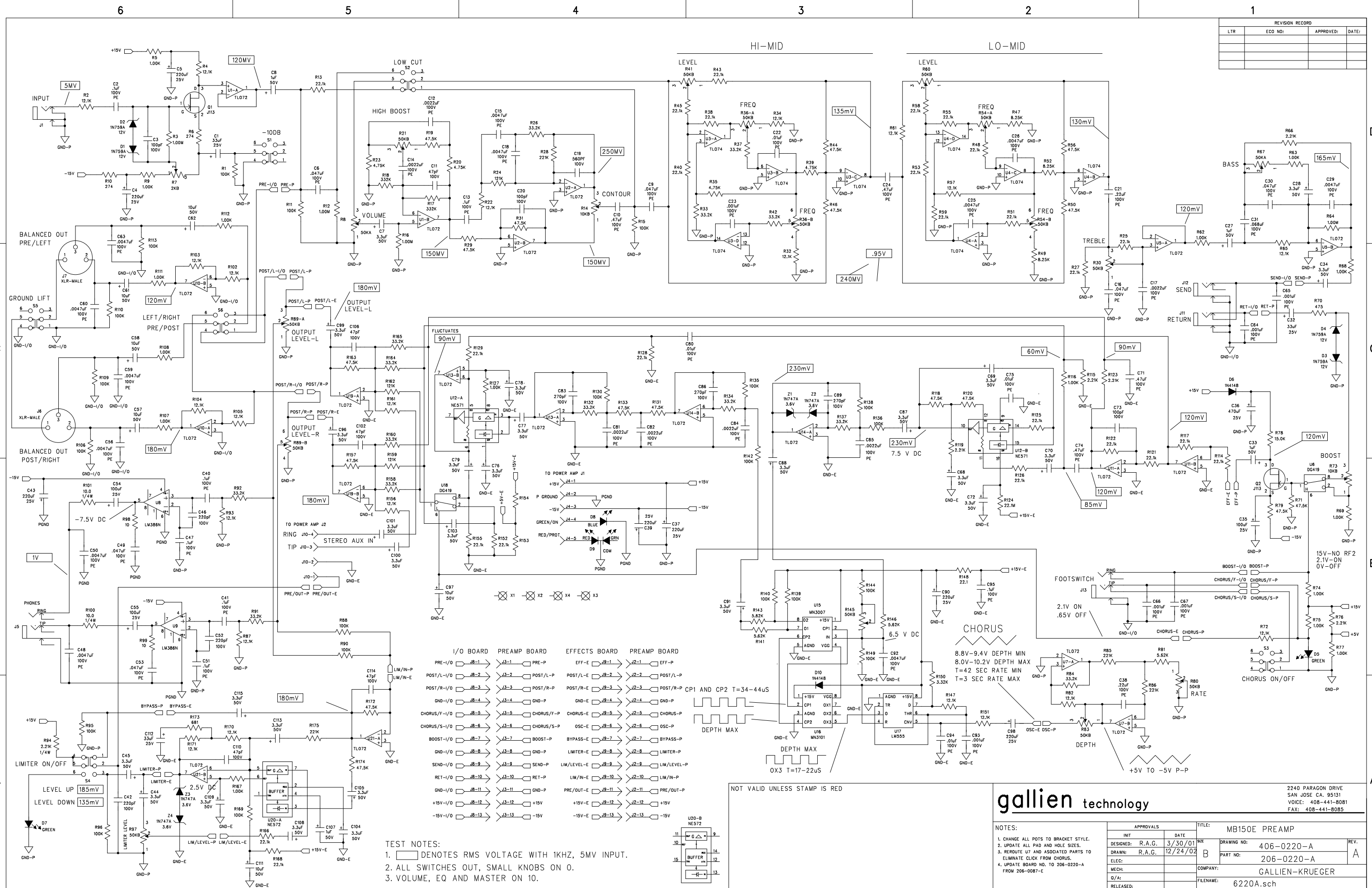


REVISION RECORD			
LTR	ECO NO.	APPROVED:	DATE:



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

**gallien technology**

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

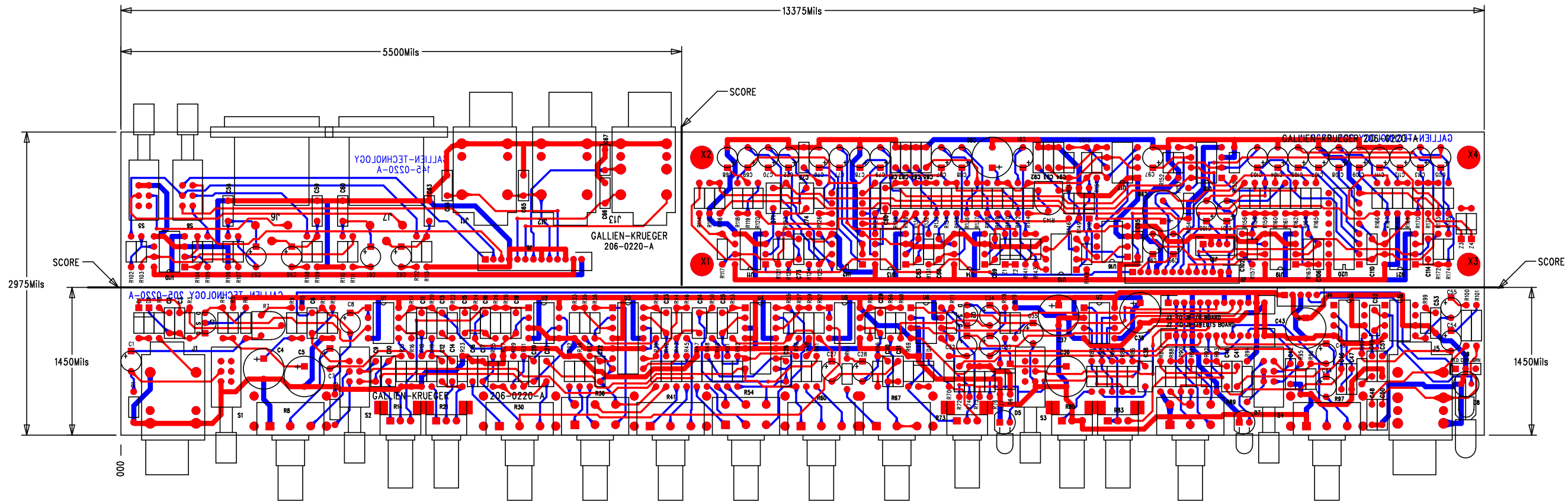
NOTES:  
 1. CHANGE ALL POTS TO BRACKET STYLE.  
 2. UPDATE ALL PAD AND HOLE SIZES.  
 3. REROUTE U7 AND ASSOCIATED PARTS TO ELIMINATE CLICK FROM CHORUS.  
 4. UPDATE BOARD NO. TO 206-0220-A FROM 206-0087-E

APPROVALS		TITLE:
INIT	DATE	MB150E PREAMP
DESIGNED: R.A.G.	3/30/01	DRAWING NO: 406-0220-A
DRAWN: R.A.G.	12/24/02	PART NO: 206-0220-A
COMPANY: GALLIEN-KRUEGER		FILENAME: 6220A.sch

# GK GALLIEN-KRUEGER

MB150E-III Preamp		Costed Bill Of Material	206-0220-A		
Part No.	Reference	Description	Manufacturer	Mfr. Part No.	Quan
001-0006-0	U15	LM3007, 1024 BBD	PANASONIC	MN3007	1.00
001-1002-0	U3-4	TLO74CN, QUAD LOW NOISE JFET OPAMP	MOTOROLA	TL074CN	2.00
001-1030-1	U1,2,5,7,10,11,13,14,19 U21	TLO72CP, LOW NOISE JFET OPAMP	MOTOROLA	TL072CP	10.00
001-1038-0	U8-9	LM386 LOW VOLTAGE POWER AMP	NATIONAL	LM386	2.00
001-2044-0	U16	MN3101, CLOCK GENERATOR	PANASONIC	MN3101	1.00
001-2060-0	U17	LM555, TIMER	NATIONAL	LM555CN	1.00
001-3029-0	U6 U18	DG419, Analog Switch	MAXIM	DG419DJ	2.00
001-4043-0	U12	NE571,DUAL COMPANDER	PHILLIPS	SA571N	1.00
001-4045-0	U20	NE572,DUAL COMPANDER	PHILLIPS	SA572N	1.00
010-2010-0	Q1-2	J113,N-JFET,35V,2MA,TO-92	NATIONAL	J113	2.00
020-0036-0	Z1-4	1N747A, ZENER, 3.6V, 5%, 400MW, DO-35	TAITRON	1N747A	4.00
020-0120-0	D1-4	1N759A, ZENER,12V,5%,400MW, DO-35	MOTOROLA	1N759A	4.00
020-1000-0	D6 D10	1N4148, RECT-FAST, 200MA, 100V	MOTOROLA	1N4148	2.00
025-0012-0	D9	LED,RED/GRN,5MM,630NM/560NM	STANLEY	VRPG5614S	1.00
025-0030-2	D8	LED,BLUE, 10MA	LITEON	LTL-42B6	1.00
025-0101-0	D5 D7	LED,GREEN, 3MM, 565NM, 6MCD, 10MA	EVERLIGHT	EL204GD	2.00
031-1107-0	C35 C54-55	CAP,ELEC,RAD,107,20%,25V	UNITED CHEMI-CON	SMG25VB101M6X11LL	3.00
031-1227-0	C4,5,37,39,43,90,98	CAP ELEC, 220uF,20% ,25V	UNITED CHEMICON	SMG25VB221M8X11LL	7.00
031-1336-0	C1 C32 C112	CAP,ELEC,RAD,336,20%,25V	UNITED CHEMI-CON	SRG25VB33RM5X7LL	3.00
031-1477-0	C36	CAP, ELEC, RAD, 470uF, 20%, 25V	UNITED CHEMI-CON	SMG25VB471M10X12LL	1.00
031-2105-0	C8 C27 C33 C107	CAP,ELEC,RAD, 105, 20%, 50V	UNITED CHEMI-CON	C440C105M5U5CA	4.00
031-2106-0	C57,58,61,62,97,111	CAP,ELEC,RAD, 106, 20%, 50V	UNITED CHEMI-CON	SMG50VB10RM5X11LL	6.00
031-2335-0	C7,28,34,44,45,68-70,72 C76-79,87,88,91,96,99 C100,101,103-105,108 C109,113,115	CAP,ELEC,RAD,335,20%,50V	UNITED CHEMI-CON	SMG50VB3R3M5X11LL	27.00
032-4102-0	C23 C64-67 C93	CAP,PE,102,5%,100V,	PANASONIC	ECQB1102JF	6.00
032-4103-0	C22 C75 C80 C94	CAP,PE,103,5%,100V,	PANASONIC	ECQV1103JM	4.00
032-4104-0	C2,13,40,41,47,51,95	CAP,PE,104,5%,100V,	PANASONIC	ECQV1104JM	7.00
032-4222-0	C12,14,17,81,82,84,85	CAP,PE,222,5%,100V,	PANASONIC	ECQB1222JF	7.00
032-4224-0	C21 C38	CAP,PE,224,5%,100V,	PANASONIC	ECQV1224JM	2.00
032-4472-0	C15,18,25,26,29,48,50 C56 C59-60 C63 C92	CAP,PE,472,5%,100V,	PANASONIC	ECQB1472JF	12.00
032-4473-0	C6,9,16,30,49,53	CAP,PE,473,5%,100V,	PANASONIC	ECQV1473JM	6.00
032-4474-0	C10 C24 C71 C74	CAP,PE,474,5%,100V,	PANASONIC	ECQV1474JM	4.00
032-4683-0	C31	CAP,PE,683,5%,100V,	PANASONIC	ECQV1683JM	1.00
034-4101-0	C3 C20 C73	CAP,MCR,100pF,5%,100V,	TAITRON	TMRS101J100NPOB	3.00
034-4221-0	C42 C46 C52	CAP,MCR,220pF,5%,100V,	TAITRON	TMRS221J100NPOB	3.00
034-4271-0	C83 C86 C89	CAP,MCR,270pF,5%,100V,	TAITRON	TMRS271J100NPOB	3.00
034-4470-0	C11,102,106,110,114	CAP,MCR,47PF,5%,100V,NPO	TAITRON	TMRS470J100NPOB	5.00
034-4561-0	C19	CAP,MCR,560pF,5%,100V,	TAITRON	TMRS561J100NPOB	1.00
052-1000-0	R100-101	RES,METAL FILM, 10.0, 1/4W, 1%	ECI	M2F1AJ010.00	2.00
052-2212-0	R94	RES,METAL FILM,2.21k,1/4W,1%	ECI	M2F1AK002.21	1.00
060-1000-0	R98-99	RES,METAL FILM, 10.0, 1/8W, 1%	ECI	M1F1AJ010.00	2.00
060-1002-0	R5,9,62,63,68,69,74,75 R77,107,108,111,112 R116,127,167	RES,METAL FILM, 1.00K, 1/8W, 1%	ECI	M1F1AK001.00	16.00
060-1003-0	R153	RES,METAL FILM, 10.0K, 1/8W,1%	ECI	M1F1AK010.00	1.00
060-1004-0	R1,11,15,88,90,95,96 R106,109,110,113,130 R135,136,138-140,142 R144,149,169	RES,METAL FILM, 100K, 1/8W, 1%	ECI	M1F1AK100.00	21.00
060-1005-0	R3 R12 R16 R64	RES,METAL FILM, 1.00M, 1%,1/8W	ECI	M1F1AM001.00	4.00
060-1213-0	R2,4,22,32,34,57,61,65	RES,METAL FILM, 12.1K , 1/8W, 1%	ECI	M1F1AK012.10	22.00
060-1213-0	R72,82,87,93,102-105 R147,151,156,161,170 R171	RES,METAL FILM, 121K, 1/8W, 1%	ECI	M1F1AK121.00	3.00
060-1214-0	R24 R159 R162	RES,METAL FILM, 121K, 1/8W, 1%	ECI	M1F1AK121.00	3.00
060-1503-0	R78	RES,METAL FILM, 15.0K, 1/8W, 1%	ECI	M1F1AK015.00	1.00
060-2003-0	R154	RES,METAL FILM, 20.0K, 1/8W, 1%	ECI	M1F1AK020.00	1.00
060-2210-0	R148	RES,METAL FILM, 22.1 ohm, 1/8W, 1%	ECI	M1F1AJ022.10	1.00
060-2212-0	R66,76,115,119,123	RES,METAL FILM, 2.21K, 1/8W, 1%	ECI	M1F1AK002.21	5.00
060-2213-0	R13,25,27,38,40,43,45 R48,51,53,55,58,59,114 R117,121,122,125,126 R128,129,152,155,166 R168	RES,METAL FILM, 22.1K, 1/8W, 1%	ECI	M1F1AK022.10	25.00

