73-75

THE SERGE PEOPLE'S SYNTHESIZER, REVISITED

KIT MANUAL

73-75

INTRODUCTION

BUILDING YOUR KIT

WELCOME TO THE KIT MANUAL FOR ASSEMBLING THE 73-75 DIY KIT. THIS MANUAL CONTAINS THE BASIC INFORMATION NEEDED TO ASSEMBLE THE KIT,

BEFORE STARTING IT'S A GOOD IDEA TO GATHER AS MUCH INFORMATION ON THE BUILD AS POSSIBLE. SEARCH FORUM THREADS FOR THINGS THAT BUILDERS BEFORE YOU MIGHT HAVE ENCOUNTERED AND SOLVED. THERE'S NO REASON FOR YOU TO SOLVE WHAT SOMEONE ELSE ALREADY HAVE FIGURED OUT!

IT'S ALSO A GOOD IDEA TO READ THROUGH THE OLD SERGE INSTRUCTIONS, FOUND HERE - http://www.serge.synth.net/documents/kit/kbm.html BEFORE STARTING.

A FEW POINTERS BEFORE STARTING:

1, MODULES ARE NOT CONNECETD. SO THEY CAN BE TESTED INDIVIDUALLY, BUT IT ALSO MEANS YOU HAVE TO RUN POWER WIRES TO EACH AND EVERYONE

2, POWER IS APPLIED TO PADS W, X, Y, Z. AND WIRES HAVE THE FOLLOWING

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STANDARD:

W, GND (BLACK)

X, +12V (RED)

Y, +6V (GREEN)

Z, -12V (WHITE)

3, RESISTORS WITHOUT SUFFIX IS OHMS, SO 15 IS 15 OHMS. IF IT'S A PREFIX IT'S 0.x, SO u1 IS 100n.

4, MAKE SURE EVERYTHING WORKS BEFORE PUTING ON THE PANEL! NO REALLY, MAKE SURE IT'S 100% OPERATIONAL BEFORE FINAL ASSEMBLY. EVERYTHING CAN BE TESTED WITHOUT MOUNTING THE JACKS. USE CROCODILE CLIPS AND RESISTOR LEGS AS PATCH CORDS IF NEEDED.

5, BE CREATIVE! THE COLORS FOR KNOBS AND JACKS ARE JUST SUGGES-TIONS. IF YOU FEEL LIKE DOING A YELLOW/PURPLE/ORANGE COMBINATION INSTEAD, PLEASE DO. DON'T LIKE THE KNOBS? CHANGE THEM! NOTHING IS SET IN STONE, IT'S UP TO YOU TO SHAPE THIS TO THE INSTRUMENT YOU WANT TO PLAY. A GOOD LOOKING INSTRUMENT PLAYS BETTER THAN AN UGLY ONE.

6, TAKE YOUR TIME, HAVE FUN! NO REASON TO STRESS AND MAKE ERRORS JUST BECAUSE YOU WANT TO PLAY. THE JOURNEY IS MORE IMPORTANT THAN THE DESTINATION.

Jon, 73-75.com

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OSCILLATOR

BOM

Qty	Value
1	33p
1	47p
2	82p
1	10n
1	27n
1	4u7
2	47u
3	1N4148
3	2N3904
1	LM3900
1	15
4	330
1	10k
1	15k
3	1k
1	2k2
2	3k3
1	4k7
6	22k
2	33k
1	82k
2	100k
5	330k
2	1M
2	1M5
1	3M3
1	4M7
3	25k TRIMMER
4	25k LINEAR POTENTIOMETER

7 3 - 7 5

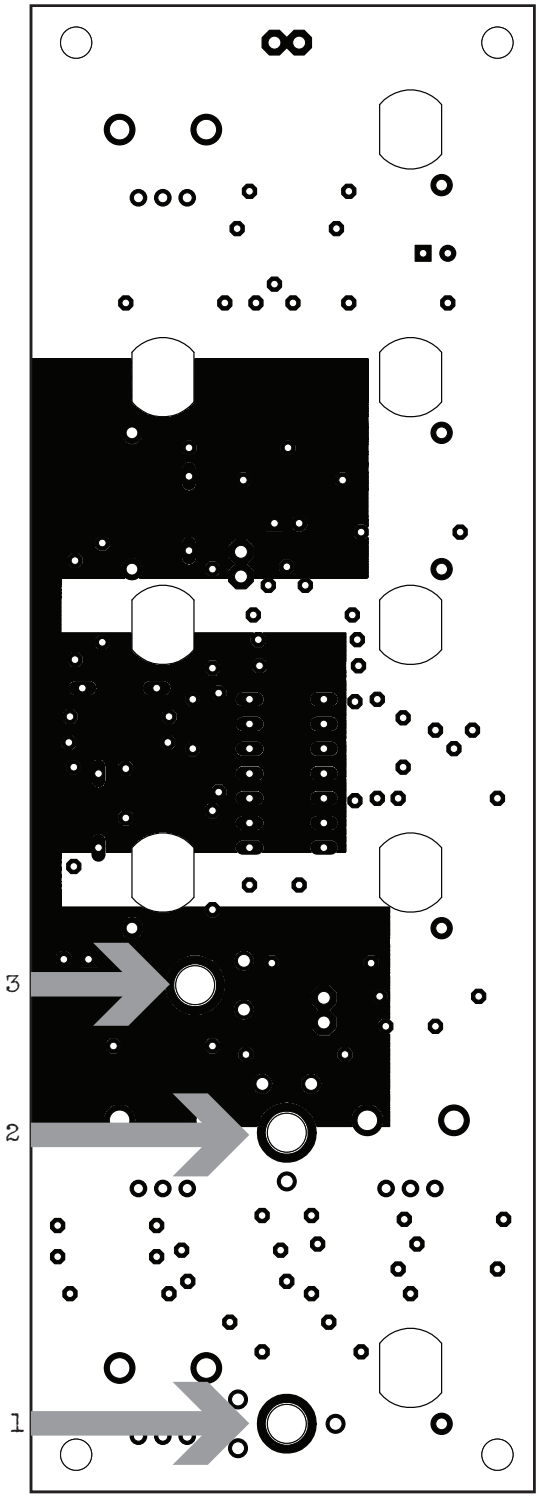
TRIM INSTRUCTIONS

THERE'S THREE TRIMMERS FOR THE OSCILLATOR.

