

# ML WAVEFORMS

100 Hz square wave @ -46dBV (5mVrms) input  
Large knobs to 12:00 (Gain @ 10:00), small knobs to 0, switches out  
Look at output with scope set on 2ms/div and 2V/div

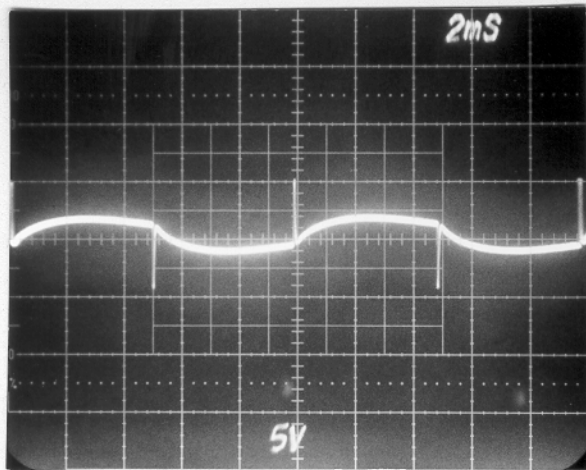


Fig. 1. Tones Center, Filters Off.

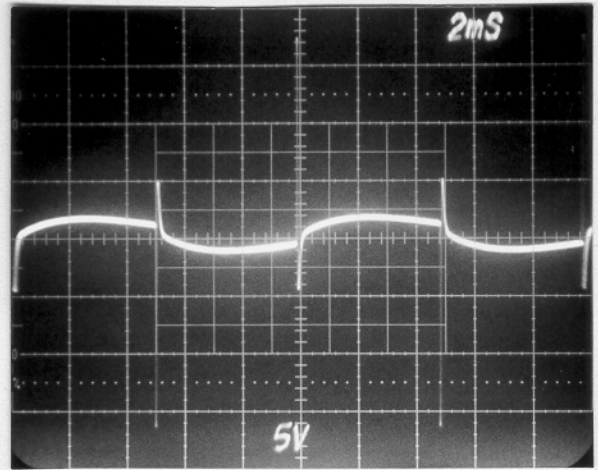


Fig. 2. Treble to 10.

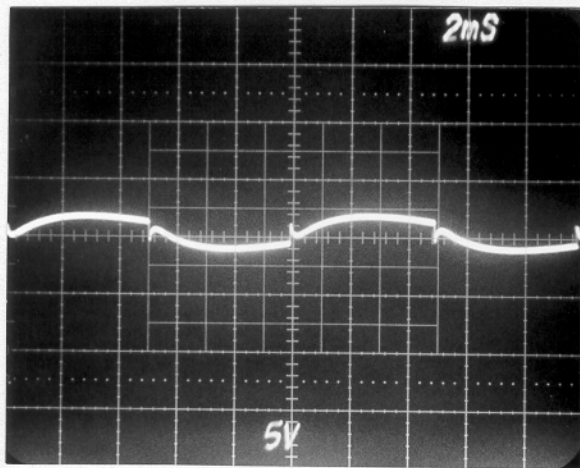


Fig. 3. Treble to 0.

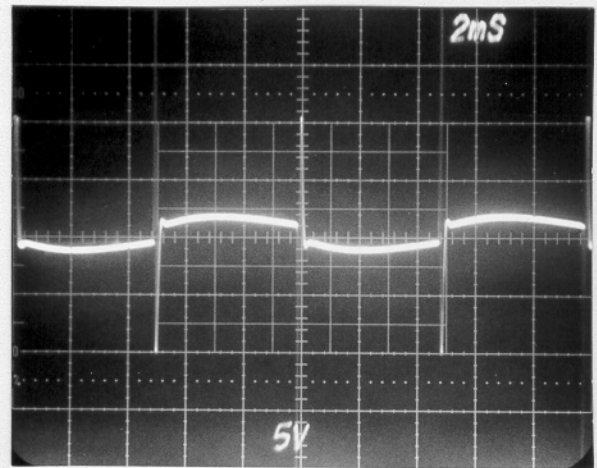


Fig. 4. Hi-Mid to 10.

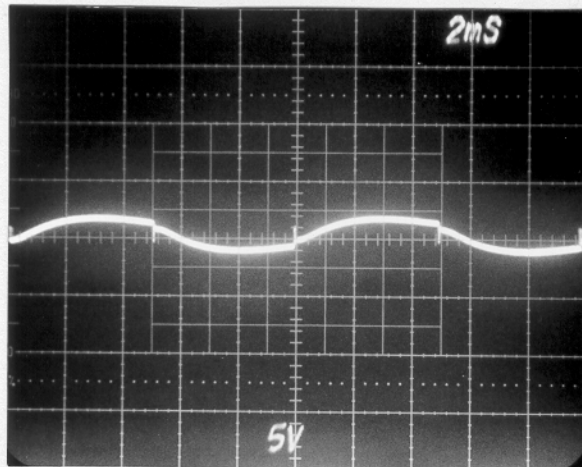


Fig. 5. Hi-Mid to 0.

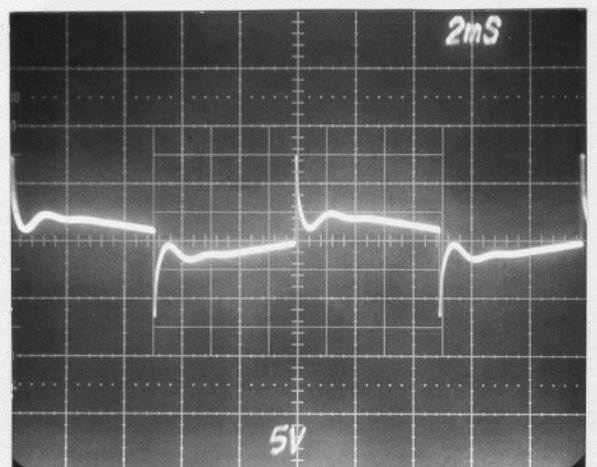


Fig. 6. Lo-Mid to 10.



ML WAVEFORMS (CONT.)

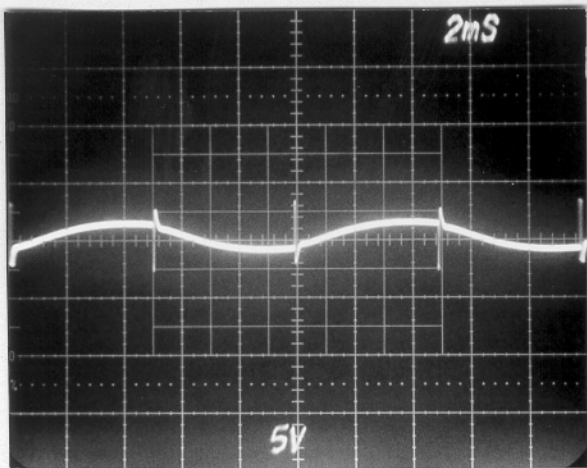


Fig. 7. Lo-Mid to 0.

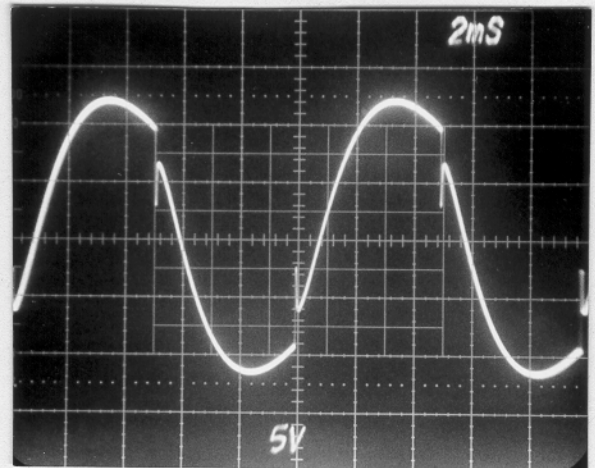


Fig. 8. Bass to 10.

Figs. 10 - 12: Lead Ch. On

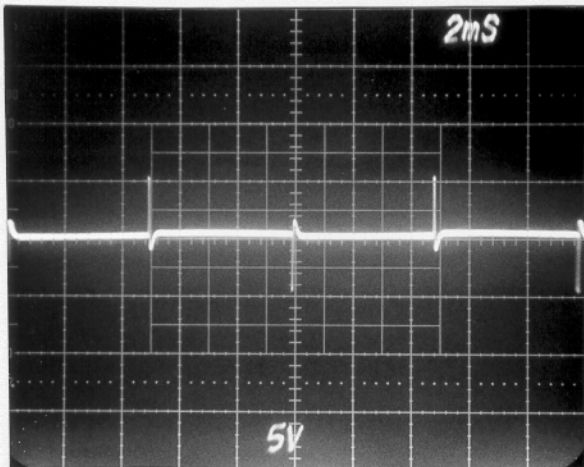


Fig. 9. Bass to 0.

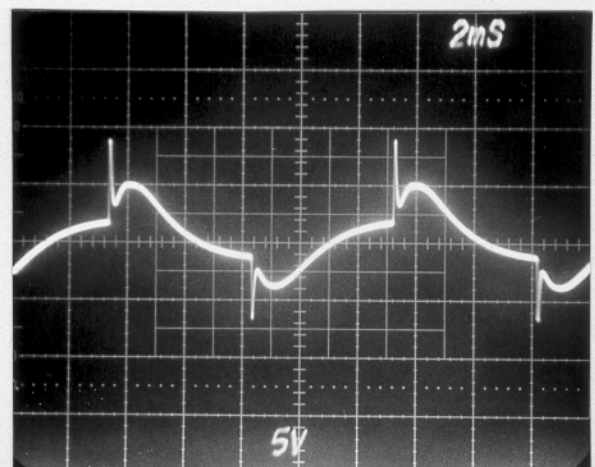


Fig. 10. Boost - 0, Shape - 0.

