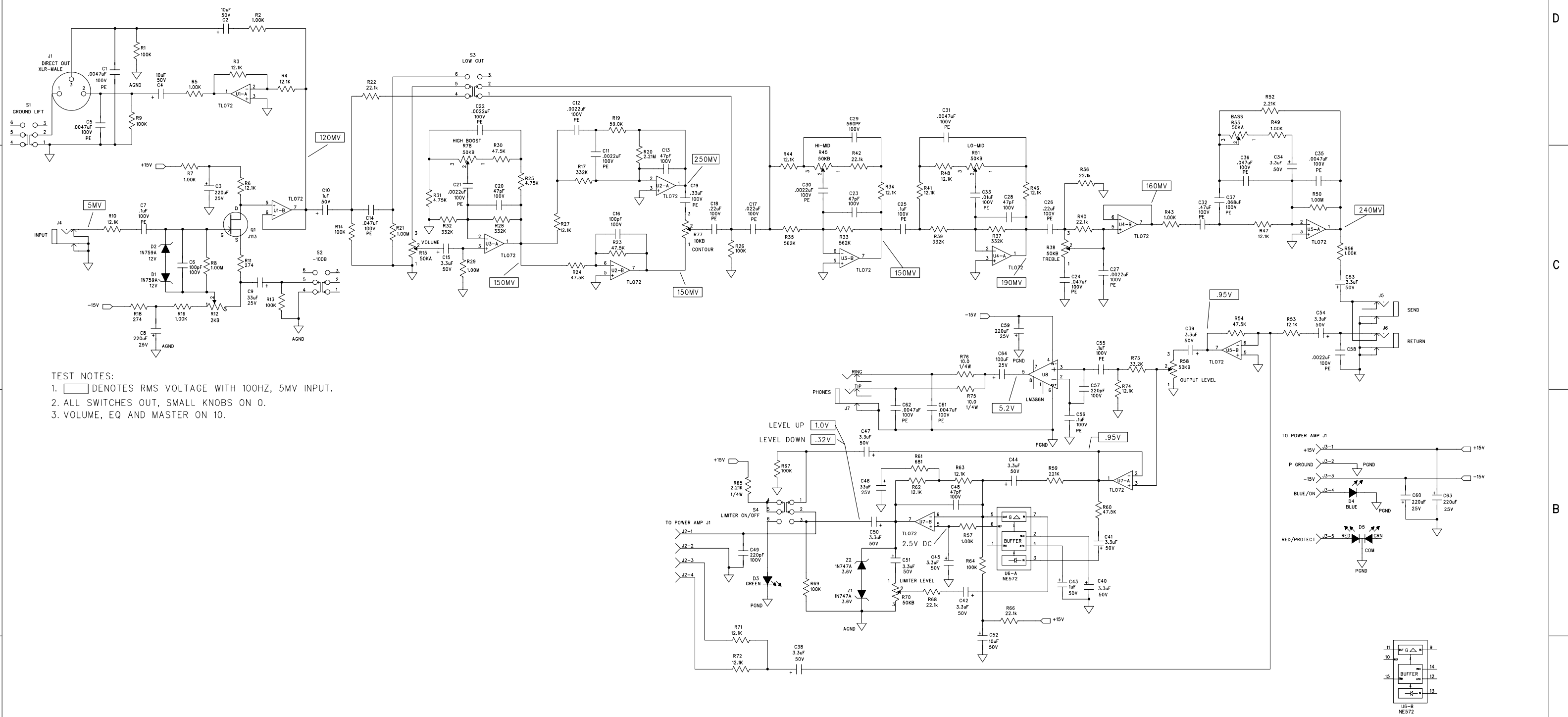


REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:



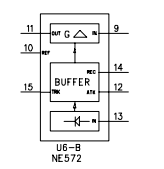
TEST NOTES:
 1. [] DENOTES RMS VOLTAGE WITH 100HZ, 5MV INPUT.
 2. ALL SWITCHES OUT, SMALL KNOBS ON 0.
 3. VOLUME, EQ AND MASTER ON 10.

NOT VALID UNLESS STAMP IS RED

gallien technology

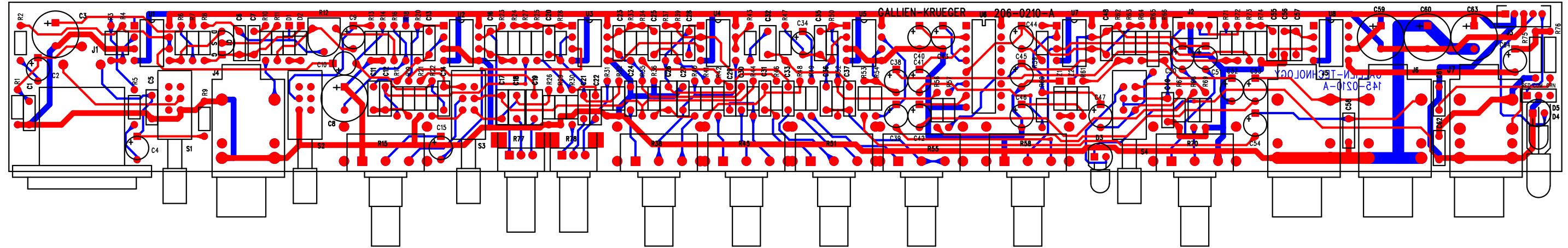
2240 PARAGON DRIVE
 SAN JOSE CA. 95131
 VOICE: 408-441-8081
 FAX: 408-441-8085

DESIGNED: R.A.G. 3/21/01		DATE: 3/21/01		TITLE: MB150S-III PREAMP	
DRAWN: R.A.G. 12/25/02		DATE: 12/25/02		SIZE: 406-0210-A	
ELEC:		MECH:		PART NO: 206-0210-A	
Q/A:		RELEASED:		COMPANY: GALLIEN-KRUEGER	
				FILENAME: 6210A.sch	



GK GALLIEN-KRUEGER

MB150S-III Preamp		Bill Of Material		206-0210-A	
Part No.	Reference	Description	Manufacturer	Mfr. Part No.	Quan
001-1030-1	U1-5 U7	TLO72CP, LOW NOISE JFET OPAMP	MOTOROLA	TL072CP	6.00
001-1038-0	U8	LM386 LOW VOLTAGE POWER AMP	NATIONAL	LM386	1.00
001-4045-0	U6	NE572,DUAL COMPANDER	PHILLIPS	SA572N	1.00
010-2010-0	Q1	J113,N-JFET,35V,2MA,TO-92	NATIONAL	J113	1.00
020-0036-0	Z1-2	1N747A, ZENER, 3.6V, 5%, 400MW, DO-35	TAITRON	1N747A	2.00
020-0120-0	D1-2	1N759A, ZENER, 12V,5%,400MW, DO-35	MOTOROLA	1N759A	2.00
025-0012-0	D5	LED,RED/GRN,5MM,630NM/560NM,15MCD/15	STANLEY	VRPG5614S	1.00
025-0030-2	D4	LED,BLUE, 10MA	LITEON	LTL-42B6	1.00
025-0101-0	D3	LED,GREEN, 3MM, 565NM, 6MCD, 10MA	EVERLIGHT	EL204GD	1.00
031-1107-0	C64	CAP,ELEC,RAD,107,20%,25V	UNITED CHEMI-CON	SMG25VB101M6X11LL	1.00
031-1227-0	C3 C8 C59-60 C63	CAP ELEC, 220uF,20% ,25V	UNITED CHEMICON	SMG25VB221M8X11LL	5.00
031-1336-0	C9 C46	CAP,ELEC,RAD,336,20%,25V	UNITED CHEMI-CON	SRG25VB33RM5X7LL	2.00
031-2105-0	C10 C43	CAP,ELEC,RAD, 105, 20%, 50V	UNITED CHEMI-CON	C440C105M5U5CA	2.00
031-2106-0	C2 C4 C52	CAP,ELEC,RAD, 106, 20%, 50V	UNITED CHEMI-CON	SMG50VB10RM5X11LL	3.00
031-2335-0	C15,34,38-42,44,45,47 C50-51 C53-54	CAP,ELEC,RAD,335,20%,50V	UNITED CHEMI-CON	SMG50VB3R3M5X11LL	14.00
032-4103-0	C33	CAP,PE,103,5%,100V,	PANASONIC	ECQV1103JM	1.00
032-4104-0	C7 C25 C55-56	CAP,PE,104,5%,100V,	PANASONIC	ECQV1104JM	4.00
032-4222-0	C11,12,21,22,27,30,58	CAP,PE,222,5%,100V,	PANASONIC	ECQB1222JF	7.00
032-4223-0	C17	CAP,PE,223,5%,100V,	PANASONIC	ECQV1223JM	1.00
032-4224-0	C18 C26	CAP,PE,224,5%,100V,	PANASONIC	ECQV1224JM	2.00
032-4334-0	C19	CAP,PE,334,5%,100V,	PANASONIC	ECQV1334JM	1.00
032-4472-0	C1,5,31,35,61,62	CAP,PE,472,5%,100V,	PANASONIC	ECQB1472JF	6.00
032-4473-0	C14 C24 C36	CAP,PE,473,5%,100V,	PANASONIC	ECQV1473JM	3.00
032-4474-0	C32	CAP,PE,474,5%,100V,	PANASONIC	ECQV1474JM	1.00
032-4683-0	C37	CAP,PE,683,5%,100V,	PANASONIC	ECQV1683JM	1.00
034-4101-0	C6 C16	CAP,MCR,100pF,5%,100V,	TAITRON	TMRS101J100NPOB	2.00
034-4221-0	C49 C57	CAP,MCR,220pF,5%,100V,	TAITRON	TMRS221J100NPOB	2.00
034-4470-0	C13 C20 C23 C28 C48	CAP,MCR,47PF,5%,100V,NPO	TAITRON	TMRS470J100NPOB	5.00
034-4561-0	C29	CAP,MCR,560pF,5%,100V,	TAITRON	TMRS561J100NPOB	1.00
052-1000-0	R75-76	RES,METAL FILM, 10.0, 1/4W, 1%	ECI	M2F1AJ010.00	2.00
052-2212-0	R65	RES,METAL FILM,2.21k,1/4W,1%	ECI	M2F1AK002.21	1.00
060-1002-0	R2,5,7,16,43,49,56,57	RES,METAL FILM, 1.00K, 1/8W, 1%	ECI	M1F1AK001.00	8.00
060-1004-0	R1,9,13,14,26,64,67,69	RES,METAL FILM, 100K, 1/8W, 1%	ECI	M1F1AK100.00	8.00
060-1005-0	R8 R21 R29 R50	RES, MF, 1.00M, 1%, 1/8W, 060-1005-0	ECI	M1F1AM001.00	4.00
060-1213-0	R3,4,6,10,27,34,41,44 R46-48,53,62,63,71,72,74	RES,METAL FILM, 12.1K OHM, 1/8W, 1%	ECI	M1F1AK012.10	17.00
060-2212-0	R52	RES,METAL FILM, 2.21K, 1/8W, 1%	ECI	M1F1AK002.21	1.00
060-2213-0	R22,36,40,42,66,68	RES,METAL FILM, 22.1K, 1/8W, 1%	ECI	M1F1AK022.10	6.00
060-2214-0	R59	RES,METAL FILM, 221K, 1/8W, 1%	ECI	M1F1AK221.00	1.00
060-2215-0	R20	RES, METAL FILM, 2.21M, 1/8W, 1%	ECI	M1F1AM002.21	1.00
060-2741-0	R11 R18	RES,METAL FILM, 274 ohm, 1/8W, 1%	ECI	M1F1AJ274.00	2.00
060-3323-0	R73	RES,METAL FILM, 33.2K, 1/8W, 1%	ECI	M1F1AK033.20	1.00
060-3324-0	R17 R28 R32 R37 R39	RES,METAL FILM, 332K, 1/8W, 1%	ECI	M1F1AK332.00	5.00
060-4752-0	R25 R31	RES,METAL FILM, 4.75K, 1/8W, 1%	ECI	M1F1AK004.75	2.00
060-4753-0	R23-24 R30 R54 R60	RES,METAL FILM, 47.5K, 1/8W, 1%	ECI	M1F1AK047.50	5.00
060-5624-0	R33 R35	RES,METAL FILM, 562K, 1/8W, 1%	ECI	M1F1AK562.00	2.00
060-5903-0	R19	RES,METAL FILM, 59.0K, 1/8W, 1%	ECI	M1F1AK059.00	1.00
060-6811-0	R61	RES,METAL FILM, 681 ohm, 1/8W, 1%	ECI	M1F1AJ681.00	1.00
070-0505-0	R78	POT,50KB,MINI,.1W	SONG HUEI	RK0901N-A50K-L20KQ	1.00
070-0511-0	R77	POT,10KB,MINI,.1W	SONG HUEI	R0901N-B10K,L20KQ	1.00
070-0516-0	R12	POT,2KB TRIM, 200mW	SONG HUEI	SH-655MCL-2KB	1.00
070-1513-0	R15 R55	POT,50K-15A,7MM,KNURL,.1W	SONG HUEI	16K1-A50K-L15KC	2.00
070-1514-0	R38 R45 R51 R58 R70	POT,50KB,7MM,KNURL,.1W	SONG HUEI	16K1-B50K-L15KC	5.00
090-0012-0	S1-4	SWITCH,MIMI PP,DPDT,.1A BRK/MAKE,PC TE	ELKECTRONIC COMP	MTH2UEE-1D911	4.00
092-0079-0	J7	JACK,1/4",STEREO,PC,NON GROUNDING	NEUTRIK	S203-84	1.00
092-0081-0	J4-6	JACK,1/4",MONO,PC,NON GROUNDING	NEUTRIK	S102-84	3.00
092-0084-0	J1	CON,XLR,MALE,PC,PL, SCREW MNT	NEUTRIK	X906-05	1.00
093-0045-0	J2	HDR, 2MMX4, VERT, LOCK	JST	B4B-PH-K-S	1.00
093-0053-0	J3	HDR, 2MMX5, VERT, LOCK	JST	B5B-PH-K-S	1.00
145-0210-A		MB150S-III PREAMP BOARD			1.00