MB150E-III Preamp		Costed Bill Of Material	206-0220-A	
Part No.	Reference	Description	Manufacturer	Mfr. Part No.
060-2214-0	R28 R85-86 R175	RES,METAL FILM, 221K, 1/8W, 1%	ECI	M1F1AK221.00
060-2216-0	R124	RES,METAL FILM, 22.1M, 1/8W, 1%	ECI	M1F1AM022.10
060-2741-0	R6 R10	RES,METAL FILM, 274 ohm, 1/8W, 1%	ECI	M1F1AJ274.00
060-3322-0	R150	RES,METAL FILM, 3.32K, 1/8W, 1%	ECI	M1F1AK003.32
060-3323-0	R26,33,37,42,84,91,92	RES,METAL FILM, 33.2K, 1/8W, 1%	ECI	M1F1AK033.20
060-3323-0	R132,134,137,158,160			
060-3323-0	R164-165			
060-3324-0	R17-18	RES,METAL FILM, 332K, 1/8W, 1%	ECI	M1F1AK332.00
060-4751-0	R70	RES,METAL FILM, 475 ohm, 1/8W, 1%	ECI	M1F1AJ475.00
060-4752-0	R20 R23 R35 R39	RES,METAL FILM, 4.75K, 1/8W, 1%	ECI	M1F1AK004.75
060-4753-0	R19,29,31,44,46,50,56	RES,METAL FILM, 47.5K, 1/8W, 1%	ECI	M1F1AK047.50
060-4753-0	R71,79,118,120,131,133			
060-4753-0	R157,163,172,174			
060-5622-0	R81 R141 R143 R146	RES,METAL FILM, 5.62K, 1/8W, 1%	ECI	M1F1AK005.62
060-6811-0	R173	RES,METAL FILM, 681 ohm, 1/8W, 1%	ECI	M1F1AJ681.00
060-8252-0	R47 R49 R52	RES,METAL FILM, 8.25K, 1/8W, 1%	ECI	M1F1AK008.25
070-0505-0	R21 R80 R83	POT,50KB,MINI.,.1W	SONG HUEI	RK0901N-A50K-L20KQ
070-0510-0	R145	POT,50KB TRIM, 200mW	SONG HUEI	SH-655MCL-50KB
070-0511-0	R14 R73	POT,10KB,MINI.,.1W	SONG HUEI	R0901N-B10K,L20KQ
070-0516-0	R7	POT,2KB TRIM, 200mW	SONG HUEI	SH-655MCL-2KB
070-1253-0	R36 R54 R89	POT, 2X50KB, 7MM, KNURL, .1W	SONG HUEI	16T1-B50K-L15KC
070-1513-0	R8 R67	POT,50K-15A,7MM,KNURL,.1W	SONG HUEI	16K1-A50K-L15KC
070-1514-0	R30 R41 R60 R97	POT,50KB,7MM,KNURL,.1W	SONG HUEI	16K1-B50K-L15KC
090-0012-0	S1-6	SWITCH,MIMI PP,DPDT,.1A BRK/MAKE	ELKECTRONIC COMP	MTH2UEE-1D911
092-0079-0	J5 J13	JACK,1/4",STEREO,PC,NON GROUNDING	NEUTRIK	S203-84
092-0081-0	J1 J11-12	JACK,1/4",MONO,PC,NON GROUNDING	NEUTRIK	S102-84
092-0084-0	J6-7	CON,XLR,MALE,PC,PL, SCREW MNT	NEUTRIK	X906-05
093-0036-0	J2-3 J8-9	HDR, 2MMX13, VERT	JST	B13B-PH-K-S
093-0045-0	J10	HDR, 2MMX4, VERT, LOCK	JST	B4B-PH-K-S
093-0053-0	J4	HDR, 2MMX5, VERT, LOCK	JST	B5B-PH-K-S
145-0220-A		MB150E PREAMP BOARD		



PCB WORK INSTRUCTIONS

DWG #420-0220-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.

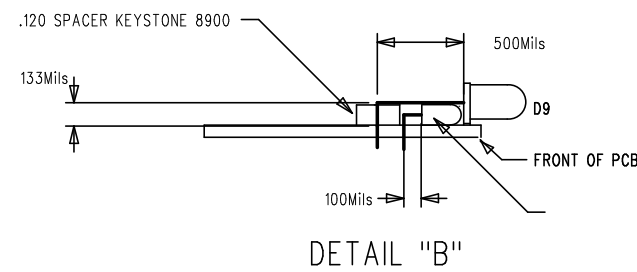
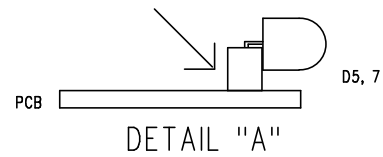
LOADING

6. SEE DETAIL A FOR MOUNTING D5 AND 7
7. SEE DETAIL "B" FOR MOUNTING D8 AND D9

FINAL QA

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

LED SPACER  
GT PART# 100-0119-0



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: MB150E-III PREAMP	
INIT	DATE	SIZE	DRAWING NO: 405-0220-A
DESIGNED: R.A.G.	3/29/01	B	PART NO: 145-0220-A
DRAWN: R.A.G.	12/24/02		REV. A
ELEC:		COMPANY: GALLIEN-KRUEGER	
MECH:		FILENAME:	
GERBER FILE NAME: 5220A.pcb			

6

5

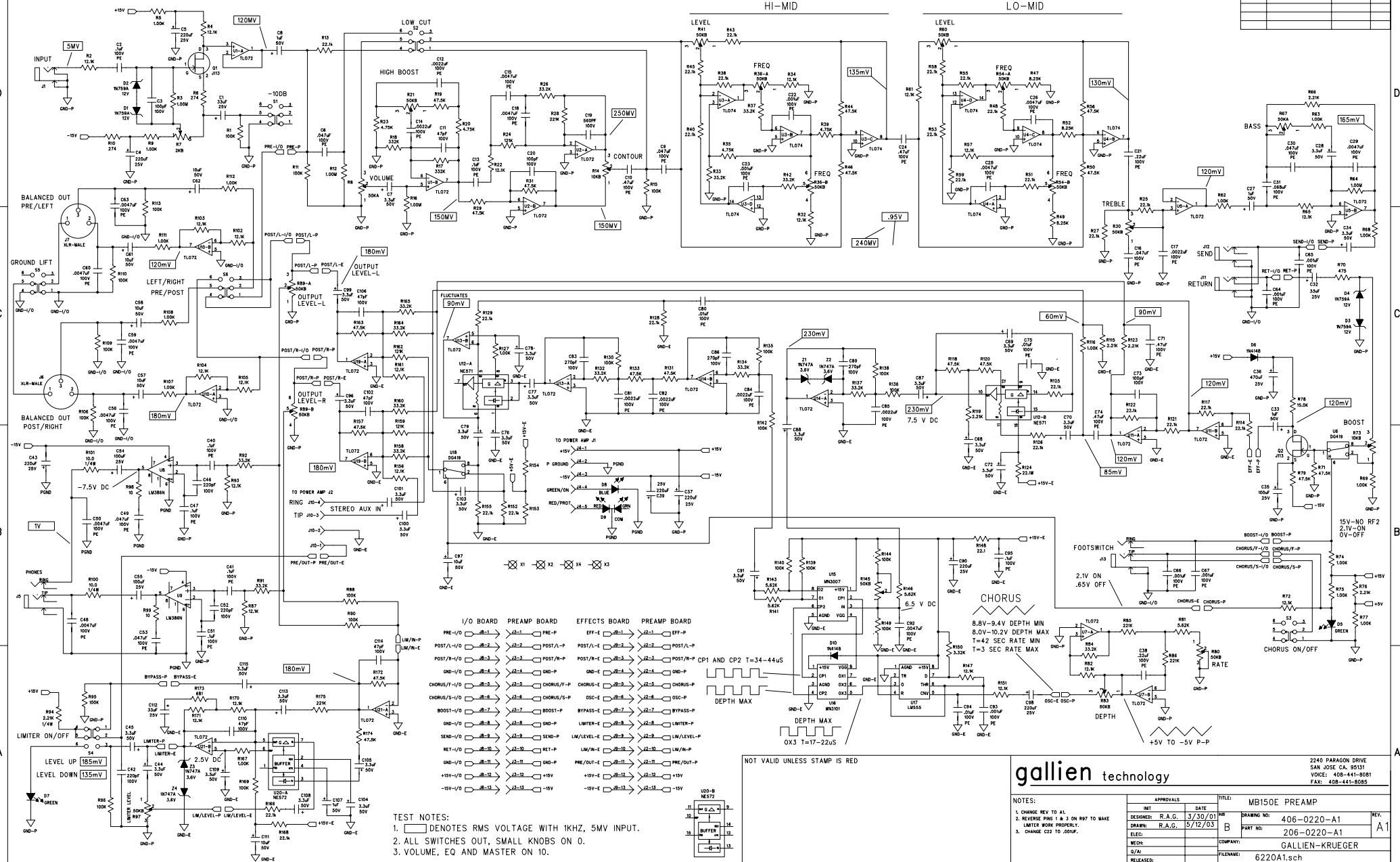
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1

REVISION RECORD			
LTR	ECO NO.	APPROVED:	DATE:



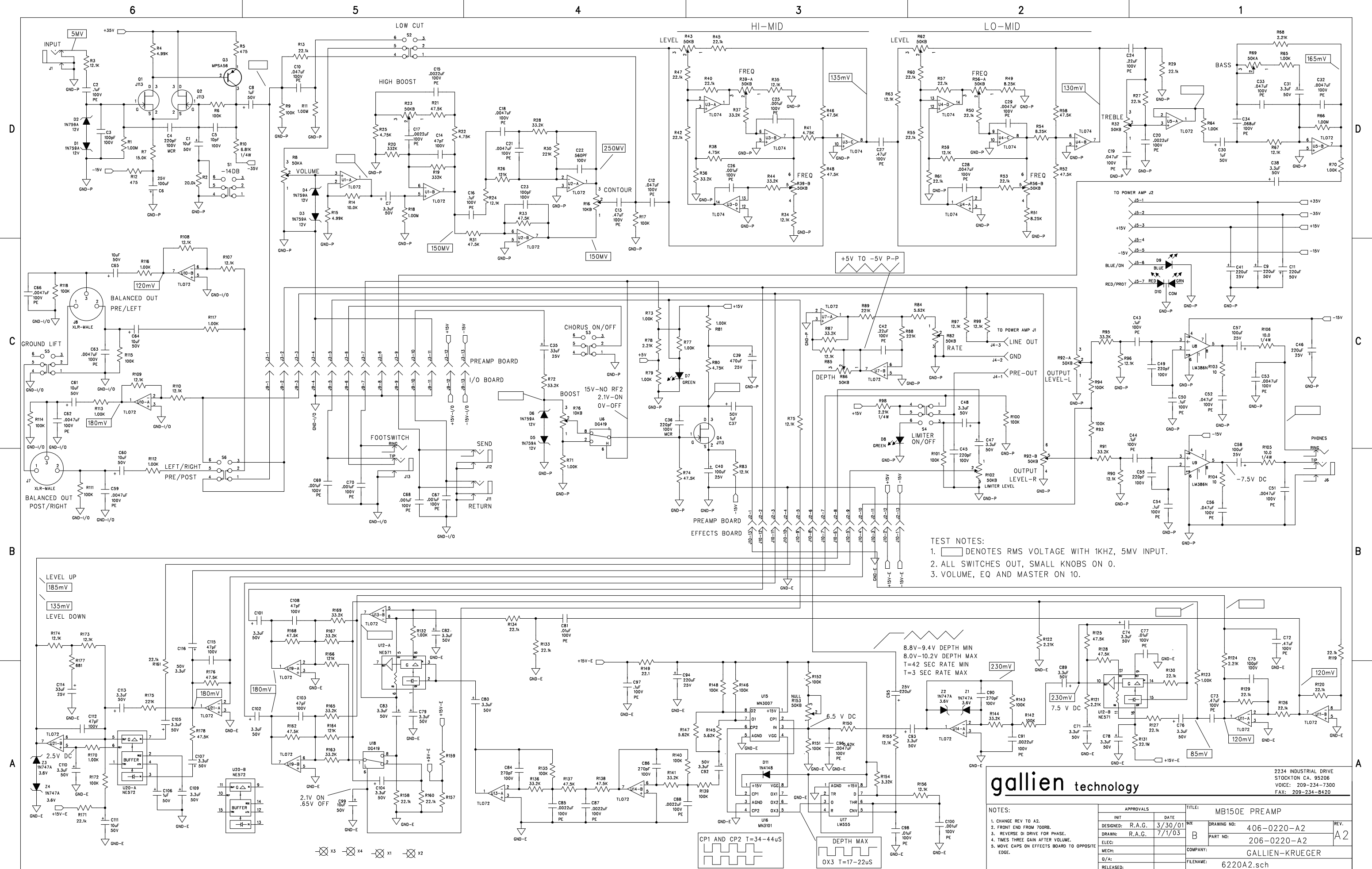
TEST NOTES:  
 1. DENOTES RMS VOLTAGE WITH 1KHZ, 5MV INPUT.  
 2. ALL SWITCHES OUT, SMALL KNOBS ON 0.  
 3. VOLUME, EQ AND MASTER ON 10.

**gallien technology**

2240 PARAGON DRIVE  
 SAN JOSE, CA, 95131  
 VOICE: 408-441-9081  
 FAX: 408-441-8085

NOTES:  
 1. CHANGE REV TO A1.  
 2. REVERSE PINS 8 & 9 ON R97 TO MAKE LIMITER WORK PROPERLY.  
 3. CHANGE C22 TO .001UF.