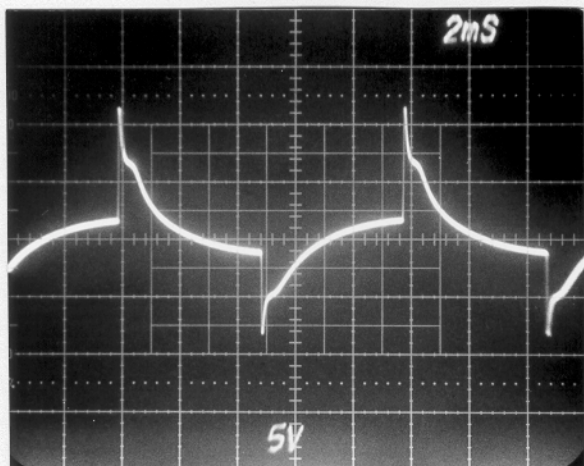


Fig. 11. Boost - 0, Shape - 10.

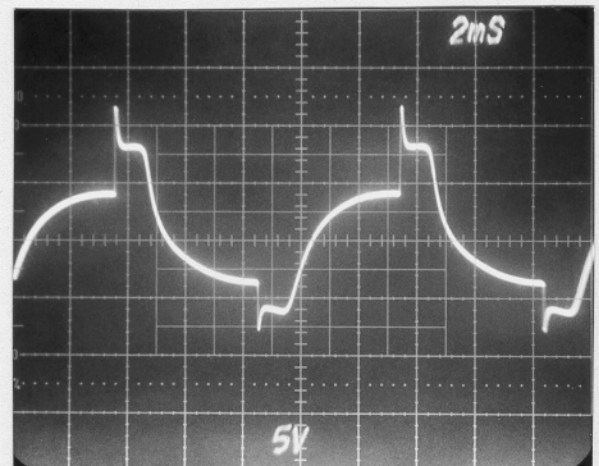


Fig. 12. Boost - 10, Shape - 10.



ML WAVEFORMS (CONT.)

Figures 13-15:

Input to 50mVrms (-26dBv), Scope on 500mV/cm, 2ms/cm  
Clean Channel on - Looking at Balanced Outputs

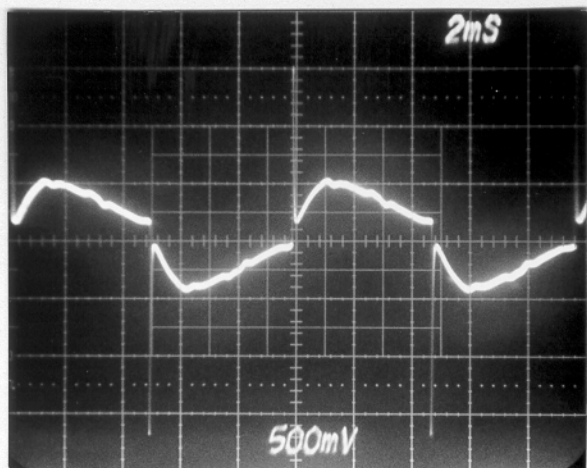


Fig. 13. Reverb on, Chorus off.

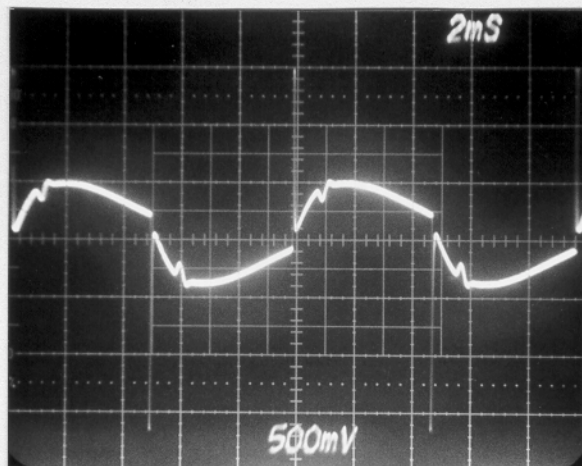


Fig. 14. Chorus on - side w/less Chorus (Right)

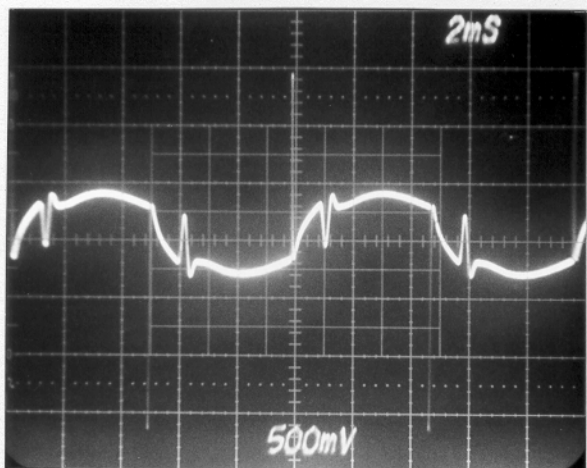


Fig. 15. Chorus off - side w/more Chorus (Left)

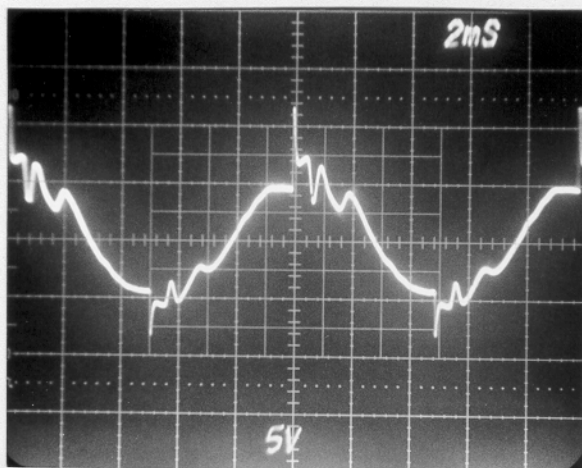
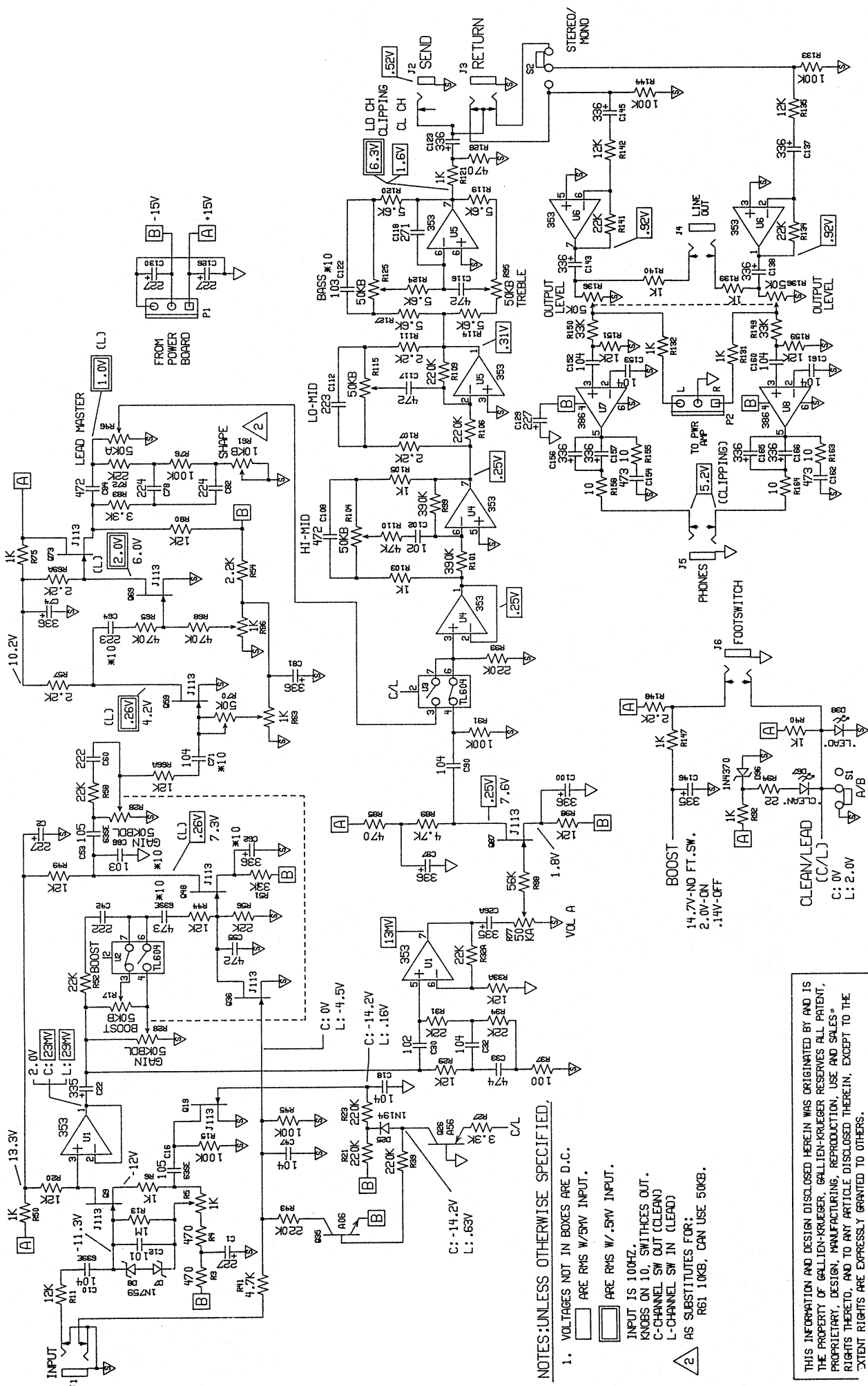


Fig. 16. Everything on - on RFG4.  
(Input to 5mVrms (-46dBV))  
(Scope: 5V/cm, 1ms/cm - at Output)



**NOTES: UNLESS OTHERWISE SPECIFIED,**

- VOLTAGES NOT IN BOXES ARE D.C.
  - ARE RMS W/50V INPUT.
  - ARE RMS W/.5MV INPUT.
- INPUT IS 100HZ.  
 KNOBS ON 10. SWITCHES OUT.  
 C-CHANNEL SW OUT (CLEAN)  
 L-CHANNEL SW IN (LEAD)  
 AS SUBSTITUTES FOR:  
 R61 10K, CAN USE 50K.

