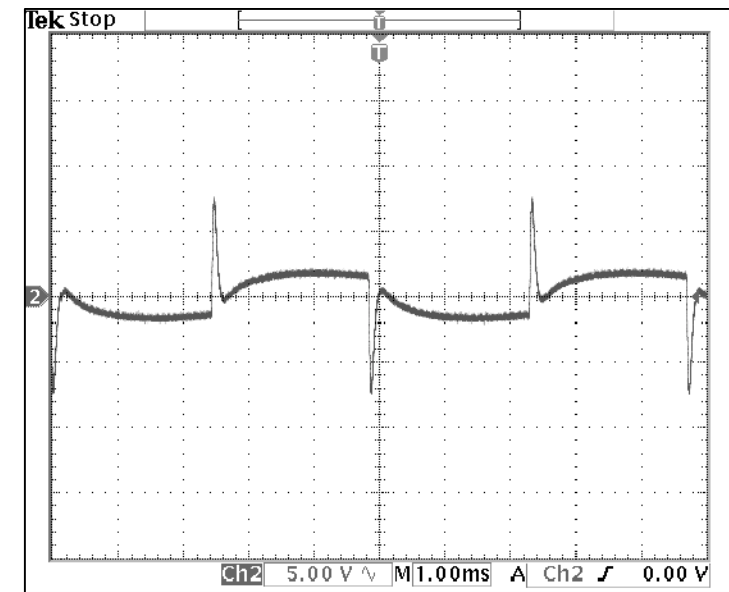


Figure 11
CONTOUR to 10

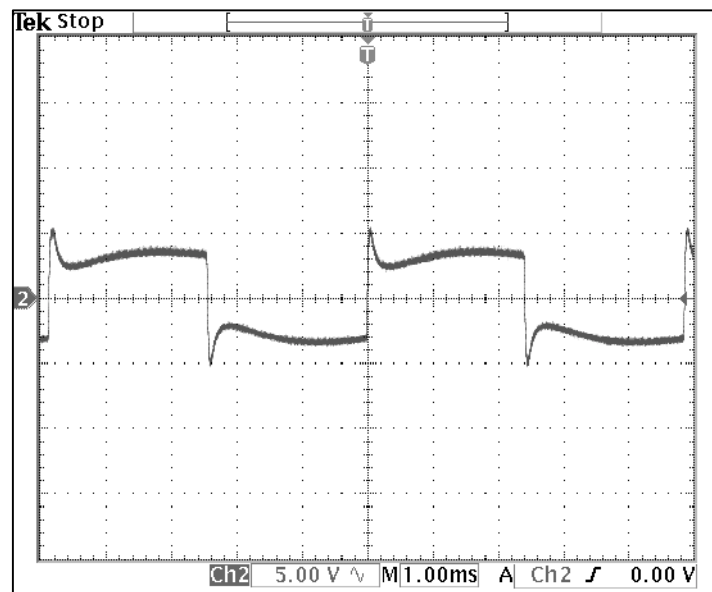


Figure 8
BASS to 10

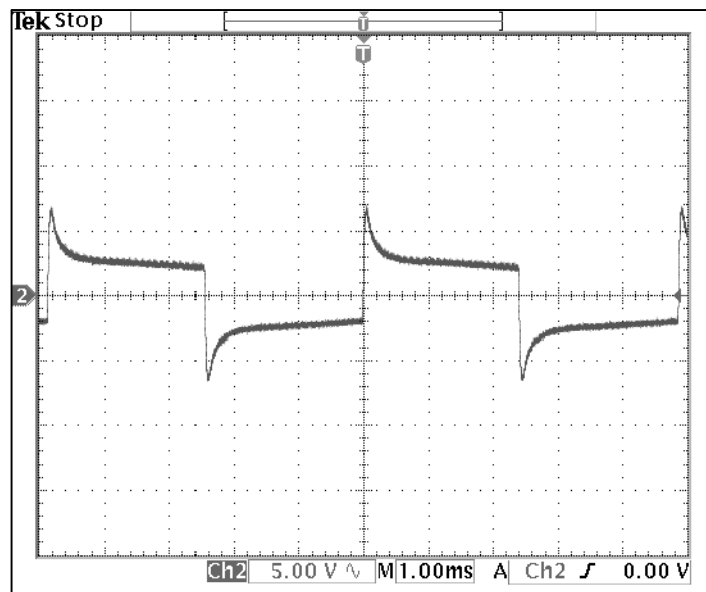


Figure 10
STRING BASS SWITCH IN

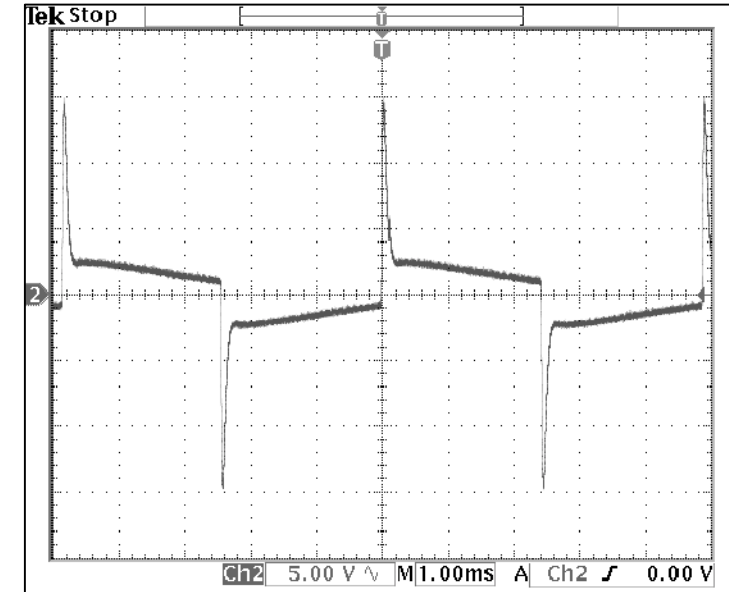


Figure 12
PRESENCE to 10

Set up:

1. Apply signal into the input with 200Hz square wave @ -46dBV(5mVrms).
2. Set VOLUME, all ACTIVE EQ's, BOOST and MASTER to center(half way), CONTOUR and PRESENCE to 0.
3. Look at output with scope set on 1mS/div and 5V/div.

QTY PER ASSY	PART NUMBER	DESCRIPTION	DESIGNATION(S)	ITEM NO.
PROPRIETARY				
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<small>TOLERANCES UNLESS OTHERWISE INDICATED DIMENSIONS SHOWN ARE IN INCHES</small> FRACTION ± ANGLES ± .XX ± 0.01 .XXX ± 0.005		APPROVALS		
		INIT	DATE	
MATERIAL: (SEE NOTE 1)		MECH. DESIGN:	DRAWN BY: ATM 04/22/04	
FINISH: (SEE NOTE 1)		PROJ. MGR.:	ELEC:	
		Q/A:	RELEASED:	
		TITLE: 400RB-IV PREAMP TEST WAVEFORMS		SIZE: B DRAWING NUMBER: PART NUMBER: 206-0241-A1 REVISION: A1
		SCALE: NOT TO SCALE		SHEET 2 OF 2