TRIMMER 1, INITIAL OFFSET. SET FOR DESIRED LOWEST FREQUENCY. SUG-GESTED 5-10Hz.

TRIMMER 2, RANGE. ADJUST FOR SPAN OF 5-10Hz TO 10-14kHz.

TRIMMER 3, SINE ADJUSTMENT IN SAW TO SINE WAVESHAPER. ADJUST FOR CLEANEST POSSIBLE SINEWAVE OUTPUT.



BACKSIDE OF CIRCUIT BOARD

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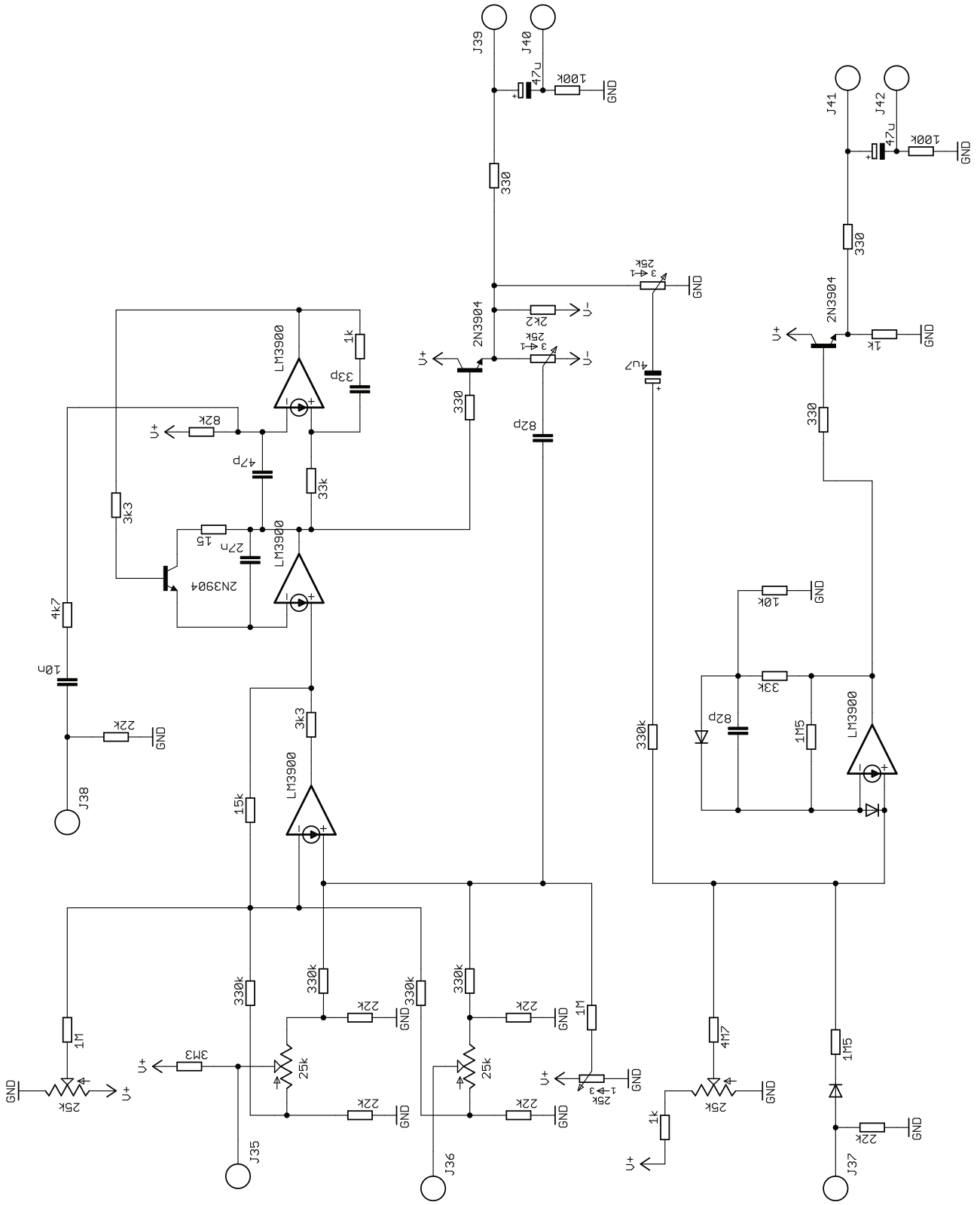
OSCILLATOR SCHEMATIC