PCB WORK INSTRUCTIONS

DWG #420-0210-A

NOTES:

UNLESS OTHERWISE SPECIFIED:

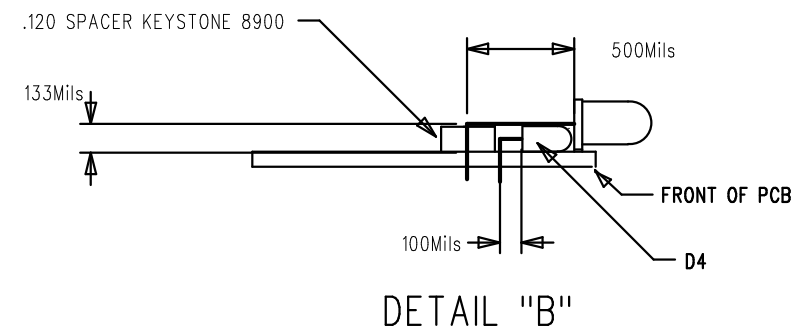
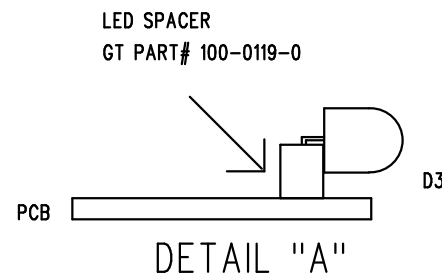
1. SQUARE PADS ON THRU HOLE PARTS (ie: CONNECTORS, DIPS, SIPS, LEDS) DENOTE PIN 1.
2. ALL BOARDS REQUIRE A COMPLETE AND THOROUGH VISUAL INSPECTION.
3. ALL BOARDS MUST BE BARE BOARD TESTED.
4. ASSEMBLE AND SOLDER PER ANSI/IPC-A-610B.

LOADING

5. CLIP BUSHING TABS OFF ON POTS R15, 38, 45, 51, 55, 58, 70.
6. SEE DETAIL A FOR MOUNTING D3
7. SEE DETAIL "B" FOR MOUNTING D4 AND D5

FINAL QA

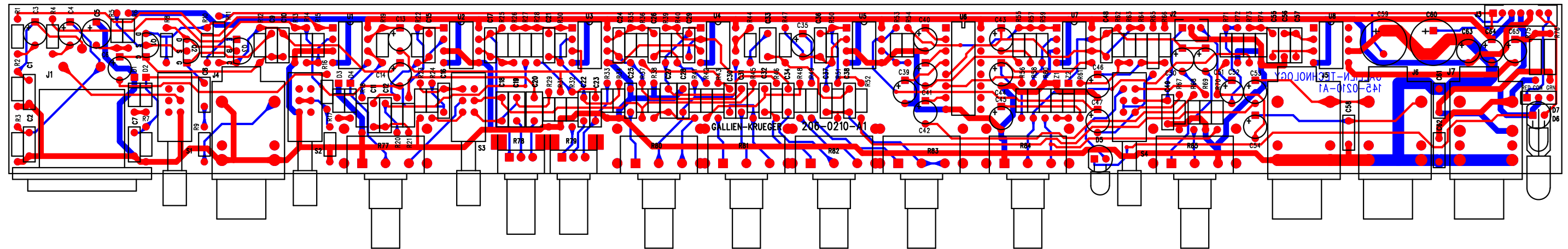
8. CHECK TO SEE ALL POTS, JACKS, AND SWITCHES ARE MOUNTED FLUSH AND STRAIGHT



NOT VALID UNLESS STAMP IS RED		gallien technology 2240 PARAGON DRIVE SAN JOSE CA. 95131 VOICE: 408-441-8081 FAX: 408-441-8085	
APPROVALS INIT DATE DESIGNED: R.A.G. 3/22/01 DRAWN: R.A.G. 12/25/02 ELEC:		TITLE: MB150S-III PREAMP SIZE B DRAWING NO: 405-0210-A PART NO: 145-0210-A COMPANY: GALLIEN-KRUEGER GERBER FILE NAME: ssp1029.pho FILENAME:	
LAYER DESCRIPTION: TOP SIDE IS OUR BOARD		REV. A	