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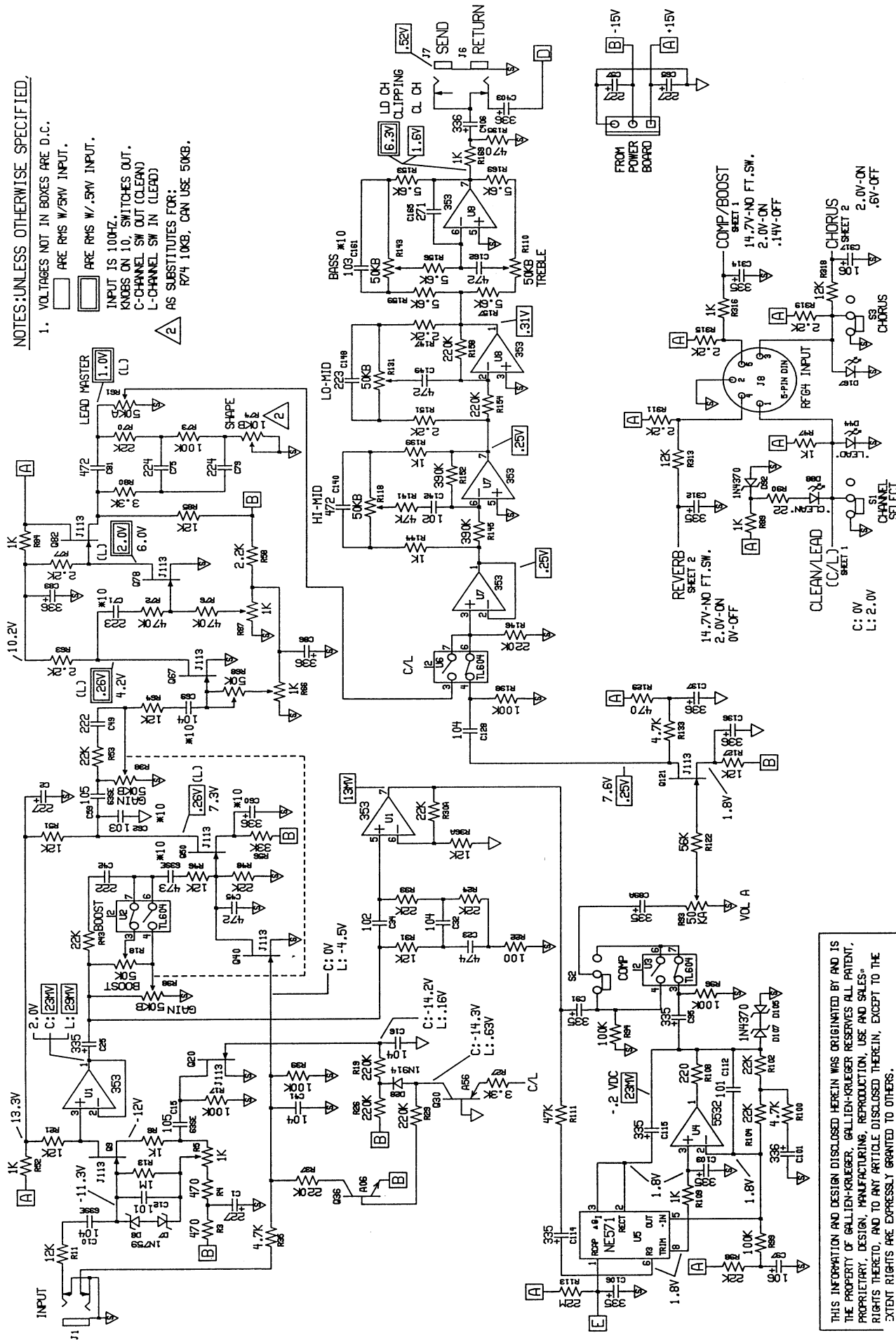
CO#	DATE	FIRST SN	PCO#	DATE	FIRST SN	PCO#	DATE	FIRST SN	DESCRIPTION:
10	6/90								STANDARD PREAMP
									DESIGNED BY: BOARD #:
									PCO#-DATE: FROM SN: TO SN:
									R.G./M.J. 406-00730 10 - 6/90

MODEL #:	DATE:	DESCRIPTION:
ML-S PREAMP	6-27-90	STANDARD PREAMP
DESIGNED BY:	BOARD #:	PCO#-DATE:
R.G./M.J.	406-00730	10 - 6/90



NOTES: UNLESS OTHERWISE SPECIFIED,

- VOLTAGES NOT IN BOXES ARE D.C.
- ARE RMS W/50V INPUT.
- ARE RMS W/.50V INPUT.
- INPUT IS 100HZ.
- KNOBS ON 10. SWITCHES OUT.
- C-CHANNEL SW OUT (CLEAN)
- L-CHANNEL SW IN (LEAD)
- AS SUBSTITUTES FOR:  
R74 10KB, CAN USE 50KB.