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TRIPLE WAVE SHAPER

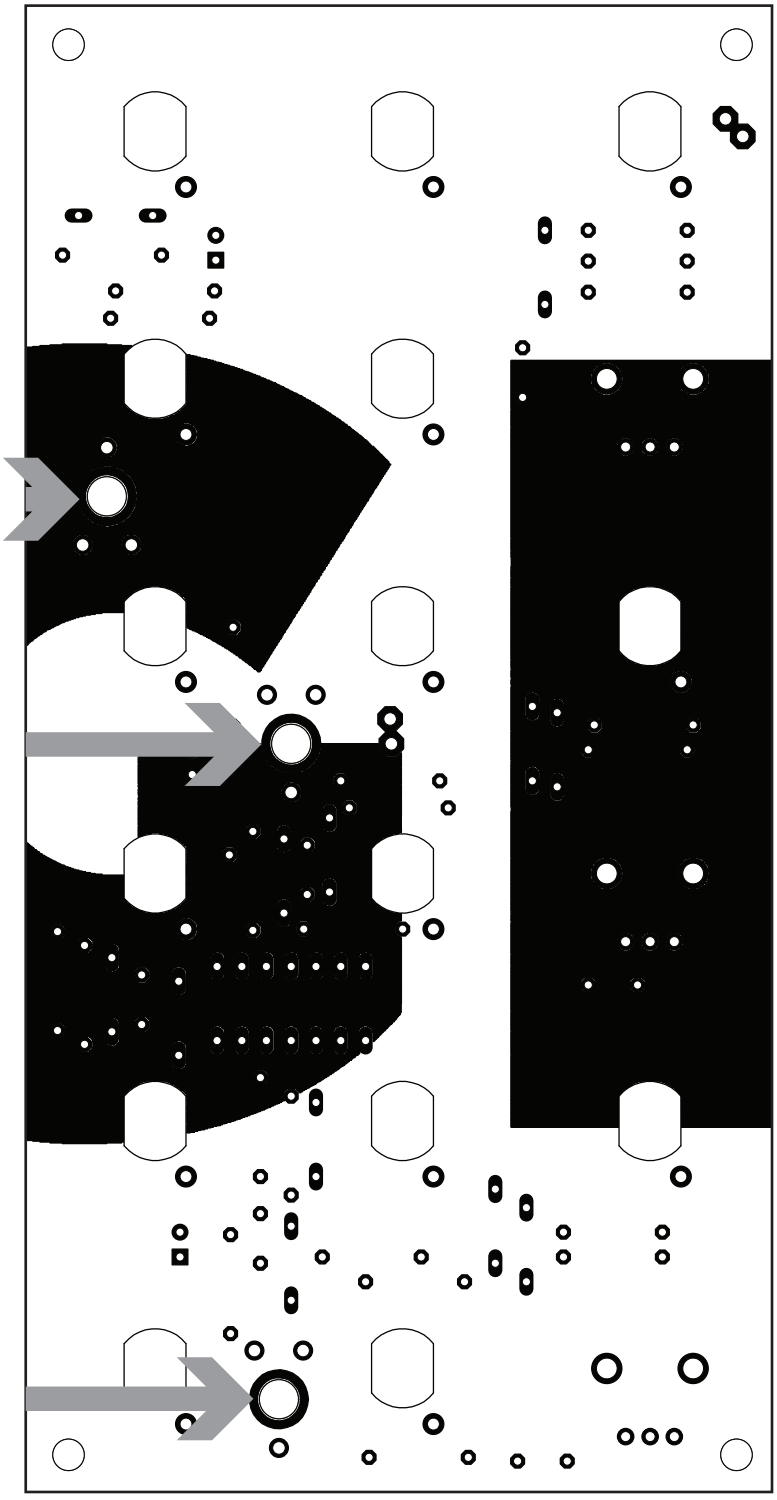
BOM

Qty	Value	
3	100p	
3	470n	
3	47u	
12	1N4148	
1	LM3900N	
3	220	
6	22k	
3	220k	
3	150k	
9	1M5	
3	25k	TRIMMER
3	25k	POTENTIOMETER

7 3 - 7 5

TRIM INSTRUCTIONS

THERE'S ONE TRIMMER FOR EACH SECTION OF THE TRIPLE WAVE SHAPER. ADJUST THE TRIMMER (WITH THE INPUT PUT TURNED FULLY CLOCKWISE) SO THE OUTPUT AMPLITUED IS THE SAME AS THE INPUT AMPLITUDE.



BACKSIDE OF CIRCUIT BOARD

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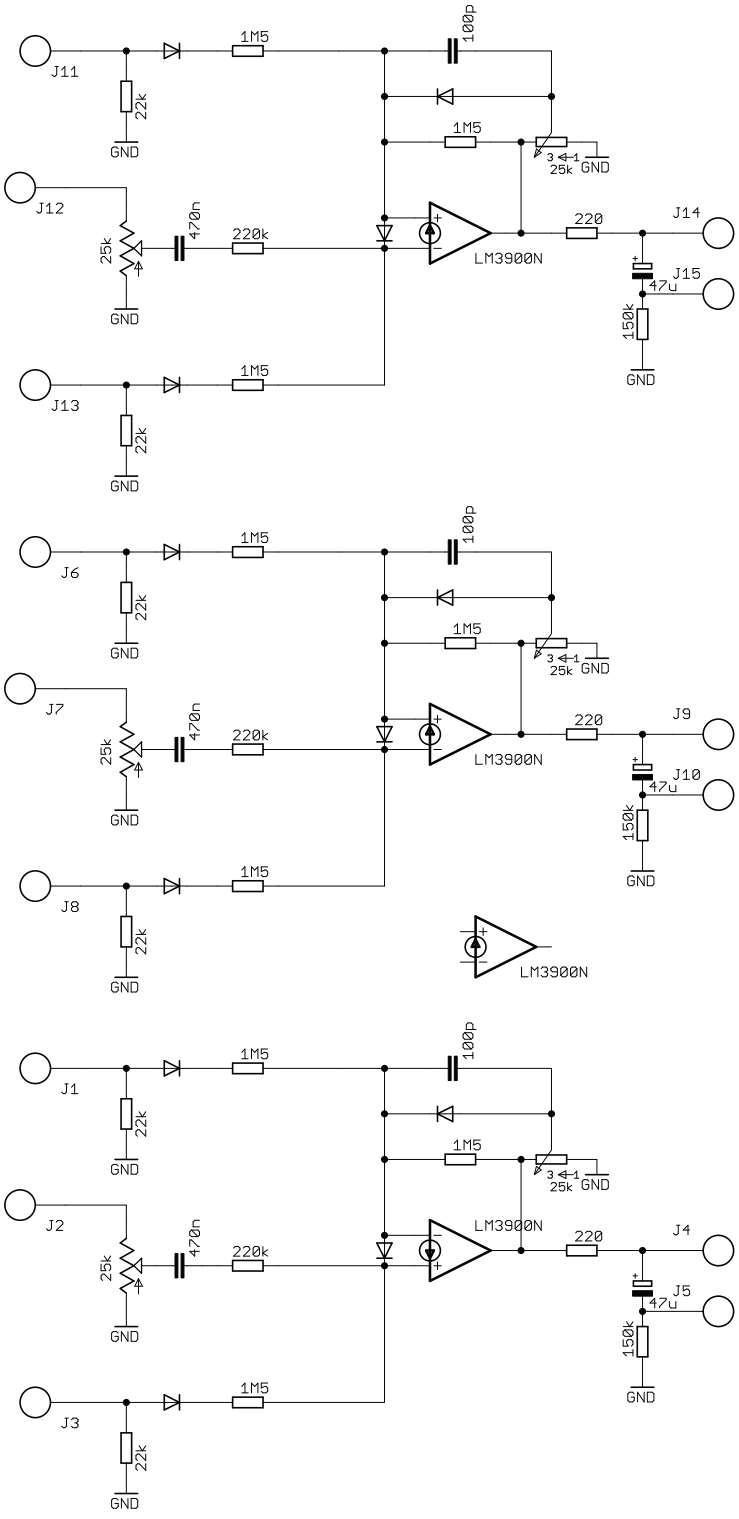
TRIPLE WAVE SHAPER SCHEMATIC