GK GALLIEN-KRUEGER

MB150S-III Preamp		Bill Of Material	206-0210-A1		
Part No.	Reference	Description	Manufacturer	Mfr. Part No.	Quan
001-1030-1	U1-5 U7	TLO72CP, LOW NOISE JFET OPAMP	MOTOROLA	TLO72CP	6.00
001-1038-0	U8	LM386 LOW VOLTAGE POWER AMP	NATIONAL	LM386	1.00
001-4045-0	U6	NE572,DUAL COMPANDER	PHILLIPS	SA572N	1.00
010-1013-0	Q3	MPSA56 PNP 80V 500MA TO-92	MOTOROLA	MPS-A56	1.00
010-2010-0	Q1-2	J113,N-JFET,35V,2MA,TO-92	NATIONAL	J113	2.00
020-0036-0	Z1-2	1N747A, ZENER, 3.6V, 5%, 400MW, DO-35	TAITRON	1N747A	2.00
020-0120-0	D1-4	1N759A, ZENER,12V,5%,400MW, DO-35	MOTOROLA	1N759A	4.00
025-0012-0	D7	LED,RED/GRN,5MM,630NM/560NM	STANLEY	VRPG5614S	1.00
025-0030-2	D6	LED,BLUE, 10MA	LITEON	LTL-42B6	1.00
025-0101-0	D5	LED,GREEN, 3MM, 565NM, 6MCD, 10MA	EVERLIGHT	EL204GD	1.00
031-1107-0	C5 C65	CAP,ELEC,RAD,107,20%,25V	UNITED CHEMI-CON	SMG25VB101M6X11LL	2.00
031-1336-0	C45	CAP,ELEC,RAD,336,20%,25V	UNITED CHEMI-CON	SRG25VB33RM5X7LL	1.00
031-2105-0	C14 C39	CAP,ELEC,RAD, 105, 20%, 50V	UNITED CHEMI-CON	C440C105M5U5CA	2.00
031-2106-0	C3-4 C6 C46 C63-64	CAP,ELEC,RAD, 106, 20%, 50V	UNITED CHEMI-CON	SMG50VB10RM5X11LL	6.00
031-2227-0	C59-60	CAP, ELEC, 220uF, 20%, 50V	UNITED CHEMI-CON	SMG50VB221M10X12LL	2.00
031-2335-0	C13,35,40-44,47,50-54	CAP,ELEC,RAD,335,20%,50V	UNITED CHEMI-CON	SMG50VB3R3M5X11LL	13.00
032-4103-0	C34	CAP,PE,103,5%,100V,	PANASONIC	ECQV1103JM	1.00
032-4104-0	C8 C26 C55-56	CAP,PE,104,5%,100V,	PANASONIC	ECQV1104JM	4.00
032-4222-0	C11,12,22,23,28,31,58	CAP,PE,222,5%,100V,	PANASONIC	ECQB1222JF	7.00
032-4223-0	C18	CAP,PE,223,5%,100V,	PANASONIC	ECQV1223JM	1.00
032-4224-0	C19 C27	CAP,PE,224,5%,100V,	PANASONIC	ECQV1224JM	2.00
032-4334-0	C20	CAP,PE,334,5%,100V,	PANASONIC	ECQV1334JM	1.00
032-4472-0	C1-2 C32 C36 C61-62	CAP,PE,472,5%,100V,	PANASONIC	ECQB1472JF	6.00
032-4473-0	C16 C25 C37	CAP,PE,473,5%,100V,	PANASONIC	ECQV1473JM	3.00
032-4474-0	C33	CAP,PE,474,5%,100V,	PANASONIC	ECQV1474JM	1.00
032-4683-0	C38	CAP,PE,683,5%,100V,	PANASONIC	ECQV1683JM	1.00
034-4100-0	C10	CAP, MCR,10pF,5%,100V,NPO	TAITRON	TMRS100J100NPOB	1.00
034-4101-0	C7 C17	CAP,MCR,100pF,5%,100V,	TAITRON	TMRS101J100NPOB	2.00
034-4221-0	C9 C49 C57	CAP,MCR,220pF,5%,100V,	TAITRON	TMRS221J100NPOB	3.00
034-4470-0	C15 C21 C24 C29 C48	CAP,MCR,47PF,5%,100V,NPO	TAITRON	TMRS470J100NPOB	5.00
034-4561-0	C30	CAP,MCR,560pF,5%,100V,	TAITRON	TMRS561J100NPOB	1.00
052-1000-0	R75-76	RES,METAL FILM, 10.0, 1/4W, 1%	ECI	M2F1AJ010.00	2.00
052-2212-0	R65	RES,METAL FILM,2.21k,1/4W,1%	ECI	M2F1AK002.21	1.00
052-6812-0	R11	RES,METAL FILM, 6.81K, 1/4W, 1%	ECI	M2F1AK006.81	1.00
060-1002-0	R1,4,44,49,52,56	RES,METAL FILM, 1.00K, 1/8W, 1%	ECI	M1F1AK001.00	6.00
060-1003-0	R19	RES,METAL FILM, 10.0K, 1/8W,1%	ECI	M1F1AK010.00	1.00
060-1004-0	R2,3,12,13,29,64,67,69	RES,METAL FILM, 100K, 1/8W, 1%	ECI	M1F1AK100.00	8.00
060-1005-0	R7 R23 R31 R50	RES,METAL FILM, 1.00M, 1/8W, 1%	ECI	M1F1AM001.00	4.00
060-1213-0	R9,14,15,27,36,42,45-48 R53,54,62,63,70,71,74	RES,METAL FILM, 12.1K, 1/8W, 1%	ECI	M1F1AK012.10	17.00
060-1503-0	R5	RES,METAL FILM, 15.0K, 1/8W, 1%	ECI	M1F1AK015.00	1.00
060-2003-0	R17	RES,METAL FILM, 20.0K, 1/8W, 1%	ECI	M1F1AK020.00	1.00
060-2212-0	R51	RES,METAL FILM, 2.21K, 1/8W, 1%	ECI	M1F1AK002.21	1.00
060-2213-0	R24,38,41,43,58,59,66 R68	RES,METAL FILM, 22.1K, 1/8W, 1%	ECI	M1F1AK022.10	8.00
060-2214-0	R57	RES,METAL FILM, 221K, 1/8W, 1%	ECI	M1F1AK221.00	1.00
060-2215-0	R22	RES,METAL FILM, 2.21M, 1/8W, 1%	ECI	M1F1AM002.21	1.00
060-3012-0	R16	RES,METAL FILM, 3.01K, 1/8W, 1%	ECI	M1F1AK003.01	1.00
060-3323-0	R73	RES,METAL FILM, 33.2K, 1/8W, 1%	ECI	M1F1AK033.20	1.00
060-3324-0	R20 R30 R34 R39-40	RES,METAL FILM, 332K, 1/8W, 1%	ECI	M1F1AK332.00	5.00
060-4751-0	R6 R10	RES,METAL FILM, 475, 1/8W, 1%	ECI	M1F1AJ475.00	2.00
060-4752-0	R28 R33	RES,METAL FILM, 4.75K, 1/8W, 1%	ECI	M1F1AK004.75	2.00
060-4753-0	R25-26 R32 R55	RES,METAL FILM, 47.5K, 1/8W, 1%	ECI	M1F1AK047.50	4.00
060-4992-0	R8 R18 R60 R72	RES,METAL FILM, 4.99K, 1/8W, 1%	ECI	M1F1AK004.99	4.00
060-5624-0	R35 R37	RES,METAL FILM, 562K, 1/8W, 1%	ECI	M1F1AK562.00	2.00
060-5903-0	R21	RES,METAL FILM, 59.0K, 1/8W, 1%	ECI	M1F1AK059.00	1.00
060-6811-0	R61	RES,METAL FILM, 681 ohm, 1/8W, 1%	ECI	M1F1AJ681.00	1.00
070-0505-0	R79	POT,50KB,MINI,.1W	SONG HUEI	RK0901N-A50K-L20KQ	1.00
070-0511-0	R78	POT,10KB,MINI,.1W	SONG HUEI	R0901N-B10K,L20KQ	1.00
070-1513-0	R77 R83	POT,50K-15A,7MM,KNURL,.1W	SONG HUEI	16K1-A50K-L15KC	2.00
070-1514-0	R80-82 R84-85	POT,50KB,7MM,KNURL,.1W	SONG HUEI	16K1-B50K-L15KC	5.00
090-0012-0	S1-4	SWITCH,MIMI PP,DPDT,.1A BRK/MAKE	ELKECTRONIC COMP	MTH2UEE-1D911	4.00
092-0079-0	J7	JACK,1/4",STEREO,PC,NON GROUNDING	NEUTRIK	S203-84	1.00
092-0081-0	J4-6	JACK,1/4",MONO,PC,NON GROUNDING	NEUTRIK	S102-84	3.00
092-0084-0	J1	CON,XLR,MALE,PC,PL, SCREW MNT	NEUTRIK	X906-05	1.00
093-0043-0	J2	HDR, 2MMX3, VERT, LOCK	JST	B3B-PH-K-S	1.00
093-2005-0	J3	HDR, 2MMX7, VERT, SHROUDED	JST	B7B-PH-K-S	1.00
145-0210-A1		MB150S-III PREAMP BOARD			1.00



PCB WORK INSTRUCTIONS

DWG #420-0210-A1

NOTES:

UNLESS OTHERWISE SPECIFIED:

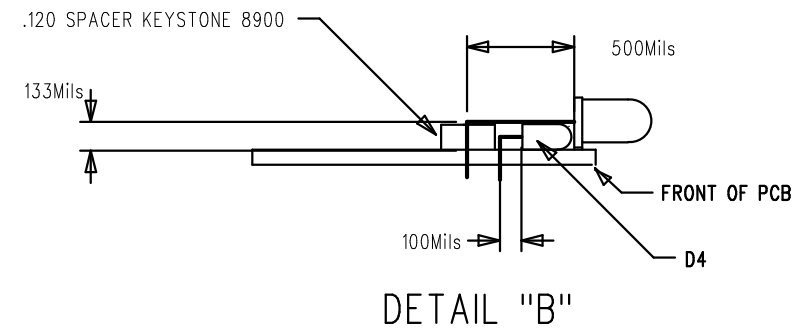
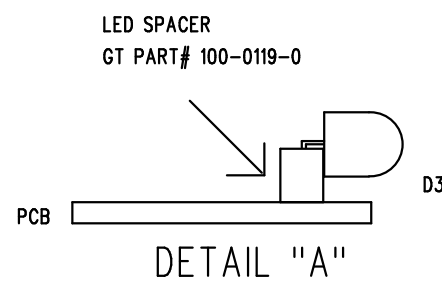
1. SQUARE PADS ON THRU HOLE PARTS (ie: CONNECTORS, DIPS, SIPS, LEDS) DENOTE PIN 1.
2. ALL BOARDS REQUIRE A COMPLETE AND THOROUGH VISUAL INSPECTION.
3. ALL BOARDS MUST BE BARE BOARD TESTED.
4. ASSEMBLE AND SOLDER PER ANSI/IPC-A-610B.

LOADING

5. CLIP BUSHING TABS OFF ON POTS R15, 38, 45, 51, 55, 58, 70.
6. SEE DETAIL A FOR MOUNTING D3
7. SEE DETAIL "B" FOR MOUNTING D4 AND D5

