

Service Manual

200MK / RK

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Operating Instructions MK/RK

The Basics

Your new GK Multi-input keyboard amplifier represents the latest advances technology has to offer. It was designed to give the working keyboardist all the flexibility and power He/She needs in a lightweight portable package.

With three inputs the 200MK/RK can take a signal of any keyboard from an electric piano to a programable synthesizer, and transform it into a fully produced, controllable sound.

The 200MK/RK features treble and bass controls on each channel as well as chorus and echo. The 200MK/RK also features direct outs and a monitor in for use in the studio and for live performances. A careful examination of this manual will help you to get the most from all the special features this amplifier offers.

Piano Input

The first channel was designed for use with an electric piano. It features a Built-in compressor for adding sustain and clarity, chorus and echo on/off and two EQ knobs. This input is a standard 1/4" jack capable of handling a variety of signal levels up to 1.5v.

Synth 1 & 2

The next two inputs were designed to accommodate electronic synthesizers. They also feature chorus and echo on/off switches as well as treble and bass controls on each input. These are also standard 1/4" jacks capable of handling up to 1.5v.

Limiter

The 200MK/RK also features a built-in Limiter for cutting out unwanted distortion. When playing with the master volume all the way up the limiter will hold the power amp at full power without clipping.

Master

The master volume controls the total output of the amplifier from off to full power.

Footswitch (see accessories)

The footswitch jack is a 1/4" Stereo jack. With the footswitch the player can turn the chorus and echo on and off individually.

Phones

The phones jack is also a 1/4" stereo jack. It delivers a stereo signal for use with high impedance headphones (600 ohms or greater). Plugging into the headphones jack does not disconnect the internal speaker. To disconnect the internal speaker use speaker on/off switch on rear panel.

Line Out

The direct line level out serves two functions in the 200MK/RK. When in stereo (see mono/stereo switch) the line out acts as the right side line out for use with the 200MP powered monitor. When in mono the line out is a regular balanced line out.

Mono/Stereo Switch

The mono/stereo switch will change the line out and direct outs from mono to stereo. This also changes the headphones jack from mono to stereo.

Monitor In

This jack allows the input of a monitor send to come in and be heard through the internal speaker but not through the line out or direct outs.

Direct Out Right/Left

Two low impedance direct outs are provided for recording or live performances. When operating in stereo the direct outs are left and right. When in mono mode both directs are mono.

Int/Ext Speaker Switch

This switch allows the player to turn off the internal speaker for headphones use or for exclusive extension speaker use.

Ext Speaker Jack

This jack is a standard 1/4" jack for the addition of an external speaker. With the internal speaker on, an 8ohm load can be added and with internal speaker off, a 4ohm load can be added.

Power Switch

The power on/off switch on the 200MK is located on the rear panel. The power switch on the 200RK is on the front panel lower right.

Power Cord

The power cord is detachable and plugs into a socket on the rear panel. If a replacement cord is used or needed it should be UL rated at 10 amps, 125v; or if using 240v, the cord should be UL rated at 5 amps, 240v.

Fuse

Never operate your MK or RK with any other than the recommended fuse.

115v operation – type TSC 2A

240v operation – type TSC 1A

Maintenance

Your new amplifier is rugged. It was built to give you a lifetime of troublefree operation. If it is operated with care, your only maintenance problems should be cleaning. We recommend a soft damp cloth and mild soap for cleaning outside surfaces. Your amp can be serviced at any GK authorized service center or at the GK factory if needed.

Accessories

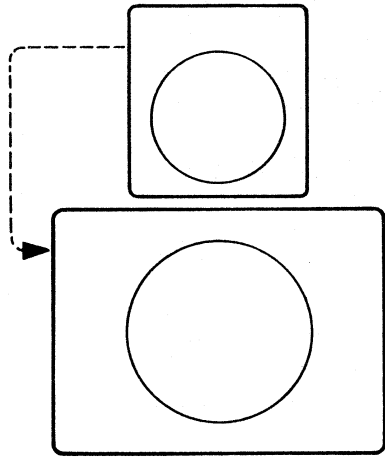
- Effects Footswitch
- Stereo Cord
- Road Bag (MK, RK)
- 200MP
- MIC Stand Kit (MK)
- Rack Mount Kit (RK)

200MK

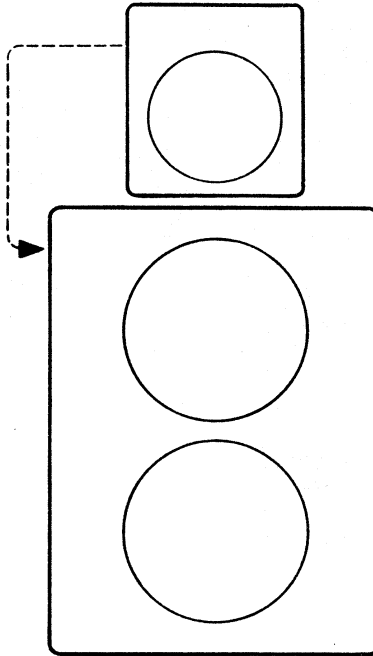
200RK

With Internal Speaker On

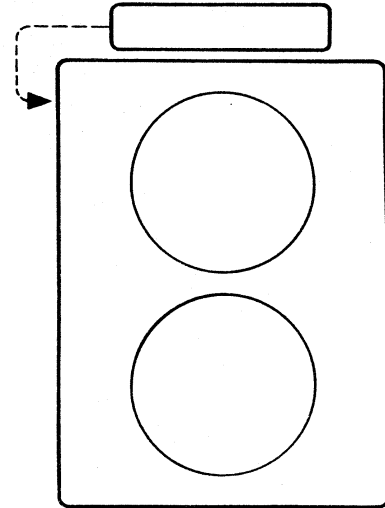
With Internal Speaker Off



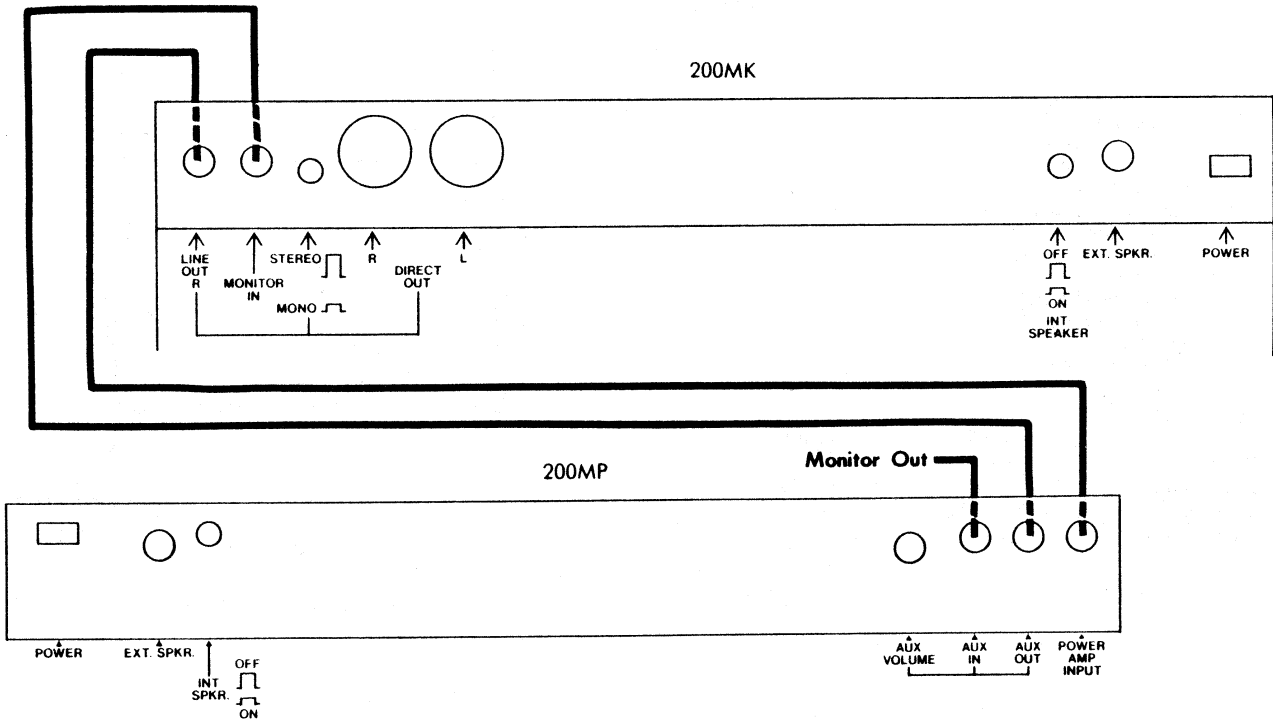
8ohm



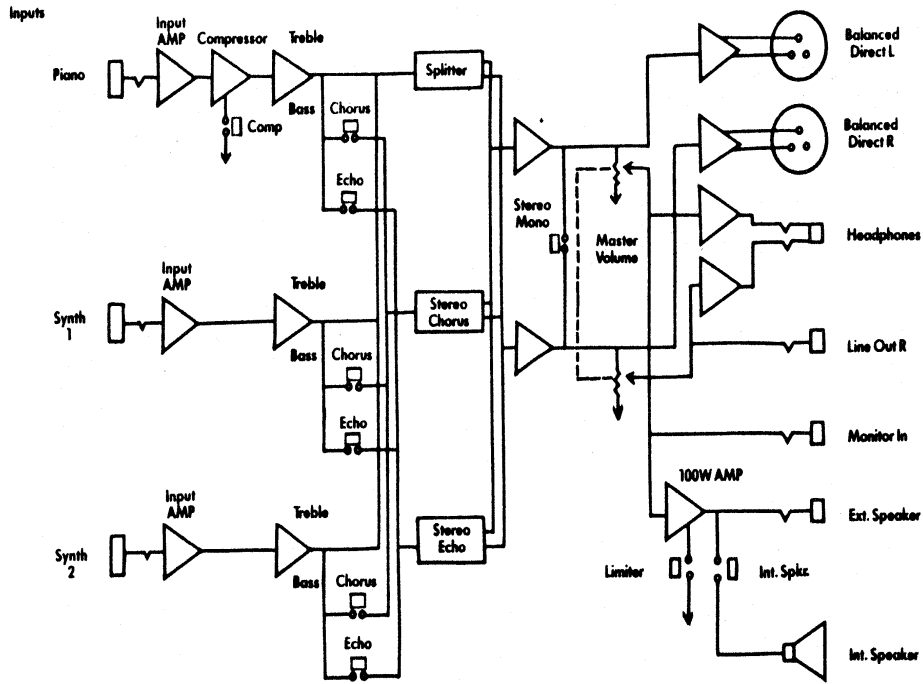
4ohm



4ohm



Block Diagram



200MK/RK Specifications

Power @ 400Hz

100watts into 4ohms at 1%THD
65watts into 8ohms at 1%THD

Signal-to-noise ratio

> 80db

Max Distortion

w/Limiter .35%

Frequency Response

< ± 1db 20-20khz

Tone Controls:

± 15db at 10khz
± 15db at 80khz

Instrument Inputs

Max input level 1.5v rms
Input impedance 1M ohms
Input sensitivity 150mv rms

Monitor Input

Input impedance 100K ohms
Monitor In sens. .5v rms

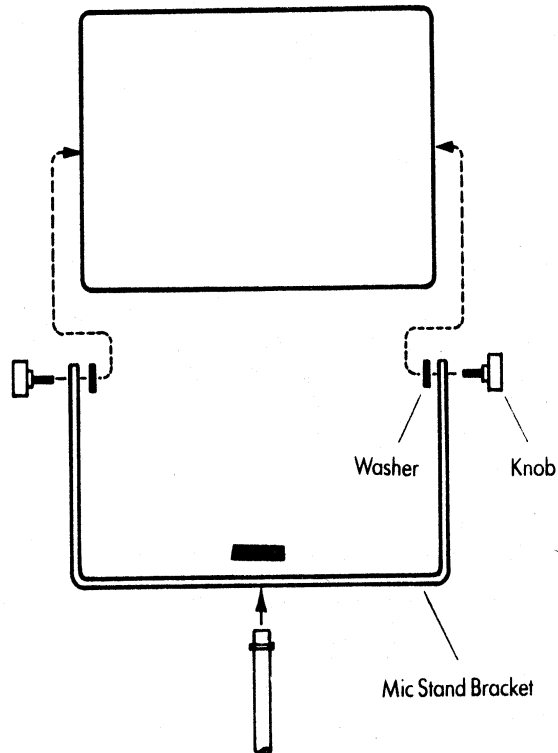
Direct Out

-25dbm (nom)

Accessories

- Effects Footswitch
- Stereo Cord
- Road Bag (MK, RK) 200MP
- MIC Stand Kit (MK)
- Rack Mount Kit (RK)

200MK Mic Stand Bracket



Standard Mic Stand Thread

(5/8-27)

Dimensions

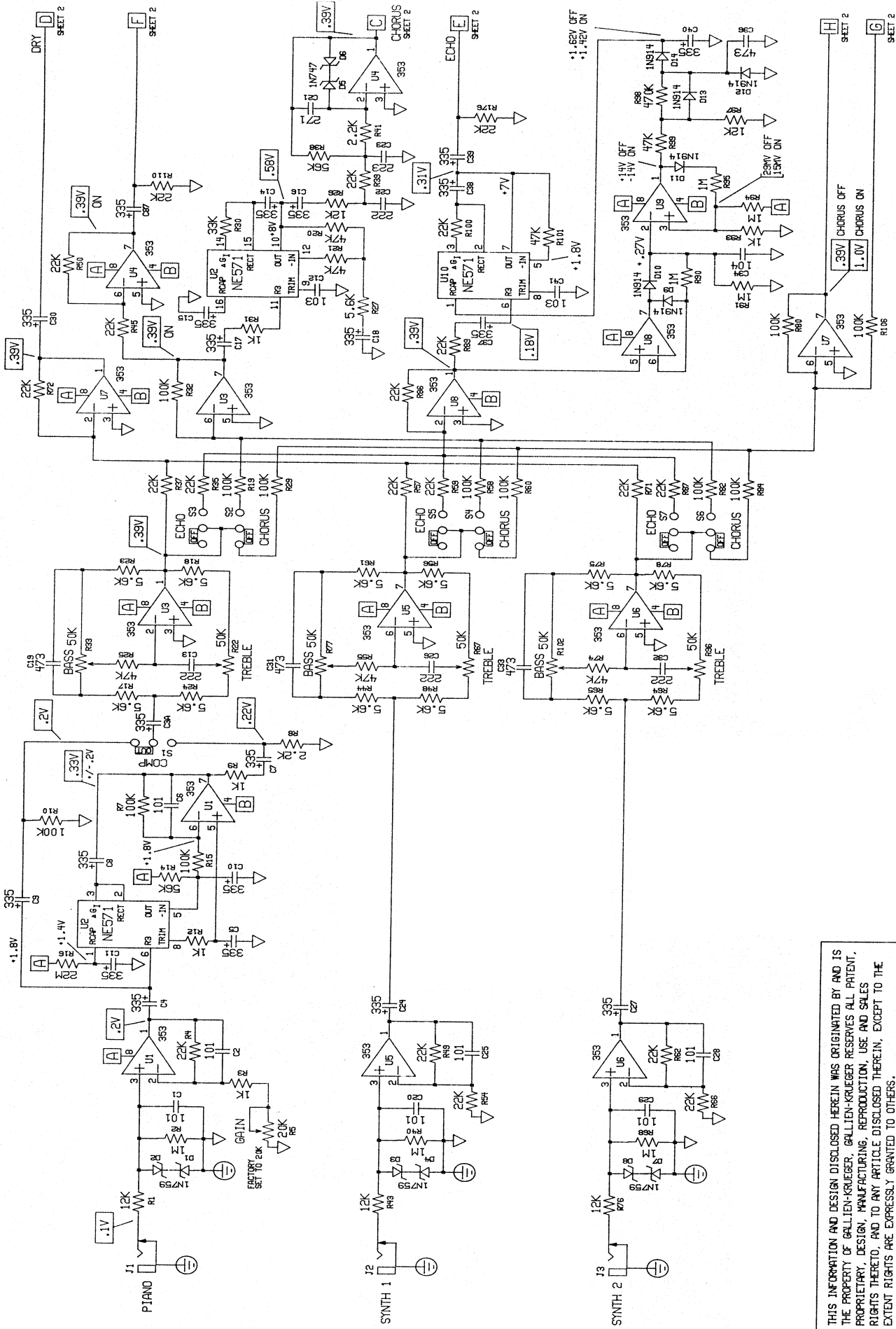
	200MK	200RK
Weight	24 lbs.	10 lbs.
Dimensions	13.75" x 15" x 6"	17.5" x 3.5" x 6.75"
Speakers	1 x 12"/1 x 3.5"	N/A
Speaker Type	Pyle	N/A

200MK / 200RK TURN-ON PROCEDURE

2/1/88 Rev. 9/28.99-SW

- 1) Inspect board.
- 2) Observe the following: variac at 0, no load, speaker load on, cabinet speaker off, tones on 10, master on 0, R5 clockwise, R291 Counter-clockwise, all switches out.
- 3) Gradually adjust variac to 20Vrms.
U23/8= 3.2V +or - .5V, U23/4= 1.3V +or - .5V.
Reg. Supplies 4V +or - .5V, -2.6V +or - .5V.
- 4) Gradually adjust variac to 70Vrms. Watch variac (amps), scope and listen to speaker. Amp should not draw current. Output will go -4V, then 6V, then snap to 0 between 30-40Vrms.
U23/8= 11.5V +or - .5V, U23/4= -11.5V +or - .5V.
Reg. Supplies 14.5V +or - .5V, -14.5V +or - .5V.
- 5) Continue to adjust to 120Vrms. Supplies + or- 45V + or - .5V.
- 6) Turn speaker load off.
- 7) Adjust bias. Adjust R224 to get a 5mV bias across R214, 225 (most positive of the two), and R240, 241 (most negative of the two).
- 8) Set the following: 400Hz sine wave 500mVrms at piano input, master 10, limit switch on.
- 9) Limiter adjust. Adjust R191A to get a flat response at U24/2. Compare to limiter response figure. Turn off.
- 10) Set the following: master 0, 4 ohm load.
- 11) Full power, limiter, and current limiter test. Gradually turn up master until clipping. Output = 20Vrms and clip evenly. Turn up master to 10. Output should hit the rails hard. Engage limiter. Output should swell down from heavy clipping then swell up to full power without clipping or bouncing. Change to 2 ohm load- output should be a clean sine wave without clipping and = 12Vrms. Change to no load and disengage limiter.
- 12) Set master to 5.
- 13) Output should = 35Vrms. Plug into Synth. 1, then 2. Output should remain the same for all 3 inputs.
- 14) Plug into Monitor In. Output should = 27Vrms.
- 15) Plug back into Piano Input and measure direct outs = 8Vp-p.
- 16) Check line out. Should be clean sine wave and = 750mVrms.
- 17) Check headphones. Should have slight clipping with 15Vp-p.
- 18) Compressor test. Engage compressor. Output will attenuate and = 19Vrms without clipping. Turn up input signal 10dB. Output = 33Vrms without clipping. Turn signal down 20dB. Output = 10Vrms without clipping. Disengage compressor.
- 19) Chorus adjust. Engage chorus. Amplitude will vary up and down at output. Check direct out in stereo mode. D.O.'s should look different but at same frequency. In mono mode, D.O.'s should look same. Repeat (18)- (compressor test) for Synth. 1 and Synth. 2 inputs.
- 20) Echo adjust. Engage echo. Adjust R84 to get 400mVrms at U10/6.
- 21) Change the following: square wave input 400Hz 500mVp-p, tones at 5, master at 9 o'clock position.
- 22) Check tone controls for each input and compare to figures.
- 23) Engage echo and compare to echo figure for each input channel.
- 24) Turn on speaker cabinet and do quick audio test with echo on, then chorus on for each input channel.
- 25) Noise and tap test.
Tones 10, Master 10, switches in – noise < 20mVrms.
Tones 10, Master 0, switches out – noise < 2.2mVrms
Noise should be clean without popping or crackling. Sharply tap the amp on the bench a few times to make sure nothing fails.