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PEAK AND TROUGH

BOM

Qty	Value
10	1N4148
2	2N3904
2	2N3906
5	2k2
1	15k
1	150k
1	220k

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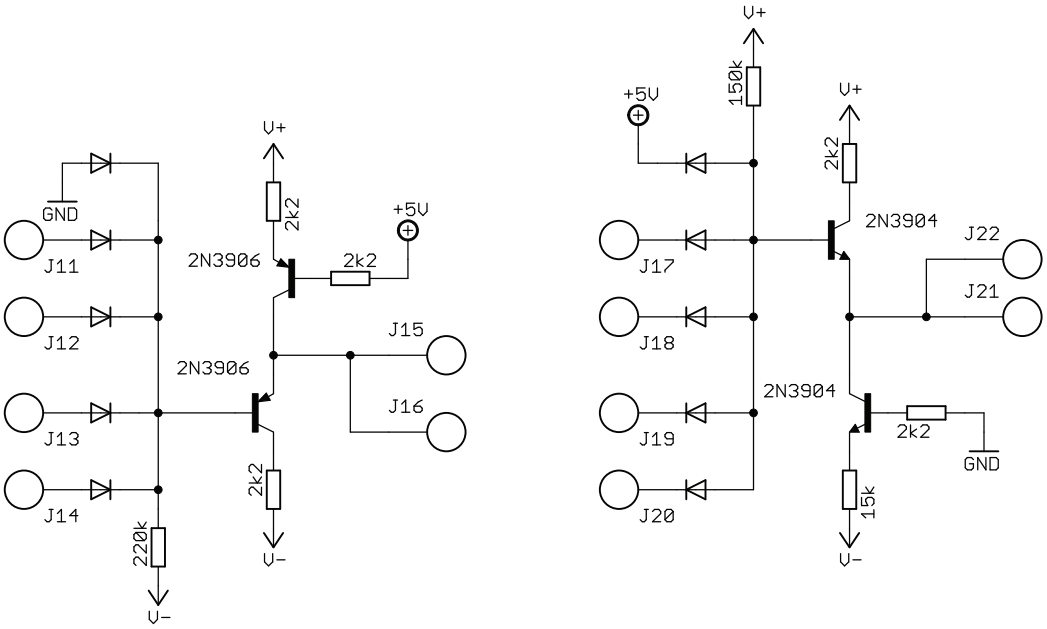
PEAK AND TROUGH SCHEMATIC



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TRIPLE COMPARATOR

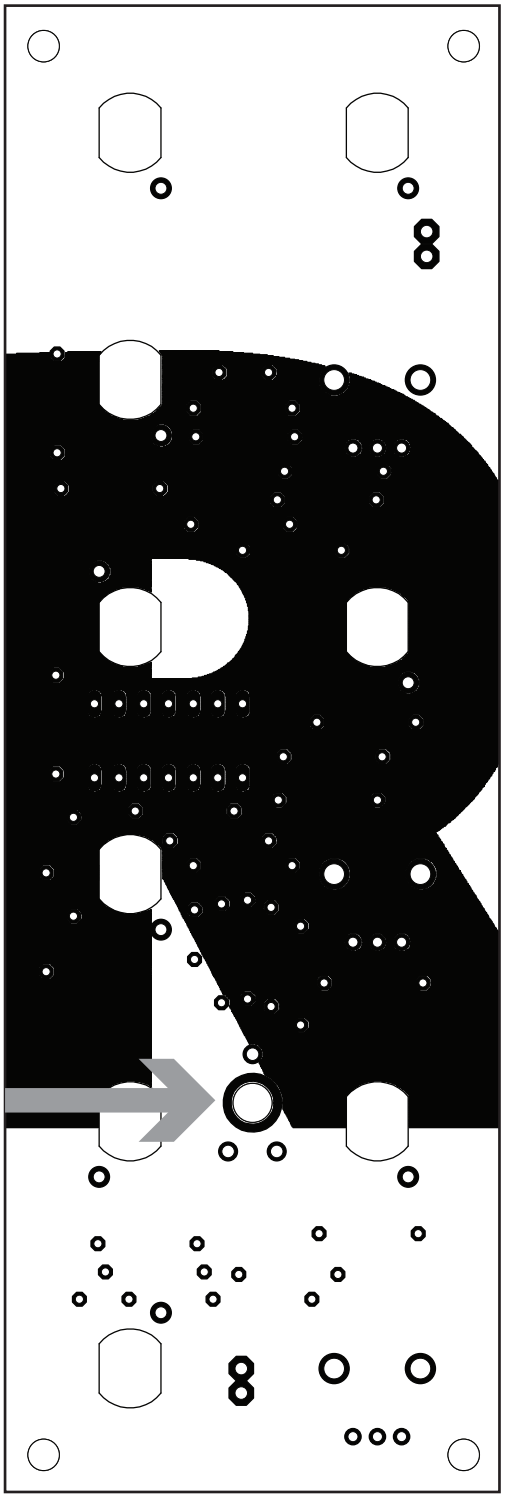
BOM

Qty	Value	
3	100p	
3	470n	
3	47u	
12	1N4148	
1	LM3900N	
3	220	
6	22k	
3	220k	
3	150k	
9	1M5	
3	25k	TRIMMER
3	25k	LINEAR POTENTIOMETER

7 3 - 7 5

TRIM INSTRUCTIONS

ONE TRIMMER FOR ALL THREE COM-
PARATORS. INPUT A SAWTOOTH 0-5V,
ADJUST FOR 50% PULSWIDTH WITH POT
AT NOON.