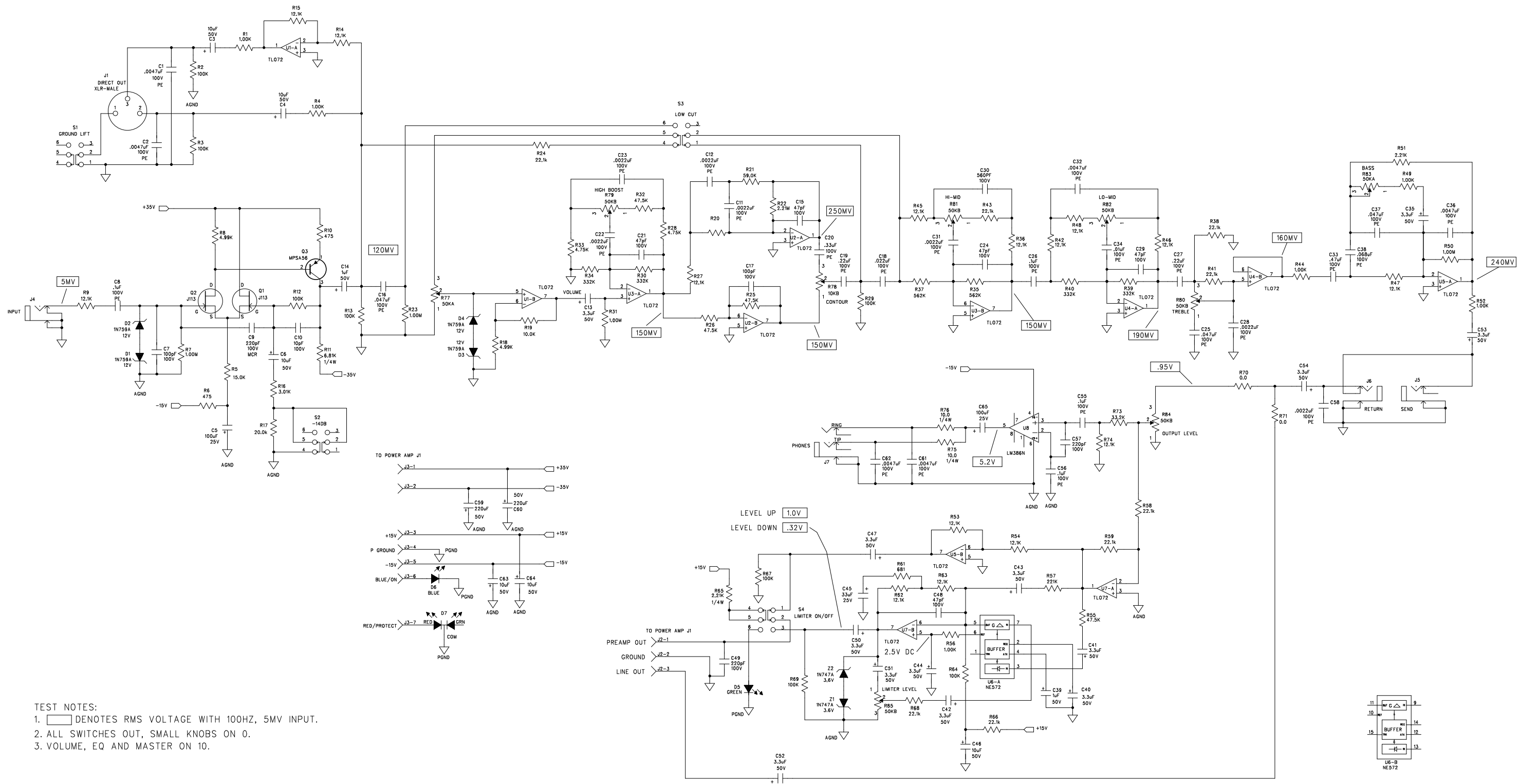
FINAL QA

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: MB150S-III PREAMP	
		DESIGNED: R.A.G. 3/22/01	SIZE: B
DRAWN: R.A.G. 6/26/03		DRAWING NO: 405-0210-A1	REV. A1
ELEC:		PART NO: 145-0210-A1	
MECH:		COMPANY: GALLIEN-KRUEGER	
GERBER FILE NAME: ss4020.pho		FILENAME:	
LAYER DESCRIPTION: TOP SIDE ISOURBEN			

REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:



TEST NOTES:
 1. DENOTES RMS VOLTAGE WITH 100HZ, 5MV INPUT.
 2. ALL SWITCHES OUT, SMALL KNOBS ON 0.
 3. VOLUME, EQ AND MASTER ON 10.

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 R18 FROM 4.99K TO 3.01K.		APPROVALS		TITLE: MB150S-III PREAMP	
2. DELETE R60 & R72.		INIT	DATE	DESIGNED: R.A.G.	3/21/01
3. CHANGE R70, 71 FROM 12.1K TO ZERO OHMS.		DRAWN: R.A.G.	8/21/03	DRAWING NO: 406-0210-A2	REV. B
4. UPDATE REV TO A2 WITH LABEL.		MECH:		PART NO: 206-0210-A2	A2
5. BOARD ARTWORK UNCHANGED.		COMPANY: GALLIEN-KRUEGER		FILENAME: 6210A2.sch	

MB150S-III Preamp

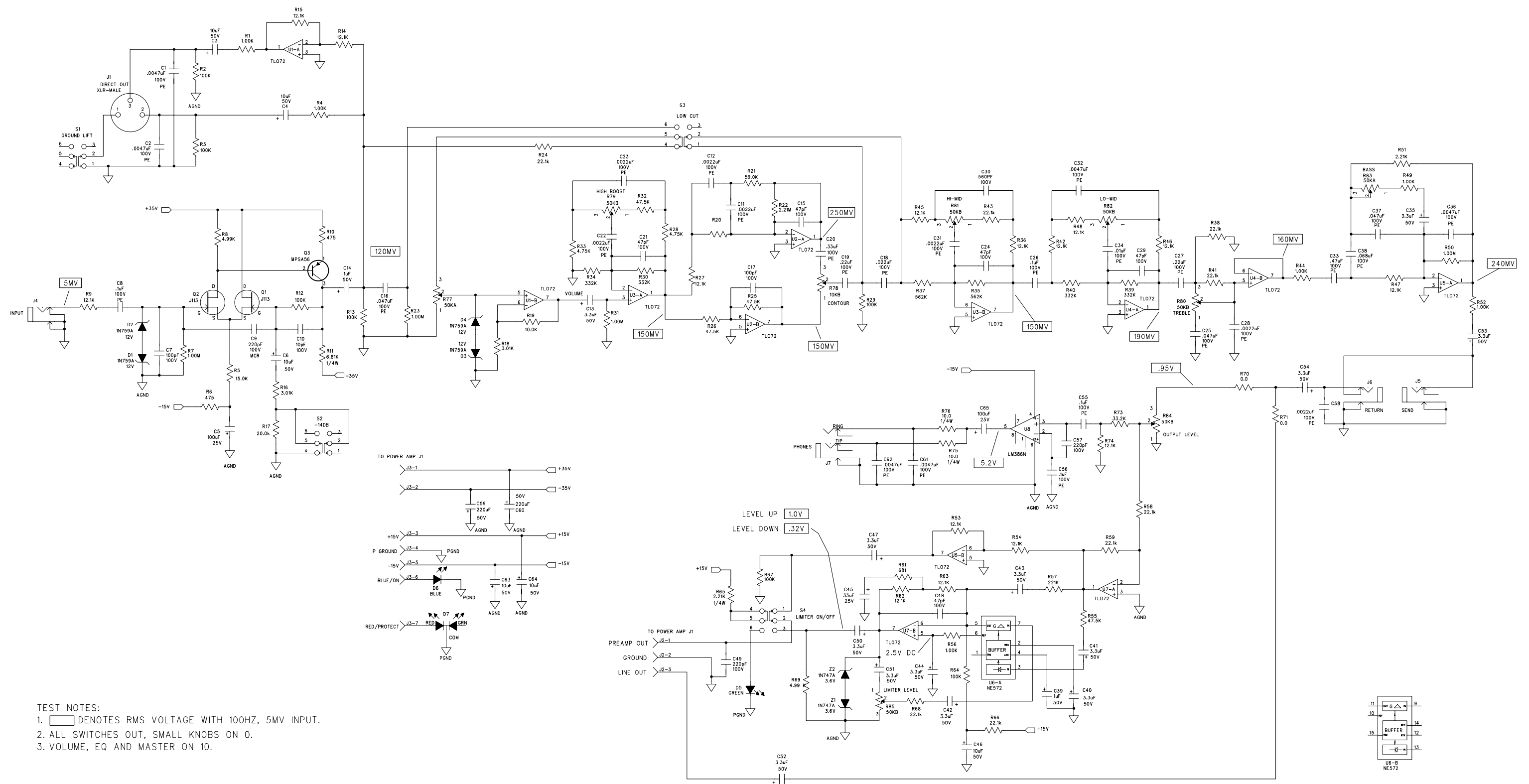
Part No.	Reference	Description
001-1030-1	U1-5 U7	TLO72CP, LOW NOISE JFET OPAMP
001-1038-0	U8	LM386 LOW VOLTAGE POWER AMP
001-4045-0	U6	NE572,DUAL COMPANDER
010-1013-0	Q3	MPSA56 PNP 80V 500MA TO-92
010-2010-0	Q1-2	J113,N-JFET,35V,2MA,TO-92
020-0036-0	Z1-2	1N747A, ZENER, 3.6V, 5%, 400MW, DO-35
020-0120-0	D1-4	1N759A, ZENER, 12V,5%,400MW, DO-35
025-0012-0	D7	LED,RED/GRN,5MM,630NM/560NM
025-0030-2	D6	LED,BLUE, 10MA
025-0101-0	D5	LED,GREEN, 3MM, 565NM, 6MCD, 10MA
031-1107-0	C5 C65	CAP,ELEC,RAD,107,20%,25V
031-1336-0	C45	CAP,ELEC,RAD,336,20%,25V
031-2105-0	C14 C39	CAP,ELEC,RAD, 105, 20%, 50V
031-2106-0	C3-4 C6 C46 C63-64	CAP,ELEC,RAD, 106, 20%, 50V
031-2227-0	C59-60	CAP, ELEC, 220uF, 20%, 50V
031-2335-0	C13,35,40-44,47,50-54	CAP,ELEC,RAD,335,20%,50V
032-4103-0	C34	CAP,PE,103,5%,100V,
032-4104-0	C8 C26 C55-56	CAP,PE,104,5%,100V,
032-4222-0	C11,12,22,23,28,31,58	CAP,PE,222,5%,100V,
032-4223-0	C18	CAP,PE,223,5%,100V,
032-4224-0	C19 C27	CAP,PE,224,5%,100V,
032-4334-0	C20	CAP,PE,334,5%,100V,
032-4472-0	C1-2 C32 C36 C61-62	CAP,PE,472,5%,100V,
032-4473-0	C16 C25 C37	CAP,PE,473,5%,100V,
032-4474-0	C33	CAP,PE,474,5%,100V,
032-4683-0	C38	CAP,PE,683,5%,100V,
034-4100-0	C10	CAP, MCR,10pF,5%,100V,NPO
034-4101-0	C7 C17	CAP,MCR,100pF,5%,100V,
034-4221-0	C9 C49 C57	CAP,MCR,220pF,5%,100V,
034-4470-0	C15 C21 C24 C29 C48	CAP,MCR,47PF,5%,100V,NPO
034-4561-0	C30	CAP,MCR,560pF,5%,100V,
052-1000-0	R75-76	RES,METAL FILM, 10.0, 1/4W, 1%
052-2212-0	R65	RES,METAL FILM,2.21k,1/4W,1%
052-6812-0	R11	RES,METAL FILM, 6.81K, 1/4W, 1%
060-0000-0	R70,71	RES,METAL FILM, 0.00, 1/8W, 1%
060-1002-0	R1,4,44,49,52,56	RES,METAL FILM, 1.00K, 1/8W, 1%
060-1003-0	R19	RES,METAL FILM, 10.0K, 1/8W,1%
060-1004-0	R2,3,12,13,29,64,67,69	RES,METAL FILM, 100K, 1/8W, 1%
060-1005-0	R7 R23 R31 R50	RES,METAL FILM, 1.00M, 1/8W, 1%
060-1213-0	R9,14,15,27,36,42,45-48 R53,54,62,63,74	RES,METAL FILM, 12.1K, 1/8W, 1%
060-1503-0	R5	RES,METAL FILM, 15.0K, 1/8W, 1%
060-2003-0	R17	RES,METAL FILM, 20.0K, 1/8W, 1%
060-2212-0	R51	RES,METAL FILM, 2.21K, 1/8W, 1%
060-2213-0	R24,38,41,43,58,59,66 R68	RES,METAL FILM, 22.1K, 1/8W, 1%
060-2214-0	R57	RES,METAL FILM, 221K, 1/8W, 1%
060-2215-0	R22	RES,METAL FILM, 2.21M, 1/8W, 1%
060-3012-0	R16,18	RES,METAL FILM, 3.01K, 1/8W, 1%
060-3323-0	R73	RES,METAL FILM, 33.2K, 1/8W, 1%
060-3324-0	R20 R30 R34 R39-40	RES,METAL FILM, 332K, 1/8W, 1%
060-4751-0	R6 R10	RES,METAL FILM, 475, 1/8W, 1%
060-4752-0	R28 R33	RES,METAL FILM, 4.75K, 1/8W, 1%
060-4753-0	R25-26 R32 R55	RES,METAL FILM, 47.5K, 1/8W, 1%
060-4992-0	R8	RES,METAL FILM, 4.99K, 1/8W, 1%
060-5624-0	R35 R37	RES,METAL FILM, 562K, 1/8W, 1%
060-5903-0	R21	RES,METAL FILM, 59.0K, 1/8W, 1%
060-6811-0	R61	RES,METAL FILM, 681 ohm, 1/8W, 1%
070-0505-0	R79	POT,50KB,MINI,.1W
070-0511-0	R78	POT,10KB,MINI,.1W
070-1513-0	R77 R83	POT,50K-15A,7MM,KNURL,.1W
070-1514-0	R80-82 R84-85	POT,50KB,7MM,KNURL,.1W