Ready For Burn-in

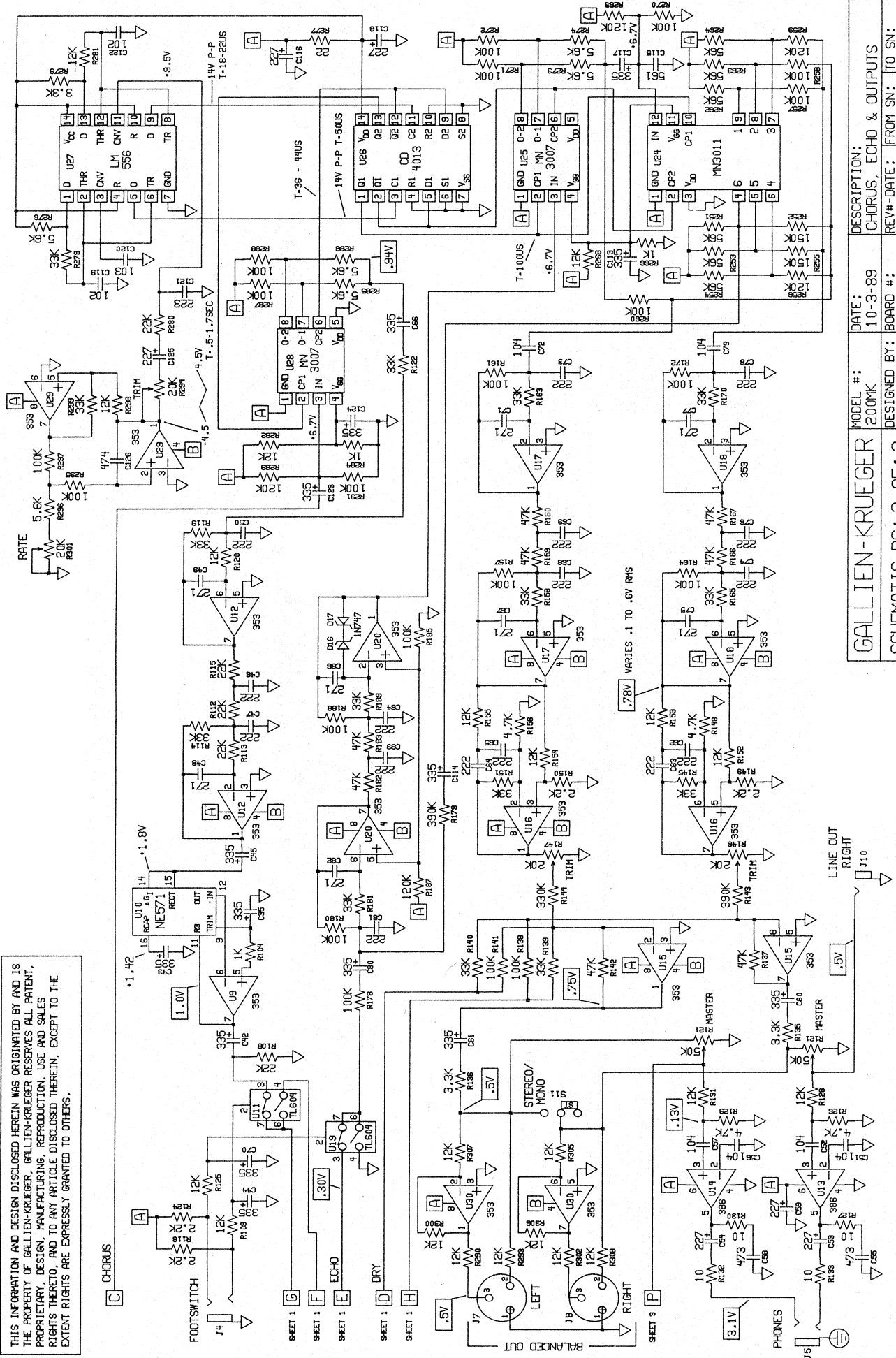


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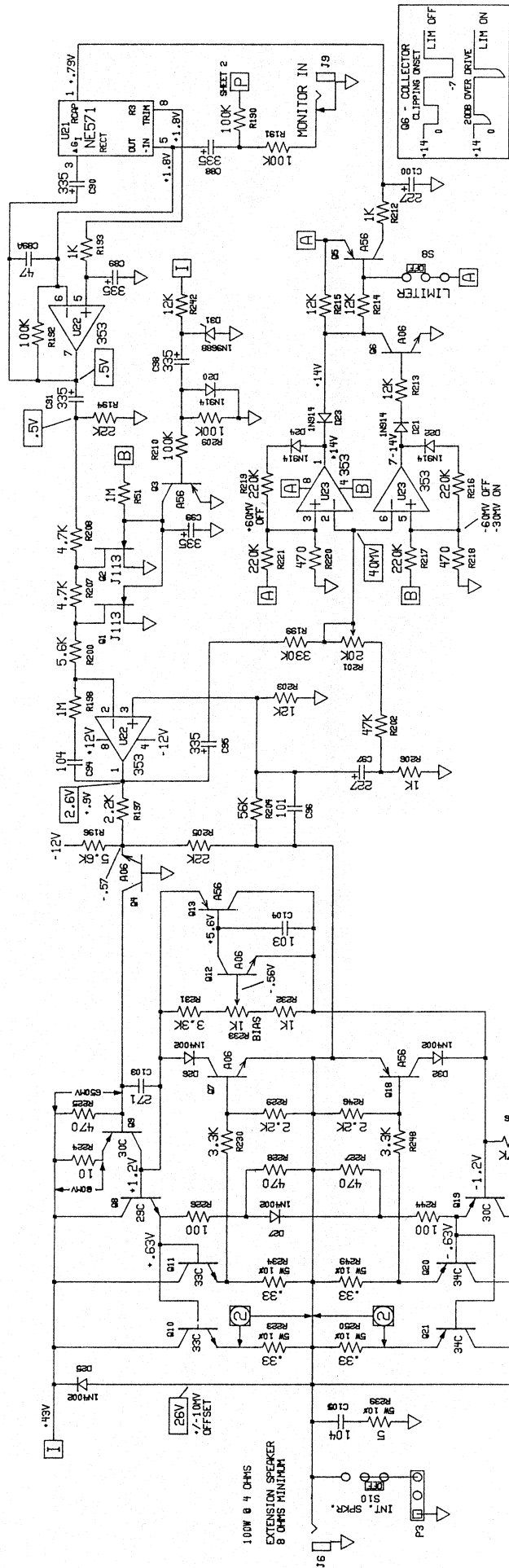
REV#	DATE	FIRST SN	REV#	DATE	FIRST SN	REV#	DATE	FIRST SN
51509								

GALLIEN-KRUEGER		MODEL #:	200MK	DATE:	10-2-89	DESCRIPTION:	PREAMP
SCHEMATIC PG: 1 OF: 3		DESIGNED BY:	60050C	BOARD #:		REV#-DATE:	FROM SN: TO SN:

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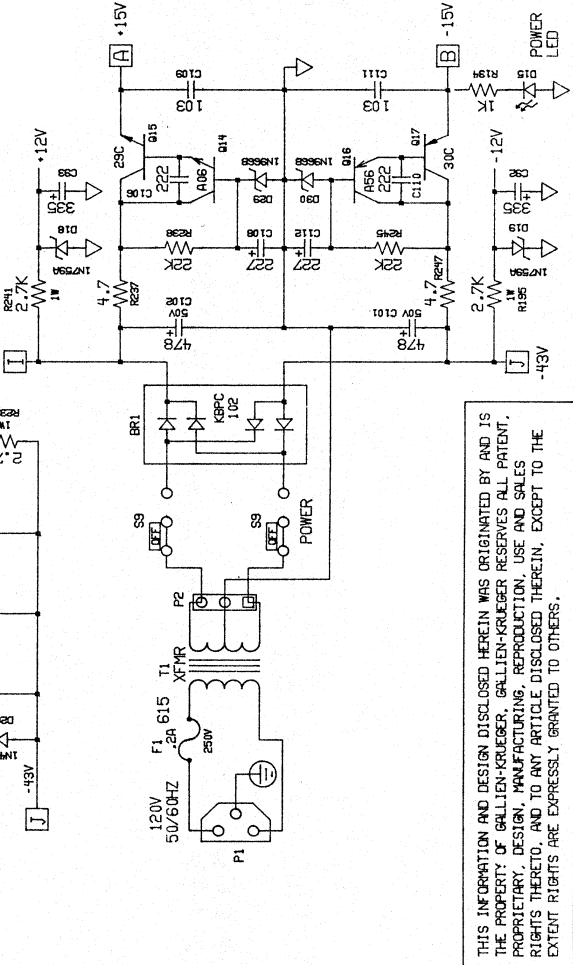
MODEL #:	200MK	DATE:	10-3-89	DESCRIPTION:	CHORUS, ECHO & OUTPUTS
DESIGNED BY:	GALLIEN-KRUEGER	BOARD #:	60050C	REV#-DATE:	FROM SN: TO SN:
SCHEMATIC PG: 2 OF: 3					



NOTES: UNLESS OTHERWISE SPECIFIED,

1. TEST CONDITIONS: 100MV 400HZ SIN INPUT
ALL TONE MAXIMUM
MASTER @ MAXIMUM, SWITCHES
AS SHOWN.
2. [Symbol] ADJUST R33 FOR 5MV BIAS ACROSS R223 AND R250.
3. [Symbol] DENOTES RMS VOLTAGE.