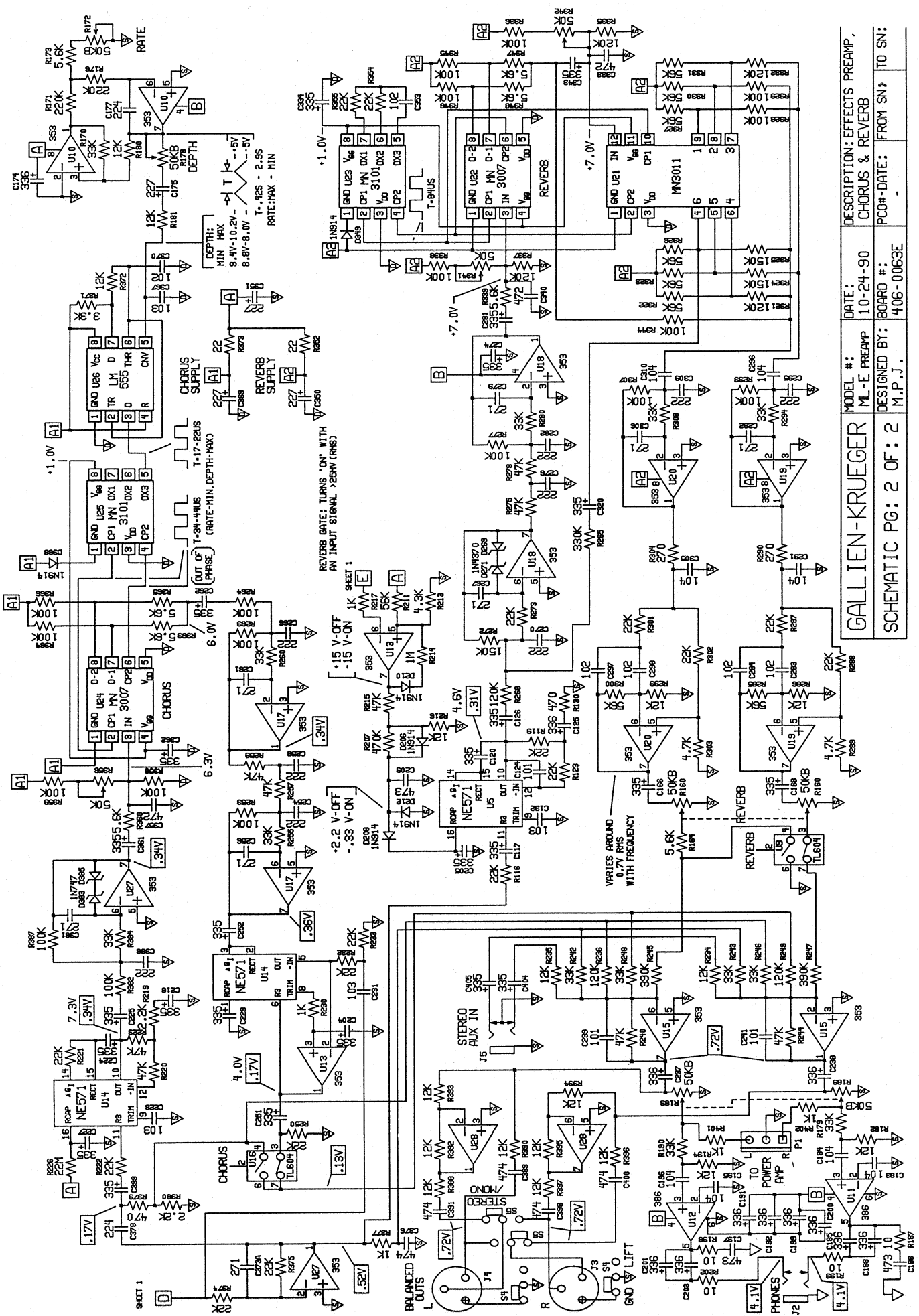


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CO#	DATE	FIRST SN/PCO#	DATE	FIRST SN/PCO#	DATE	FIRST SN
10	6/90					

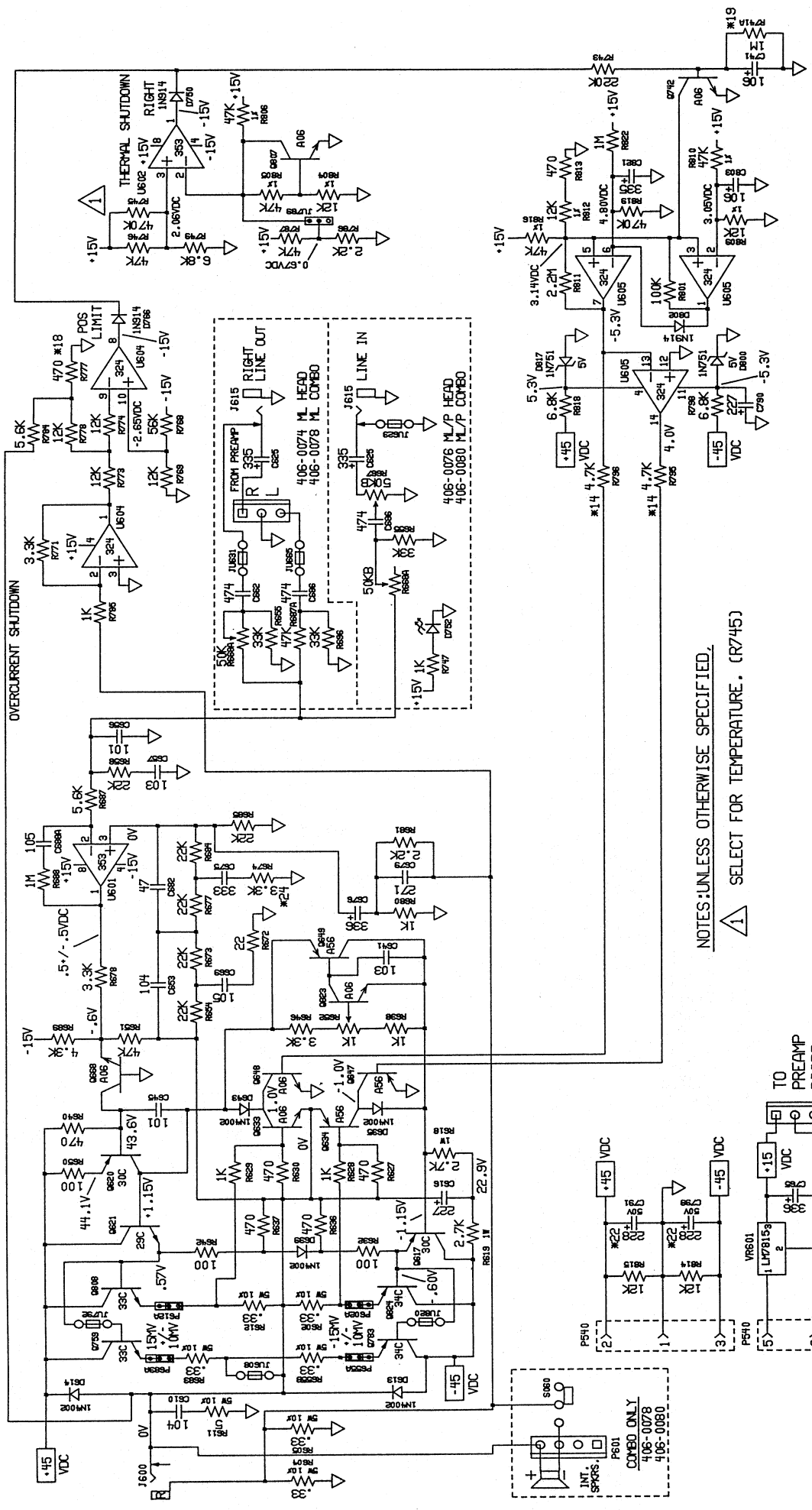
GALLIEN-KRUEGER		MODEL #:	DATE:	DESCRIPTION: EFFECTS PREAMP,
SHEMATIC PG: 1 OF 2		ML-E PREAMP	10-24-90	LEAD & CLEAN CHANNELS
		DESIGNED BY: M.P.J.	BOARD #:	PCO#-DATE: FROM SN: TO SN:
			406-0063E	10 - 6/90





DATE:	10-24-90	DESCRIPTION: EFFECTS PREAMP.
MODEL #:	ML-E PREAMP	CHORUS & REVERB
DESIGNED BY:	M.P.J.	BOARD #:
SCHEMATIC PG: 2 OF 2	406-0063E	PCO#-DATE:
		FROM SN#
		TO SN:





NOTES: UNLESS OTHERWISE SPECIFIED,  $\Delta$  SELECT FOR TEMPERATURE. (R745)

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PCB#	DATE	FIRST SN	PCO#	DATE	FIRST SN	PCO#	DATE	FIRST SN
14	6/90		18	7/90	21	8/90	24	9/90
15	7/90		19	7/90	22	9/90		

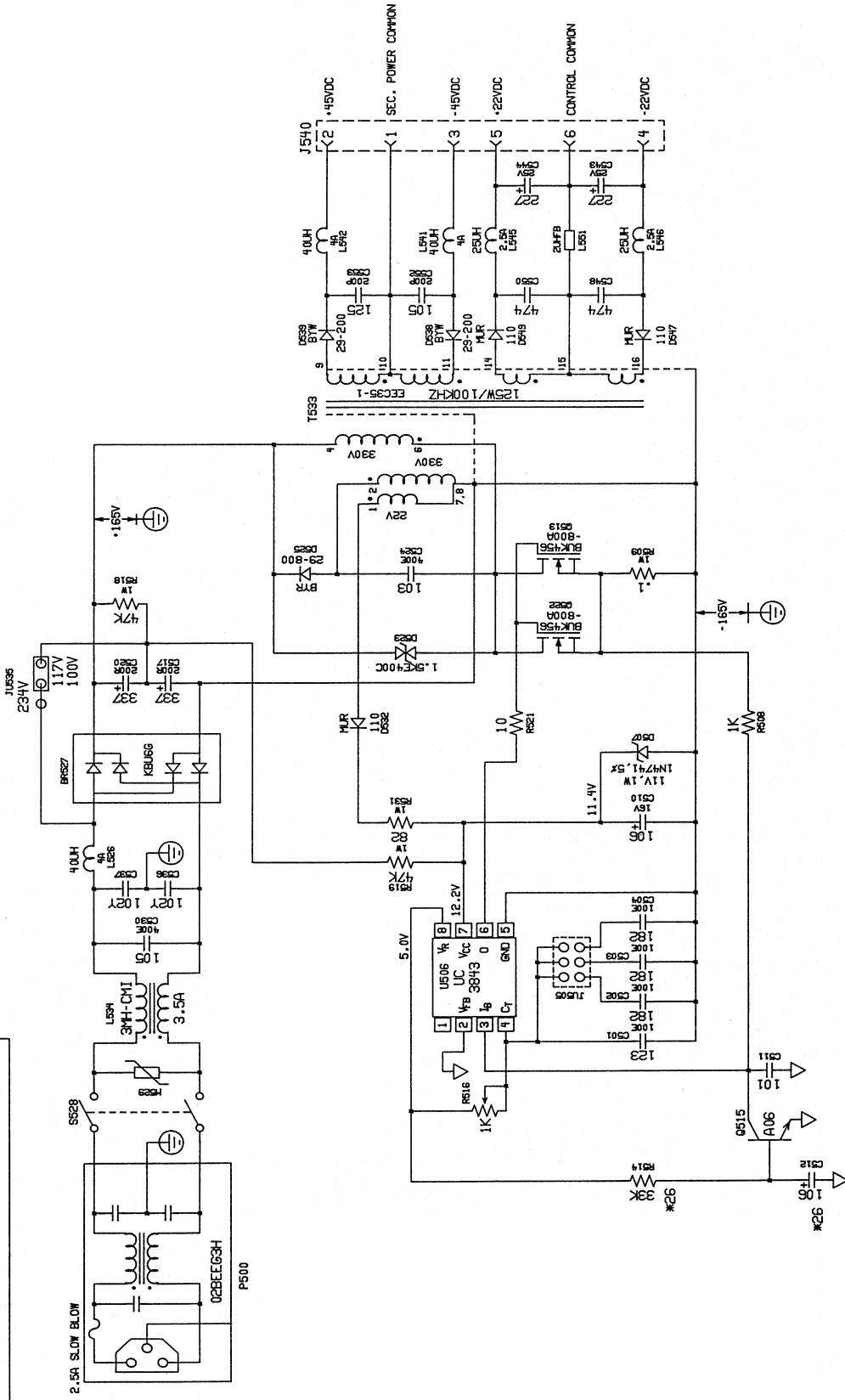
MODEL #:	DATE:	DESCRIPTION:
ML PWR AMP	2-11-91	130 WATTS
DESIGNED BY:	BOARD #:	PCO#-DATE:
A.MITHALKA	0078	FROM SN# TO SI
	00280	24 - 9/90

TO PREAMP BOARD





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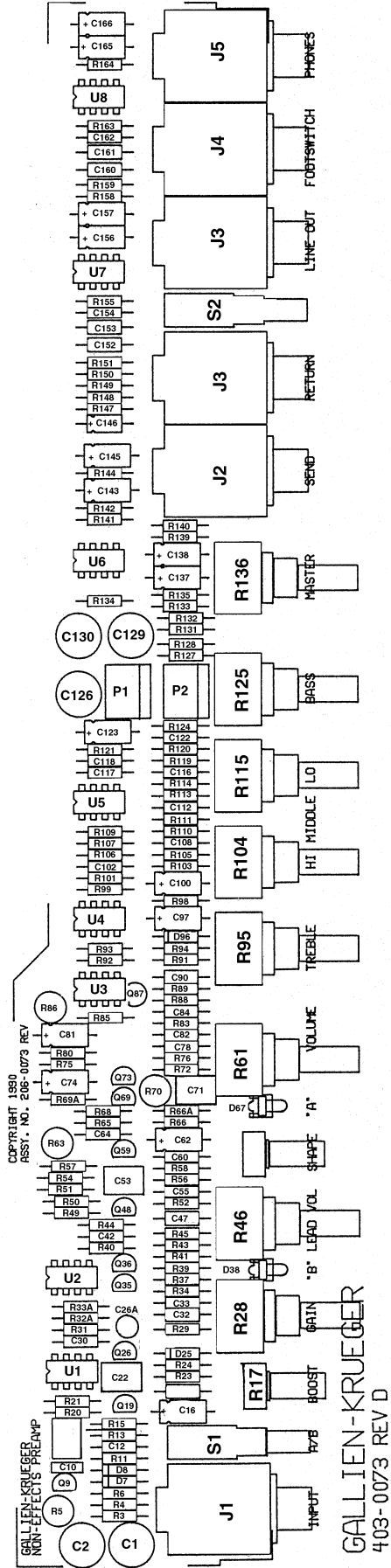


PCO#	DATE	FIRST SN	PCO#	DATE	FIRST SN	PCO#	DATE	FIRST SN
26	10/90							

GALLIEN-KRUEGER		MODEL #:	DATE:	DESCRIPTION: 125W/100KHZ
SCHEMATIC PG: 1 OF: 1		MICRO SERIES	10-9-90	POWER SUPPLY
		DESIGNED BY:	BOARD #:	PCO#-DATE: FROM SN# TO SN:
		A.MIHALKA	406-0071E	26 - 10/90