MB150S-III Preamp

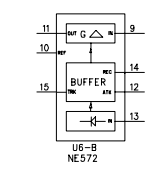
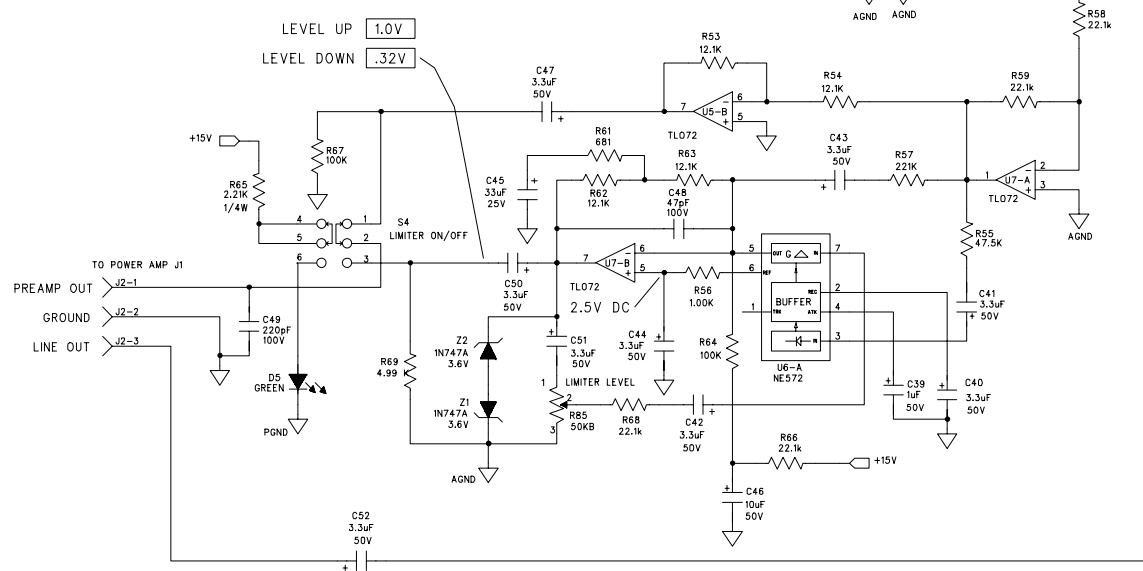
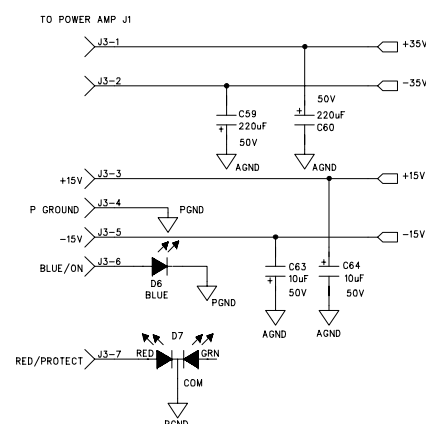
Part No.	Reference	Description
090-0012-0	S1-4	SWITCH,MIMI PP,DPDT, .1A BRK/MAKE
092-0079-0	J7	JACK,1/4",STEREO,PC,NON GROUNDING
092-0081-0	J4-6	JACK,1/4",MONO,PC,NON GROUNDING
092-0084-0	J1	CON,XLR,MALE,PC,PL, SCREW MNT
093-0043-0	J2	HDR, 2MMX3, VERT, LOCK
093-2005-0	J3	HDR, 2MMX7, VERT, SHROUDED
145-0210-A1		MB150S-III PREAMP BOARD

Customer Name: Gallien-Krueger		Current Rev #: A1	New ECO Rev #: A2		
Model: MB150S-III		Distribute To:	Page: 1 Of: 1		
Assembly Description: Preamp board		Originator: Alvin Villaflor			
Assembly Numbers: 206-0210-A1		Approved by:			
		Effective Date: 8/15/2003			
Effective		Document Update	Date	Initials	
<input checked="" type="checkbox"/> All in Process	<input checked="" type="checkbox"/> Next Buy	<input type="checkbox"/> Artwork			
<input 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			
Reason For Change		<input type="checkbox"/> Control Form			
To match the gain structure of the original MBS.		<input checked="" type="checkbox"/> Costing			
		<input type="checkbox"/> Fab Drawing			
		<input type="checkbox"/> Inspection Proc.			
		<input type="checkbox"/> Part Master File			
		<input checked="" type="checkbox"/> Schematic			
		<input type="checkbox"/> Service Manual			
		<input type="checkbox"/> Test Procedure			
		<input type="checkbox"/>			
		<input type="checkbox"/>			
		<input type="checkbox"/>			
Other Affected Assemblies					
<input type="checkbox"/> Continued on ECO Supplement Page					
Description Of Change		Distribution	Date	Initials	
Increased gain before EQ stage: R18 = 3.01k Removed attenuation after effects loop: removed R60 and R72, replaced R70 and R71 with 0 ohm jumpers.		<input type="checkbox"/> Accounting			
		<input type="checkbox"/> Assembly			
		<input type="checkbox"/> Customer			
		<input checked="" type="checkbox"/> Engineering			
		<input 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"/> Test			
		<input type="checkbox"/> Vendor			
<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
060-1213-0	12.1k, 1/8W, 1%			2	R70, R71
060-4992-0	4.99k, 1/8W, 1%			3	R18, R60, R72
060-0000-0	0 ohms, 1/8W	2	R70, R71		
060-3012-0	3.01k, 1/8W, 1%	1	R18		

REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:
	206-0210-a3		5/5/04



TEST NOTES:
 1. [] DENOTES RMS VOLTAGE WITH 100HZ, 5MV INPUT.
 2. ALL SWITCHES OUT, SMALL KNOBS ON 0.
 3. VOLUME, EQ AND MASTER ON 10.



NOT VALID UNLESS STAMP IS RED

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

TITILE: MB150S-III PREAMP		REV: A3	
DESIGNED: R.A.G. 3/21/01	DATE: 3/21/01	DRAWING NO: 406-0210-A3	REV: A3
DRAWN: R.A.G. 8/21/03	DATE: 8/21/03	PART NO: 206-0210-A3	REV: A3
COMPANY: GALLIEN-KRUEGER		FILENAME: 6210A3.sch	

- 1. CHANGE R69 FROM 100K TO 4.99K.
- 2. UPDATE REV TO A3 WITH LABEL.
- 6. BOARD ARTWORK UNCHANGED.