100V 4 OHM EXTENSION SPEAKER
100V 8 OHM MAXIMUM

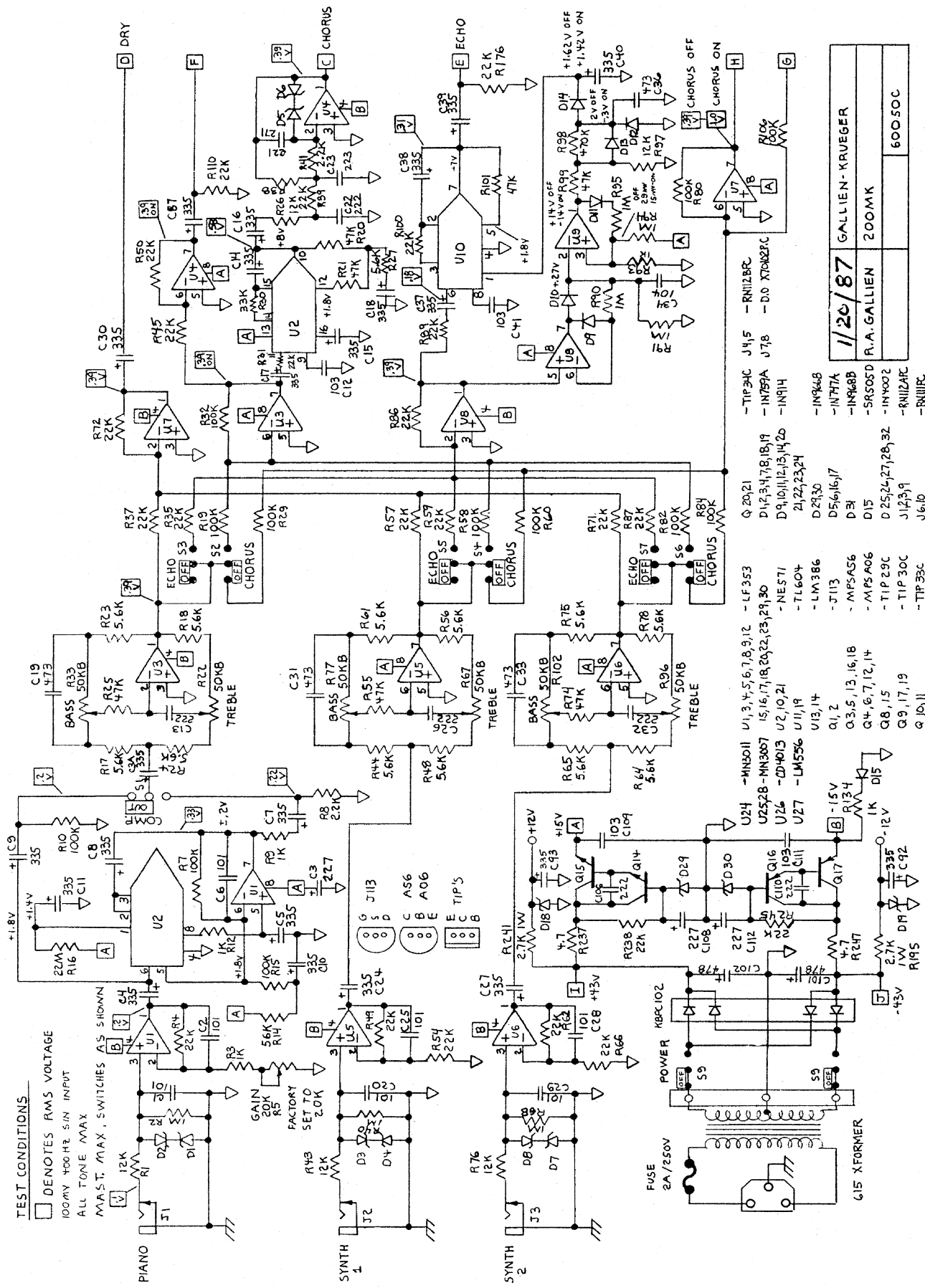


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MODEL #:	DATE:	DESCRIPTION:
200YK	10-19-89	POWER SUPPLY, POWER AMP
DESIGNED BY:	BOARD #:	REV#-DATE:
3 OF: 3	60050C	FROM SN: TO SN:

TEST CONDITIONS

- DENOTES RMS VOLTAGE
- 100mV 400Hz SIN INPUT
- ALL TONE MAX
- MAST. MAX, SWITCHES AS SHOWN



1/20/87	GALLIEN-KRUEGER
R.A. GALLIEN	200MK
	600 S0C

- TIP3C J415 -RN128C
- 1N759A J78 -D.O. XT0R2RC
- 1N914
- 1N964B
- 1N747A
- 1N968B
- SR50SD
- 1N4002
- RN128C
- RN118C

- Q 2021
- D1,2,3,4,7,8,18,19
- D9,10,11,12,13,14,20
- D21,22,23,24
- D29,30
- D5,6,16,17
- D3
- D15
- D 25,26,27,28,32
- 1N4002
- J1,2,3,9
- J4,10

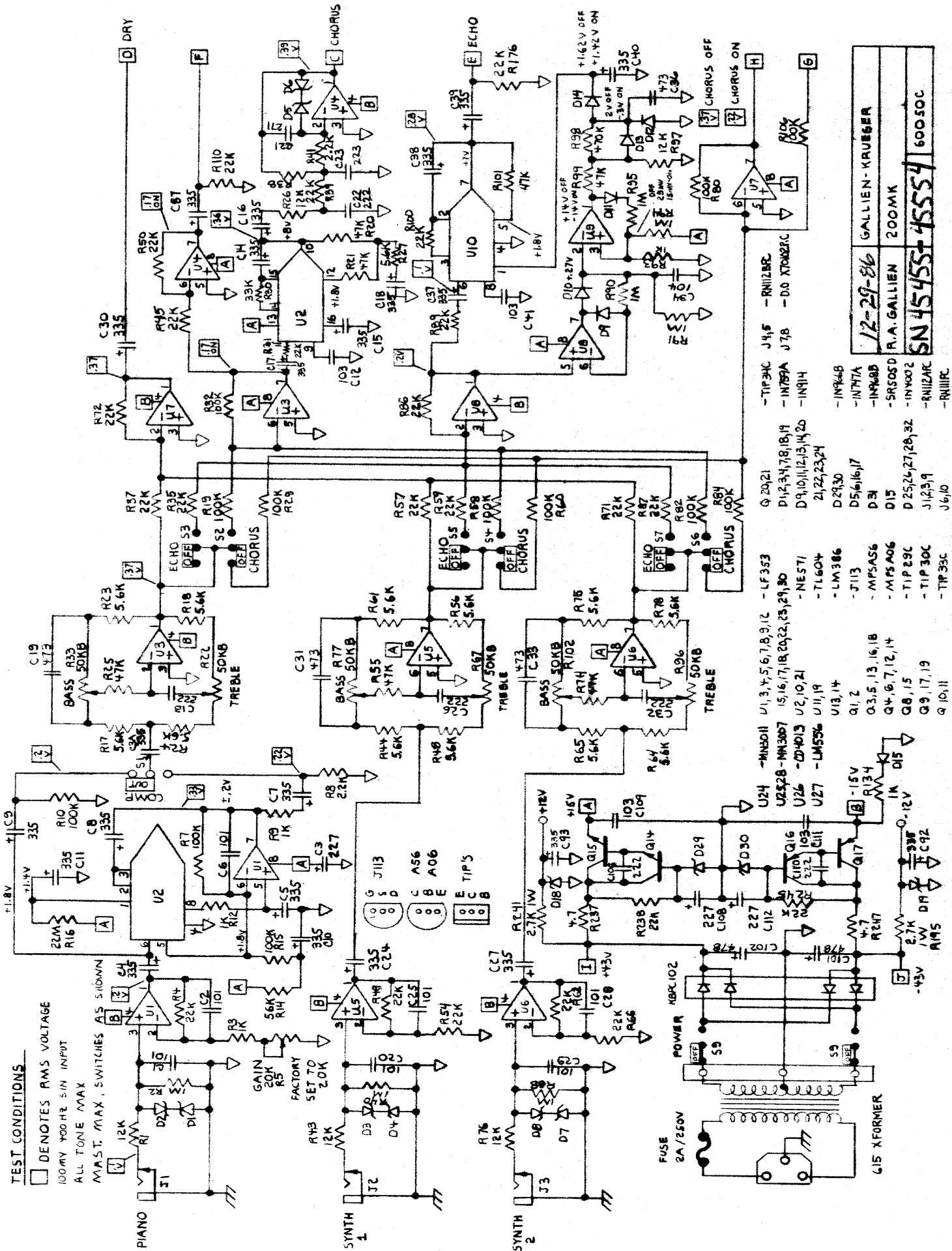
- LF353
- MN3011 U1,3,4,5,6,7,8,9,12
- MN3007 15,16,17,18,20,22,23,29,30
- NE571
- TL604
- LM386
- J113
- MPSA56
- MPSA06
- TIP 29C
- TIP 30C
- TIP 35C

- U1,3,4,5,6,7,8,9,12
- U25,28 -MN3007
- U26 -CD4013
- U2,10,21
- U27 -LM556
- U11,19
- U13,14
- Q1,2
- Q3,5,13,16,18
- Q4,6,7,12,14
- Q8,15
- Q9,17,19
- Q 10,11

- 15V
- R134
- 1K
- D15
- U24
- U25,28 -MN3007
- U26 -CD4013
- U27 -LM556
- U11,19
- U13,14
- Q1,2
- Q3,5,13,16,18
- Q4,6,7,12,14
- Q8,15
- Q9,17,19
- Q 10,11