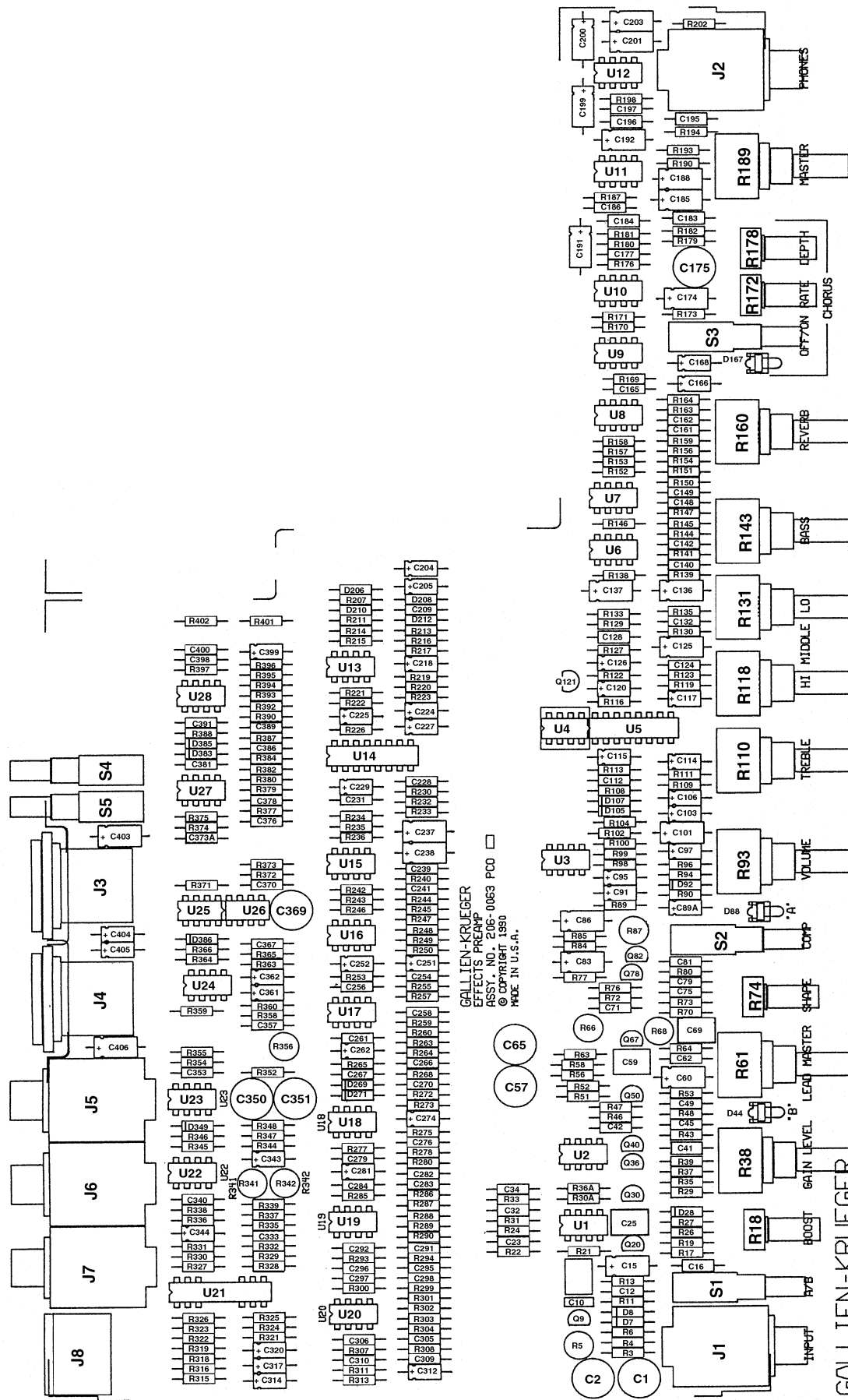


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ASST. NO. 206-0073 REV

DESCRIPTION: STANDARD PREAMP		MODEL #:	DATE:	DESCRIPTION:
PCO#	DATE	FIRST SN	9	5/90
4	4/90	10	6/90	TO SN:
DESCRIPTION: STANDARD PREAMP		DESIGNED BY:	BOARD #:	REV#:
CIRCUIT BOARD ARTWORK		R.G./M.J.	403-0073D	10 - 6/90



GALLIEN-KRUEGER  
EFFECTS PREAMP  
ASSY. NO. 403-0063 PCD □  
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MADE IN U.S.A.

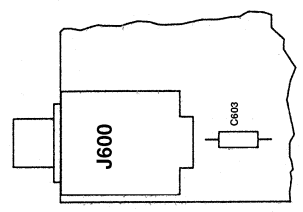
GALLIEN-KRUEGER  
403-0063 REV E

DESCRIPTION: PREAMP AND EFFECTS		MODEL #:		DATE:		DESCRIPTION:	
PCO#	DATE	FIRST SN	8	5/90	6-27-90	6-27-90	EFFECTS PREAMP
1	4/90	10	6/90	10	403-0063E	10	FROM SN# TO SN:
CIRCUIT BOARD ARTWORK		RG/MJ		DESIGNED BY:		REV#-DATE:	
						403-0063E	

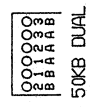




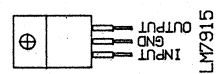
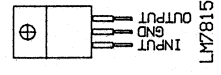
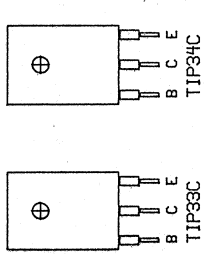
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J600  
206-0064 ML HEAD  
206-0075 ML/P COMBO