A

B

C

D

E

F

ZONE	Dim.	ECO#	Rev.	REVISIONS		Date

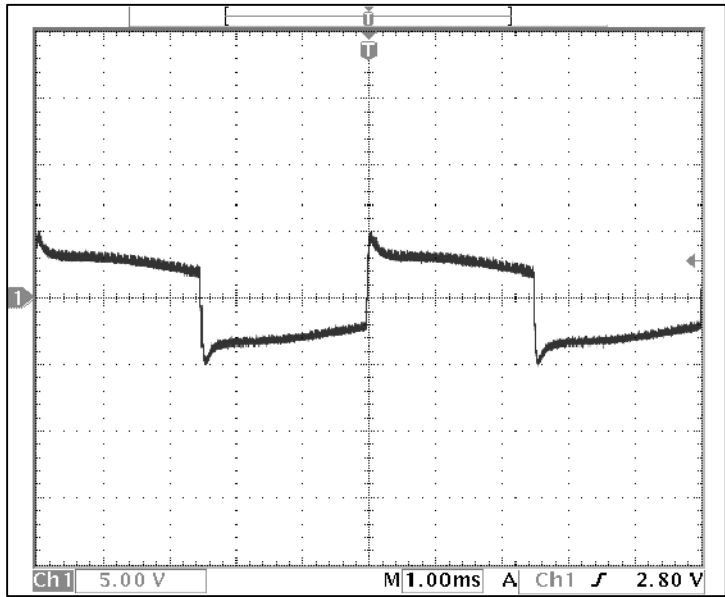


Figure 1
Tones center, Filters off

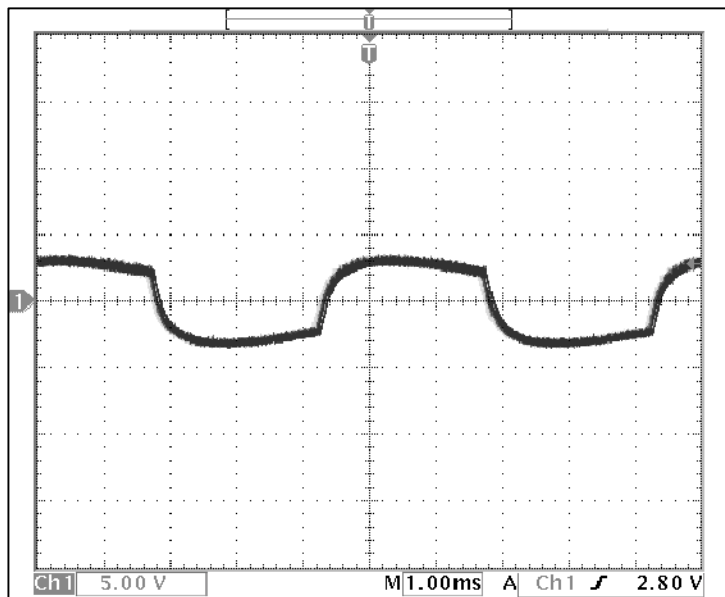


Figure 2
Treble to 0

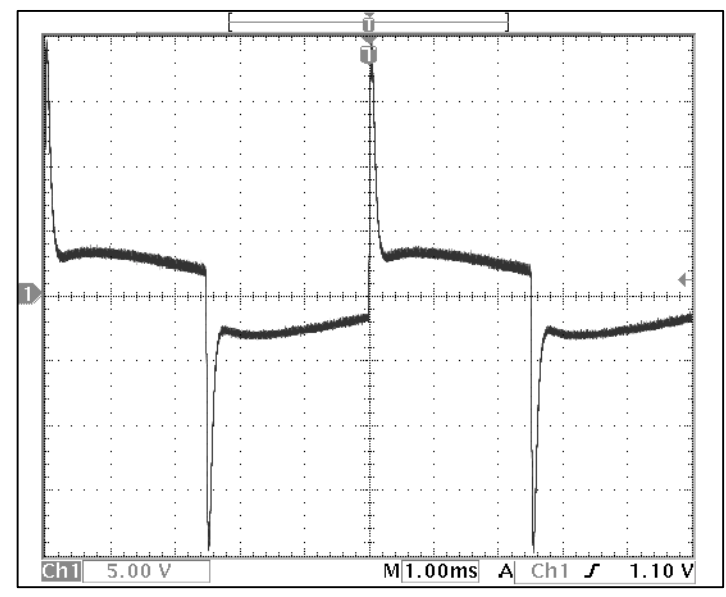


Figure 3
Treble to 10

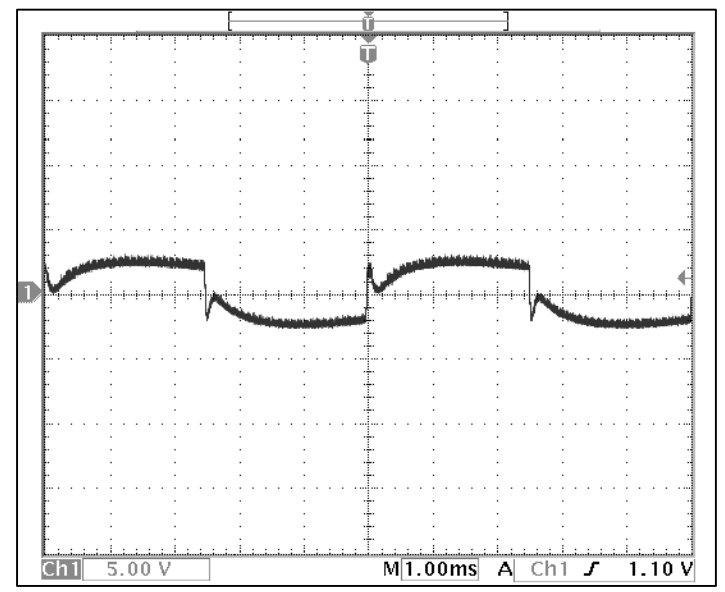


Figure 4
Hi-Mid to 0

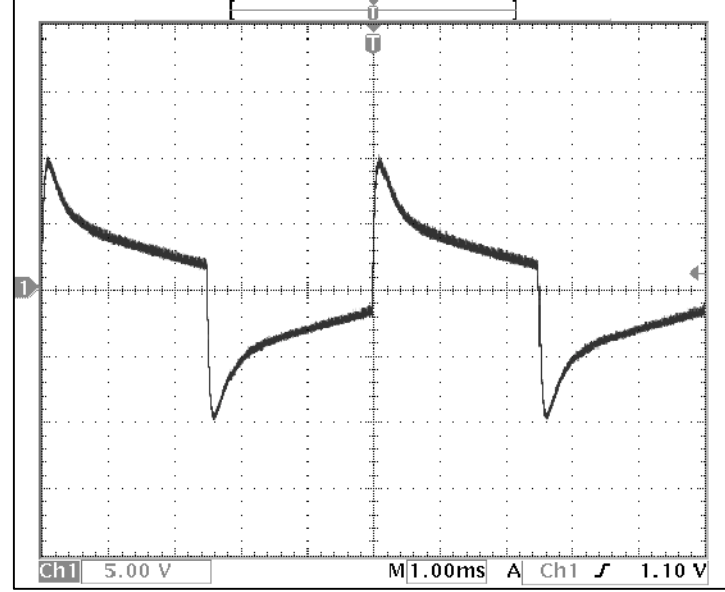


Figure 5
Hi-Mid to 10

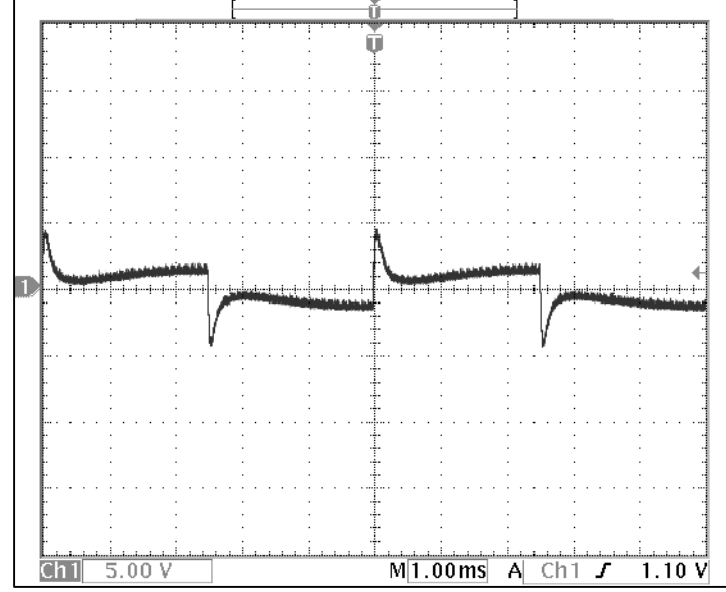


Figure 6
Lo-Mid to 0

1. Apply signal into the input with 200Hz square wave @ -46dBV(5mVrms).
2. Set Volume, all Active EQ's, Boost and Master to center(halfway), Contour and Presence to 0.
3. Look at output with scope set on 5V/div and 1ms/div.

HOLE REFERENCE CHART		
HOLE	DESCRIPTION	QTY.

QTY PER ASSY		PART NUMBER		DESCRIPTION	DESIGNATION(S)	ITEM NO.
PROPRIETARY			PARTS LIST			
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UNLESS OTHERWISE INDICATED DIMENSIONS SHOWN ARE IN INCHES			TITLE: 400RB-IV			
TOLERANCES		APPROVALS		SIZE	DRAWING NUMBER:	REVISION
FRACTION ±	INIT	DATE	B	206-0241-A2	A2	
ANGLES ±	MECH. DESIGN:	ELEC:	FILENAME:			
.XX ± 0.01	DRAWN BY: EAH	8/19/04	SCALE: NOT TO SCALE			
.XXX ± 0.005	ELEC:		SHEET 1 OF 2			
MATERIAL: (SEE NOTE 1)	PROJ. MGR.:					
FINISH: (SEE NOTE 1)	Q/A:					
	RELEASED:					