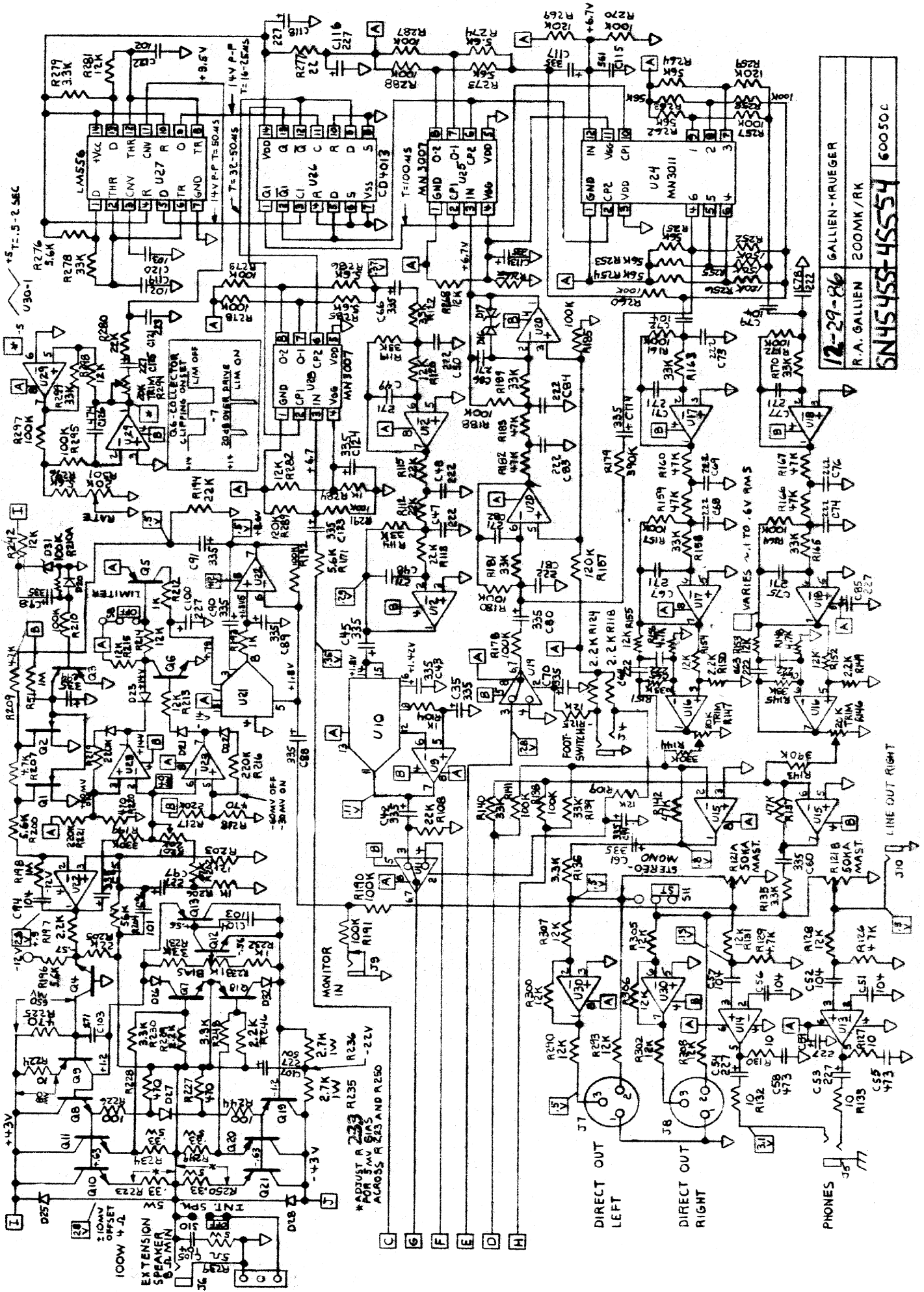
TEST CONDITIONS

- DENOTES RMS VOLTAGE
- 100MY 400HZ SIN INPUT
- ALL TONE MAX
- MAST. MAX. SWITCHES AS SHOWN



- Q 20,21 U1,3,4,5,6,7,8,9,12 - LF353
- D1,2,3,4,7,8,18,19 U2,5,28 - MN3007
- D9,10,11,12,15,14,20 U2,10,21 - CD4013
- 21,22,23,24 U1,19 - LM555
- D29,30 U13,14
- D5,6,16,17 Q1,2
- D3 Q3,5,13,16,18
- D15 Q4,6,7,12,14
- D25,26,27,28,32 Q8,15
- J1,2,3,9 Q9,17,19
- J6,10 Q10,11
- TIP34C J4,5 - RN12BC
- IN769A J7,8 - DO XT022EC
- IN914 21,22,23,24
- IN948 D29,30
- IN717A D5,6,16,17
- IN948 D3
- SR505D D15
- IN4002 D25,26,27,28,32
- RN12AC J1,2,3,9
- RN11C J6,10