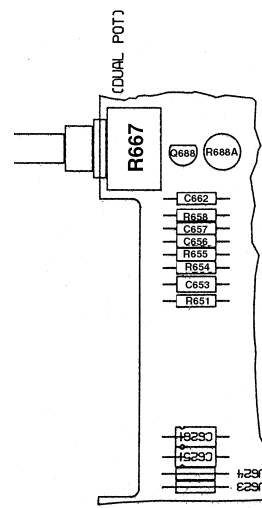
50KB DUAL



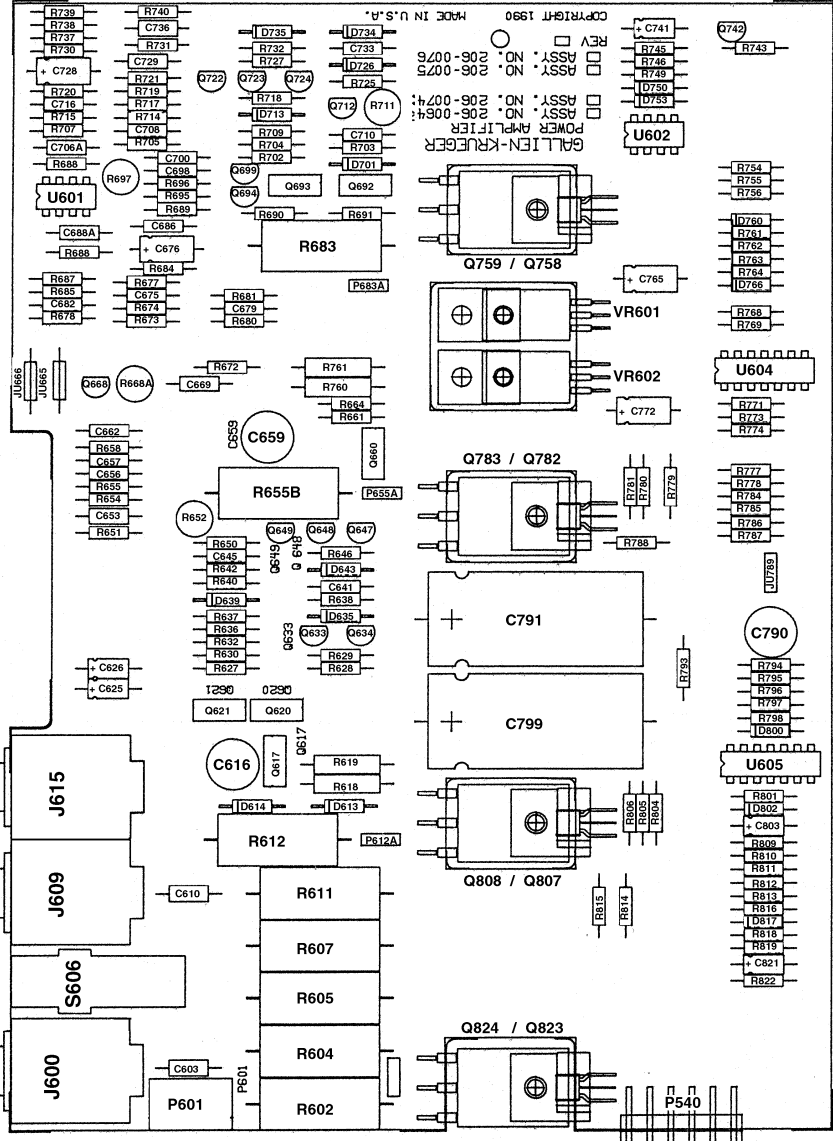
BUK456-800A  
6 D S

LM7815

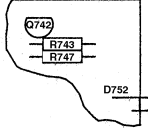
LM7915



206-0075 ML/P HEAD  
206-0079 ML/P COMBO



206-0077 ML COMBO



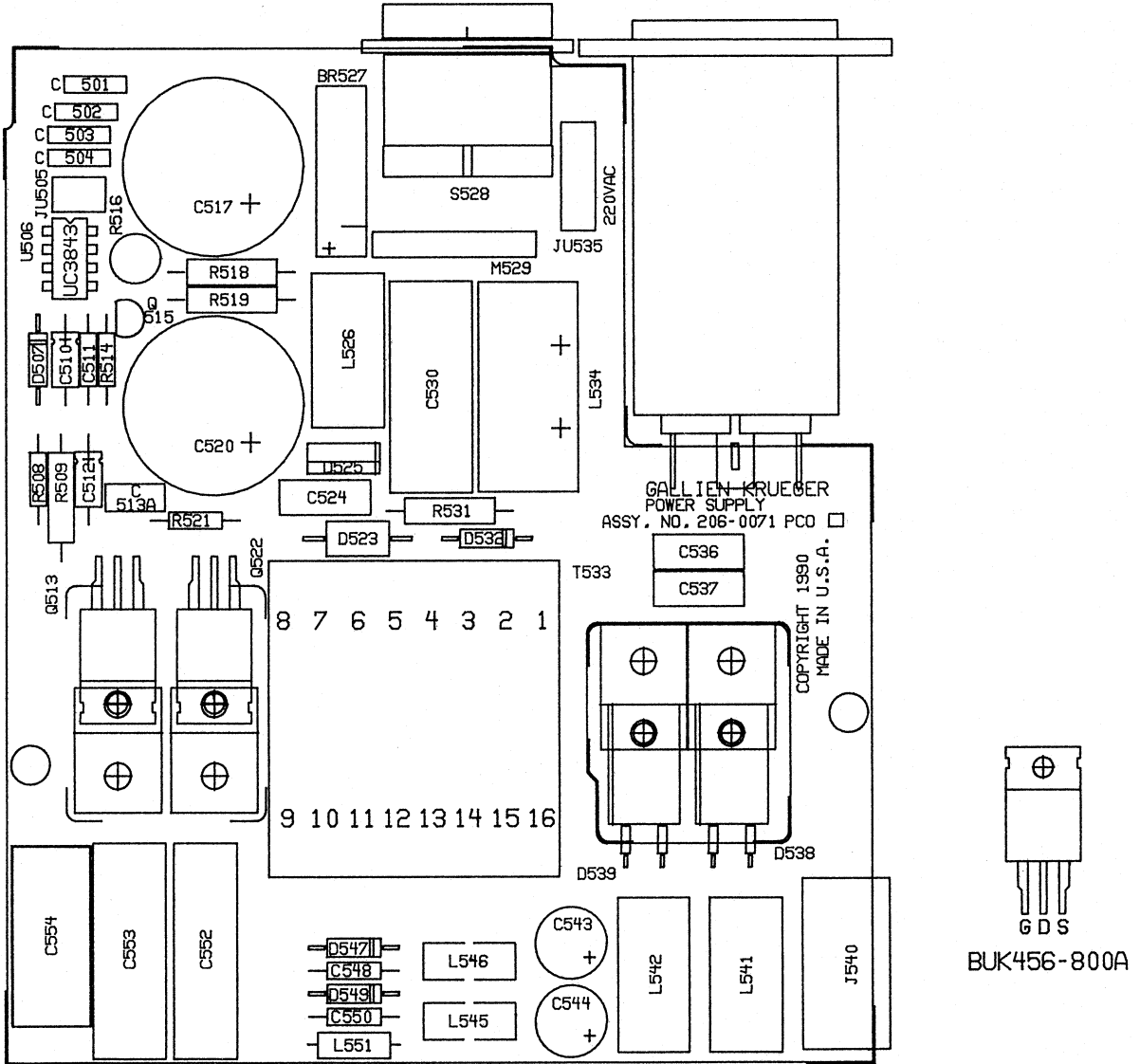
206-0075 ML/P HEAD  
206-0079 ML/P COMBO

DESCRIPTION: ML STEREO POWER AMP					
PCO#	DATE	FIRST SN			
2	4/90				

GALLIEN-KRUEGER		MODEL #:	DATE:	DESCRIPTION:
CIRCUIT BOARD ARTWORK		ML PWR AMP	9-25-90	STEREO POWER AMP
		DESIGNED BY:	BOARD #:	REV#-DATE:
		RG/MJ/AM	0064D 0077D 0075D	FROM SN# TO SN: 24 - 9/90



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GALLIEN-KRUEGER  
403-0071 REV E

GALLIEN-KRUEGER		MODEL #: 260ML	DATE: 10-9-90	DESCRIPTION: 125W/100KHZ POWER SUPPLY		
PCB LAYOUT	GK DOC#	DESIGNED BY: A.M., R.G.	BOARD #: 403-0071E	REV#-DATE: 26-10/90	FROM SN:	TO SN:

GALLIEN-KRUEGER		PRODUCTION CHANGE ORDER		PCO#: 10			
DATE: 6/18/90		ASSEMBLY #: 406-0063E(£ 0073D)		MODEL#: ML			
ASSEMBLY DESCRIPTION: E and 5 preamp boards				PAGE 1 OF 1			
AFFECTS OPTIONS: <input checked="" type="checkbox"/> ALL <input type="checkbox"/> 100V <input type="checkbox"/> 120V <input type="checkbox"/> 220V <input type="checkbox"/> 240V <input type="checkbox"/> 50HZ <input type="checkbox"/> 60HZ							
TYPE OF CHANGE: <input type="checkbox"/> NECESSARY TO THE FUNCTION OF THE UNIT <input checked="" type="checkbox"/> IMPROVEMENT OR ADDITION TO THE UNIT <input type="checkbox"/> OTHER _____							
CHANGE TO BE IMPLEMENTED TO: <input checked="" type="checkbox"/> NEXT PRODUCTION RUN <input checked="" type="checkbox"/> ALL UNITS IN PRODUCTION <input checked="" type="checkbox"/> ALL UNITS IN STOCK <input type="checkbox"/> ALL UNITS BEING SERVICED <input type="checkbox"/> OTHER _____			REMARKS:				
BEGINNING SERIAL NUMBER AFFECTED:							
DESCRIPTION OF CHANGE: <input type="checkbox"/> SEE PCO SUPPLEMENTS <input type="checkbox"/> CONTINUED ON PCO SUPPLEMENT PAGE _____ Note: Values in parenthesis refer to 5-preamp board - if not they refer to E-preamp 1. Change C60(C62) from 107(227) cap to a 336 cap 2. Add 103 from drain of Q50(Q48) to gnd. (Goes in space marked C62 (C66)) 3. Change C69(C71) from 335 to 104/635E cap 4. change C71(C64) from 224 to 223 cap 5. Lift one side of R46(R44), a 12K res. Lift the side away from the front panel. 6. Solder in a 473/635E cap between the lifted lead and the hole it used to occupy.							
REASON FOR CHANGE: Change the dead channel sound in the high gain mode to have a little more "crunch".							
PARTS ADDED			PARTS DELETED				
PART#	DESCRIPTION	QTY.	REF. DES.	PART#	DESCRIPTION	QTY.	REF. DES.
032-8473	473/635E cap			031-1227	227 cap		C60(C62)
038-0336	336L cap		C60(C62)	030-1103	103 cap		C62(C66)
030-1103	103 cap		C62(C66)	038-2335	335 cap		C69(C71)
032-3104	104/635E cap		C69(C71)	030-2224	224 cap		C71(C64)
030-0223	223 cap		C71(C64)				
<input type="checkbox"/> CONTINUED ON PAGE _____			<input type="checkbox"/> CONTINUED ON PAGE _____				
AFFECTED AREAS	DONE BY	DATE	AFFECTED AREAS (CONT)	DONE BY	DATE		
<input checked="" type="checkbox"/> CIRCUIT SCHEMATIC	MEI	6-19-90	<input type="checkbox"/>				
<input checked="" type="checkbox"/> BILL OF MATERIAL	BA	6-19-90	<input type="checkbox"/>				
<input checked="" type="checkbox"/> AUTO INSERTER	MV	6-19-90	<input type="checkbox"/>				
<input checked="" type="checkbox"/> SAMPLE CHANGE	MG	6/18/90	DOCUMENT DIST. LIST	# COPIES			
<input checked="" type="checkbox"/> TEST PROCEDURE			<input checked="" type="checkbox"/> GK USA				
<input type="checkbox"/> COMP. CONTROL FORM			<input checked="" type="checkbox"/> GK EUROPE				
<input type="checkbox"/> FAB DRAWING			<input checked="" type="checkbox"/> GK CAMPBELL				
<input type="checkbox"/> PUNCH PROGRAM			<input checked="" type="checkbox"/> ENGINEERING				
<input type="checkbox"/> PUNCH SAMPLE			<input type="checkbox"/> FABRICATION				
<input type="checkbox"/> ASSEMBLY PROCEDURES			<input checked="" type="checkbox"/> PRODUCTION				
<input type="checkbox"/> ARTWORK			<input type="checkbox"/> OUTSIDE SUPPLIERS				
<input type="checkbox"/> SILKSCREEN TEMPLATE			<input checked="" type="checkbox"/> SERVICE CENTERS				
<input type="checkbox"/>			<input type="checkbox"/>				
DRAWING(S) SHOWING MODIFICATION ATTACHED: <input type="checkbox"/> NO <input checked="" type="checkbox"/> YES - SPECIFY: Schem of both E & 5 preamp							
WRITTEN BY: Michael Johns		DEPT: Eng		DATE: 6/18/90			
REVIEWED/APPROVED BY:		DEPT:		DATE:			

GALLIEN-KRUEGER PRODUCTION CHANGE ORDER PCO#: 14

DATE: 6/27/90 ASSEMBLY #: 206-0064, 74-80 MODEL#:  $\mu$ Amp PA

ASSEMBLY DESCRIPTION: PAGE 1 OF 1

AFFECTS OPTIONS:  ALL  100V  120V  220V  240V  50HZ  60HZ

TYPE OF CHANGE:  
 NECESSARY TO THE FUNCTION OF THE UNIT  
 IMPROVEMENT OR ADDITION TO THE UNIT  
 OTHER \_\_\_\_\_

CHANGE TO BE IMPLEMENTED TO: REMARKS:  
 NEXT PRODUCTION RUN  
 ALL UNITS IN PRODUCTION  
 ALL UNITS IN STOCK  
 ALL UNITS BEING SERVICED  
 OTHER \_\_\_\_\_

BEGINNING SERIAL NUMBER AFFECTED:

DESCRIPTION OF CHANGE:  SEE PCO SUPPLEMENTS  CONTINUED ON PCO SUPPLEMENT PAGE \_\_\_\_\_  
 Change R794, R795, R796, R797 from 22K to 4.7K.

REASON FOR CHANGE: Ensures clamping output, even with A06's having minimum  $\beta$ .