GK GALLIEN-KRUEGER

MB150S-III Preamp		Bill Of Material		206-0210-A3	
Part No.	Reference	Description	Manufacturer	Mfr. Part No.	Quan
001-1030-1	U1-5 U7	TLO72CP, LOW NOISE JFET OPAMP	MOTOROLA	TL072CP	6.00
001-1038-0	U8	LM386 LOW VOLTAGE POWER AMP	NATIONAL	LM386	1.00
001-4045-0	U6	NE572,DUAL COMPANDER	PHILLIPS	SA572N	1.00
010-1013-0	Q3	MPSA56 PNP 80V 500MA TO-92	MOTOROLA	MPS-A56	1.00
010-2010-0	Q1-2	J113,N-JFET,35V,2MA,TO-92	NATIONAL	J113	2.00
020-0036-0	Z1-2	1N747A, ZENER, 3.6V, 5%, 400MW, DO-35	TAITRON	1N747A	2.00
020-0120-0	D1-4	1N759A, ZENER,12V,5%,400MW, DO-35	MOTOROLA	1N759A	4.00
025-0012-0	D7	LED,RED/GRN,5MM,630NM/560NM	STANLEY	VRPG5614S	1.00
025-0030-2	D6	LED,BLUE, 10MA	LITEON	LTL-42B6	1.00
025-0101-0	D5	LED,GREEN, 3MM, 565NM, 6MCD, 10MA	EVERLIGHT	EL204GD	1.00
031-1107-0	C5 C65	CAP,ELEC,RAD,107,20%,25V	UNITED CHEMI-CON	SMG25VB101M6X11LL	2.00
031-1336-0	C45	CAP,ELEC,RAD,336,20%,25V	UNITED CHEMI-CON	SRG25VB33RM5X7LL	1.00
031-2105-0	C14 C39	CAP,ELEC,RAD, 105, 20%, 50V	UNITED CHEMI-CON	C440C105M5U5CA	2.00
031-2106-0	C3-4 C6 C46 C63-64	CAP,ELEC,RAD, 106, 20%, 50V	UNITED CHEMI-CON	SMG50VB10RM5X11LL	6.00
031-2227-0	C59-60	CAP, ELEC, 220uF, 20%, 50V	UNITED CHEMI-CON	SMG50VB221M10X12LL	2.00
031-2335-0	C13,35,40-44,47,50-54	CAP,ELEC,RAD,335,20%,50V	UNITED CHEMI-CON	SMG50VB3R3M5X11LL	13.00
032-4103-0	C34	CAP,PE,103,5%,100V,	PANASONIC	ECQV1103JM	1.00
032-4104-0	C8 C26 C55-56	CAP,PE,104,5%,100V,	PANASONIC	ECQV1104JM	4.00
032-4222-0	C11,12,22,23,28,31,58	CAP,PE,222,5%,100V,	PANASONIC	ECQB1222JF	7.00
032-4223-0	C18	CAP,PE,223,5%,100V,	PANASONIC	ECQV1223JM	1.00
032-4224-0	C19 C27	CAP,PE,224,5%,100V,	PANASONIC	ECQV1224JM	2.00
032-4334-0	C20	CAP,PE,334,5%,100V,	PANASONIC	ECQV1334JM	1.00
032-4472-0	C1-2 C32 C36 C61-62	CAP,PE,472,5%,100V,	PANASONIC	ECQB1472JF	6.00
032-4473-0	C16 C25 C37	CAP,PE,473,5%,100V,	PANASONIC	ECQV1473JM	3.00
032-4474-0	C33	CAP,PE,474,5%,100V,	PANASONIC	ECQV1474JM	1.00
032-4683-0	C38	CAP,PE,683,5%,100V,	PANASONIC	ECQV1683JM	1.00
034-4100-0	C10	CAP, MCR,10pF,5%,100V,NPO	TAITRON	TMRS100J100NPOB	1.00
034-4101-0	C7 C17	CAP,MCR,100pF,5%,100V,	TAITRON	TMRS101J100NPOB	2.00
034-4221-0	C9 C49 C57	CAP,MCR,220pF,5%,100V,	TAITRON	TMRS221J100NPOB	3.00
034-4470-0	C15 C21 C24 C29 C48	CAP,MCR,47PF,5%,100V,NPO	TAITRON	TMRS470J100NPOB	5.00
034-4561-0	C30	CAP,MCR,560pF,5%,100V,	TAITRON	TMRS561J100NPOB	1.00
052-1000-0	R75-76	RES,METAL FILM, 10.0, 1/4W, 1%	ECI	M2F1AJ010.00	2.00
052-2212-0	R65	RES,METAL FILM,2.21k,1/4W,1%	ECI	M2F1AK002.21	1.00
052-6812-0	R11	RES,METAL FILM, 6.81K, 1/4W, 1%	ECI	M2F1AK006.81	1.00
060-0000-0	R70,71	RES,METAL FILM, 0.00, 1/8W, 1%	ECI	R10.0 OHM	1.00
060-1002-0	R1,4,44,49,52,56	RES,METAL FILM, 1.00K, 1/8W, 1%	ECI	M1F1AK001.00	6.00
060-1003-0	R19	RES,METAL FILM, 10.0K, 1/8W, 1%	ECI	M1F1AK010.00	1.00
060-1004-0	R2,3,12,13,29,64,67	RES,METAL FILM, 100K, 1/8W, 1%	ECI	M1F1AK100.00	7.00
060-1005-0	R7 R23 R31 R50	RES,METAL FILM, 1.00M, 1/8W, 1%	ECI	M1F1AM001.00	4.00
060-1213-0	R9,14,15,27,36,42,45-48 R53,54,62,63,74	RES,METAL FILM, 12.1K, 1/8W, 1%	ECI	M1F1AK012.10	15.00
060-1503-0	R5	RES,METAL FILM, 15.0K, 1/8W, 1%	ECI	M1F1AK015.00	1.00
060-2003-0	R17	RES,METAL FILM, 20.0K, 1/8W, 1%	ECI	M1F1AK020.00	1.00
060-2212-0	R51	RES,METAL FILM, 2.21K, 1/8W, 1%	ECI	M1F1AK002.21	1.00
060-2213-0	R24,38,41,43,58,59,66 R68	RES,METAL FILM, 22.1K, 1/8W, 1%	ECI	M1F1AK022.10	8.00
060-2214-0	R57	RES,METAL FILM, 221K, 1/8W, 1%	ECI	M1F1AK221.00	1.00
060-2215-0	R22	RES,METAL FILM, 2.21M, 1/8W, 1%	ECI	M1F1AM002.21	1.00
060-3012-0	R16,18	RES,METAL FILM, 3.01K, 1/8W, 1%	ECI	M1F1AK003.01	2.00
060-3323-0	R73	RES,METAL FILM, 33.2K, 1/8W, 1%	ECI	M1F1AK033.20	1.00
060-3324-0	R20 R30 R34 R39-40	RES,METAL FILM, 332K, 1/8W, 1%	ECI	M1F1AK332.00	5.00
060-4751-0	R6 R10	RES,METAL FILM, 475, 1/8W, 1%	ECI	M1F1AJ475.00	2.00
060-4752-0	R28 R33	RES,METAL FILM, 4.75K, 1/8W, 1%	ECI	M1F1AK004.75	2.00
060-4753-0	R25-26 R32 R55	RES,METAL FILM, 47.5K, 1/8W, 1%	ECI	M1F1AK047.50	4.00
060-4992-0	R8, R69	RES,METAL FILM, 4.99K, 1/8W, 1%	ECI	M1F1AK004.99	2.00
060-5624-0	R35 R37	RES,METAL FILM, 562K, 1/8W, 1%	ECI	M1F1AK562.00	2.00
060-5903-0	R21	RES,METAL FILM, 59.0K, 1/8W, 1%	ECI	M1F1AK059.00	1.00
060-6811-0	R61	RES,METAL FILM, 681 ohm, 1/8W, 1%	ECI	M1F1AJ681.00	1.00
070-0505-0	R79	POT,50KB,MINI,.1W	SONG HUEI	RK0901N-A50K-L20KQ	1.00
070-0511-0	R78	POT,10KB,MINI,.1W	SONG HUEI	R0901N-B10K,L20KQ	1.00
070-1513-0	R77 R83	POT,50K-15A,7MM,KNURL,.1W	SONG HUEI	16K1-A50K-L15KC	2.00
070-1514-0	R80-82 R84-85	POT,50KB,7MM,KNURL,.1W	SONG HUEI	16K1-B50K-L15KC	5.00

Customer Name:		Gallien-Krueger		Current Rev #:	A2	New ECO Rev #:	A3		
Model:		MB150S-III		Distribute To:		Page:	1	Of:	2
Assembly Description:		Preamp board		Originator: Noli Valdez					
Assembly Numbers:		206-0210-A		Approved by:					
				Effective Date: 5/5/2004					
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	5/5/2004	Noli		
Reason For Change				<input type="checkbox"/>	Control Form				
A pop is noticeable when turning off the unit while limiter switch is engage.				<input checked="" type="checkbox"/>	Costing		RAG		
				<input type="checkbox"/>	Fab Drawing				
				<input type="checkbox"/>	Inspection Proc.				
				<input type="checkbox"/>	Part Master File				
				<input checked="" type="checkbox"/>	Schematic	5/5/2004	Noli		
				<input type="checkbox"/>	Service Manual				
				<input type="checkbox"/>	Test Procedure				
				<input type="checkbox"/>					
				<input type="checkbox"/>					
Other Affected Assemblies									
303 Combo and 302 Head Assemblies									
<input type="checkbox"/>	Continued on ECO Supplement Page								
Description Of Change				Distribution		Date	Initials		
Change the value of R69 from 100K ohms to 4.99K ohms.				<input type="checkbox"/>	Accounting				
				<input type="checkbox"/>	Assembly				
				<input type="checkbox"/>	Customer				
Update schematic.				<input checked="" type="checkbox"/>	Engineering				
				<input checked="" type="checkbox"/>	Incoming Q.C.				
Update BOM.				<input type="checkbox"/>	Planning				
				<input checked="" type="checkbox"/>	Production Eng.				
Update part master file.				<input checked="" type="checkbox"/>	Purchasing				
				<input type="checkbox"/>	Q.A.				
				<input type="checkbox"/>	Receiving				
				<input type="checkbox"/>	Service				
				<input type="checkbox"/>	Test				
				<input type="checkbox"/>	Vendor				
				<input type="checkbox"/>					
				<input type="checkbox"/>					
<input type="checkbox"/>	Continued on ECO Supplement Page								
				<input checked="" type="checkbox"/>	Drawing(s) attached				
Part Number	Description	Parts Added		Parts Deleted					
		Qty	Ref. Designator	Qty	Ref. Designator				
060-4992-0	1/8W 4.99K ohms 1%, resistor	1	R69						
				1	R69				
060-1004-0	1/8 100K ohms 1% resistor			1	R69				