12-29-86	GALLIEN-KRUEGER
R.A. GALLIEN	200MK
SN 4545514554	60050C



12-29-86 GALLIEN-KRUEGER
 R.A. GALLIEN 200MK/RK
 6N45455-4554 60050C

LINE OUT RIGHT

DIRECT OUT LEFT

DIRECT OUT RIGHT

PHONES

C G F E D H

*ADJUST R 253 FOR MAXIMUM GAIN ACROSS R 255 AND R 250

EXTENSION SPEAKER
 100W 4 Ω

2.0MV OFFSET

100W 4 Ω

Q10 Q11

Q12 Q13

Q14 Q15

Q16 Q17

Q18 Q19

Q20 Q21

Q22 Q23

Q24 Q25

Q26 Q27

Q28 Q29

Q30 Q31

Q32 Q33

Q34 Q35

Q36 Q37

Q38 Q39

Q40 Q41

Q42 Q43

Q44 Q45

Q46 Q47

Q48 Q49

Q50 Q51

Q52 Q53

Q54 Q55

Q56 Q57

Q58 Q59

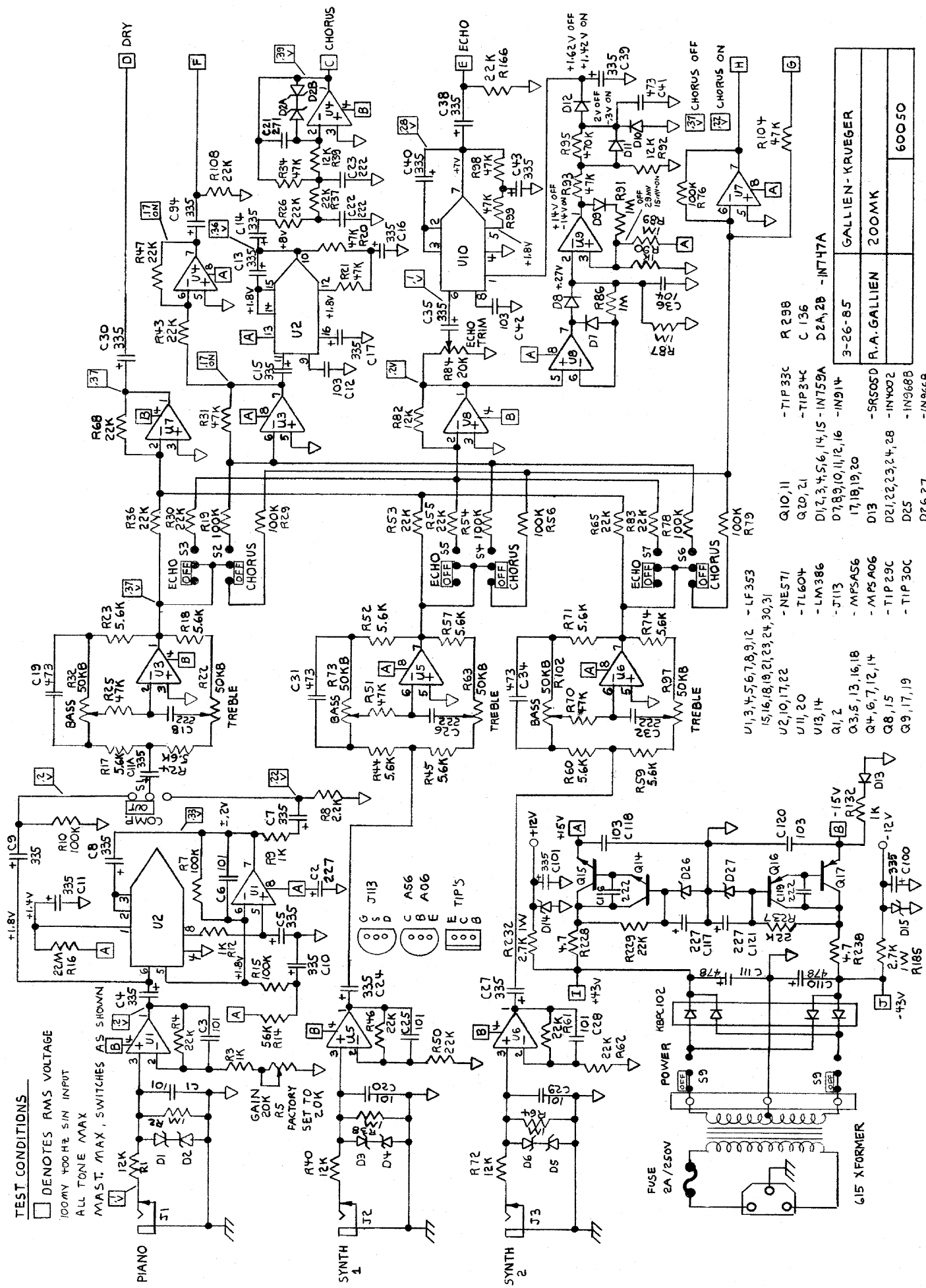
Q60 Q61

Q62 Q63

Q64 Q65

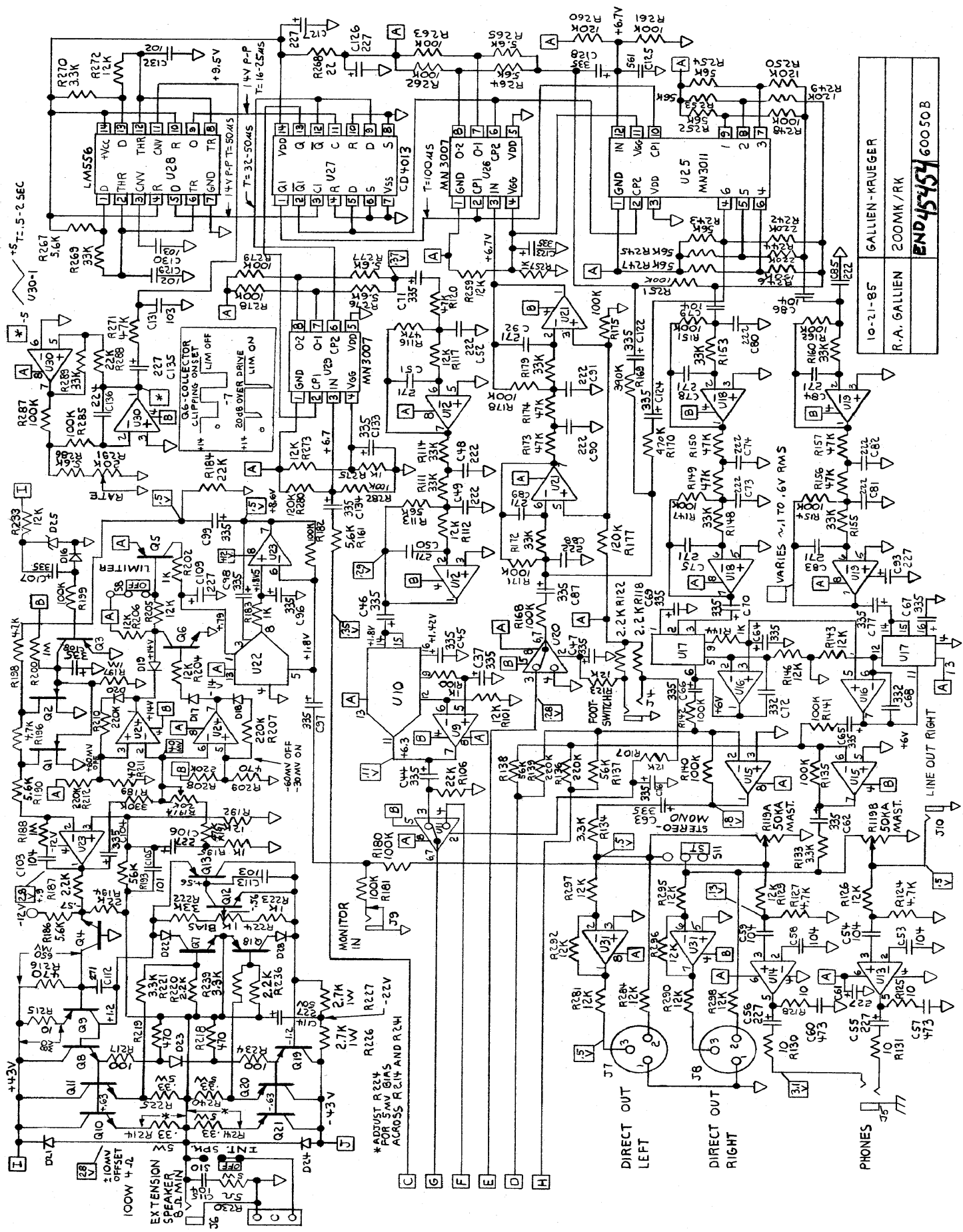
TEST CONDITIONS

- DENOTES RMS VOLTAGE
- 100mV 400 Hz SIN INPUT
- ALL TONE MAX
- MAST. MAX. SWITCHES AS SHOWN



U1,3,4,5,6,7,8,9,12	- LF353
15,16,18,19,21,23,24,30,31	- NE571
U2,10,17,22	- TL604
U11,20	- LM386
U13,14	- J113
Q1,2	- MPSA56
Q3,5,13,16,18	- MPSA06
Q4,6,7,12,14	- TIP 29C
Q8,15	- TIP 30C
Q9,17,19	- IN966B
Q10,11	- TIP 33C
Q20,21	- TIP 34C
D1,2,3,4,5,6,14,15	- IN759A
D7,8,9,10,11,12,16	- IN7914
17,18,19,20	- 5R505D
D13	- R.A. GALLIEN
D21,22,23,24,28	- 200MK
D25	- IN966B
D26,27	- IN966B