BACKSIDE OF CIRCUIT BOARD

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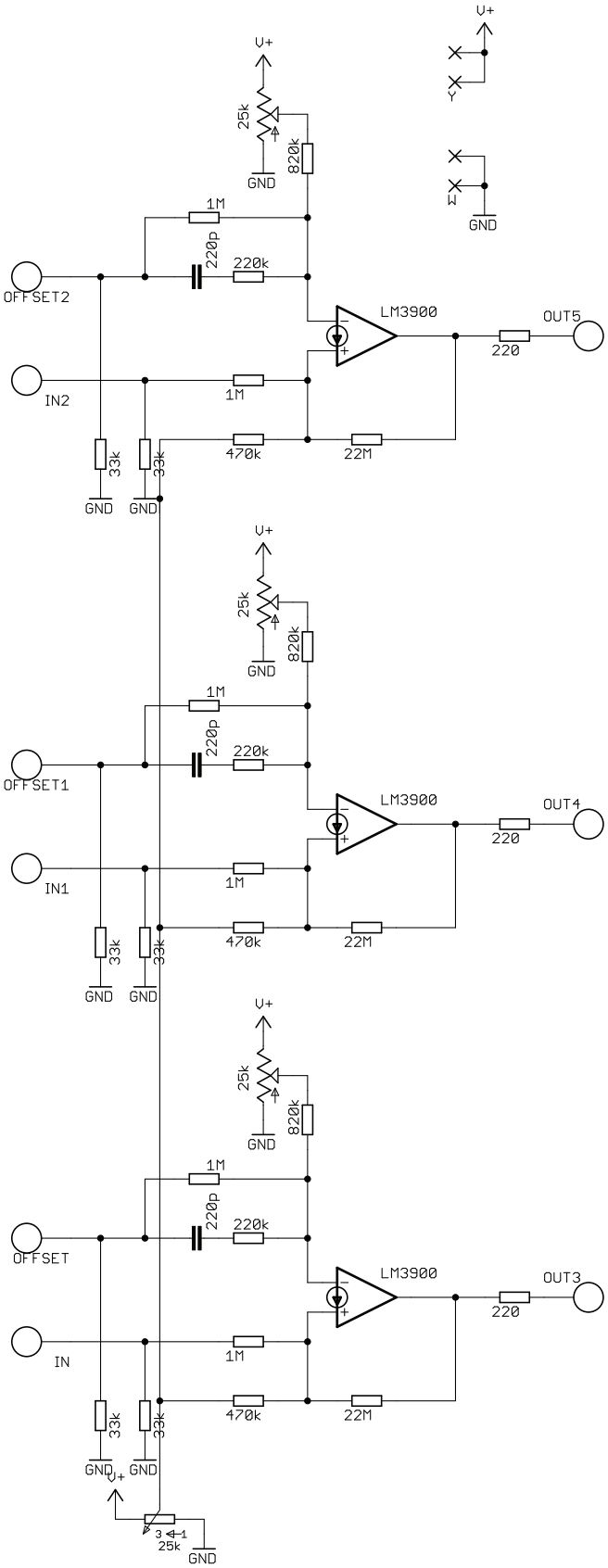
TRIPLE COMPARATOR SCHEMATICS



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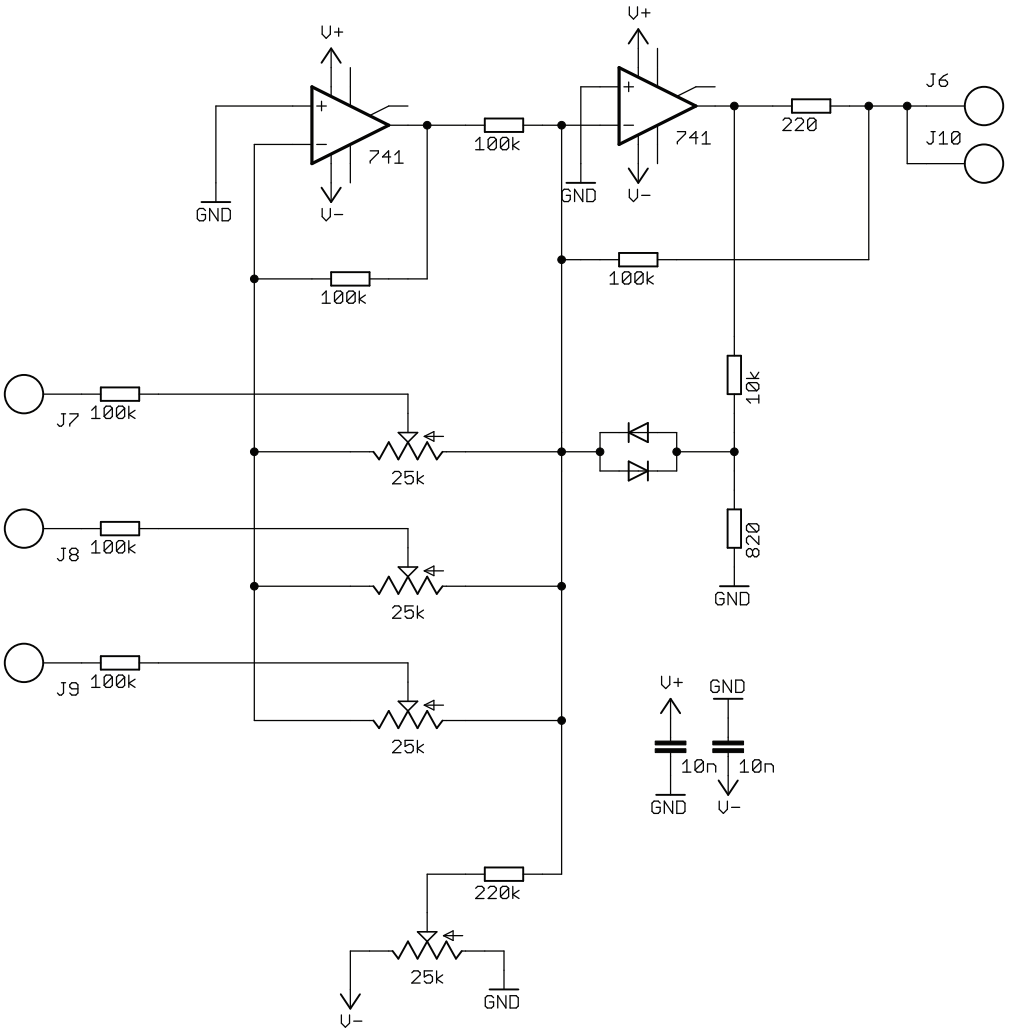
DUAL PROCESSOR