PARTS ADDED				PARTS DELETED			
PART#	DESCRIPTION	QTY.	REF. DES.	PART#	DESCRIPTION	QTY.	REF. DES.
051-4702	4.7K, 1/4W Carbon Film	4	R794-R797	051-2203	22K, 1/4W Carbon Film	4	R794-R797

CONTINUED ON PAGE \_\_\_\_\_  CONTINUED ON PAGE \_\_\_\_\_

AFFECTED AREAS	DONE BY	DATE	AFFECTED AREAS (CONT)	DONE BY	DATE
<input checked="" type="checkbox"/> CIRCUIT SCHEMATIC			<input type="checkbox"/>		
<input checked="" type="checkbox"/> BILL OF MATERIAL			<input type="checkbox"/>		
<input checked="" type="checkbox"/> AUTO INSERTER			<input type="checkbox"/>		
<input checked="" type="checkbox"/> SAMPLE CHANGE			DOCUMENT DIST. LIST	# COPIES	
<input type="checkbox"/> TEST PROCEDURE			<input checked="" type="checkbox"/> GK USA		
<input type="checkbox"/> COMP. CONTROL FORM			<input type="checkbox"/> SERVICE CENTERS		
<input type="checkbox"/> FAB DRAWING			<input checked="" type="checkbox"/> GK EUROPE		
<input type="checkbox"/> PUNCH PROGRAM			<input checked="" type="checkbox"/> GK CAMPBELL		
<input type="checkbox"/> PUNCH SAMPLE			<input checked="" type="checkbox"/> ENGINEERING		
<input type="checkbox"/> ASSEMBLY PROCEDURES			<input type="checkbox"/> FABRICATION		
<input type="checkbox"/> ARTWORK			<input checked="" type="checkbox"/> PRODUCTION		
<input type="checkbox"/> SILKSCREEN TEMPLATE			<input type="checkbox"/> OUTSIDE SUPPLIERS		
<input type="checkbox"/>			<input type="checkbox"/>		

DRAWING(S) SHOWING MODIFICATION ATTACHED:  NO  YES-SPECIFY:

WRITTEN BY: J. Mihalka DEPT: Eng. DATE: 6/27/90  
 REVIEWED/APPROVED BY: DEPT: DATE:

GALLIEN-KRUEGER PRODUCTION CHANGE ORDER PCO#: 15

DATE: 7/2/90 ASSEMBLY #: 206-0064, 7A-80 MODEL#: W Amp PA.  
 ASSEMBLY DESCRIPTION: STEREO/MONO PWR. AMP. PAGE 1 OF 1

AFFECTS OPTIONS:  ALL  100V  120V  220V  240V  50HZ  60HZ

TYPE OF CHANGE:  
 NECESSARY TO THE FUNCTION OF THE UNIT  
 IMPROVEMENT OR ADDITION TO THE UNIT  
 OTHER \_\_\_\_\_

CHANGE TO BE IMPLEMENTED TO: <input checked="" type="checkbox"/> NEXT PRODUCTION RUN <input type="checkbox"/> ALL UNITS IN PRODUCTION <input type="checkbox"/> ALL UNITS IN STOCK <input type="checkbox"/> ALL UNITS BEING SERVICED <input type="checkbox"/> OTHER _____	REMARKS:
---	----------

BEGINNING SERIAL NUMBER AFFECTED:

DESCRIPTION OF CHANGE:  SEE PCO SUPPLEMENTS  CONTINUED ON PCO SUPPLEMENT PAGE \_\_\_\_\_  
 Change R777 and R761 from 470Ω to 390Ω.

REASON FOR CHANGE:  
 Resistors are typically paralalled with these to get lower value.

PARTS ADDED				PARTS DELETED			
PART#	DESCRIPTION	QTY.	REF. DES.	PART#	DESCRIPTION	QTY.	REF. DES.
057-3901	390Ω, 1/4W, Carb.Film	2		057-4701	470Ω, 1/4W, Carb.Film	2	R777, R761

CONTINUED ON PAGE \_\_\_\_\_  CONTINUED ON PAGE \_\_\_\_\_

AFFECTED AREAS	DONE BY	DATE	AFFECTED AREAS (CONT)	DONE BY	DATE
<input checked="" type="checkbox"/> CIRCUIT SCHEMATIC			<input type="checkbox"/>		
<input checked="" type="checkbox"/> BILL OF MATERIAL			<input type="checkbox"/>		
<input checked="" type="checkbox"/> AUTO INSERTER			<input type="checkbox"/>		
<input checked="" type="checkbox"/> SAMPLE CHANGE			DOCUMENT DIST. LIST	# COPIES	
<input type="checkbox"/> TEST PROCEDURE			<input checked="" type="checkbox"/> GK USA		
<input checked="" type="checkbox"/> COMP. CONTROL FORM			<input checked="" type="checkbox"/> GK EUROPE		
<input type="checkbox"/> FAB DRAWING			<input checked="" type="checkbox"/> GK CAMPBELL		
<input type="checkbox"/> PUNCH PROGRAM			<input checked="" type="checkbox"/> ENGINEERING		
<input type="checkbox"/> PUNCH SAMPLE			<input type="checkbox"/> FABRICATION		
<input type="checkbox"/> ASSEMBLY PROCEDURES			<input checked="" type="checkbox"/> PRODUCTION		
<input type="checkbox"/> ARTWORK			<input type="checkbox"/> OUTSIDE SUPPLIERS		
<input checked="" type="checkbox"/> SILKSCREEN TEMPLATE			<input type="checkbox"/>		
<input type="checkbox"/>			<input type="checkbox"/>		

DRAWING(S) SHOWING MODIFICATION ATTACHED:  NO  YES - SPECIFY:

WRITTEN BY: A. Mihalka DEPT: Eng DATE: 7/2/90

REVIEWED/APPROVED BY: DEPT: DATE:



GALLIEN-KRUEGER PRODUCTION CHANGE ORDER PCO#: 16

DATE: 7/2/90 ASSEMBLY #: 206-0071 MODEL#:  $\mu$ Amp PA

ASSEMBLY DESCRIPTION: POWER SUPPLY PAGE 1 OF 1

AFFECTS OPTIONS:  ALL  100V  120V  220V  240V  50HZ  60HZ

TYPE OF CHANGE:  
 NECESSARY TO THE FUNCTION OF THE UNIT  
 IMPROVEMENT OR ADDITION TO THE UNIT  
 OTHER \_\_\_\_\_

CHANGE TO BE IMPLEMENTED TO: <input checked="" type="checkbox"/> NEXT PRODUCTION RUN <input type="checkbox"/> ALL UNITS IN PRODUCTION <input type="checkbox"/> ALL UNITS IN STOCK <input type="checkbox"/> ALL UNITS BEING SERVICED <input type="checkbox"/> OTHER _____	REMARKS:
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BEGINNING SERIAL NUMBER AFFECTED:

DESCRIPTION OF CHANGE:  SEE PCO SUPPLEMENTS  CONTINUED ON PCO SUPPLEMENT PAGE \_\_\_\_\_

Change C504 from 152 to 182.  
 Change C505 from 102 to 182.

REASON FOR CHANGE:  
 New batch of transformers requires longer period, lower frequency.

PARTS ADDED				PARTS DELETED			
PART#	DESCRIPTION	QTY.	REF. DES.	PART#	DESCRIPTION	QTY.	REF. DES.
036-4182	182, Poly. Film/Foil	2	C504, C505	036-4102	102 Poly Film/Foil	1	C505
				036-4152	152, Poly. Film/Foil	1	C504

CONTINUED ON PAGE \_\_\_\_\_  CONTINUED ON PAGE \_\_\_\_\_

AFFECTED AREAS	DONE BY	DATE	AFFECTED AREAS (CONT)	DONE BY	DATE
<input checked="" type="checkbox"/> CIRCUIT SCHEMATIC			<input type="checkbox"/>		
<input checked="" type="checkbox"/> BILL OF MATERIAL			<input type="checkbox"/>		
<input type="checkbox"/> AUTO INSERTER			<input type="checkbox"/>		
<input checked="" type="checkbox"/> SAMPLE CHANGE			DOCUMENT DIST. LIST	# COPIES	
<input type="checkbox"/> TEST PROCEDURE			<input checked="" type="checkbox"/> GK USA		
<input type="checkbox"/> COMP. CONTROL FORM			<input checked="" type="checkbox"/> GK EUROPE		
<input type="checkbox"/> FAB DRAWING			<input checked="" type="checkbox"/> GK CAMPBELL		
<input type="checkbox"/> PUNCH PROGRAM			<input checked="" type="checkbox"/> ENGINEERING		
<input type="checkbox"/> PUNCH SAMPLE			<input type="checkbox"/> FABRICATION		
<input type="checkbox"/> ASSEMBLY PROCEDURES			<input checked="" type="checkbox"/> PRODUCTION		
<input type="checkbox"/> ARTWORK			<input type="checkbox"/> OUTSIDE SUPPLIERS		
<input checked="" type="checkbox"/> SILKSCREEN TEMPLATE			<input type="checkbox"/>		
<input type="checkbox"/>			<input type="checkbox"/>		

DRAWING(S) SHOWING MODIFICATION ATTACHED:  NO  YES - SPECIFY:

WRITTEN BY: A. Mihalka DEPT: Eng DATE: 7/2/90  
 REVIEWED/APPROVED BY: DEPT: DATE:

GALLIEN-KRUEGER PRODUCTION CHANGE ORDER PCO#: 18

DATE: 7/12/90 ASSEMBLY #: 206-0064, 74-80 MODEL#: 1Amp PA

ASSEMBLY DESCRIPTION: Steveo/mono lower Amp PAGE 1 OF 1

AFFECTS OPTIONS:  ALL  100V  120V  220V  240V  50HZ  60HZ

TYPE OF CHANGE:  
 NECESSARY TO THE FUNCTION OF THE UNIT  
 IMPROVEMENT OR ADDITION TO THE UNIT  
 OTHER \_\_\_\_\_

CHANGE TO BE IMPLEMENTED TO:  
 NEXT PRODUCTION RUN  
 ALL UNITS IN PRODUCTION  
 ALL UNITS IN STOCK  
 ALL UNITS BEING SERVICED  
 OTHER \_\_\_\_\_

REMARKS: This reverses PCO #15.