3-26-85	GALLIEN-KRUEGER
R.A. GALLIEN	200MK
	60050



10-21-85	GALLIEN-KRUEGER
R.A. GALLIEN	200MK/RK
END 45454	
60050B	

EXTENSION SPEAKER 100W 4-Ω

PHONES

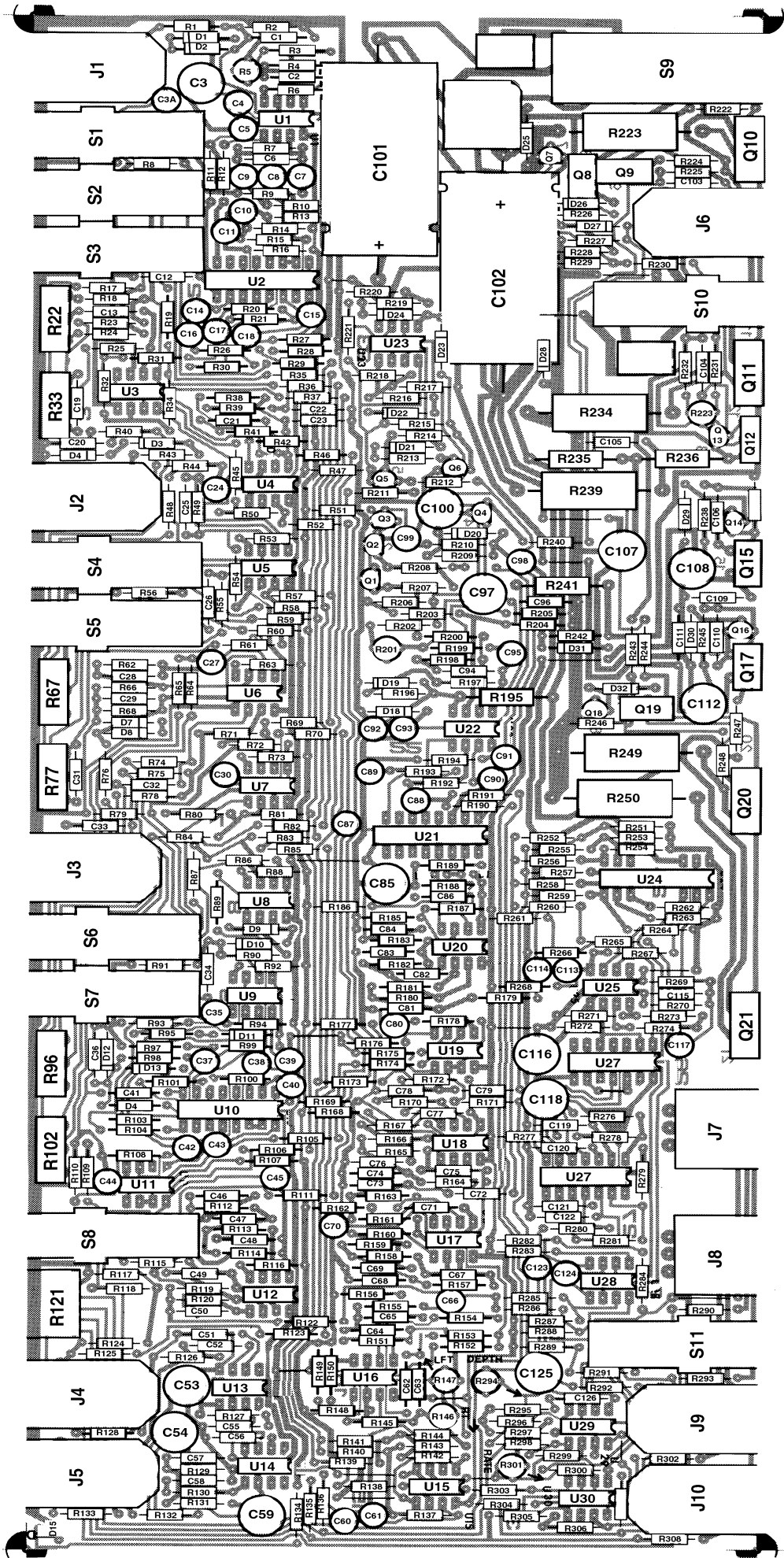
DIRECT OUT LEFT

DIRECT OUT RIGHT

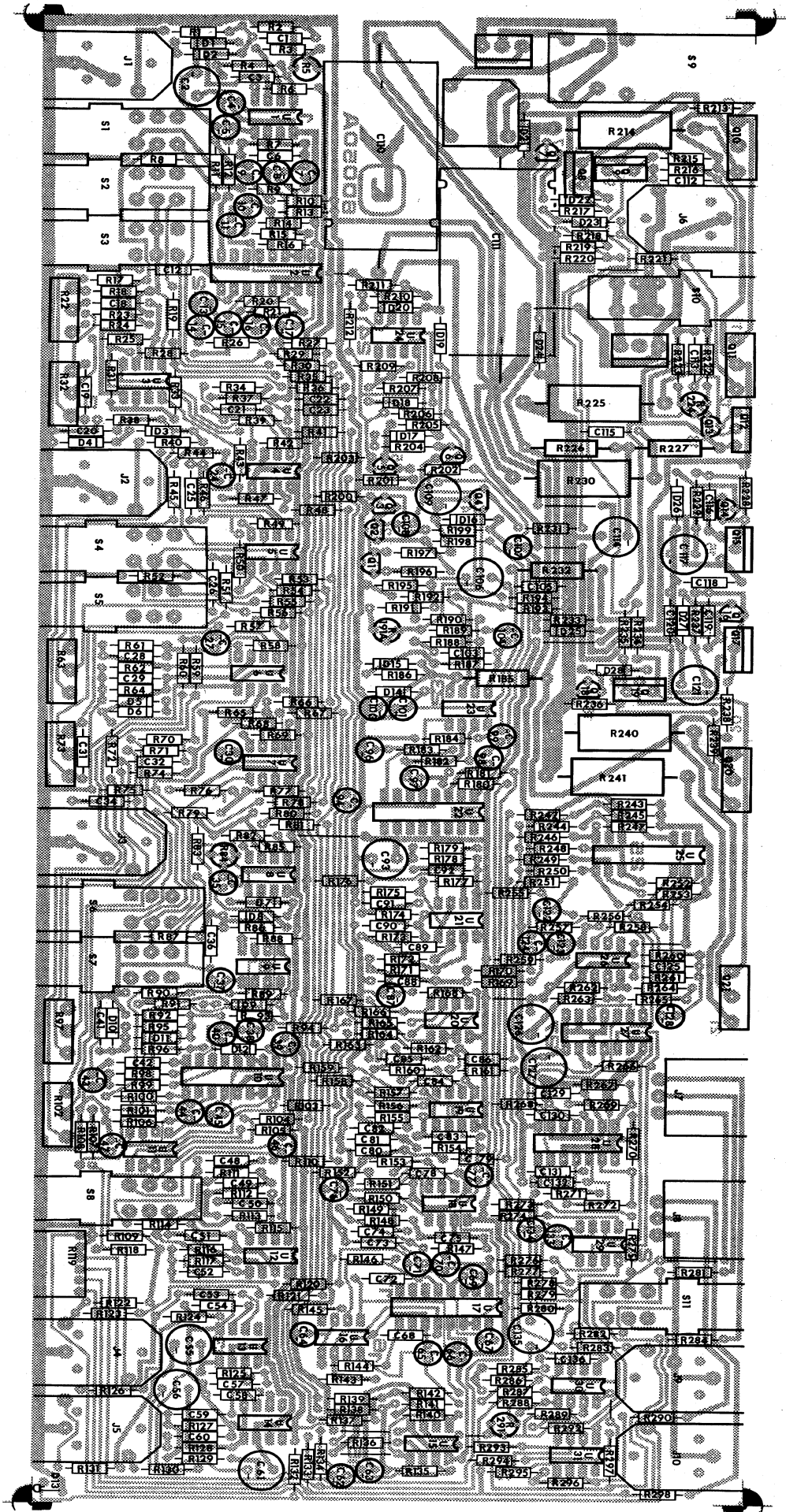
LINE OUT RIGHT

MONITOR IN

ADJUST R234 FOR 5mV BIAS ACROSS R214 AND R214



GALLIEN - KRUEGER
200MK/RK Board Layout
206-0050-C 1/20/87 Rev. 10/1/99-SW



10/21/85 CALLIEN-KRUEGER
200MK BOARD LAYOUT
60050A

GALLIEN-KRUEGER		PRODUCTION CHANGE ORDER		PCO#: 7			
DATE: 3/19/92		ASSEMBLY #: 145-0050D → D7		MODEL#: 200MK			
ASSEMBLY DESCRIPTION: MK Board				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 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 checked="" type="checkbox"/> OTHER <u>When boards run out</u>			REMARKS:				
BEGINNING SERIAL NUMBER AFFECTED:							
DESCRIPTION OF CHANGE: <input type="checkbox"/> SEE PCO SUPPLEMENTS <input type="checkbox"/> CONTINUED ON PCO SUPPLEMENT PAGE _____ 1) 5 traces added to board (had previously fallen off original taped layout. 2) change Master pot layout to accommodate Noble Dual 50K pot 3) specify larger holes for auto inserted parts.							
REASON FOR CHANGE: 1.) save production time.							
PARTS ADDED			PARTS DELETED				
PART#	DESCRIPTION	QTY.	REF. DES.	PART#	DESCRIPTION	QTY.	REF. DES.
	Noble 50KBdual	1	R121		Alps 50KBdual	1	R121
<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 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 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 checked="" type="checkbox"/> ASSEMBLY PROCEDURES			<input type="checkbox"/> FABRICATION				
<input checked="" type="checkbox"/> ARTWORK			<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 checked="" type="checkbox"/> NO <input type="checkbox"/> YES - SPECIFY:							
WRITTEN BY: <u>Michael Whino</u>		DEPT: <u>Eng</u>		DATE: <u>3/19/92</u>			
REVIEWED/APPROVED BY: <u>C</u>		DEPT:		DATE:			

GALLIEN-KRUEGER PRODUCTION CHANGE ORDER PCO#: 14

DATE: 5/17/93 ASSEMBLY #: 206-0050-D MODEL#: 200M1K

ASSEMBLY DESCRIPTION: PAGE ____ OF ____

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 checked="" 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 ____
 REMOVE C105.

REASON FOR CHANGE: REMOVING THIS CAP IMPROVES STABILITY

PARTS ADDED				PARTS DELETED			
PART#	DESCRIPTION	QTY.	REF. DES.	PART#	DESCRIPTION	QTY.	REF. DES.
				030-2101-0	100 PF CER	1	C105

CONTINUED ON PAGE ____ CONTINUED ON PAGE ____

AFFECTED AREAS	DONE BY	DATE	AFFECTED AREAS (CONT)	DONE BY	DATE
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<input checked="" type="checkbox"/> BILL OF MATERIAL	BILL		<input type="checkbox"/>		
<input checked="" type="checkbox"/> AUTO INSERTER	CHING		<input type="checkbox"/>		
<input checked="" type="checkbox"/> SAMPLE CHANGE	CHING		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 type="checkbox"/> ARTWORK			<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: NO YES-SPECIFY:

WRITTEN BY: BOB GALLIEN DEPT: DATE: 5/17/93

REVIEWED/APPROVED BY: DEPT: DATE:

200MK INDENTED BILL OF MATERIALS

NOTE: Level 1 refers to main assembly parts.
 Level 2 refers to board level components.
 Main assembly numbers are in bold face, while
 commonly needed parts are italicized.

LVL	PART#	DESCRIPTION	QTY	REF. DESIG.
1	010-0012-0	MPSA06 NPN 80V 500MA TO-92	1	
1	<i>011-0023-0</i>	<i>TIP29C NPN 100V 1A TO-220 FP</i>	1	
1	<i>011-1035-0</i>	<i>TIP30C PNP 100V 1A TO-220</i>	1	
1	<i>012-0085-0</i>	<i>TIP-35CFP NPN 100V 25A TO218</i>	2	
1	<i>012-1086-0</i>	<i>TIP 36CFP,PNP,100V,25A,TO-218,PECOR</i>	2	
1	025-0116-0	RED LED,1.5MCD,120 DEG,T-1	1	
1	<i>080-0488-0</i>	<i>X-FORMER BACKLINE,DOMESTIC</i>	1	
1	<i>082-0039-0</i>	<i>SPEAKER,12",80W,Z=8,PYLE FOAM EDGE</i>	1	
1	<i>082-0045-0</i>	<i>SPEAKER,3",Z=16,PYLE TWEETER</i>	1	
1	<i>091-0003-0</i>	<i>FUSE, 3A,125V,1/4X1 1/4,SLB</i>	1	
2	799-TEST-0	TRY OUT	0	
1	092-0045-0	XLR,MALE,X70101 LUGS	2	
1	092-0064-0	Q-CON, .25 TAB,18-22GA,INSULATED	8	
1	<i>093-0014-0</i>	<i>RECEPTICAL AC,Q-TERM</i>	1	
1	093-0032-0	HOUSING,3X.156,FEMALE 22GA,LOCK	2	
1	<i>094-0013-0</i>	<i>HOLDER,FUSE,1/4 X 1 1/4,Q-TERM</i>	1	
1	094-0018-0	SOLDER LUG,#4	1	
1	<i>095-0005-0</i>	<i>POWER CORD,117V PLUG,DETACH</i>	1	
1	100-0005-0	WASHER,RUBBER,1/8ID X 3/8OD X 1/8T	4	
1	100-0027-0	BUTTON,ROUND BLACK CAP - PUSH SWITCH	10	
1	100-0030-0	BUTTON,RECT BLACK CAP - PUSH SWITCH	1	
1	100-0031-0	WASHER,#4,RECT,TO-220 MGT	2	
1	100-0037-0	HEAT CLIP,TO-98	1	
1	100-0038-0	BUMPER,ROUND RUBBER,5/8X5/16	2	
1	100-0072-0	GROMMET,.187 I.D.	4	
1	<i>100-0076-0</i>	<i>FOOT,RUBBER,ROUND,5/8DIA. X 5/8"</i>	4	
1	100-0080-0	HANDLE RUBBER,10"	1	
1	<i>100-0098-0</i>	<i>KNOB,GRAY,6X15MM SPLINE SHAFT</i>	7	
1	100-0108-0	X-FORMER BRACKET,FOR BACKLINE	4	

LVL	PART#	DESCRIPTION	QTY	REF. DESIG.
1	111-0061-0	BOLT 4-40 3/8 PHP CAD	4	
1	111-0081-0	BOLT 4-40 1/2 PHP CAD	9	
1	111-3041-0	SCREW 4AB 1/4 PHP CAD	4	
1	111-4080-0	SCREW 4AB 1/2 FHP 82^ B.O.	8	
1	111-6001-0	NUT 4-40 KEP SMALL	3	
1	111-6011-0	NUT 4-40 HEX SMALL CAD	5	
1	111-7011-0	WASHER #4 SPLIT	4	
1	112-0051-0	BOLT 6-32 5/16 PHP CAD	4	
1	112-1050-0	BOLT 6-32 5/16 FHP 82^ B.O.	4	
1	112-1100-0	BOLT 6-32 5/8 FHP 82^ B.O.	4	
1	112-4080-0	SCREW 6AB 1/2 FHP 82^ B.O.	4	
1	112-6001-0	NUT 6-32 KEP LARG SIZE CAD	1	
1	112-7001-0	WASHER #6 FLAT CAD	4	
1	112-9060-0	TR-BOLT 6-32 3/8 FHP B.O.	38	
1	113-0080-0	BOLT 8-32 1/2 PHP B.O.	4	
1	113-0080-0	BOLT 8-32 1/2 PHP B.O.	4	
1	113-0221-0	BOLT 8-32 1 3/4 PHP CAD	4	
1	113-6011-0	NUT 8-32 KEP CAD	4	
1	113-6011-0	NUT 8-32 KEP CAD	8	
1	114-0080-0	BOLT 10-32 1/2 PHP B.O.	2	
1	114-7011-0	WASHER #10 FLAT CAD	4	
1	115-7005-0	WASHER 3/8 FIBRE FLAT	3	
1	115-7021-0	WASHER 3/8 INTERNAL CAD	5	
1	130-0000-0	OVERLAY,MICRO BASS GRILL-112	1	
1	132-0349-A	200MK/MV TOP COVER	1	
2	120-0005-0	ALUM .100	98	
1	132-0350-B	200MB-MK RIGHT SIDE	1	
2	114-6046-0	NUT 10-32 CAPTIVE	1	
2	120-0005-0	ALUM .100	164	
1	132-0351-B	200MB-MK LEFT SIDE	1	
2	114-6046-0	NUT 10-32 CAPTIVE	1	
2	120-0005-0	ALUM .100	164	
1	132-0356-B	200MK GRILL	1	