APPROVALS		DATE	TITLE:
DESIGNED: R.A.S.	3/30/01	MB150E PREAMP	REV.
DRAWN: R.A.G.	5/12/03	DRAWING NO:	406-0220-A1
ELEC:		PART NO:	206-0220-A1
MECH:		COMPANY:	GALLIEN-KRUEGER
RELEASED:		FILENAME:	6220A1.sch



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

**gallien technology**

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

NOTES:  
 1. CHANGE REV TO A2.  
 2. FRONT END FROM 700RB.  
 3. REVERSE DI DRIVE FOR PHASE.  
 4. TIMES THREE GAIN AFTER VOLUME.  
 5. MOVE CAPS ON EFFECTS BOARD TO OPPOSITE EDGE.

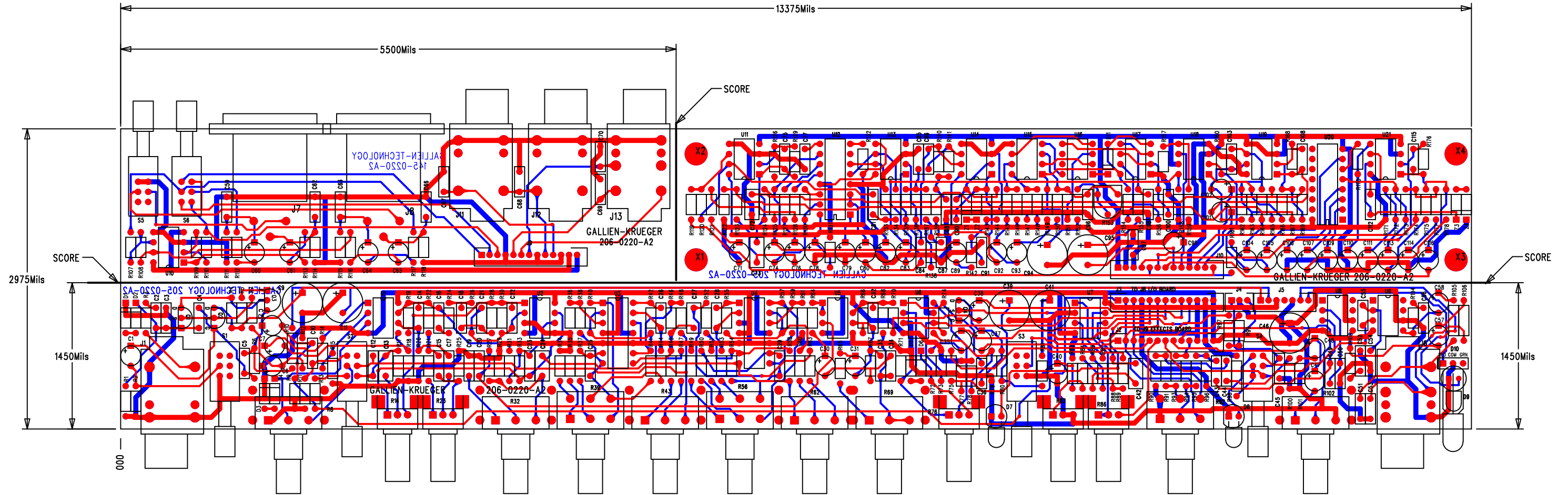
APPROVALS		DATE	TITLE:
DESIGNED:	R.A.G.	3/30/01	MB150E PREAMP
DRAWN:	R.A.G.	7/1/03	DRAWING NO: 406-0220-A2
ELEC:			PART NO: 206-0220-A2
MECH:			COMPANY: GALLIEN-KRUEGER
Q/A:			FILENAME: 6220A2.sch
RELEASED:			

# GK GALLIEN-KRUEGER

MB150E-III Preamp		Bill Of Material	206-0220-A2		
Part No.	Reference	Description	Manufacturer	Mfr. Part No.	Quan
001-0006-0	U15	LM3007, 1024 BBD	PANASONIC	MN3007	1.00
001-1002-0	U3-4	TLO74CN, QUAD LOW NOISE JFET OPAMP	MOTOROLA	TL074CN	2.00
001-1030-1	U1,2,5,7,10,11,13,14,19 U21	TLO72CP, LOW NOISE JFET OPAMP	MOTOROLA	TL072CP	10.00
001-1038-0	U8-9	LM386 LOW VOLTAGE POWER AMP	NATIONAL	LM386	2.00
001-2044-0	U16	MN3101, CLOCK GENERATOR	PANASONIC	MN3101	1.00
001-2060-0	U17	LM555, TIMER	NATIONAL	LM555CN	1.00
001-3029-0	U6 U18	DG419, Analog Switch	MAXIM	DG419DJ	2.00
001-4043-0	U12	NE571,DUAL COMPANDER	PHILLIPS	SA571N	1.00
001-4045-0	U20	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 Q4	J113,N-JFET,35V,2MA,TO-92	NATIONAL	J113	3.00
020-0036-0	Z1-4	1N747A, ZENER, 3.6V, 5%, 400MW, DO-35	TAITRON	1N747A	4.00
020-0120-0	D1-6	1N759A, ZENER,12V,5%,400MW, DO-35	MOTOROLA	1N759A	6.00
020-1000-0	D11	1N4148, RECT-FAST, 200MA, 100V	MOTOROLA	1N4148	1.00
025-0012-0	D10	LED,RED/GRN,5MM,630NM/560NM,15MCD/15	STANLEY	VRPG5614S	1.00
025-0030-2	D9	LED,BLUE, 10MA	LITEON	LTL-42B6	1.00
025-0101-0	D7-8	LED,GREEN, 3MM, 565NM, 6MCD, 10MA	EVERLIGHT	EL204GD	2.00
031-1107-0	C6 C40 C57-58	CAP,ELEC,RAD,107,20%,25V	UNITED CHEMI-CON	SMG25VB101M6X11LL	4.00
031-1227-0	C41 C46 C94-95	CAP ELEC, 220uF,20% ,25V	UNITED CHEMICON	SMG25VB221M8X11LL	4.00
031-1336-0	C35 C114	CAP,ELEC,RAD,336,20%,25V	UNITED CHEMI-CON	SRG25VB33RM5X7LL	2.00
031-1477-0	C39	CAP, ELEC, RAD, 470uF, 20%, 25V	UNITED CHEMI-CON	SMG25VB471M10X12LL	1.00
031-2105-0	C8 C30 C37 C106	CAP,ELEC,RAD, 105, 20%, 50V	UNITED CHEMI-CON	C440C105M5U5CA	4.00
031-2106-0	C1,60,61,64,65,99,111	CAP,ELEC,RAD, 106, 20%, 50V	UNITED CHEMI-CON	SMG50VB10RM5X11LL	7.00
031-2227-0	C9 C11	CAP, ELEC, 220uF, 20%, 50V	UNITED CHEMI-CON	SMG50VB221M10X12LL	2.00
031-2335-0	C7,31,38,47,48,71,74,76 C78-80,82,83,89,92,93 C101,102,104,105,107 C109-110 C113 C116	CAP,ELEC,RAD,335,20%,50V	UNITED CHEMI-CON	SMG50VB3R3M5X11LL	25.00
032-4102-0	C25-26 C67-70 C100	CAP,PE,102,5%,100V,	PANASONIC	ECQB1102JF	7.00
032-4103-0	C77 C81 C98	CAP,PE,103,5%,100V,	PANASONIC	ECQV1103JM	3.00
032-4104-0	C2,16,43,44,50,54,97	CAP,PE,104,5%,100V,	PANASONIC	ECQV1104JM	7.00
032-4222-0	C15,17,20,85,87,88,91	CAP,PE,222,5%,100V,	PANASONIC	ECQB1222JF	7.00
032-4224-0	C24 C42	CAP,PE,224,5%,100V,	PANASONIC	ECQV1224JM	2.00
032-4472-0	C18,21,28,29,32,51,53 C59 C62-63 C66 C96	CAP,PE,472,5%,100V,	PANASONIC	ECQB1472JF	12.00
032-4473-0	C10,12,19,33,52,56	CAP,PE,473,5%,100V,	PANASONIC	ECQV1473JM	6.00
032-4474-0	C13 C27 C72-73	CAP,PE,474,5%,100V,	PANASONIC	ECQV1474JM	4.00
032-4683-0	C34	CAP,PE,683,5%,100V,	PANASONIC	ECQV1683JM	1.00
034-4100-0	C5	CAP, MCR,10pF,5%,100V,NPO	TAITRON	TMRS100J100NPOB	1.00
034-4101-0	C3 C23 C75	CAP,MCR,100pF,5%,100V,	TAITRON	TMRS101J100NPOB	3.00
034-4221-0	C4 C36 C45 C49 C55	CAP,MCR,220pF,5%,100V,	TAITRON	TMRS221J100NPOB	5.00
034-4271-0	C84 C86 C90	CAP,MCR,270pF,5%,100V,	TAITRON	TMRS271J100NPOB	3.00
034-4470-0	C14,103,108,112,115	CAP,MCR,47PF,5%,100V,NPO	TAITRON	TMRS470J100NPOB	5.00
034-4561-0	C22	CAP,MCR,560pF,5%,100V,	TAITRON	TMRS561J100NPOB	1.00
052-1000-0	R105-106	RES,METAL FILM, 10.0, 1/4W, 1%	ECI	M2F1AJ010.00	2.00
052-2212-0	R98	RES,METAL FILM,2.21k,1/4W,1%	ECI	M2F1AK002.21	1.00
052-6812-0	R10	RES, METAL FILM, 6.81K OHM, 1/4W, 1%	ECI	M2F1AK006.81	1.00
060-1000-0	R103-104	RES,METAL FILM, 10.0, 1/8W, 1%	ECI	M1F1AJ010.00	2.00
060-1002-0	R64,65,70,71,73,77,79 R81,112,113,116,117 R123,132,170	RES,METAL FILM, 1.00K, 1/8W, 1%	ECI	M1F1AK001.00	15.00
060-1003-0	R14 R157	RES,METAL FILM, 10.0K, 1/8W,1%	ECI	M1F1AK010.00	2.00
060-1004-0	R6,9,17,93,94,100-101 R111,114,115,118,135 R139,140,142,143,146 R148,151,152,172	RES,METAL FILM, 100K, 1/8W, 1%	ECI	M1F1AK100.00	21.00
060-1005-0	R1 R11 R18 R66	RES, MF, 1.00M, 1%,1/8W, 060-1005-0	ECI	M1F1AM001.00	4.00
060-1213-0	R3,24,34,35,59,63,67,75 R83,85,90,96,97,99 R107-110,155,156,173 R174	RES,METAL FILM, 12.1K OHM, 1/8W, 1%	ECI	M1F1AK012.10	22.00
060-1214-0	R26 R164 R166	RES,METAL FILM, 121K, 1/8W, 1%	ECI	M1F1AK121.00	3.00
060-1503-0	R7	RES,METAL FILM, 15.0K, 1/8W, 1%	ECI	M1F1AK015.00	1.00
060-2003-0	R2 R159	RES,METAL FILM, 20.0K, 1/8W, 1%	ECI	M1F1AK020.00	2.00
060-2210-0	R149	RES,METAL FILM, 22.1 ohm, 1/8W, 1%	ECI	M1F1AJ022.10	1.00

MB150E-III Preamp		Bill Of Material		206-0220-A2	
Part No.	Reference	Description	Manufacturer	Mfr. Part No.	
060-2212-0	R68 R78 R121-122 R124	RES,METAL FILM, 2.21K, 1/8W, 1%	ECI	M1F1AK002.21	
060-2213-0	R13,27,29,40,42,45,47	RES,METAL FILM, 22.1K, 1/8W, 1%	ECI	M1F1AK022.10	
	R50,53,55,57,60,61,119				
	R120,126,127,129,130				
	R133,134,158,160,161,171				
060-2214-0	R30 R88-89 R175	RES,METAL FILM, 221K, 1/8W, 1%	ECI	M1F1AK221.00	
060-2216-0	R131	RES,METAL FILM, 22.1M, 1/8W, 1%	ECI	M1F1AM022.10	
060-3322-0	R154	RES,METAL FILM, 3.32K, 1/8W, 1%	ECI	M1F1AK003.32	
060-3323-0	R28,36,37,44,72,87,91	RES,METAL FILM, 33.2K, 1/8W, 1%	ECI	M1F1AK033.20	
	R95,136,141,144,163,165				
	R167,169				
060-3324-0	R19-20	RES,METAL FILM, 332K, 1/8W, 1%	ECI	M1F1AK332.00	
060-4751-0	R5,12	RES,METAL FILM, 475 ohm, 1/8W, 1%	ECI	M1F1AJ475.00	
060-4752-0	R22 R25 R38 R41 R80	RES,METAL FILM, 4.75K, 1/8W, 1%	ECI	M1F1AK004.75	
060-4753-0	R21,31,33,46,48,52,58	RES,METAL FILM, 47.5K, 1/8W, 1%	ECI	M1F1AK047.50	
	R74,125,128,137,138,162				
	R168 R176 R178				
060-4992-0	R4 R15	RES,METAL FILM, 4.99K, 1/8W, 1%	ECI	M1F1AK004.99	
060-5622-0	R84 R145 R147 R150	RES,METAL FILM, 5.62K, 1/8W, 1%	ECI	M1F1AK005.62	
060-6811-0	R177	RES,METAL FILM, 681 ohm, 1/8W, 1%	ECI	M1F1AJ681.00	
060-8252-0	R49 R51 R54	RES,METAL FILM, 8.25K, 1/8W, 1%	ECI	M1F1AK008.25	
070-0505-0	R23 R82 R86	POT,50KB,MINI,.1W	SONG HUEI	RK0901N-A50K-L20KQ	
070-0510-0	R153	POT,50KB TRIM, 200mW	SONG HUEI	SH-655MCL-50KB	
070-0511-0	R16 R76	POT,10KB,MINI,.1W	SONG HUEI	R0901N-B10K,L20KQ	
070-1253-0	R39 R56 R92	POT, 2X50KB, 7MM, KNURL, .1W	SONG HUEI	16T1-B50K-L15KC	
070-1513-0	R8 R69	POT,50K-15A,7MM,KNURL,.1W	SONG HUEI	16K1-A50K-L15KC	
070-1514-0	R32 R43 R62 R102	POT,50KB,7MM,KNURL,.1W	SONG HUEI	16K1-B50K-L15KC	
090-0012-0	S1-6	SWITCH,MIMI PP,DPDT,.1A BRK/MAKE,PC TE	ELKECTRONIC COMP	MTH2UEE-1D911	
092-0079-0	J6 J13	JACK,1/4",STEREO,PC,NON GROUNDING	NEUTRIK	S203-84	
092-0081-0	J1 J11-12	JACK,1/4",MONO,PC,NON GROUNDING	NEUTRIK	S102-84	
092-0084-0	J7-8	CON,XLR,MALE,PC,PL, SCREW MNT	NEUTRIK	X906-05	
093-0036-0	J2-3 J9-10	HDR, 2MMX13, VERT	JST	B13B-PH-K-S	
093-0043-0	J4	HDR, 2MMX3, VERT, LOCK	JST	B3B-PH-K-S	
093-2005-0	J5	HDR, 2MMX7, VERT, SHROUDED	JST	B7B-PH-K-S	
145-0220-A2		MB150E-III PREAMP BOARD			





PCB WORK INSTRUCTIONS

DWG #420-0220-A2

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.