BEGINNING SERIAL NUMBER AFFECTED:

DESCRIPTION OF CHANGE:  SEE PCO SUPPLEMENTS  CONTINUED ON PCO SUPPLEMENT PAGE \_\_\_\_\_

Change R777 and R761 from 390Ω to 470Ω.

REASON FOR CHANGE:  
De-sensitize overload trip point.

PARTS ADDED				PARTS DELETED			
PART#	DESCRIPTION	QTY.	REF. DES.	PART#	DESCRIPTION	QTY.	REF. DES.
051-4701	470Ω, 1/4W Carb.	2	R777, R761	051-3901	390Ω, 1/4W, Carb.	2	

CONTINUED ON PAGE \_\_\_\_\_  CONTINUED ON PAGE \_\_\_\_\_

AFFECTED AREAS	DONE BY	DATE	AFFECTED AREAS (CONT)	DONE BY	DATE
<input checked="" type="checkbox"/> CIRCUIT SCHEMATIC			<input type="checkbox"/>		
<input checked="" type="checkbox"/> BILL OF MATERIAL			<input type="checkbox"/>		
<input checked="" type="checkbox"/> AUTO INSERTER			<input type="checkbox"/>		
<input checked="" type="checkbox"/> SAMPLE CHANGE			DOCUMENT DIST. LIST	# COPIES	
<input type="checkbox"/> TEST PROCEDURE			<input checked="" type="checkbox"/> GK USA		
<input type="checkbox"/> COMP. CONTROL FORM			<input checked="" type="checkbox"/> GK EUROPE		
<input type="checkbox"/> FAB DRAWING			<input checked="" type="checkbox"/> GK CAMPBELL		
<input type="checkbox"/> PUNCH PROGRAM			<input checked="" type="checkbox"/> ENGINEERING		
<input type="checkbox"/> PUNCH SAMPLE			<input type="checkbox"/> FABRICATION		
<input type="checkbox"/> ASSEMBLY PROCEDURES			<input checked="" type="checkbox"/> PRODUCTION		
<input type="checkbox"/> ARTWORK			<input type="checkbox"/> OUTSIDE SUPPLIERS		
<input checked="" type="checkbox"/> SILKSCREEN TEMPLATE			<input type="checkbox"/>		
<input type="checkbox"/>			<input type="checkbox"/>		

DRAWING(S) SHOWING MODIFICATION ATTACHED:  NO  YES - SPECIFY:

WRITTEN BY: A. Mihalka DEPT: Eng. DATE: 7/12/90

REVIEWED/APPROVED BY: \_\_\_\_\_ DEPT: \_\_\_\_\_ DATE: \_\_\_\_\_

GALLIEN-KRUEGER PRODUCTION CHANGE ORDER PCO#: 19

DATE: 7/20/90 ASSEMBLY #: MODEL#: µAmp P.A.

ASSEMBLY DESCRIPTION: PAGE 1 OF 1

AFFECTS OPTIONS:  ALL  100V  120V  220V  240V  50HZ  60HZ

TYPE OF CHANGE:  
 NECESSARY TO THE FUNCTION OF THE UNIT  
 IMPROVEMENT OR ADDITION TO THE UNIT  
 OTHER \_\_\_\_\_

CHANGE TO BE IMPLEMENTED TO:  
 NEXT PRODUCTION RUN  
 ALL UNITS IN PRODUCTION  
 ALL UNITS IN STOCK *Do Not Unbox*  
 ALL UNITS BEING SERVICED  
 OTHER \_\_\_\_\_

REMARKS:  
Tack on back of board.

BEGINNING SERIAL NUMBER AFFECTED:

DESCRIPTION OF CHANGE:  SEE PCO SUPPLEMENTS  CONTINUED ON PCO SUPPLEMENT PAGE \_\_\_\_\_  
Add bleeder resistor across C741. Resistor is 1MΩ.

REASON FOR CHANGE: Bleed charge due to flux leakage current around Q742. C741 is 10µf - and is connected base to emitter on Q742.

PARTS ADDED				PARTS DELETED			
PART#	DESCRIPTION	QTY.	REF. DES.	PART#	DESCRIPTION	QTY.	REF. DES.
051-1005	1MΩ, 1/4W, Carbon	1					

CONTINUED ON PAGE \_\_\_\_\_  CONTINUED ON PAGE \_\_\_\_\_

AFFECTED AREAS	DONE BY	DATE	AFFECTED AREAS (CONT)	DONE BY	DATE
<input checked="" type="checkbox"/> CIRCUIT SCHEMATIC			<input type="checkbox"/>		
<input checked="" type="checkbox"/> BILL OF MATERIAL			<input type="checkbox"/>		
<input type="checkbox"/> AUTO INSERTER			<input type="checkbox"/>		
<input checked="" type="checkbox"/> SAMPLE CHANGE			DOCUMENT DIST. LIST	# COPIES	
<input type="checkbox"/> TEST PROCEDURE			<input checked="" type="checkbox"/> GK USA		
<input type="checkbox"/> COMP. CONTROL FORM			<input checked="" type="checkbox"/> GK EUROPE		
<input type="checkbox"/> FAB DRAWING			<input checked="" type="checkbox"/> GK CAMPBELL		
<input type="checkbox"/> PUNCH PROGRAM			<input checked="" type="checkbox"/> ENGINEERING		
<input type="checkbox"/> PUNCH SAMPLE			<input type="checkbox"/> FABRICATION		
<input type="checkbox"/> ASSEMBLY PROCEDURES			<input checked="" type="checkbox"/> PRODUCTION		
<input type="checkbox"/> ARTWORK			<input type="checkbox"/> OUTSIDE SUPPLIERS		
<input type="checkbox"/> SILKSCREEN TEMPLATE			<input type="checkbox"/>		
<input type="checkbox"/>			<input type="checkbox"/>		

DRAWING(S) SHOWING MODIFICATION ATTACHED:  NO  YES - SPECIFY:

WRITTEN BY: A. Mihaka DEPT: Eng DATE: 7/20/90

REVIEWED/APPROVED BY: \_\_\_\_\_ DEPT: \_\_\_\_\_ DATE: \_\_\_\_\_

GALLIEN-KRUEGER		PRODUCTION CHANGE ORDER		PCO# : 20			
DATE: 7-25-90		ASSEMBLY #: 145-0071, 145-0062		MODEL#:			
ASSEMBLY DESCRIPTION: POWER SUPPLY, POWER AMP				PAGE 1 OF 1			
AFFECTS OPTIONS: <input checked="" type="checkbox"/> ALL <input type="checkbox"/> 100V <input type="checkbox"/> 120V <input type="checkbox"/> 220V <input type="checkbox"/> 240V <input type="checkbox"/> 50HZ <input type="checkbox"/> 60HZ							
TYPE OF CHANGE: <input type="checkbox"/> NECESSARY TO THE FUNCTION OF THE UNIT <input checked="" type="checkbox"/> IMPROVEMENT OR ADDITION TO THE UNIT <input type="checkbox"/> OTHER _____							
CHANGE TO BE IMPLEMENTED TO: <input checked="" type="checkbox"/> NEXT PRODUCTION RUN <input type="checkbox"/> ALL UNITS IN PRODUCTION <input type="checkbox"/> ALL UNITS IN STOCK <input type="checkbox"/> ALL UNITS BEING SERVICED <input type="checkbox"/> OTHER _____			REMARKS:				
BEGINNING SERIAL NUMBER AFFECTED:							
DESCRIPTION OF CHANGE: <input type="checkbox"/> SEE PCO SUPPLEMENTS <input type="checkbox"/> CONTINUED ON PCO SUPPLEMENT PAGE _____ 145-0071 : MOVE TRACE (SOLDER SIDE), AWAY FROM ANODE PAD OF D513.  145-0062 : MOVE TRACE (SOLDER SIDE), AWAY FROM PAD OF R604.							
REASON FOR CHANGE: 145-0071 : CAUSES SHORT WITH TRACE AND PAD, 145-0062 : CAUSES SHORT BETWEEN R604 AND P602A.							
PARTS ADDED				PARTS DELETED			
PART#	DESCRIPTION	QTY.	REF. DES.	PART#	DESCRIPTION	QTY.	REF. DES.
<input type="checkbox"/> CONTINUED ON PAGE _____				<input type="checkbox"/> CONTINUED ON PAGE _____			
AFFECTED AREAS		DONE BY	DATE	AFFECTED AREAS (CONT)		DONE BY	DATE
<input type="checkbox"/> CIRCUIT SCHEMATIC				<input type="checkbox"/>			
<input type="checkbox"/> BILL OF MATERIAL				<input type="checkbox"/>			
<input type="checkbox"/> AUTO INSERTER				<input type="checkbox"/>			
<input type="checkbox"/> SAMPLE CHANGE				DOCUMENT DIST. LIST		# COPIES	
<input type="checkbox"/> TEST PROCEDURE				<input type="checkbox"/> GK USA			
<input type="checkbox"/> COMP. CONTROL FORM				<input type="checkbox"/> SERVICE CENTERS			
<input type="checkbox"/> FAB DRAWING				<input type="checkbox"/> GK EUROPE			
<input type="checkbox"/> PUNCH PROGRAM				<input type="checkbox"/> GK CAMPBELL			
<input type="checkbox"/> PUNCH SAMPLE				<input type="checkbox"/> ENGINEERING			
<input type="checkbox"/> ASSEMBLY PROCEDURES				<input type="checkbox"/> FABRICATION			
<input checked="" type="checkbox"/> ARTWORK		M.E.I.	7-25-90	<input type="checkbox"/> PRODUCTION			
<input type="checkbox"/> SILKSCREEN TEMPLATE				<input type="checkbox"/> OUTSIDE SUPPLIERS			
<input type="checkbox"/>				<input type="checkbox"/>			
DRAWING(S) SHOWING MODIFICATION ATTACHED: <input type="checkbox"/> NO <input type="checkbox"/> YES - SPECIFY:							
WRITTEN BY: M.E. ITURRALDE				DEPT: ENGR.		DATE: 7-25-90	
REVIEWED/APPROVED BY:				DEPT:		DATE:	