A

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D

E

F

ZONE	Dim.	ECO#	Rev.	REVISIONS		Date

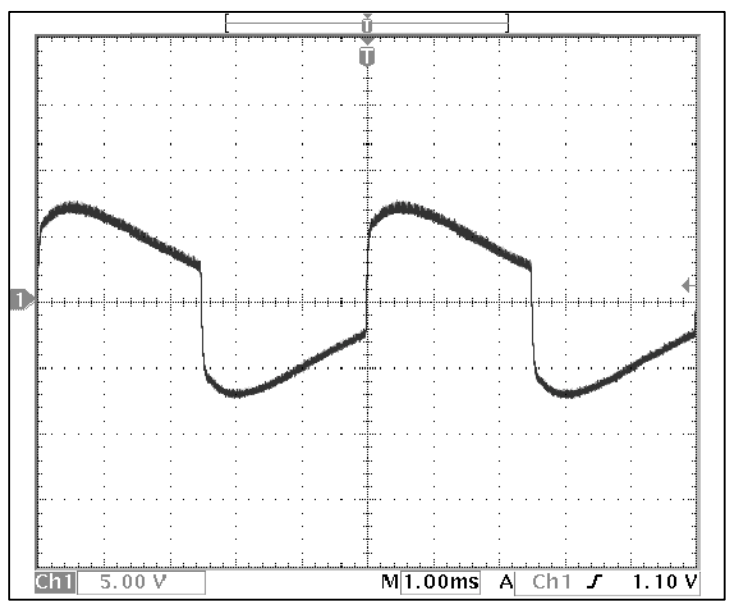


Figure 7
Lo-Mid to 10

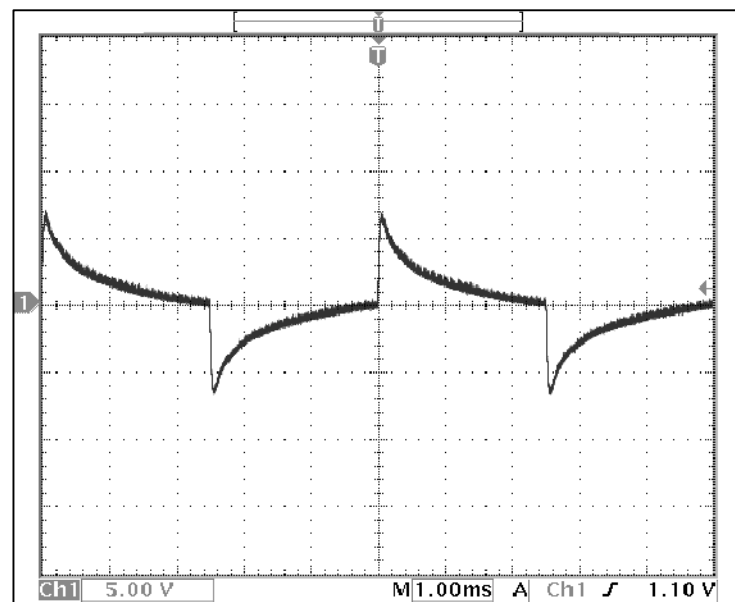


Figure 8
Bass to 0

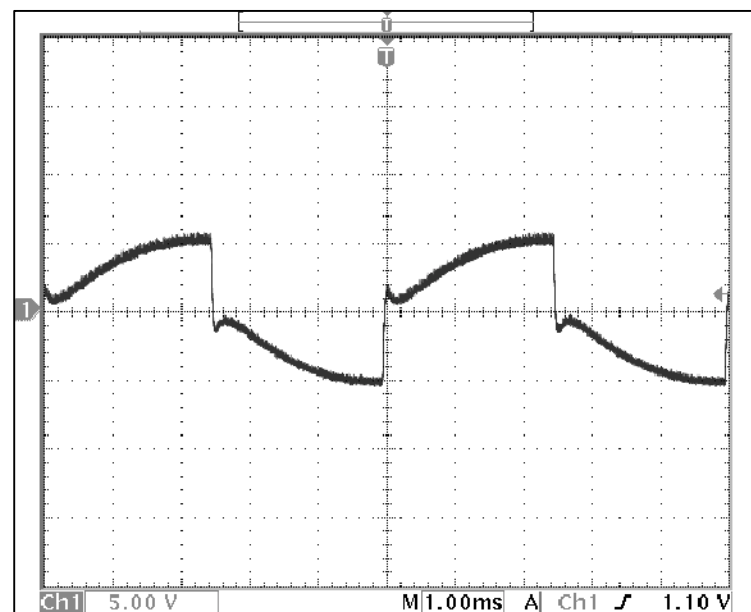


Figure 9
Bass to 10

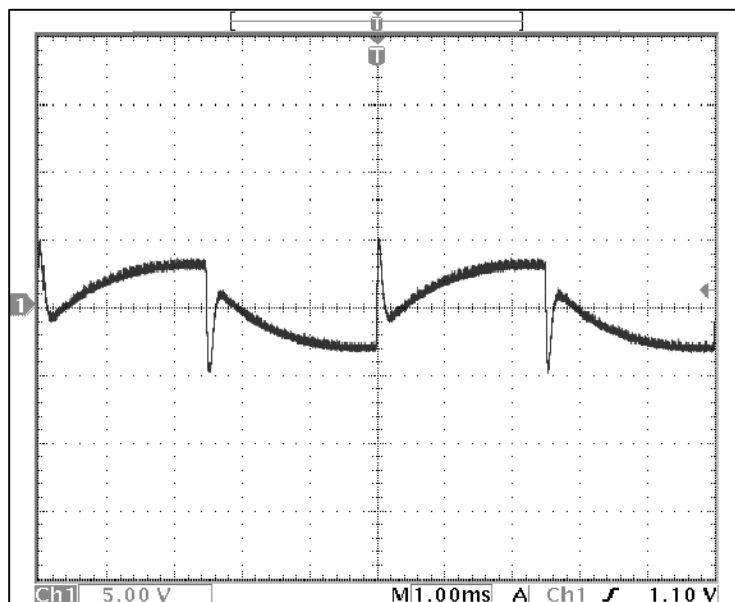


Figure 10
Contour to 10

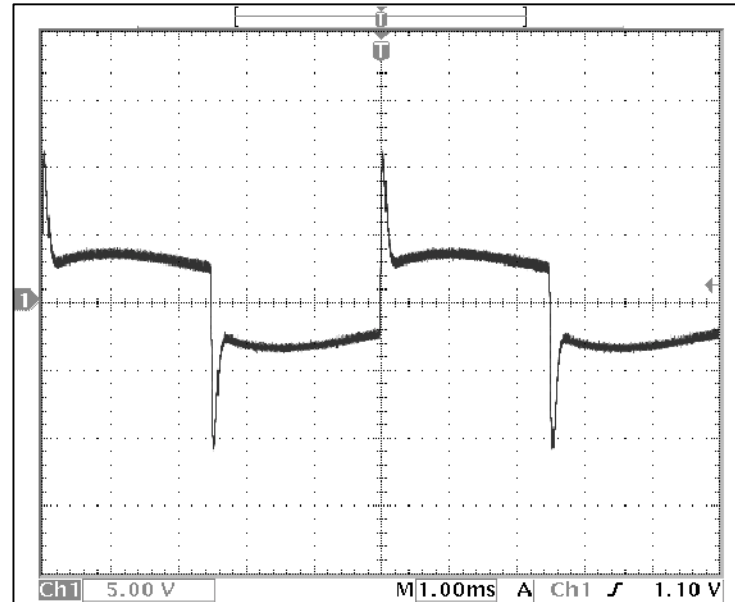


Figure 11
Presence to 10

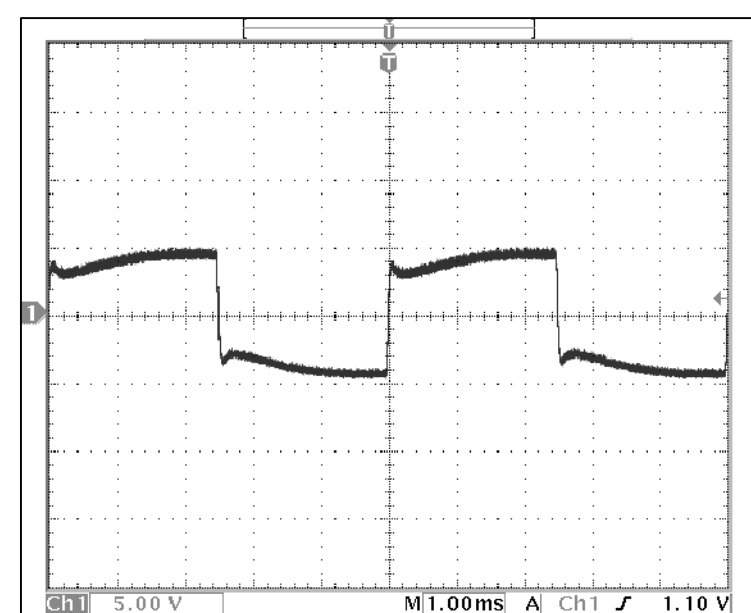


Figure 12
String Bass Switch In

1. Apply signal into the input with 200Hz square wave @ -46dBV(5mVrms).
2. Set Volume, all Active EQ's, Boost and Master to center(halfway), Contour and Presence to 0.
3. Look at output with scope set on 5V/div and 1ms/div.

HOLE REFERENCE CHART		
HOLE	DESCRIPTION	QTY.

QTY PER ASSY		PART NUMBER		DESCRIPTION	DESIGNATION(S)	ITEM NO.
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PART NUMBER: 206-0241-A2			REVISION: A2		FILENAME:	
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