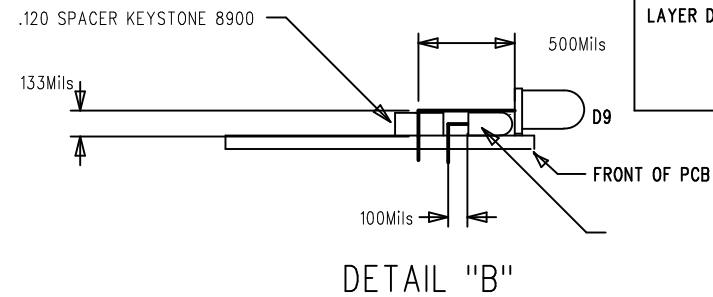
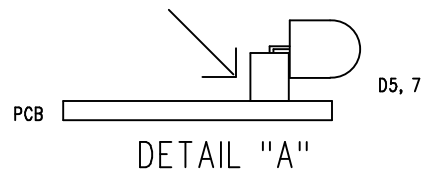
LOADING

6. SEE DETAIL A FOR MOUNTING D5 AND 7
7. SEE DETAIL "B" FOR MOUNTING D8 AND D9

FINAL QA

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

LED SPACER  
GT PART# 100-0119-0



NOT VALID UNLESS STAMP IS RED

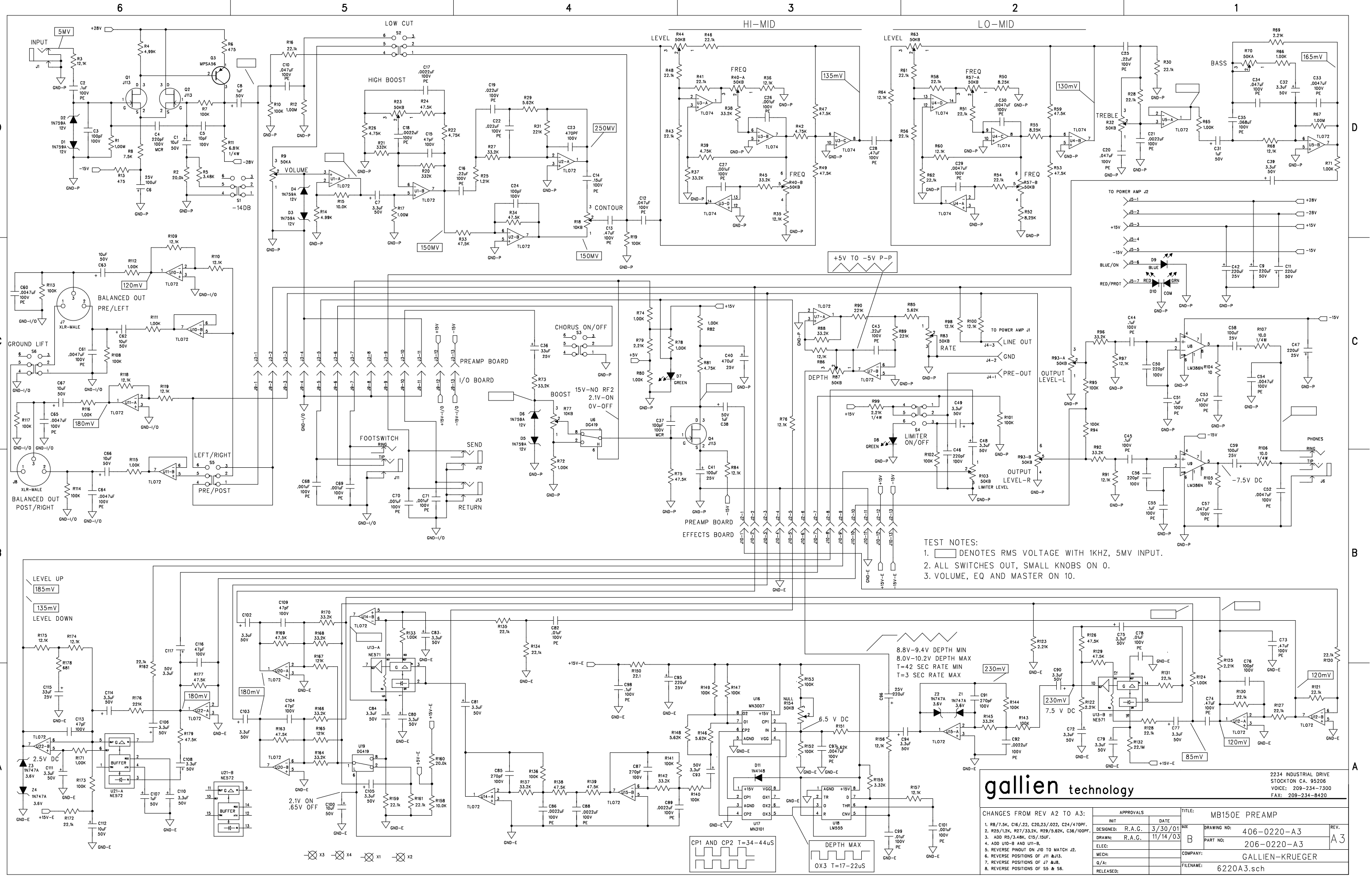
**gallien** technology

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

APPROVALS		TITLE:	
INIT	DATE	MB150E-III PREAMP	
DESIGNED: R.A.G.	3/29/01	SIZE B	DRAWING NO: 405-0220-A2
DRAWN: R.A.G.	8/12/03		PART NO: 145-0220-A2
ELEC:		REV. A2	
MECH:		COMPANY: GALLIEN-KRUEGER	
GERBER FILE NAME: sst0220.pho		FILENAME:	

LAYER DESCRIPTION:  
~~TOP SIDE~~  
~~BOTTOM SIDE~~

Customer Name:		Gallien-Krueger		Current Rev #:	A1	New ECO Rev #:	A2
Model:		MB150E-III		Distribute To:		Page:	1 Of: 1
Assembly Description:		MB150E-III PREAMP		Originator: RAG			
Assembly Numbers:		206-0220-A2		Approved by:			
				Effective Date: 9/4/2003			
Effective				Document Update	Date	Initials	
<input type="checkbox"/>	All in Process	<input checked="" type="checkbox"/>	Next Buy	<input type="checkbox"/>	Artwork		
<input type="checkbox"/>	All in Service	<input type="checkbox"/>	Next Production Run	<input type="checkbox"/>	Assembly Dwg.		
<input type="checkbox"/>	All in Stock	<input type="checkbox"/>		<input checked="" type="checkbox"/>	Board Artwork		RAG
Beginning Serial Number:				<input checked="" type="checkbox"/>	BOM		RAG
Reason For Change				<input type="checkbox"/>	Control Form		
ADD FRONT END FROM 700RB FOR LOWER NOISE AND POP.				<input type="checkbox"/>	Costing		
ADD GAIN X3 AFTER VOLUME TO REDUCE NOISE.				<input type="checkbox"/>	Fab Drawing		
MOVE CAPS ON EFFECTS BOARD AWAY FROM POTS ON MAIN PREAMP.				<input type="checkbox"/>	Inspection Proc.		
				<input checked="" type="checkbox"/>	Part Master File		RAG
				<input checked="" type="checkbox"/>	Schematic		RAG
THIS IS A MAJOR CHANGE AND WILL REQUIRE A NEW BOM SINCE THE DESIGNATORS WERE COMPLETELY RENUMBERED.				<input type="checkbox"/>	Service Manual		
				<input type="checkbox"/>	Test Procedure		
				<input type="checkbox"/>			
REV A1 WAS NOT MANUFACTURED.				Other Affected Assemblies			
<input type="checkbox"/>	Continued on ECO Supplement Page						
Description Of Change				Distribution	Date	Initials	
				<input type="checkbox"/>	Accounting		
				<input type="checkbox"/>	Assembly		
				<input type="checkbox"/>	Engineering		
				<input type="checkbox"/>	Incoming Q.C.		
				<input type="checkbox"/>	Production Eng.		
				<input type="checkbox"/>	Purchasing		
				<input type="checkbox"/>	Q.A.		
				<input type="checkbox"/>	Service		
				<input type="checkbox"/>	Test		
				<input type="checkbox"/>			
<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		



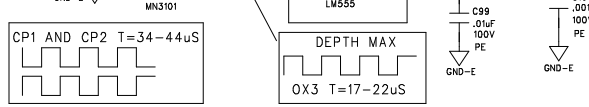
TEST NOTES:  
1. [ ] DENOTES RMS VOLTAGE WITH 1KHZ, 5MV INPUT.  
2. ALL SWITCHES OUT, SMALL KNOBS ON 0.  
3. VOLUME, EQ AND MASTER ON 10.

**gallen technology**

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

CHANGES FROM REV A2 TO A3:  
1. R8/7.5K, C16/22, C20,23/022, C24/470PF.  
2. R25/1.2K, R27/33.2K, R29/5.62K, C36/100PF.  
3. ADD R5/3.48K, C15/15UF.  
4. ADD U2-B AND U1-B.  
5. REVERSE INPUT ON J10 TO MATCH J2.  
6. REVERSE POSITIONS OF J1 & J3.  
7. REVERSE POSITIONS OF J7 & J8.  
8. REVERSE POSITIONS OF S5 & S6.

INIT	DATE	TITLE
DESIGNED: R.A.G.	3/30/01	MB150E PREAMP
DRAWN: R.A.G.	11/14/03	DRAWING NO: 406-0220-A3
ELEC:		PART NO: 206-0220-A3
MECH:		COMPANY: GALLIEN-KRUEGER
Q/A:		FILENAME: 6220A3.sch
RELEASED:		REV: A3