A

B

C

D

E

F

ZONE	Dim.	ECO#	Rev.	REVISIONS		Date

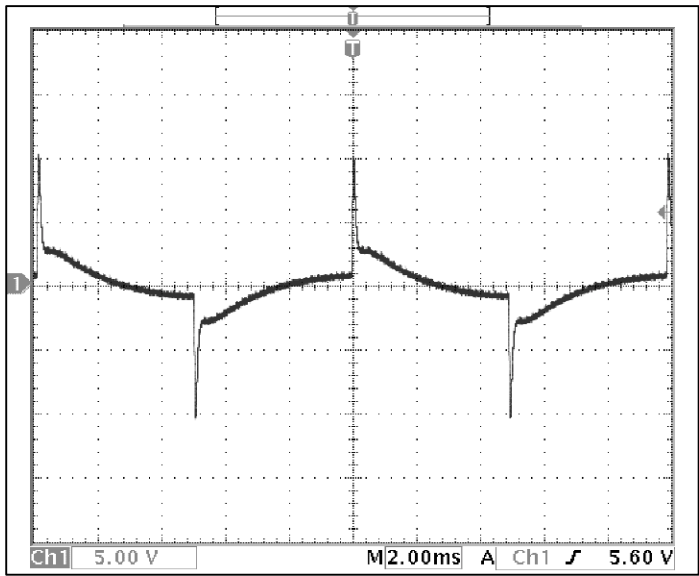


Figure 1
Tones center, Filters Off

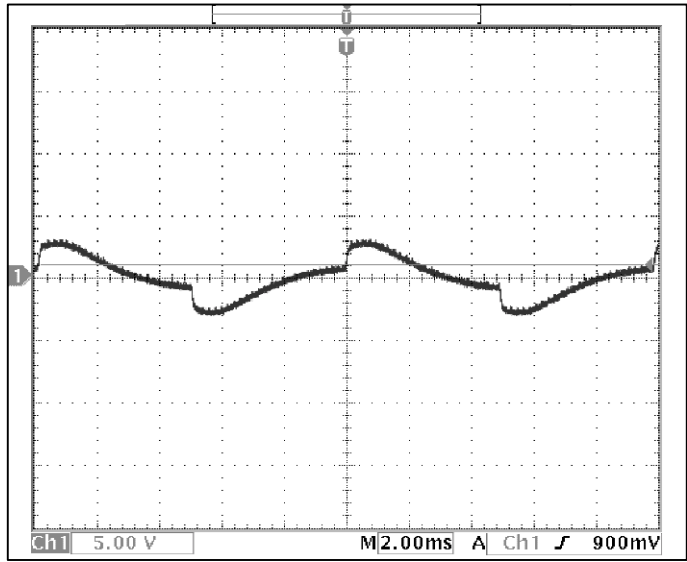


Figure 2
Treble to 0

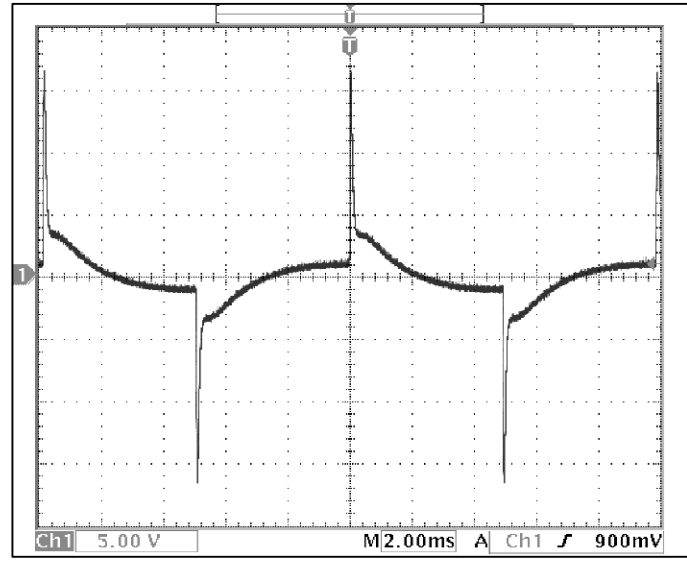


Figure 3
Treble to 10

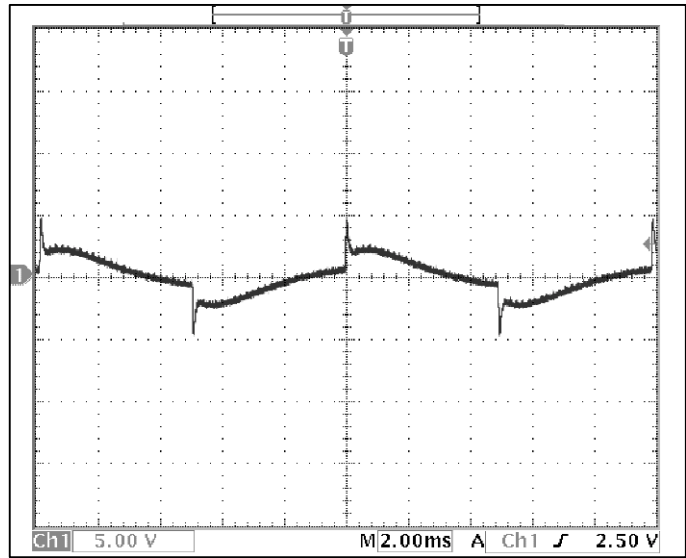


Figure 4
Hi-Mid to 0

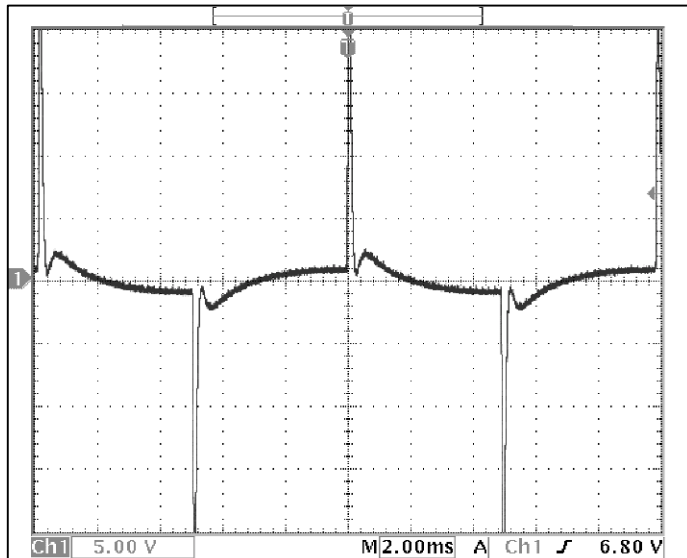


Figure 5
Hi-Mid to 10

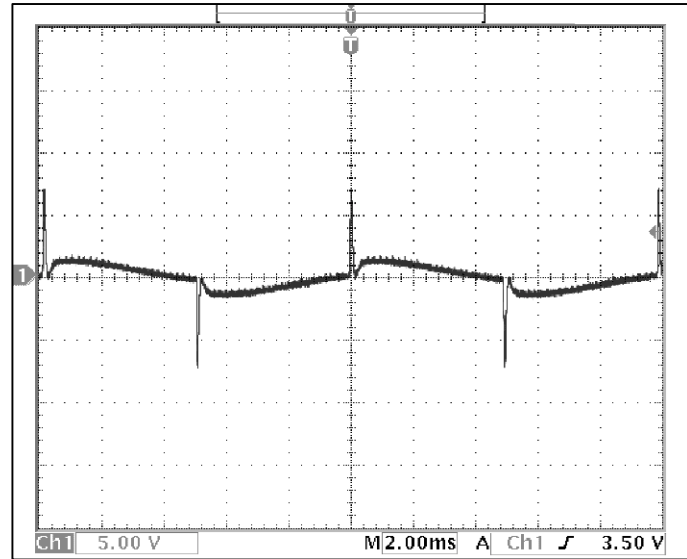


Figure 6
Lo-Mid to 0

1. Apply signal into the input with 100Hz square wave @ -36dBV.
2. Set Volume, all Active EQ's, Level and Limiter to center(halfway), Contour and Hi Boost to 0.
3. Look at output with scope set on 5V/div and 2ms/div.

HOLE REFERENCE CHART		
HOLE	DESCRIPTION	QTY.

<small>QTY PER ASSY</small> PROPRIETARY		<small>PART NUMBER</small> PARTS LIST	<small>DESCRIPTION</small> DESIGNATION(S)	<small>ITEM NO.</small>				
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<small>UNLESS OTHERWISE INDICATED DIMENSIONS SHOWN ARE IN INCHES</small>		TITLE: MB150S-III						
<small>TOLERANCES</small> FRACTION ± ANGLES ± .XX ± 0.01 .XXX ± 0.005	APPROVALS <table border="1"> <tr> <th>INIT</th> <th>DATE</th> </tr> <tr> <td>EAH</td> <td>8/24/04</td> </tr> </table>		INIT	DATE	EAH	8/24/04	<small>SIZE</small> B	<small>DRAWING NUMBER:</small> 206-0210-A3
INIT	DATE							
EAH	8/24/04							
<small>MATERIAL:</small> (SEE NOTE 1)	<small>PROJ. MGR.:</small> Q/A:	<small>REVISION</small> A3	<small>FILENAME:</small>					
<small>FINISH:</small> (SEE NOTE 1)	<small>RELEASED:</small>	<small>SCALE: NOT TO SCALE</small>						
		<small>SHEET 1 OF 3</small>						

A

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ZONE	Dim.	ECO#	Rev.	REVISIONS		Date