BOM

Qty	Value
4	l0n
4	lN4l48
4	LM74l
2	220
2	820
2	l0k
l2	l00k
2	220k
8	25k LINEAR POTENTIOMETER

7 3 - 7 5

DUAL PROCESSOR SCHEMATICS



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GATE

BOM

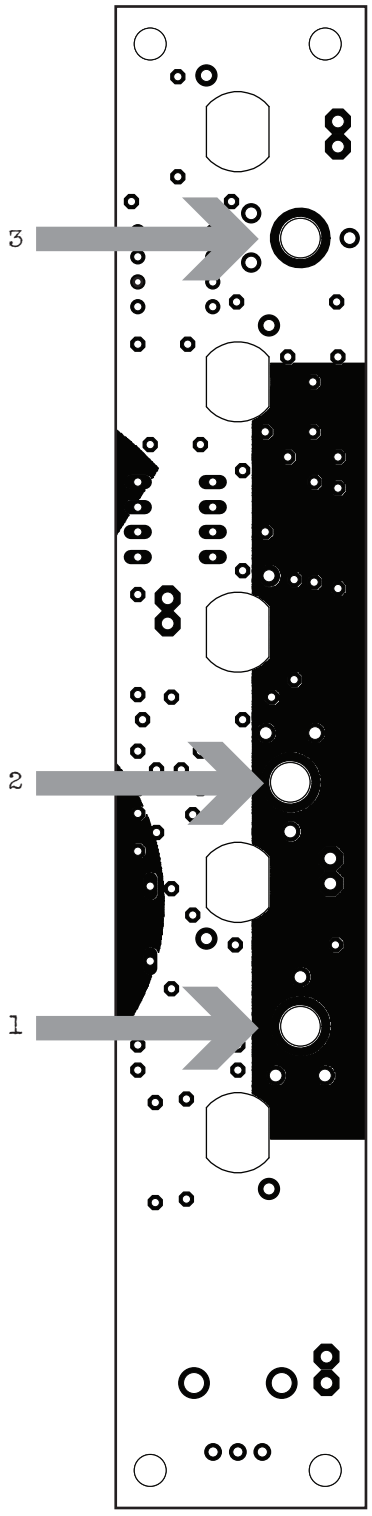
Qty	Value	
1	220p	
1	10n	
1	470n	
1	1N4148	
1	LM307	(TL071)
1	CA3080	
3	2N3906	
3	330	
2	1k	
1	2k2	
2	15k	
4	22k	
2	33k	
2	68k	
4	220k	
3	25k	TRIMMER
1	25k	LINEAR POTENTIOMETER

7 3 - 7 5

TRIM INSTRUCTIONS

INPUT A AUDIO SOURCE INTO AC-INPUT. SET 3 TO CENTER. MONITOR OUTPUT AND ADJUST 1 AND 2 FOR SAME OUTPUT AMPLI-TUDE AS INPUT.

INPUT DC SOURCE INTO DC IN. ADJUST 3 FOR MINUM OUTPUT OFFSET.