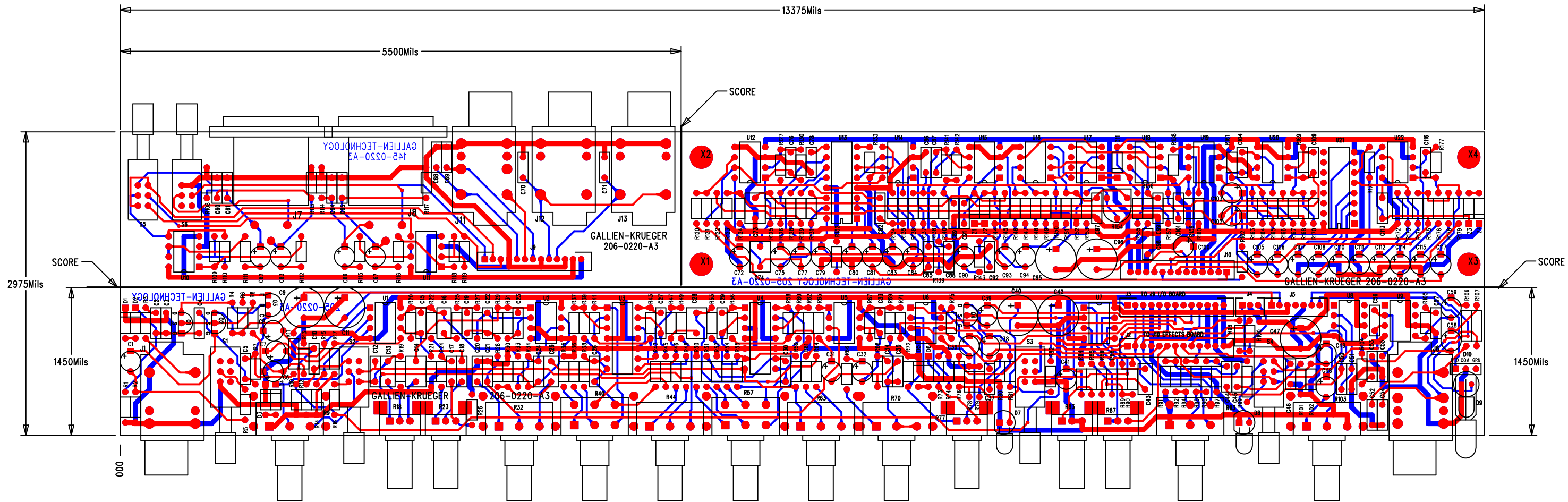


MB150E-III Preamp

Part No.	Reference	Description
001-0006-0	U16	LM3007, 1024 BBD
001-1002-0	U3-4	TLO74CN, QUAD LOW NOISE JFET OPAMP
001-1030-1	U1,2,5,7,10-12,14,15,20 U22	TLO72CP, LOW NOISE JFET OPAMP
001-1038-0	U8-9	LM386 LOW VOLTAGE POWER AMP
001-2044-0	U17	MN3101, CLOCK GENERATOR
001-2060-0	U18	LM555, TIMER
001-3029-0	U6 U19	DG419, Analog Switch
001-4043-0	U13	NE571,DUAL COMPANDER
001-4045-0	U21	NE572,DUAL COMPANDER
010-1013-0	Q3	MPSA56 PNP 80V 500MA TO-92
010-2010-0	Q1-2 Q4	J113,N-JFET,35V,2MA,TO-92
020-0036-0	Z1-4	1N747A, ZENER, 3.6V, 5%, 400MW, DO-35
020-0120-0	D1-6	1N759A, ZENER, 12V,5%,400MW, DO-35
020-1000-0	D11	1N4148, RECT-FAST, 200MA, 100V
025-0012-0	D10	LED,RED/GRN,5MM,630NM/560NM,15MCD
025-0030-2	D9	LED,BLUE, 10MA
025-0101-0	D7-8	LED,GREEN, 3MM, 565NM, 6MCD, 10MA
031-1107-0	C6 C41 C58-59	CAP,ELEC,RAD,107,20%,25V
031-1227-0	C42 C47 C95-96	CAP ELEC, 220uF,20% ,25V
031-1336-0	C36 C115	CAP,ELEC,RAD,336,20%,25V
031-1477-0	C40	CAP, ELEC, RAD, 470uF, 20%, 25V
031-2105-0	C8 C31 C38 C107	CAP,ELEC,RAD, 105, 20%, 50V
031-2106-0	C1,62,63,66,67,100,112	CAP,ELEC,RAD, 106, 20%, 50V
031-2227-0	C9 C11	CAP, ELEC, 220uF, 20%, 50V
031-2335-0	C7,32,39,48,49,72,75,77 C79-81,83,84,90,93,94 C102,103,105,106,108 C110,111,114,117	CAP,ELEC,RAD,335,20%,50V
032-4102-0	C26-27 C68-71 C101	CAP,PE,102,5%,100V,
032-4103-0	C78 C82 C99	CAP,PE,103,5%,100V,
032-4104-0	C2 C44-45 C51 C55 C98	CAP,PE,104,5%,100V,
032-4154-0	C14	CAP,PE,154,5%,100V,
032-4222-0	C17,18,21,86,88,89,92	CAP,PE,222,5%,100V,
032-4223-0	C19 C22	CAP,PE,223,5%,100V,
032-4224-0	C16 C25 C43	CAP,PE,224,5%,100V,
032-4472-0	C29,30,33,52,54,60,61 C64,65,97	CAP,PE,472,5%,100V,
032-4473-0	C10,12,20,34,53,57	CAP,PE,473,5%,100V,
032-4474-0	C13 C28 C73-74	CAP,PE,474,5%,100V,
032-4683-0	C35	CAP,PE,683,5%,100V,
034-4100-0	C5	CAP, MCR,10pF,5%,100V,NPO
034-4101-0	C3 C24 C37 C76	CAP,MCR,100pF,5%,100V,
034-4221-0	C4 C46 C50 C56	CAP,MCR,220pF,5%,100V,
034-4271-0	C85 C87 C91	CAP,MCR,270pF,5%,100V,
034-4470-0	C15,104,109,113,116	CAP,MCR,47PF,5%,100V,NPO
034-4471-0	C23	CAP,MCR,470pF,5%,100V,
052-1000-0	R106-107	RES,METAL FILM, 10.0, 1/4W, 1%
052-2212-0	R99	RES,METAL FILM,2.21k,1/4W,1%
052-6812-0	R11	RES, METAL FILM, 6.81K, 1/4W, 1%
060-1000-0	R104-105	RES,METAL FILM, 10.0, 1/8W, 1%
060-1002-0	R65,66,71,72,74,78,80 R,82,111,112,115,116 R124,133,171	RES,METAL FILM, 1.00K, 1/8W, 1%
060-1003-0	R15 R158	RES,METAL FILM, 10.0K, 1/8W,1%
060-1004-0	R7,10,19,94,95,101,102 R108,113,114,117,136 R140,141,143,144,147 R149,152,153,173	RES,METAL FILM, 100K, 1/8W, 1%
060-1005-0	R1 R12 R17 R67	RES, MF, 1.00M, 1%,1/8W
060-1212-0	R25	RES,METAL FILM, 1.21K, 1/8W, 1%
060-1213-0	R3,35,36,60,64,68,76,84 R86,91,97,98,100,109 R110,118,119,156,157 R174,175	RES,METAL FILM, 12.1K, 1/8W, 1%

**MB150E-III Preamp**

Part No.	Reference	Description
060-1214-0	R165 R167	RES,METAL FILM, 121K, 1/8W, 1%
060-2003-0	R2 R160	RES,METAL FILM, 20.0K, 1/8W, 1%
060-2210-0	R150	RES,METAL FILM, 22.1, 1/8W, 1%
060-2212-0	R69 R79 R122-123 R125	RES,METAL FILM, 2.21K, 1/8W, 1%
060-2213-0	R16,28,30,41,43,46,48,51 R54,56,58,61,62,120,121 R127,128,130,131,134,135 R159,161,162,172	RES,METAL FILM, 22.1K, 1/8W, 1%
060-2214-0	R31 R89-90 R176	RES,METAL FILM, 221K, 1/8W, 1%
060-2216-0	R132	RES,METAL FILM, 22.1M, 1/8W, 1%
060-3322-0	R155	RES,METAL FILM, 3.32K, 1/8W, 1%
060-3323-0	R27,37,38,45,73,88,92,96 R137,142,145,164,166 R168 R170	RES,METAL FILM, 33.2K, 1/8W, 1%
060-3324-0	R20-21	RES,METAL FILM, 332K, 1/8W, 1%
060-3482-0	R5	RES,METAL FILM, 3.48K, 1/8W, 1%
060-4751-0	R6,13	RES,METAL FILM, 475, 1/8W, 1%
060-4752-0	R22 R26 R39 R42 R81	RES,METAL FILM, 4.75K, 1/8W, 1%
060-4753-0	R24,33,34,47,49,53,59,75 R126,129,138,139,163,169 R177,179	RES,METAL FILM, 47.5K, 1/8W, 1%
060-4992-0	R4 R14	RES,METAL FILM, 4.99K, 1/8W, 1%
060-5622-0	R29 R85 R146 R148 R151	RES,METAL FILM, 5.62K, 1/8W, 1%
060-6811-0	R178	RES,METAL FILM, 681, 1/8W, 1%
060-7502-0	R8	RES,METAL FILM, 7.50K, 1/8W, 1%
060-8252-0	R50 R52 R55	RES,METAL FILM, 8.25K, 1/8W, 1%
070-0505-0	R23 R83 R87	POT,50KB,MINI, .1W
070-0510-0	R154	POT,50KB TRIM, 200mW
070-0511-0	R18 R77	POT,10KB,MINI, .1W
070-1253-0	R40 R57 R93	POT, 2X50KB, 7MM, KNURL, .1W
070-1513-0	R9 R70	POT,50K-15A,7MM,KNURL, .1W
070-1514-0	R32 R44 R63 R103	POT,50KB,7MM,KNURL, .1W
090-0012-0	S1-6	SWITCH,MIMI PP,DPDT, .1A BRK/MAKE
092-0079-0	J6 J11	JACK,1/4",STEREO,PC,NON GROUNDING
092-0081-0	J1 J12-13	JACK,1/4",MONO,PC,NON GROUNDING
092-0084-0	J7-8	CON,XLR,MALE,PC,PL, SCREW MNT
093-0036-0	J2-3 J9-10	HDR, 2MMX13, VERT
093-0043-0	J4	HDR, 2MMX3, VERT, LOCK
093-2005-0	J5	HDR, 2MMX7, VERT, SHROUDED
145-0220-A3		MB3-III PREAMP RAW BOARD



PCB WORK INSTRUCTIONS

DWG #420-0220-A3

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 INSPECTION.
3. ALL BOARDS MUST BE BARE BOARD TESTED.
4. ASSEMBLE AND SOLDER PER ANSI/IPC-A-610B.

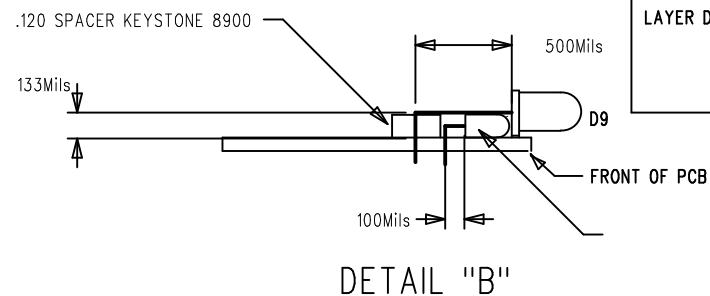
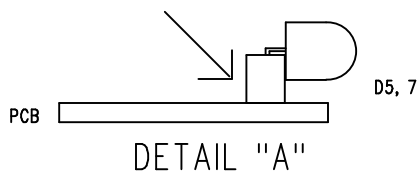
LOADING

6. SEE DETAIL A FOR MOUNTING D5 AND 7
7. SEE DETAIL "B" FOR MOUNTING D8 AND D9

FINAL QA

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

LED SPACER  
GT PART# 100-0119-0



NOT VALID UNLESS STAMP IS RED

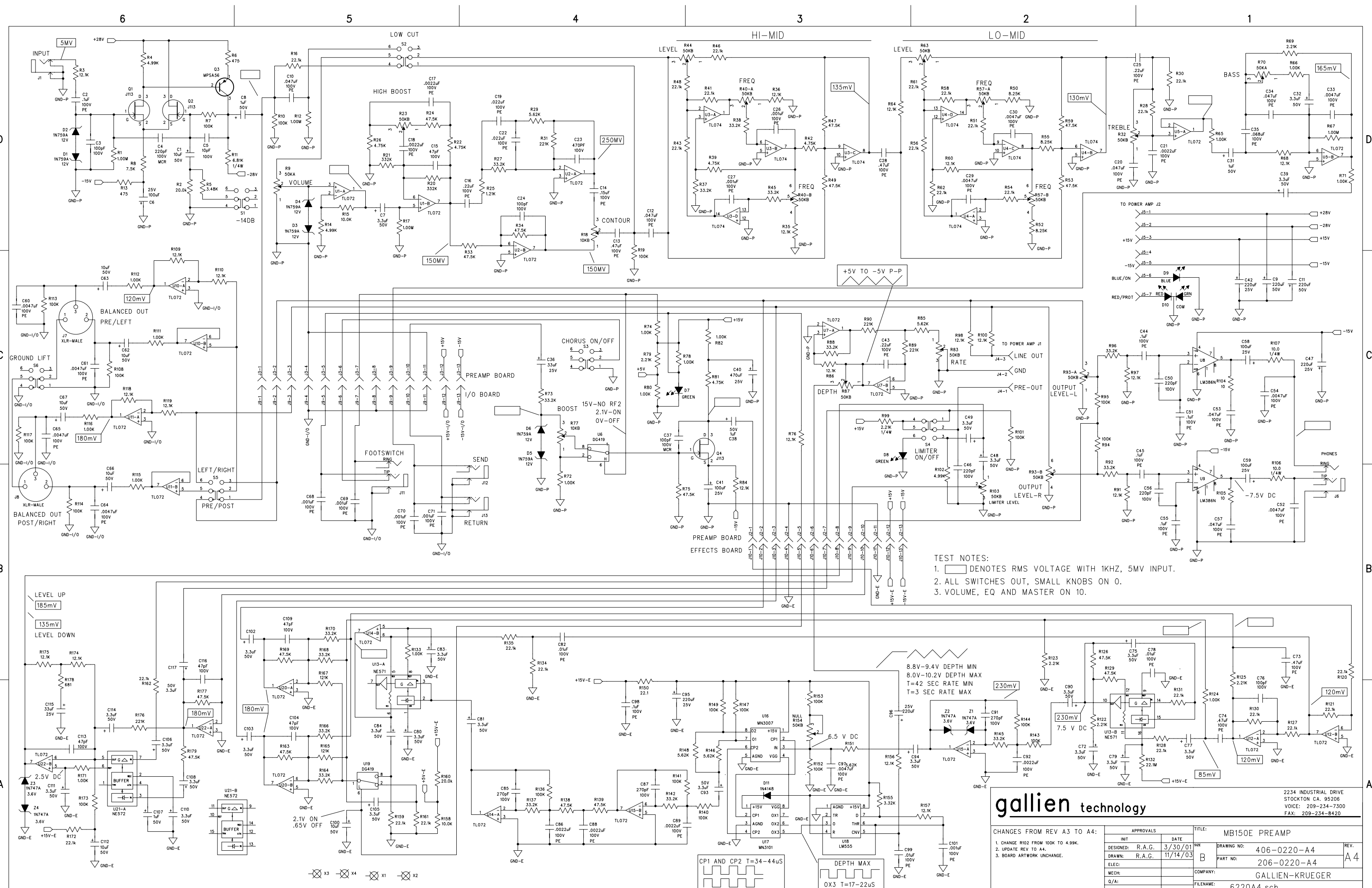
**gallien technology**

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

APPROVALS		TITLE:		
INIT	DATE	MB150E-III PREAMP		
DESIGNED: R.A.G.	3/29/01	SIZE	DRAWING NO: 405-0220-A3	REV. A3
DRAWN: R.A.G.	11/13/03	B	PART NO: 145-0220-A3	
ELEC:		COMPANY: GALLIEN-KRUEGER		
MECH:		FILENAME:		
GERBER FILE NAME: sst0220.pho				

LAYER DESCRIPTION:  
~~TOP SIDE~~  
~~BOTTOM SIDE~~  
~~DRILL~~  
~~PLATING~~  
~~FINISH~~





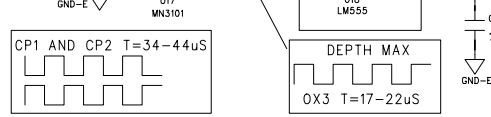
TEST NOTES:  
1. [Symbol] DENOTES RMS VOLTAGE WITH 1KHZ, 5MV INPUT.  
2. ALL SWITCHES OUT, SMALL KNOBS ON 0.  
3. VOLUME, EQ AND MASTER ON 10.

**gallen technology**

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

CHANGES FROM REV A3 TO A4:  
1. CHANGE R102 FROM 100K TO 4.99K.  
2. UPDATE REV TO A4.  
3. BOARD ARTWORK UNCHANGE.