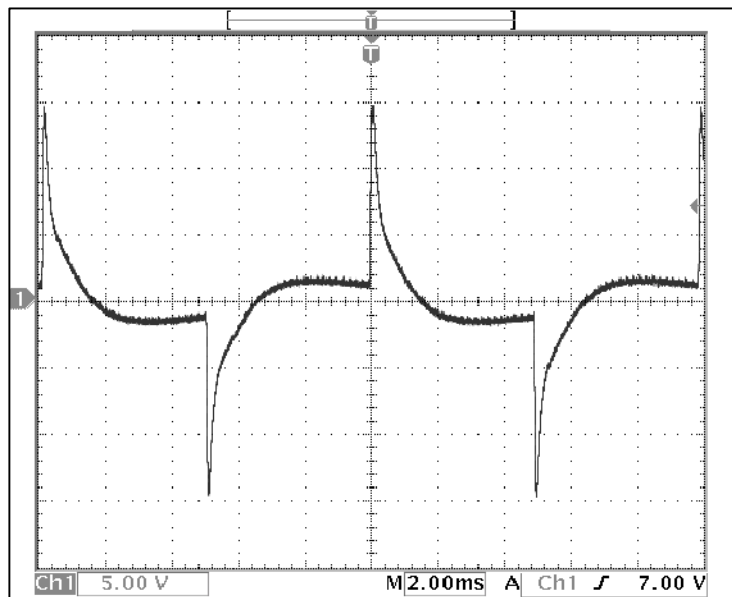


Figure 7
Lo-Mid to 10

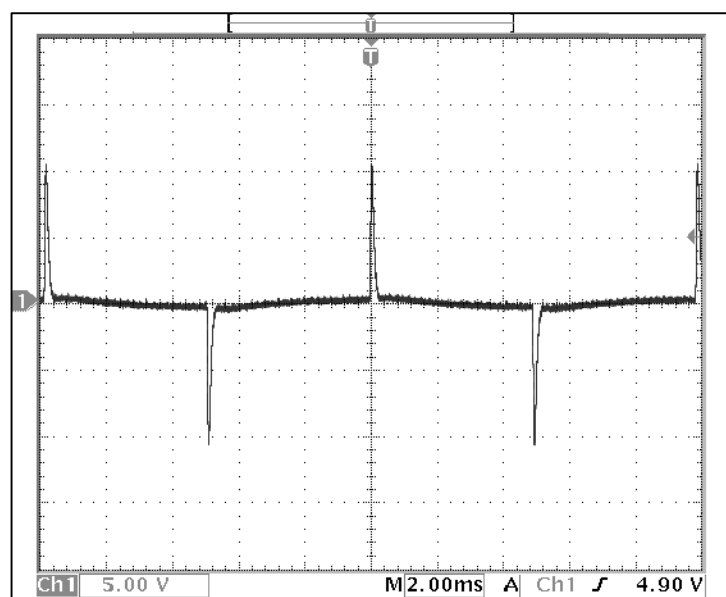


Figure 8
Bass to 0

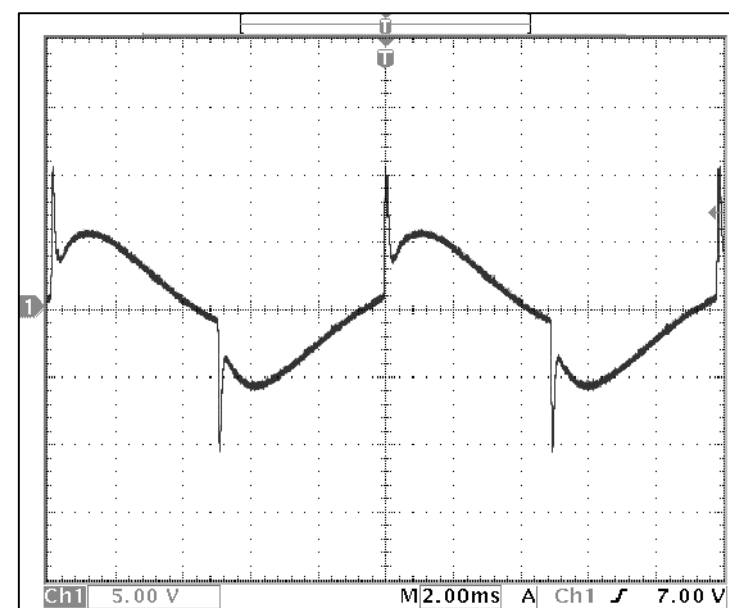


Figure 9
Bass to 10

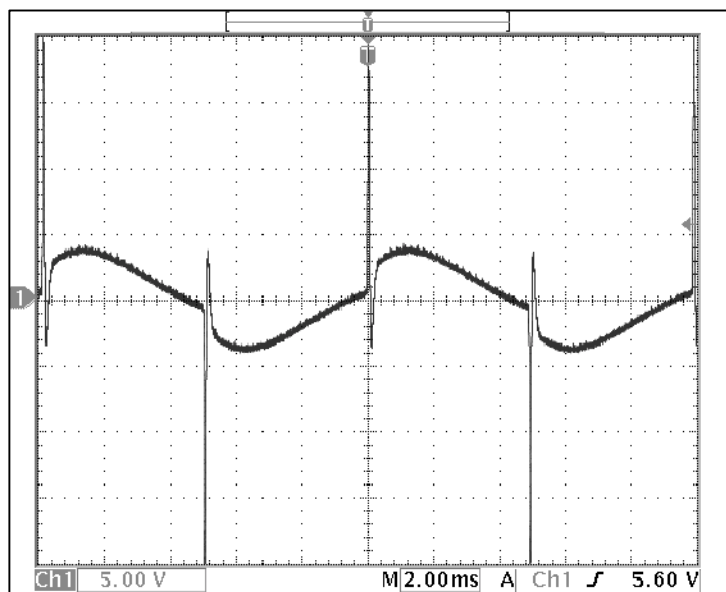


Figure 10
Contour to 10

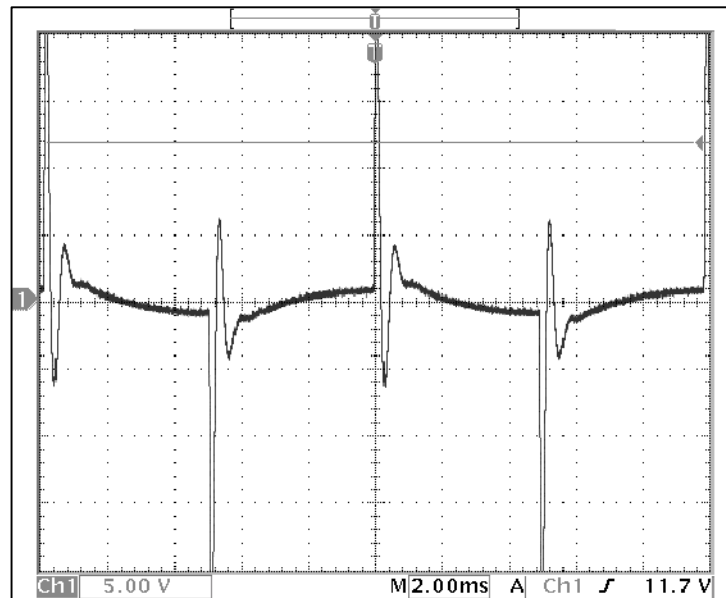


Figure 11
Hi Boost To Ten

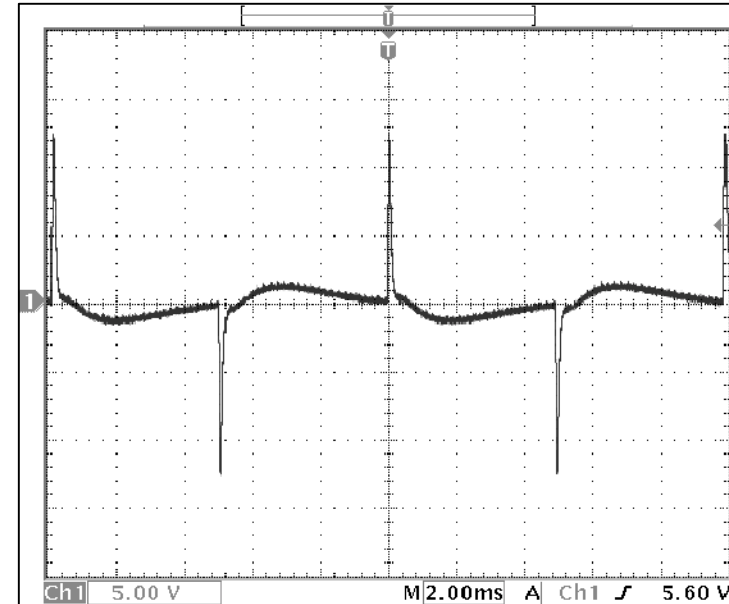


Figure 12
Low Cut In

1. Apply signal into the input with 100Hz square wave @ -36dBV.
2. Set Volume, all Active EQ's, Level and Limiter to center(halfway), Contour and Hi Boost to 0.
3. Look at output with scope set on 5V/div and 2ms/div.

HOLE REFERENCE CHART		
HOLE	DESCRIPTION	QTY.

QTY PER ASSY		PART NUMBER		DESCRIPTION		DESIGNATION(S)		ITEM NO.	
PROPRIETARY									
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gallien technology				2234 INDUSTRIAL DRIVE STOCKTON, CA 95206					
UNLESS OTHERWISE INDICATED DIMENSIONS SHOWN ARE IN INCHES				APPROVALS		TITLE: MB150S-III			
TOLERANCES		INIT		DATE		SIZE		DRAWING NUMBER:	
FRACTION ±		MECH. DESIGN:		8/24/04		B		206-0210-A3	
ANGLES ±		DRAWN BY: EAH		ELEC:		REVISION		A3	
.XX ± 0.01		PROJ. MGR.:		Q/A:		FILENAME:		SCALE: NOT TO SCALE	
.XXX ± 0.005		RELEASED:		SHEET 2 OF 3					
MATERIAL: (SEE NOTE 1)									
FINISH: (SEE NOTE 1)									

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ZONE	Dim.	ECO#	Rev.	REVISIONS		Date

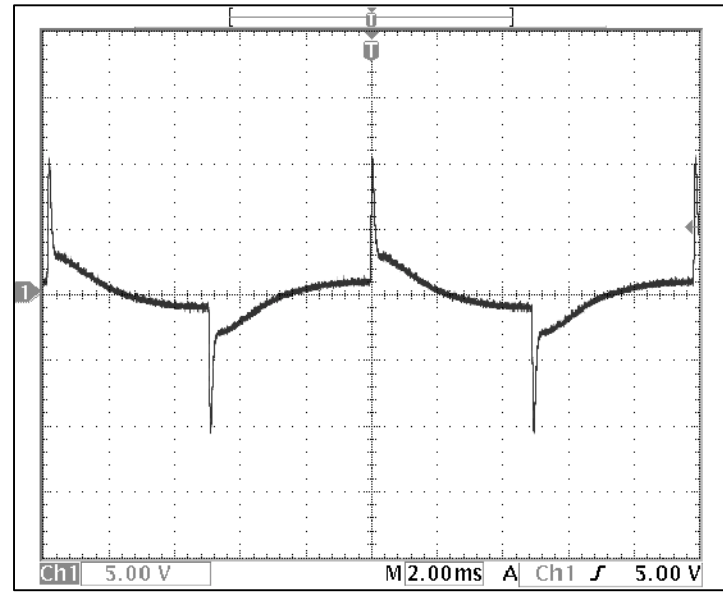


Figure 13
Limiter Switch In

1. Apply signal into the input with 100Hz square wave @ -36dBV.
2. Set Volume, all Active EQ's, Level and Limiter to center(halfway), Contour and Hi Boost to 0.
3. Look at output with scope set on 5V/div and 2ms/div.

HOLE REFERENCE CHART		
HOLE	DESCRIPTION	QTY.

QTY PER ASSY		PART NUMBER		DESCRIPTION	DESIGNATION(S)	ITEM NO.
PROPRIETARY						
PARTS LIST						
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<small>UNLESS OTHERWISE INDICATED DIMENSIONS SHOWN ARE IN INCHES</small>				TITLE: MB150S-III		
APPROVALS TOLERANCES FRACTION ± ANGLES ± .XX ± 0.01 .XXX ± 0.005		INIT MECH. DESIGN: DRAWN BY: EAH ELEC:		DATE 8/24/04		SIZE B
MATERIAL: (SEE NOTE 1)		PROJ. MGR.: Q/A:		FILENAME:		DRAWING NUMBER: PART NUMBER: 206-0210-A3
FINISH: (SEE NOTE 1)		RELEASED:		SCALE: NOT TO SCALE		REVISION A3
				SHEET 3 OF 3		