BACKSIDE OF CIRCUIT BOARD

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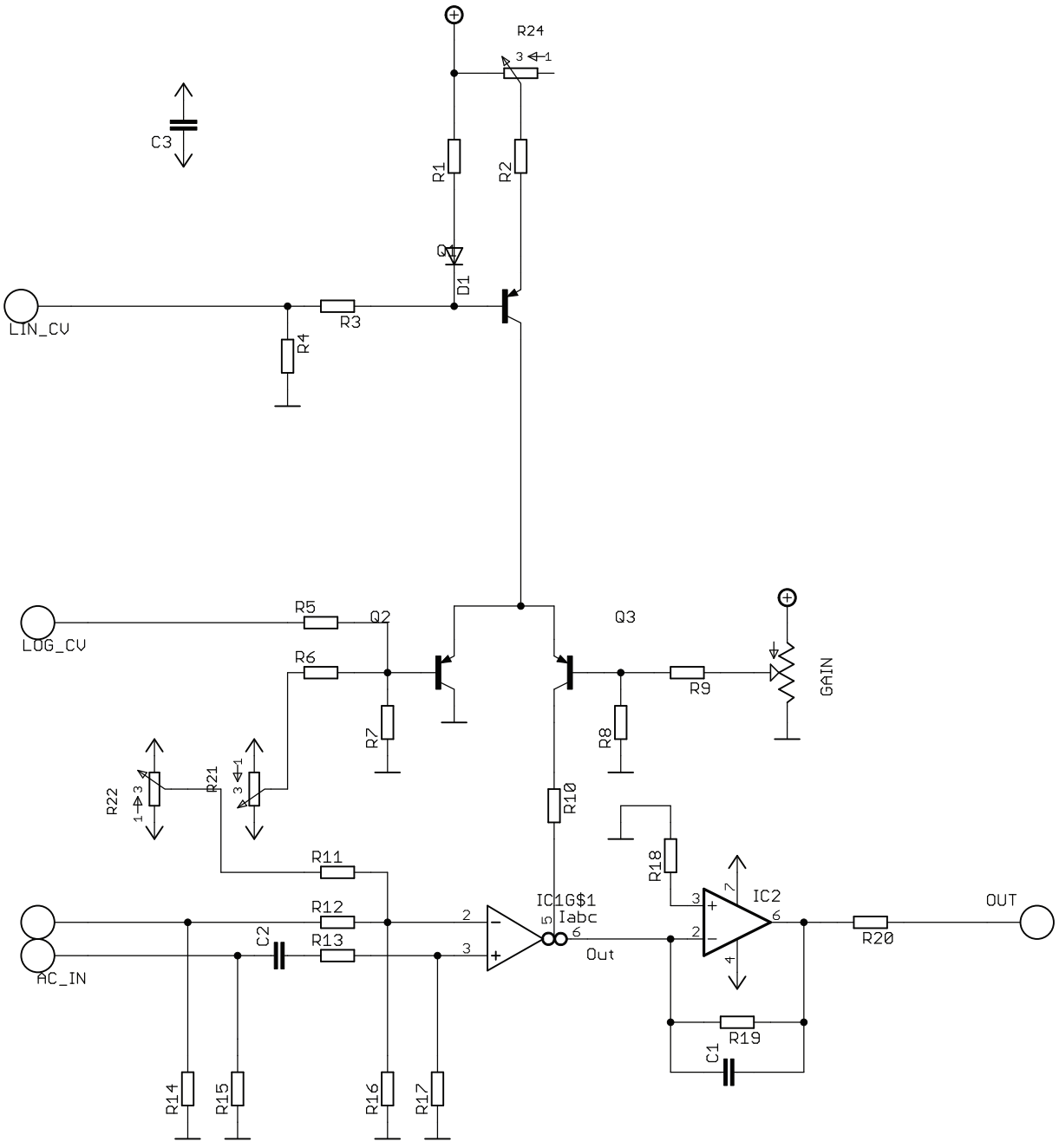
GATE SCHEMATICS



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RING MODULATOR

BOM

Qty	Value	
1	10n	
1	220p	
2	470n	
1	1N4148	
1	LM307	(TL071)
1	CA3080	
3	2N3906	
3	330	
2	1k	
1	2k2	
2	15k	
2	22k	
4	47k	
1	150k	
4	220k	
2	68k	
3	25k	TRIMMER
1	25k	LINEAR POTENTIOMETER

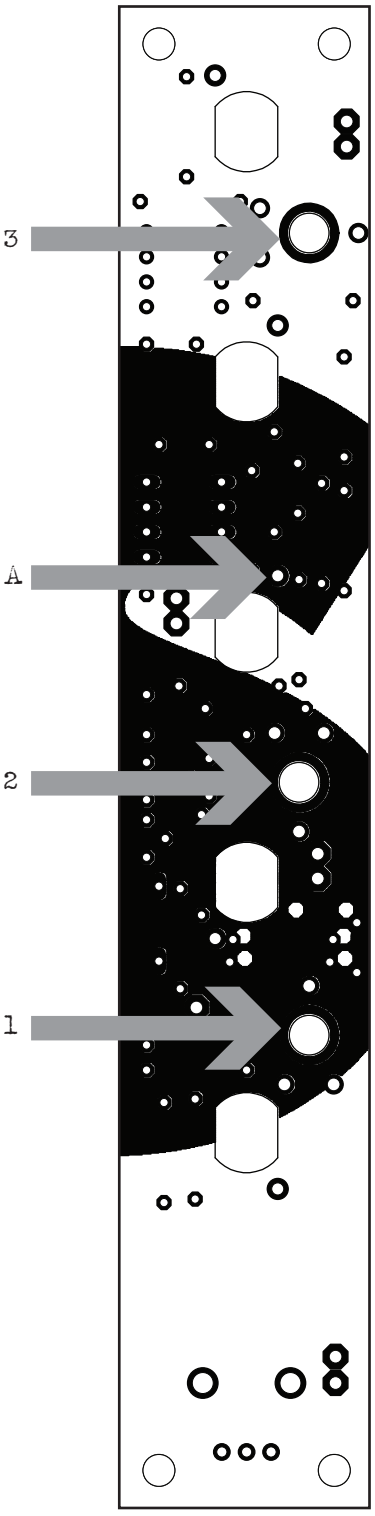
7 3 - 7 5

TRIM INSTRUCTIONS

START BY SETTING 3 TO CENTER POSITION, SET 2 TO FULL CCW. INPUT A 500Hz SAWTOOTH, INTO X AND PAD A. ADJUST 1 FOR A SYMMETRICAL OUTPUT.

DISCONNECT SAWTOOTH FROM X. ADJUST 3 FOR MINUM FEED THROUGH. REPEAT ADJUSTING 1 NOW THAT 3 IS SET.

CONNECT 1kHz SAWTOOTH TO BOTH X AND Y. ADJUST 2 FOR A SYM-METRICAL OUTPUT.