APPROVALS		DATE	TITLE:
INIT	R.A.G.	3/30/01	MB150E PREAMP
DESIGNED:	R.A.G.	11/14/03	DRAWING NO: 406-0220-A4
DRAWN:	R.A.G.		PART NO: 206-0220-A4
ELEC:			COMPANY: GALLIEN-KRUEGER
MECH:			FILENAME: 6220A4.sch
Q/A:			
RELEASED:			





# GK GALLIEN-KRUEGER

MB150E-III Preamp		Bill Of Material		206-0220-A4	
Part No.	Reference	Description	Manufacturer	Mfr. Part No.	Quan
001-0006-0	U16	LM3007, 1024 BBD	PANASONIC	MN3007	1.00
001-1002-0	U3-4	TLO74CN, QUAD LOW NOISE JFET OPAMP	MOTOROLA	TL074CN	2.00
001-1030-1	U1,2,5,7,10-12,14,15,20	TLO72CP, LOW NOISE JFET OPAMP	MOTOROLA	TL072CP	11.00
	U22				
001-1038-0	U8-9	LM386 LOW VOLTAGE POWER AMP	NATIONAL	LM386	2.00
001-2044-0	U17	MN3101, CLOCK GENERATOR	PANASONIC	MN3101	1.00
001-2060-0	U18	LM555, TIMER	NATIONAL	LM555CN	1.00
001-3029-0	U6 U19	DG419, Analog Switch	MAXIM	DG419DJ	2.00
001-4043-0	U13	NE571,DUAL COMPANDER	PHILLIPS	SA571N	1.00
001-4045-0	U21	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 Q4	J113,N-JFET,35V,2MA,TO-92	NATIONAL	J113	3.00
020-0036-0	Z1-4	1N747A, ZENER, 3.6V, 5%, 400MW, DO-35	TAITRON	1N747A	4.00
020-0120-0	D1-6	1N759A, ZENER,12V,5%,400MW, DO-35	MOTOROLA	1N759A	6.00
020-1000-0	D11	1N4148, RECT-FAST, 200MA, 100V	MOTOROLA	1N4148	1.00
025-0012-0	D10	LED,RED/GRN,5MM,630NM/560NM,15MCD	STANLEY	VRPG5614S	1.00
025-0030-2	D9	LED,BLUE, 10MA	LITEON	LTL-42B6	1.00
025-0101-0	D7-8	LED,GREEN, 3MM, 565NM, 6MCD, 10MA	EVERLIGHT	EL204GD	2.00
031-1107-0	C6 C41 C58-59	CAP,ELEC,RAD,107,20%,25V	UNITED CHEMI-CON	SMG25VB101M6X11LL	4.00
031-1227-0	C42 C47 C95-96	CAP ELEC, 220uF,20% ,25V	UNITED CHEMICON	SMG25VB221M8X11LL	4.00
031-1336-0	C36 C115	CAP,ELEC,RAD,336,20%,25V	UNITED CHEMI-CON	SRG25VB33RM5X7LL	2.00
031-1477-0	C40	CAP, ELEC, RAD, 470uF, 20%, 25V	UNITED CHEMI-CON	SMG25VB471M10X12LL	1.00
031-2105-0	C8 C31 C38 C107	CAP,ELEC,RAD, 105, 20%, 50V	UNITED CHEMI-CON	C440C105M5U5CA	4.00
031-2106-0	C1,62,63,66,67,100,112	CAP,ELEC,RAD, 106, 20%, 50V	UNITED CHEMI-CON	SMG50VB10RM5X11LL	7.00
031-2227-0	C9 C11	CAP, ELEC, 220uF, 20%, 50V	UNITED CHEMI-CON	SMG50VB221M10X12LL	2.00
031-2335-0	C7,32,39,48,49,72,75,77	CAP,ELEC,RAD,335,20%,50V	UNITED CHEMI-CON	SMG50VB3R3M5X11LL	25.00
	C79-81,83,84,90,93,94				
	C102,103,105,106,108				
	C110,111,114,117				
032-4102-0	C26-27 C68-71 C101	CAP,PE,102,5%,100V,	PANASONIC	ECQB1102JF	7.00
032-4103-0	C78 C82 C99	CAP,PE,103,5%,100V,	PANASONIC	ECQV1103JM	3.00
032-4104-0	C2 C44-45 C51 C55 C98	CAP,PE,104,5%,100V,	PANASONIC	ECQV1104JM	6.00
032-4154-0	C14	CAP,PE,154,5%,100V,	PANASONIC	ECQV1154JM	1.00
032-4222-0	C17,18,21,86,88,89,92	CAP,PE,222,5%,100V,	PANASONIC	ECQB1222JF	7.00
032-4223-0	C19 C22	CAP,PE,223,5%,100V,	PANASONIC	ECQV1223JM	2.00
032-4224-0	C16 C25 C43	CAP,PE,224,5%,100V,	PANASONIC	ECQV1224JM	3.00
032-4472-0	C29,30,33,52,54,60,61	CAP,PE,472,5%,100V,	PANASONIC	ECQB1472JF	10.00
	C64,65,97				
032-4473-0	C10,12,20,34,53,57	CAP,PE,473,5%,100V,	PANASONIC	ECQV1473JM	6.00
032-4474-0	C13 C28 C73-74	CAP,PE,474,5%,100V,	PANASONIC	ECQV1474JM	4.00
032-4683-0	C35	CAP,PE,683,5%,100V,	PANASONIC	ECQV1683JM	1.00
034-4100-0	C5	CAP, MCR,10pF,5%,100V,NPO	TAITRON	TMRS100J100NPOB	1.00
034-4101-0	C3 C24 C37 C76	CAP,MCR,100pF,5%,100V,	TAITRON	TMRS101J100NPOB	4.00
034-4221-0	C4 C46 C50 C56	CAP,MCR,220pF,5%,100V,	TAITRON	TMRS221J100NPOB	4.00
034-4271-0	C85 C87 C91	CAP,MCR,270pF,5%,100V,	TAITRON	TMRS271J100NPOB	3.00
034-4470-0	C15,104,109,113,116	CAP,MCR,47PF,5%,100V,NPO	TAITRON	TMRS470J100NPOB	5.00
034-4471-0	C23	CAP,MCR,470pF,5%,100V,	TAITRON	TMRS471J100NPOB	1.00
052-1000-0	R106-107	RES,METAL FILM, 10.0, 1/4W, 1%	ECI	M2F1AJ010.00	2.00
052-2212-0	R99	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
060-1000-0	R104-105	RES,METAL FILM, 10.0, 1/8W, 1%	ECI	M1F1AJ010.00	2.00
060-1002-0	R65,66,71,72,74,78,80	RES,METAL FILM, 1.00K, 1/8W, 1%	ECI	M1F1AK001.00	15.00
	R,82,111,112,115,116				
	R124,133,171				
060-1003-0	R15 R158	RES,METAL FILM, 10.0K, 1/8W,1%	ECI	M1F1AK010.00	2.00
060-1004-0	R7,10,19,94,95,101	RES,METAL FILM, 100K, 1/8W, 1%	ECI	M1F1AK100.00	21.00
	R108,113,114,117,136				
	R140,141,143,144,147				
	R149,152,153,173				
060-1005-0	R1 R12 R17 R67	RES, MF, 1.00M, 1%,1/8W	ECI	M1F1AM001.00	4.00
060-1212-0	R25	RES,METAL FILM, 1.21K, 1/8W, 1%	ECI	M1F1AK001.21	1.00
060-1213-0	R3,35,36,60,64,68,76,84	RES,METAL FILM, 12.1K, 1/8W, 1%	ECI	M1F1AK012.10	21.00
	R86,91,97,98,100,109				
	R110,118,119,156,157				
	R174,175				



Customer Name:		Gallien-Krueger		Current Rev #:	A3	New ECO Rev #:	A4		
Model:		MB150E-III		Distribute To:		Page:	1	Of:	2
Assembly Description:		MB150E-III PREAMP		Originator: Noli Valdez					
Assembly Numbers:		206-0220-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	5/5/04	Noli		
Reason For Change				<input type="checkbox"/>	Control Form				
A pop is noticeable when turning off the unit while limiter switch is engage.				<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	5/5/04	Noli		
				<input type="checkbox"/>	Service Manual				
				<input type="checkbox"/>	Test Procedure				
				<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 R102 from 100K ohms to 4.99K ohms.				<input type="checkbox"/>	Accounting				
				<input type="checkbox"/>	Assembly				
Update schematic.				<input checked="" type="checkbox"/>	Engineering				
				<input checked="" type="checkbox"/>	Incoming Q.C.				
				<input checked="" type="checkbox"/>	Production Eng.				
Update part master file.				<input checked="" type="checkbox"/>	Purchasing				
				<input type="checkbox"/>	Q.A.				
Update BOM.				<input type="checkbox"/>	Service				
				<input type="checkbox"/>	Test				
<input type="checkbox"/>	Continued on 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	R102						
060-1004-0	1/8W 100K ohms 1% resistor			1	R102				

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ZONE	Dim.	ECO#	Rev.	REVISIONS	Date

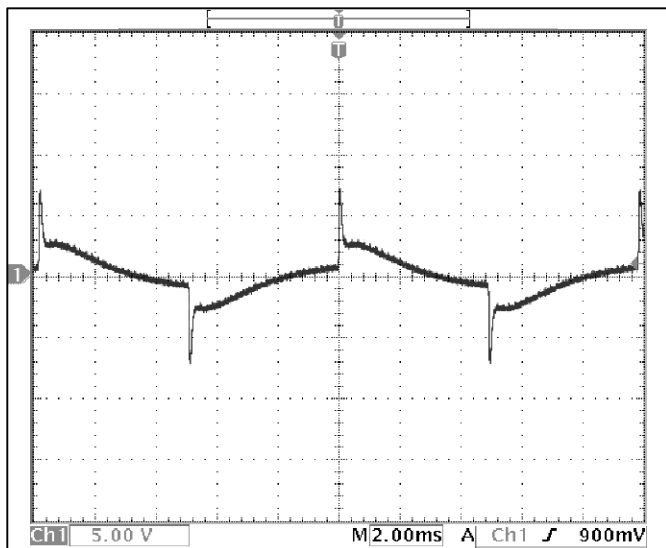


Figure 1  
Tones center, Filters Off

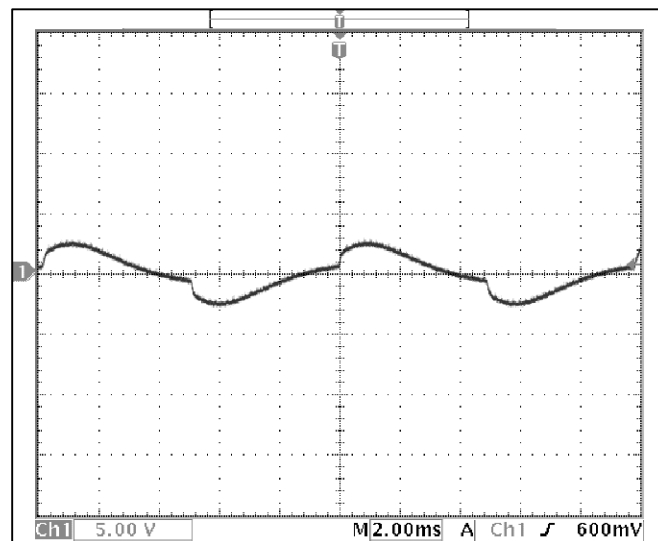


Figure 2  
Treble to 0

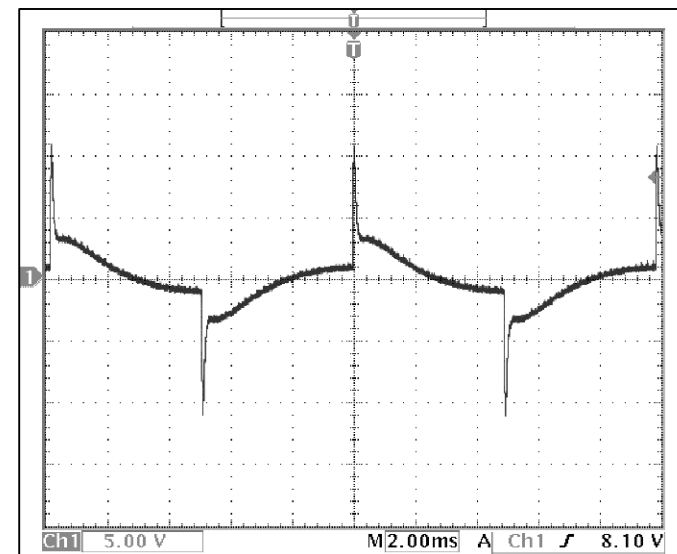


Figure 3  
Treble to 10

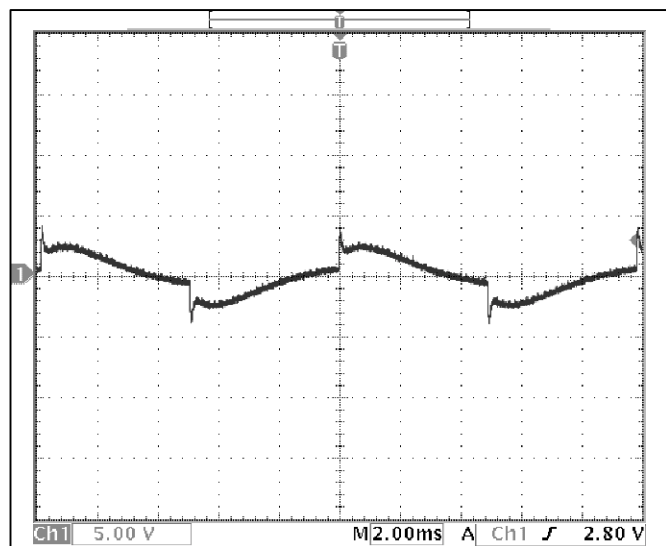


Figure 4  
Hi-Mid to 0

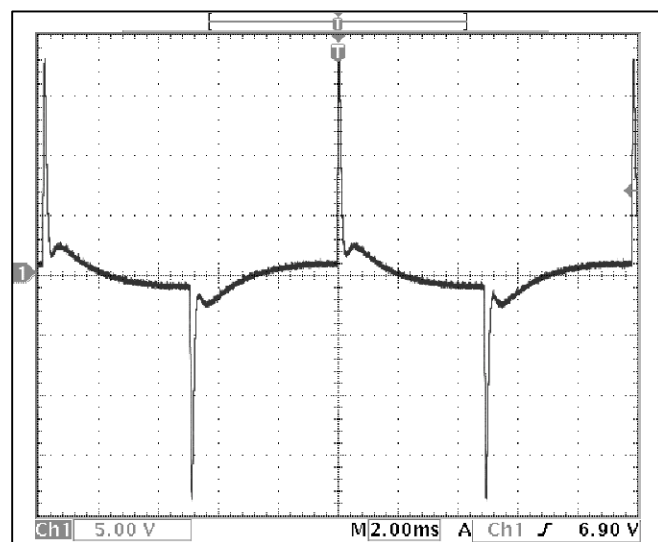


Figure 5  
Hi-Mid to 10

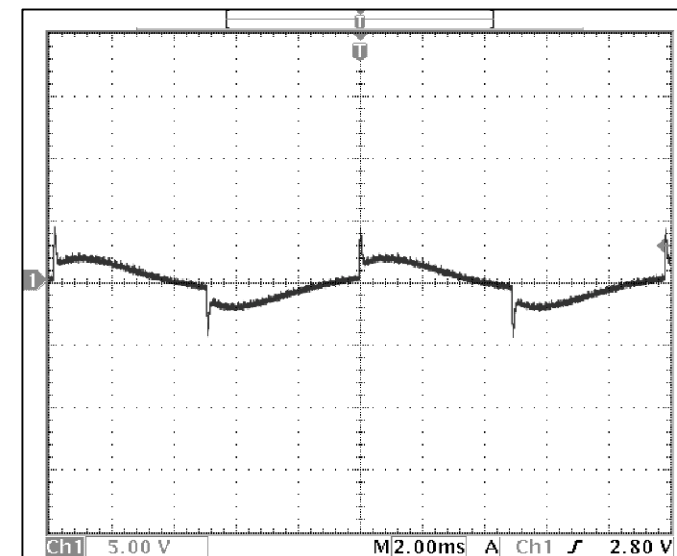


Figure 6  
Hi-Mid & Frequency at 0

1. Apply signal into the input with 100Hz square wave @ -36dBV.
2. Set Volume, all Active EQ's, Output Level and Limiter Level to center(halfway), Contour, Hi Boost, Rate, Depth and 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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UNLESS OTHERWISE INDICATED DIMENSIONS SHOWN ARE IN INCHES			TITLE: <b>MB150E-III</b>			
TOLERANCES		APPROVALS		SIZE	DRAWING NUMBER:	REVISION
FRACTION ±	INIT	DATE	B	206-0220-A4	A4	
ANGLES ±	MECH. DESIGN:		FILENAME:			
.XX ± 0.01	DRAWN BY: <b>EAH</b>	8/24/04	SCALE: NOT TO SCALE			
.XXX ± 0.005	ELEC:		SHEET 1 OF 4			
MATERIAL: (SEE NOTE 1)	PROJ. MGR.:					
FINISH: (SEE NOTE 1)	Q/A:					
	RELEASED:					