LVL	PART#	DESCRIPTION	QTY	REF. DESIG.
2	120-0003-0	STEEL,16GA,PERF,3'X10'X.060	0	
2	120-0011-0	STEEL,18 GAUGE JET COAT,.048	272	
1	132-0360-D	0000 200MK BACK	1	
2	120-0005-0	ALUM .100	406	
1	132-0361-B	200MK BAFFLE	1	
2	120-0005-0	ALUM .100	384	
1	132-0362-B	200MK FRONT PANEL	1	
2	112-6016-0	NUT 6-32 CAPTIVE	5	
2	120-0007-0	ALUM .063	54	
1	132-0363-B	200MK REAR PANEL	1	
2	112-6016-0	NUT 6-32 CAPTIVE	10	
2	120-0005-0	ALUM .100	42	
1	160-0006-0	MANUAL,200MK	1	
1	160-0006-0	MANUAL,200MK	1	
1	202-0016-0	200MK WIRE KIT	1	
1	206-0050-C	200MK-RK AMP	1	
2	001-0001-0	MN3011 MULTI-TAP BBD	1	U24
2	001-0006-0	MN3007 1024 STAGE BBD	2	U25,28
2	001-1030-0	LF353N DUAL JFET OP AMP	18	U1,3,4,5,6,7,8,9,12,15,16,17,18,20,22,23,29,30
2	001-1038-0	LM386 LOW VOLTAGE POWER AMP	2	U13,14
2	001-2009-0	LM556CN DUAL TIMER	1	U27
2	001-3028-0	TL604 DUAL COMP ANALOG SWITCH	2	U11,19
2	001-4043-0	NE571 DUAL COMPANDOR	3	U2,10,21
2	002-0034-0	CD4013 DUAL D FLIP-FLOP	1	U26
2	010-0012-0	MPSA06 NPN 80V 500MA TO-92	5	Q4,6,7,14
2	010-1013-0	MPSA56 PNP 80V 500MA TO-92	5	Q3,5,13,16,18
2	010-2010-0	J113 N-JFET 35V 2MA TO-92	2	Q1,2
2	011-0023-0	TIP29C NPN 100V 1A TO-220 FP	1	Q8
2	011-1035-0	TIP30C PNP 100V 1A TO-220	2	Q9,19
2	020-0036-0	1N747A,ZENER,3.6V,5%,400MW,DO-35	4	D5,6,16,17
2	020-0120-0	1N759A,ZENER,12V,5%,400MW,DO-35	8	D1,2,3,4,7,8,18,19
2	020-0160-0	1N966B,ZENER,16V,5%,400MW,DO-35	2	D29,30
2	020-0200-0	1N968B,ZENER,20V,5%,400MW,DO-35	1	D31

LVL	PART#	DESCRIPTION	QTY	REF. DESIG.
2	020-1103-0	1N914 ,RECT-FAST,200MA,100V,4NS,DO-35	11	D9,10,11,12,13,14,20,21,22,23,24
2	020-2105-0	1N4002,RECT,1A,150V,DO-41	5	D25,26,27,28,32
2	023-0109-0	KBPC-102 BRIDGE RECT 3A,200V,C219K	1	BR1
2	030-0223-0	CAP,CERAMIC AXIAL,223,30%,16V	2	C23,121
2	030-1103-0	CAP,CERAMIC AXIAL,103,30%,25V	6	C12,41,104,109,111,120
2	030-2101-0	CAP,CERAMIC AXIAL,101,5%,50V	8	C1,2,6,20,25,28,29,96
2	030-2102-0	CAP,CERAMIC AXIAL,102,10%,50V	2	C119,122
2	030-2104-0	CAP,CERAMIC AXIAL,104,10%,50V,XR7,.3"	9	C34,C51,C52,C56,C57,C72,C79,C94,105
2	030-2222-0	CAP,CERAMIC AXIAL,222,10%,50V	21	C13,22,26,32,46,47,50,62,63,64,65,68,69,73, 74,76,78,81,83,84,016,110
2	030-2271-0	CAP,CERAMIC AXIAL,271,10%,50V	9	C21,48,49,67,71,75,77,82,86,103
2	030-2470-0	CAP,CERAMIC AXIAL,47,5%,50V	1	C89A
2	030-2473-0	CAP,CERAMIC AXIAL XR7,473,10%,50V	6	C19,31,33,36,55,58
2	030-2474-0	CAP,CERAMIC AXIAL Z5U,474,20%,50V	1	C126
2	030-2561-0	CAP,CERAMIC AXIAL,561,10%,50V	1	C115
2	031-1227-0	CAP,ELECTROLYTIC RADIAL,227,-10%+50%,25V	13	C3,53,54,59,85,97,100,108,112,116,118,120A, 125
2	031-2227-0	CAP,ELECTROLYTIC RADIAL,227,-10%+50%,50V	1	C107
2	031-2335-0	CAP,ELECTROLYTIC RADIAL,335,20%,50V	45	C3A,4,5,7,8,9,10,11,14,15,16,17,18,24,27,30, 35,37,38,39,40,42,43,44,45,60,61,66,70,80,87, 88,89,90,91,92,93,95,98,99,113,114,117,123, 124
2	038-2478-0	CAP,ELECTROLYTIC AXIAL,478,20%,50V	2	C101,102
2	051-0100-0	RES,CARBON FILM,1 OHM,1/4W,5%	47	R6,11,13,28,34,36,42,46,47,52,53,63,69,70,73, 79,81,83,85,88,92,105,107,111,116,117,123, 162,168,169,171,173,174,175,177,186,211, 222,240,243,261,265,267,283,292,303,304
2	051-0101-0	RES,CARBON FILM,10 OHM,1/4W,5%	5	R127,130,132,133,224
2	051-0221-0	RES,CARBON FILM,22 OHM,1/4W,5%	1	R277
2	051-0470-0	RES,CARBON FILM, 4.7 OHM,1/4W,5%	2	R237,247
2	051-1001-0	RES,CARBON FILM,100 OHM,1/4W,5%	2	R226,244
2	051-1002-0	RES,CARBON FILM,1K OHM,1/4W,5%	12	R3,9,12,93,104,134,193,206,212,232,266,284
2	051-1004-0	RES,CARBON FILM,100K OHM,1/4W,5%	38	R7,10,15,19,29,32,58,60,80,82,84,106,138,141, 157,161,164,172,178,180,185,188,190,191,192, 209,210,257,258,260,270,271,272,287,288,291, 295,297
2	051-1005-0	RES,CARBON FILM,1M OHM,1/4W,5%	9	R2,40,51,68,90,91,94,95,198
2	051-1203-0	RES,CARBON FILM,12K OHM,1/4W,5%	23	R1,26,43,76,97,109,112,125,128,131,152,153, 154,155,203,213,214,215,242,268,281,282,298

LVL	PART#	DESCRIPTION	QTY	REF. DESIG.
2	051-1204-0	RES,CARBON FILM,120K OHM,1/4W,5%	5	R187,256,259,269,289
2	051-1504-0	RES,CARBON FILM,150K OHM,1/4W,5%	2	R252,255
2	051-2202-0	RES,CARBON FILM,2.2K OHM,1/4W,5%	8	R8,41,118,124,149,150,197,229,246
2	051-2203-0	RES,CARBON FILM,22K OHM,1/4W,5%	29	R4,31,35,37,39,45,49,50,54,57,59,62,66,71,72,86,87,89,100,108,110,113,115,120,176,194,205,238,245,280
2	051-2204-0	RES,CARBON FILM,220K OHM,1/4W,5%	4	R216,217,219,221
2	051-2206-0	RES,CARBON FILM,22M OHM,1/4W,5%	1	R16
2	051-3302-0	RES,CARBON FILM,3.3K OHM,1/4W,5%	6	R135,136,230,231,248,279
2	051-3303-0	RES,CARBON FILM,33K OHM,1/4W,5%	16	R30,114,119,122,139,140,145,151,158,163,165,170,181,189,278,299
2	051-3304-0	RES,CARBON FILM,330K OHM,1/4W,5%	2	R144,199
2	051-3904-0	RES,CARBON FILM,390K OHM,1/4W,5%	2	R143,179
2	051-4701-0	RES,CARBON FILM,470 OHM,1/4W,5%	5	R218,220,225,227,228
2	051-4702-0	RES,CARBON FILM,4.7K OHM,1/4W,5%	6	R126,129,148,156,207,208
2	051-4703-0	RES,CARBON FILM,47K OHM,1/4W,5%	16	R20,21,25,55,74,99,101,137,142,159,160,166,167,182,183,202
2	051-4704-0	RES,CARBON FILM,470K OHM,1/4W,5%	1	R98
2	051-5602-0	RES,CARBON FILM,5.6K OHM,1/4W,5%	21	R17,18,23,24,27,44,48,56,61,64,65,75,78,196,200,273,274,276,285,286,296
2	051-5603-0	RES,CARBON FILM,56K OHM,1/4W,5%	8	R14,38,204,251,253,254,262,263,264
2	052-1213-0	RES,METAL FILM,12.1K OHM,1/4W,1%	8	R290,293,300,302,305,306,307,308
2	054-2702-0	RES,CARBON FILM,2.7K OHM,1W,5%	4	R195,235,236,241
2	056-.330-0	RES,CERAMIC WW,.33 OHM,5W,10%	4	R223,234,249,250
2	056-0500-0	RES,CERAMIC WW,5 OHM,5W,10%	1	R239
2	070-0508-0	POT,1K TRIM,6MM,SLOT,.3W	1	R233
2	070-0509-0	POT,20K TRIM,6MM,SLOT,.3W	6	R5,146,147,201,294,301
2	070-0514-0	POT,50KB,LINEAR,9MM,METAL KNURL 9MM,.1	6	R22,33,67,77,96,102- all other pots
2	070-0523-0	POT,2X50K LIN,9MM,METAL KNURL NOBLE.05	1	R121- master pot
2	090-0010-0	SWITCH,PP,DPDT,6A,PC TERM	1	S9
2	090-0014-0	SWITCH,PP,DPDT,.2A,BREAK/MAKE,PC MOUNT	10	all other switches
2	092-0201-0	JACK SW-RN112APC,1/4",S-TIP,SLDR TERM	4	
2	092-0203-0	JACK SW-RN111PC,1/4",O-TIP,P.C. TERM	2	
2	092-0204-0	JACK SW-RN112BPC,1/4",O-TIP,O-RING,P.C.	2	
2	093-0028-0	HEADER,3X.156,MALE,LOCK	2	