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ZONE	Dim.	ECO#	Rev.	REVISIONS	Date

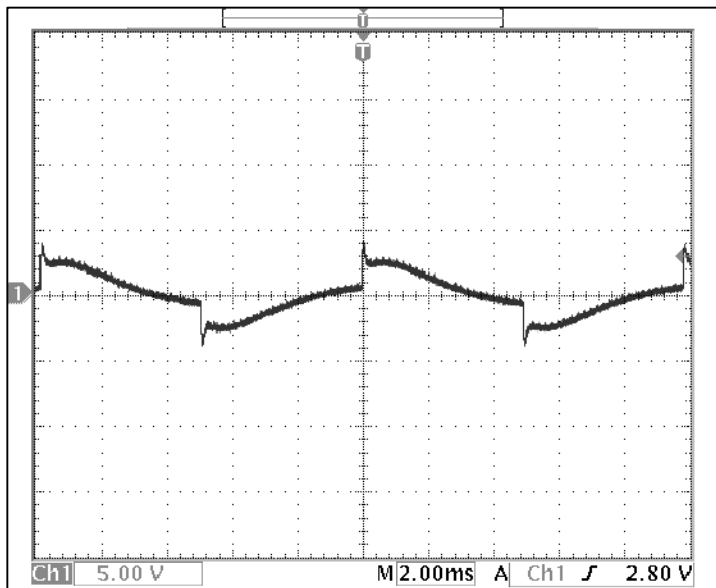


Figure 7

Hi-Mid to 0 & Frequency to 10

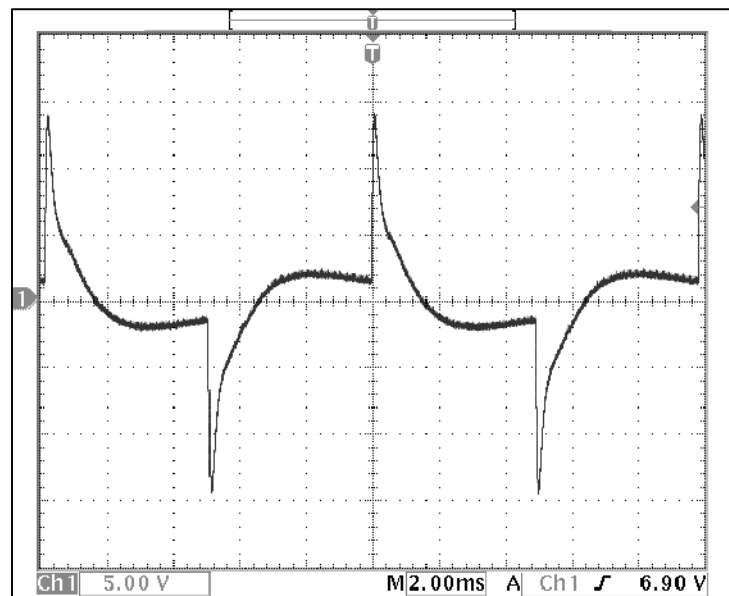


Figure 8

Hi-Mid at 10 & Frequency at 0

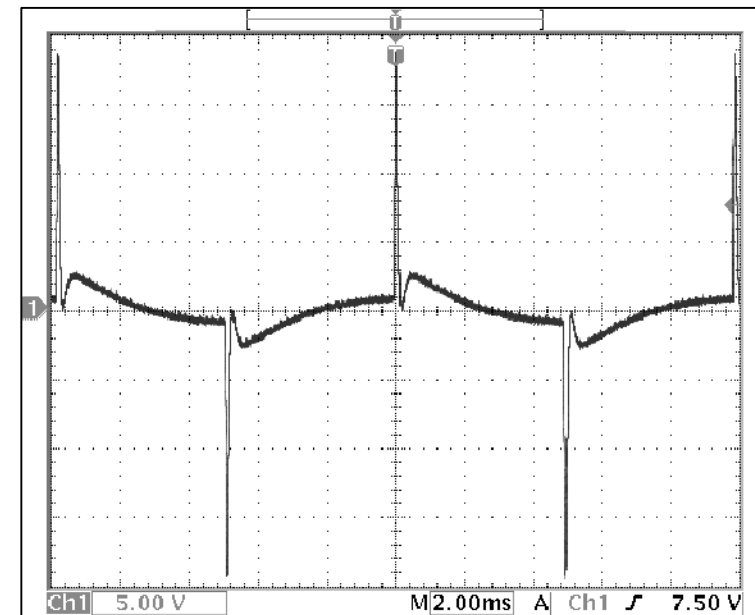


Figure 9

Hi-Mid & Frequency at 10

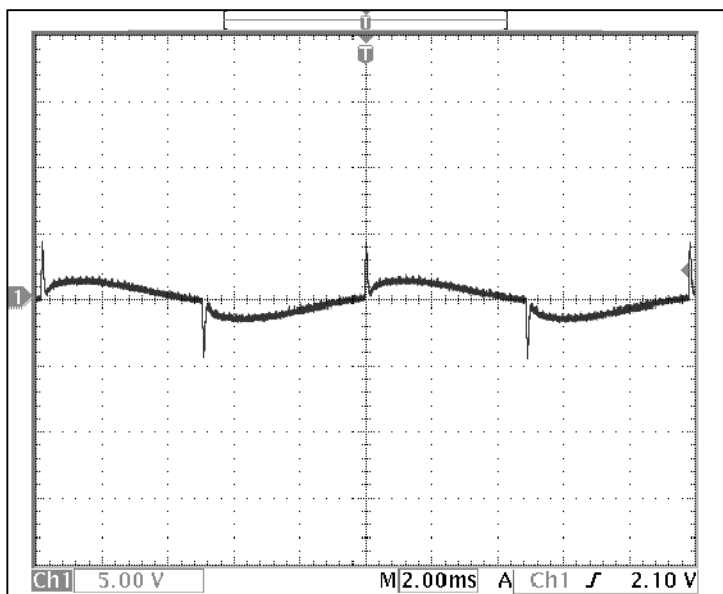


Figure 10

Lo-Mid to 0

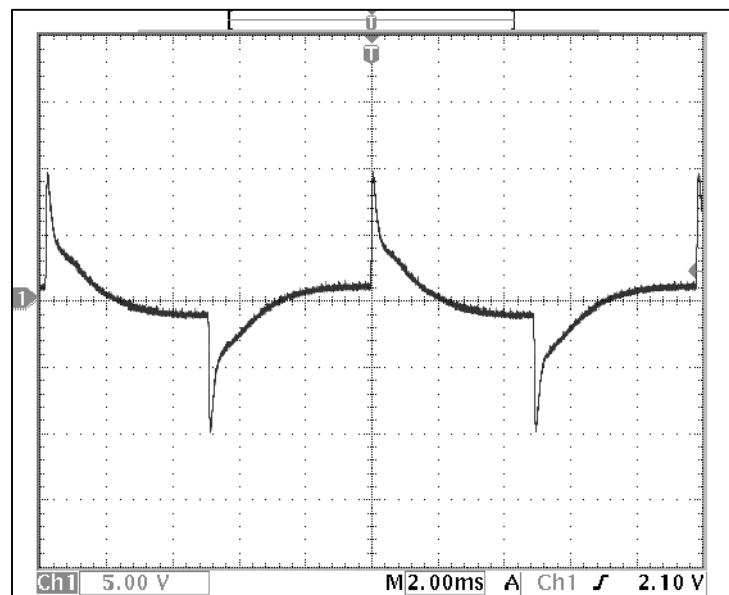


Figure 11

Lo-Mid to Ten

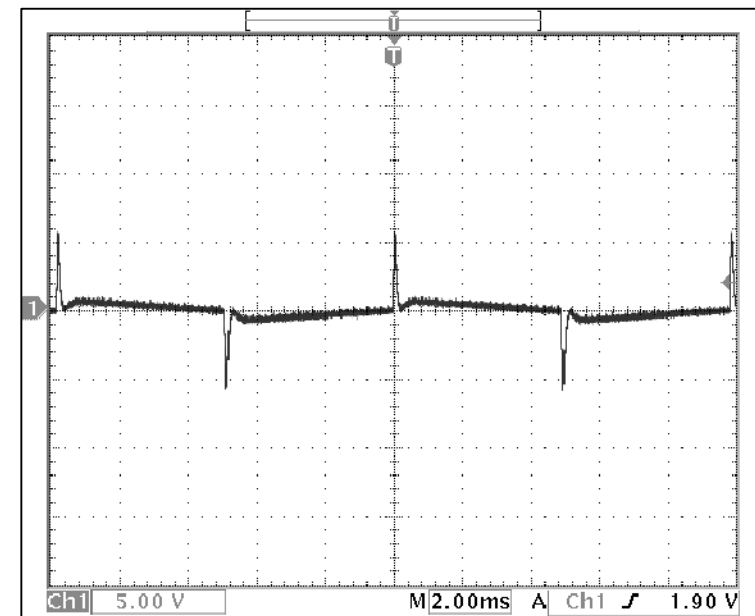


Figure 12

Low-Mid & Frequency to 0

1. Apply signal into the input with 100Hz square wave @ -36dBV.
2. Set Volume, all Active EQ's, Output Level and Limiter Level to center(halfway), Contour, Hi Boost, Rate, Depth and 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.	
<b>PROPRIETARY</b>									
PARTS LIST									
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UNLESS OTHERWISE INDICATED DIMENSIONS SHOWN ARE IN INCHES					TITLE: <b>MB150E-III</b>				
TOLERANCES		FRACTION ±		INIT		DATE		SIZE	
ANGLES ±		.XX ± 0.01		MECH. DESIGN:		DRAWN BY: <b>EAH</b>		8/24/04	
.XXX ± 0.005		ELEC:		PROJ. MGR.:		Q/A:		RELEASED:	
MATERIAL: (SEE NOTE 1)		FINISH: (SEE NOTE 1)		SCALE: NOT TO SCALE		SHEET 2 OF 4			
DRAWING NUMBER: <b>B</b>		PART NUMBER: <b>206-0220-A4</b>		REVISION: <b>A4</b>		FILENAME:			

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ZONE	Dim.	ECO#	Rev.	REVISIONS	Date

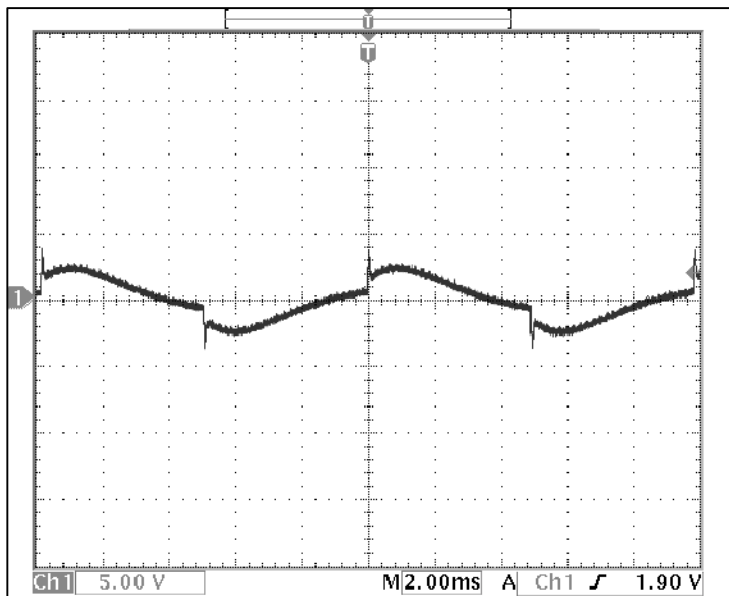


Figure 13  
Lo-Mid to 0 & Frequency to 10

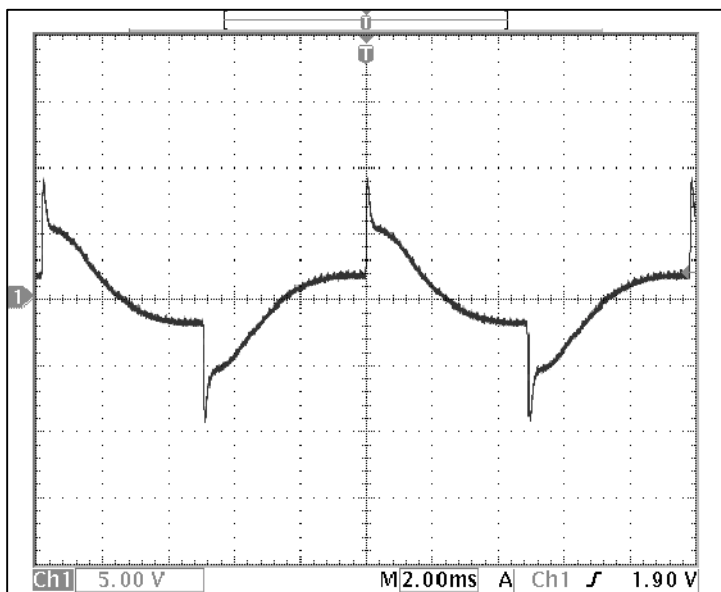


Figure 14  
Lo-Mid at 10 & Frequency to 0

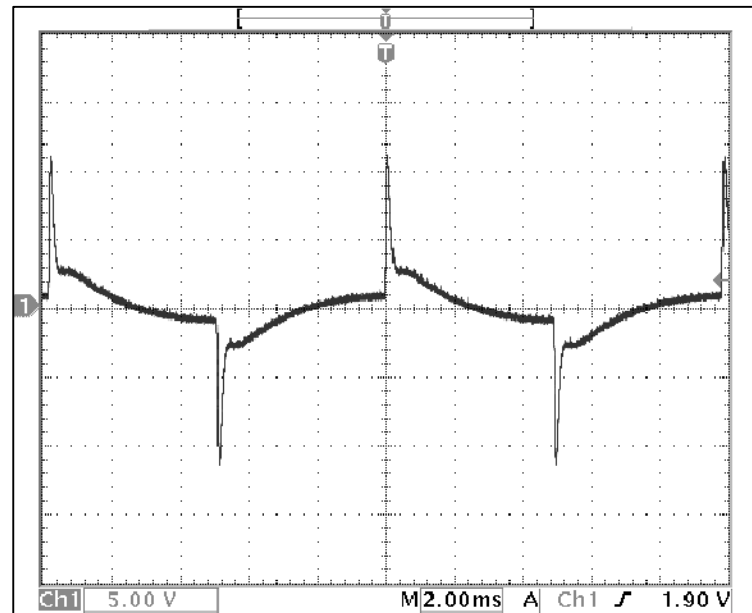


Figure 15  
Lo-Mid & Frequency at 10

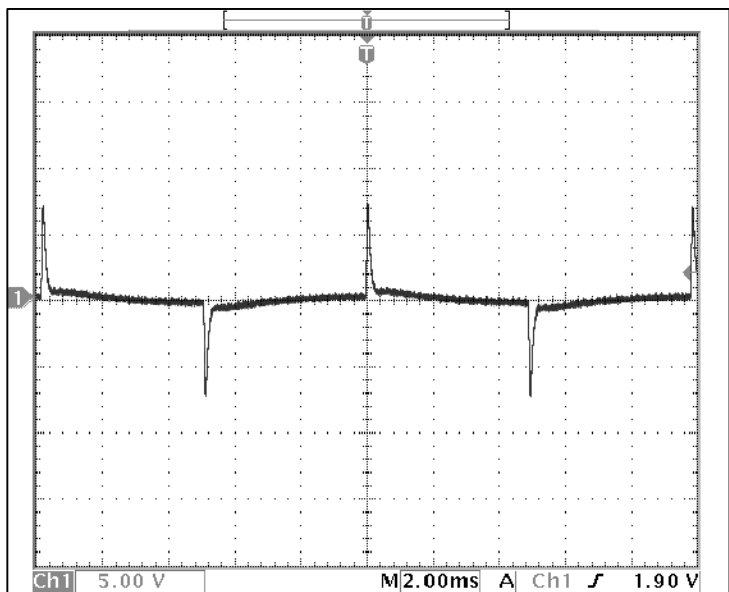


Figure 16  
Bass to 0

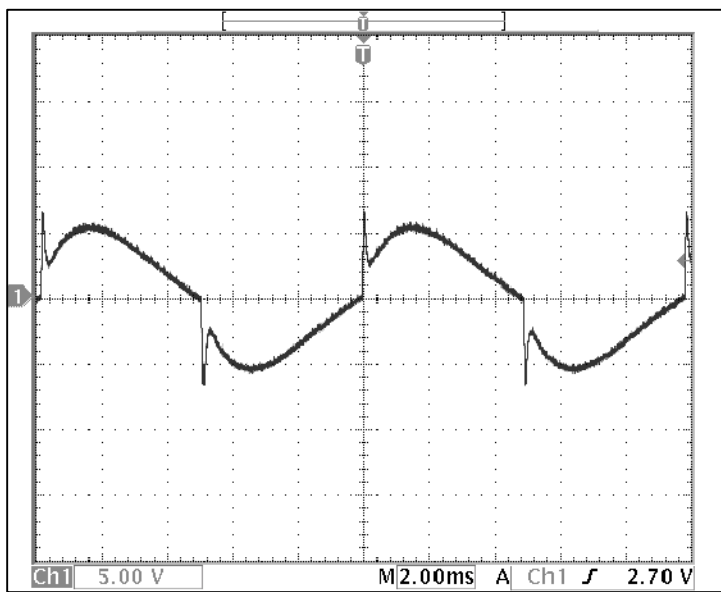


Figure 17  
Bass to 10

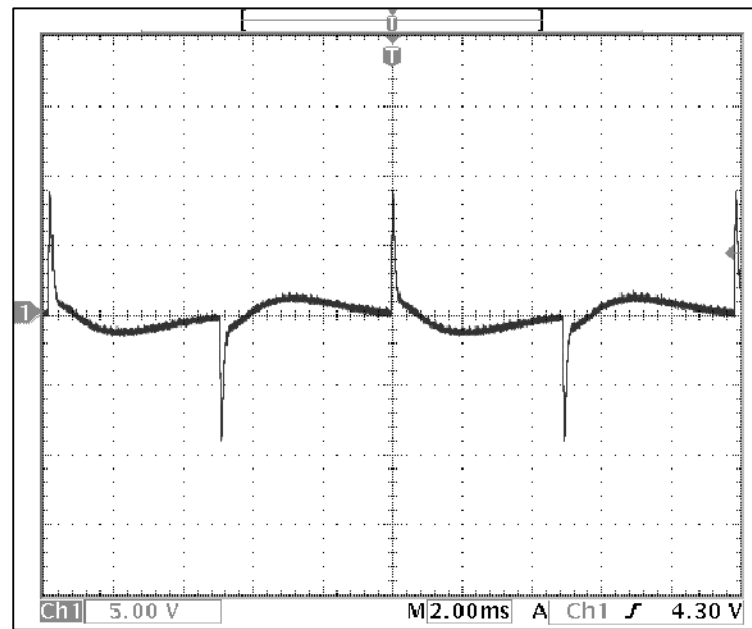


Figure 18  
Low Cut In

1. Apply signal into the input with 100Hz square wave @ -36dBV.
2. Set Volume, all Active EQ's, Output Level and Limiter Level to center(halfway), Contour, Hi Boost, Rate, Depth and 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> <b>PROPRIETARY</b>		<small>PART NUMBER</small> PARTS LIST	<small>DESIGNATION(S)</small> DESIGNATION(S)	<small>ITEM NO.</small> ITEM NO.
<small>THIS DRAWING CONTAINS INFORMATION WHICH IS PROPRIETARY TO GALLIEN TECHNOLOGY CORPORATION. DO NOT REPRODUCE IN ANY FORM OR DISTRIBUTE IN ANY FASHION WITHOUT THE EXPRESS WRITTEN PERMISSION OF GALLIEN TECHNOLOGY CORPORATION.</small>		<b>gallien technology</b> 2234 INDUSTRIAL DRIVE STOCKTON, CA 95206		
<small>UNLESS OTHERWISE INDICATED DIMENSIONS SHOWN ARE IN INCHES</small>		<b>APPROVALS</b>		TITLE: <b>MB150E-III</b>
<small>TOLERANCES</small> FRACTION ± ANGLES ± .XX ± 0.01 .XXX ± 0.005	INIT MECH. DESIGN: DRAWN BY: <b>EAH</b> ELEC: PROJ. MGR.: Q/A: RELEASED:	DATE 8/24/04	SIZE DRAWING NUMBER: <b>B</b>	REVISION PART NUMBER: 206-0220-A4 <b>A4</b>
<small>MATERIAL:</small> (SEE NOTE 1)	<small>FINISH:</small> (SEE NOTE 1)	FILENAME: SCALE: NOT TO SCALE	SHEET 3 OF 4	

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ZONE	Dim.	ECO#	Rev.	REVISIONS		Date

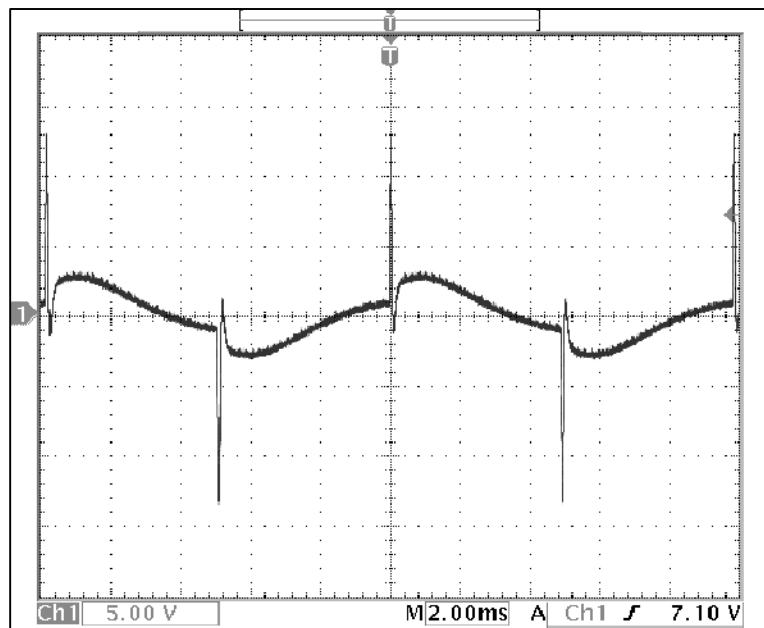


Figure 19  
Contour to 10

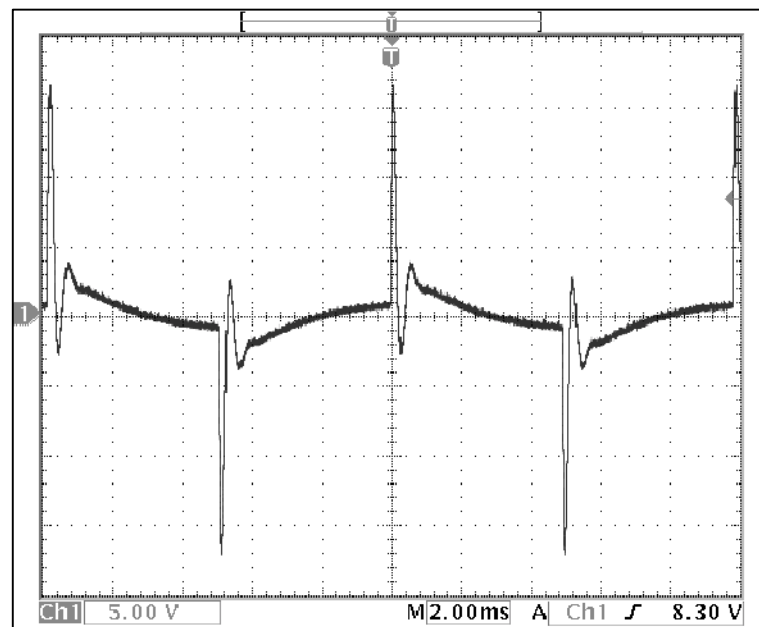


Figure 20  
Hi Boost to 10

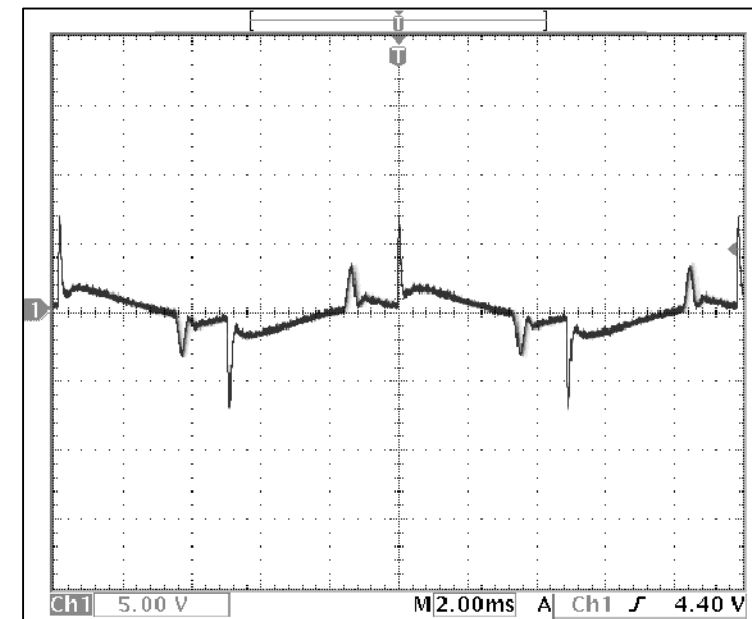


Figure 21  
Chorus Button In

**FOR CHORUS ONLY:**

1. When the chorus button is pushed in, and the Rate knob is turned to MAX., the rate of the wave increases and decreases along the horizontal axis.
2. When the chorus button is pushed in, and the Depth knob is turned to Max., the height of the wave increases and decreases along the vertical axis.

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

HOLE REFERENCE CHART		
HOLE	DESCRIPTION	QTY.

PART NUMBER		DESCRIPTION	DESIGNATION(S)	ITEM NO.
PROPRIETARY		PARTS LIST		
THIS DRAWING CONTAINS INFORMATION WHICH IS PROPRIETARY TO GALLIEN TECHNOLOGY CORPORATION. DO NOT REPRODUCE IN ANY FORM OR DISTRIBUTE IN ANY FASHION WITHOUT THE EXPRESS WRITTEN PERMISSION OF GALLIEN TECHNOLOGY CORPORATION.				
TOLERANCES UNLESS OTHERWISE INDICATED DIMENSIONS SHOWN ARE IN INCHES		APPROVALS		
FRACTION ±		INIT	DATE	
ANGLES ±		MECH. DESIGN:		
.XX ± 0.01		DRAWN BY: EAH	8/24/04	
.XXX ± 0.005		ELEC:		
MATERIAL: (SEE NOTE 1)		PROJ. MGR.:		
FINISH: (SEE NOTE 1)		Q/A:		
		RELEASED:		
		TITLE: MB150E-III		
SIZE: B	DRAWING NUMBER: 206-0220-A4	REVISION: A4		
FILENAME:		SCALE: NOT TO SCALE SHEET 4 OF 4		