BACKSIDE OF CIRCUIT BOARD

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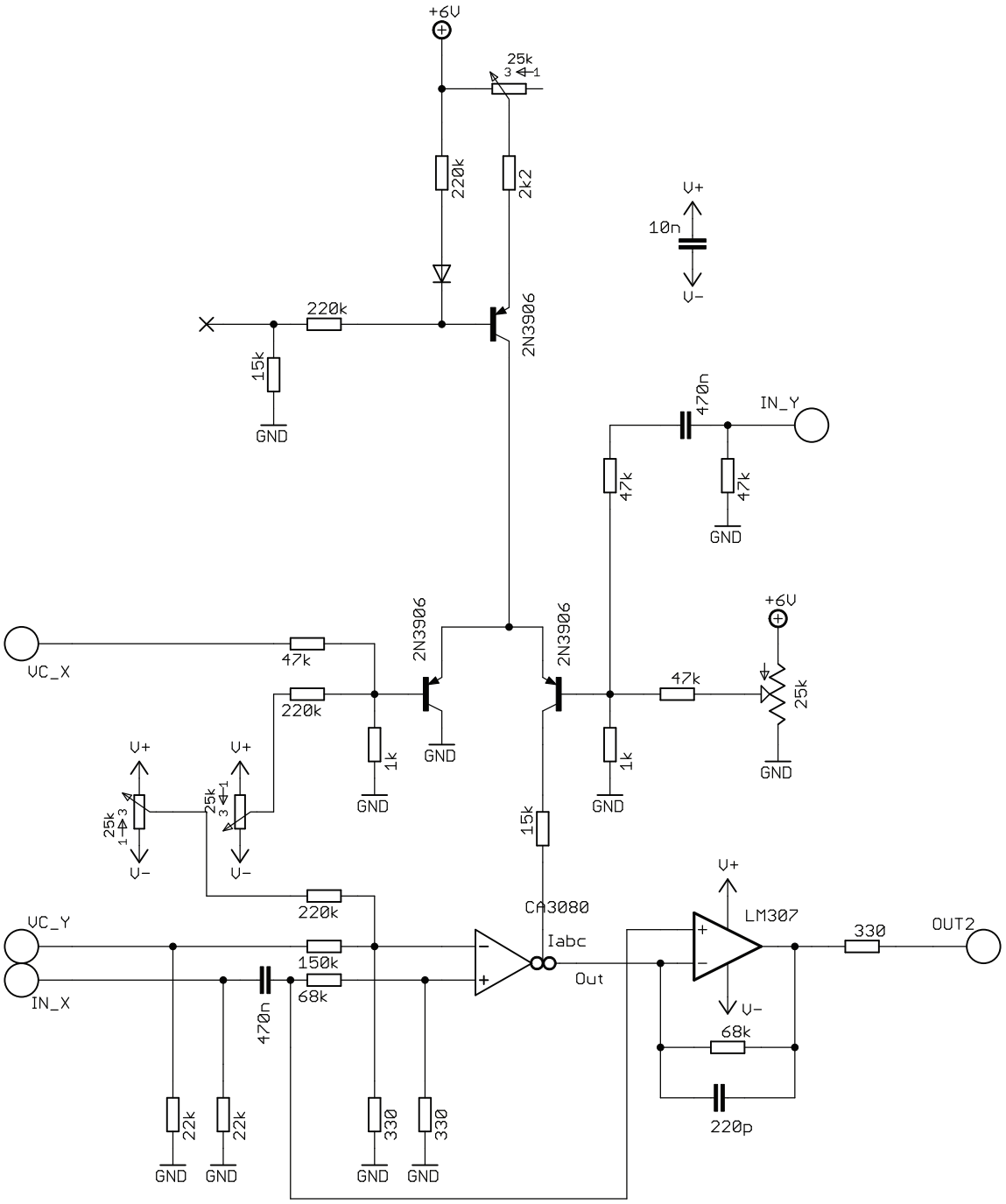
RING MODULATOR SCHEMATICS



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PREAMP & REVERB

BOM

Qty	Value
1	100p
3	10n
1	10p
1	220n
1	2n2
3	47p
6	22u
1	2N3904
1	LM1458
1	LM3900
2	2N3906
1	220
4	330
14	100k
2	10k
1	150k
2	1M
1	220k
2	33k
1	470k
1	6k8
2	25k LINEAR POTENTIOMETER
2	RCA CONNECTOR

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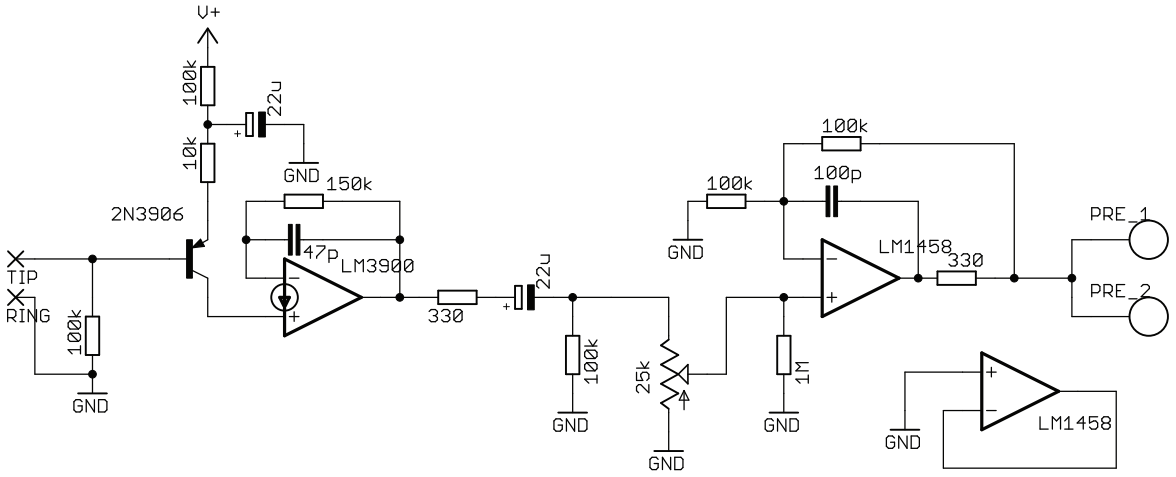
REVERB SCHEMATICS



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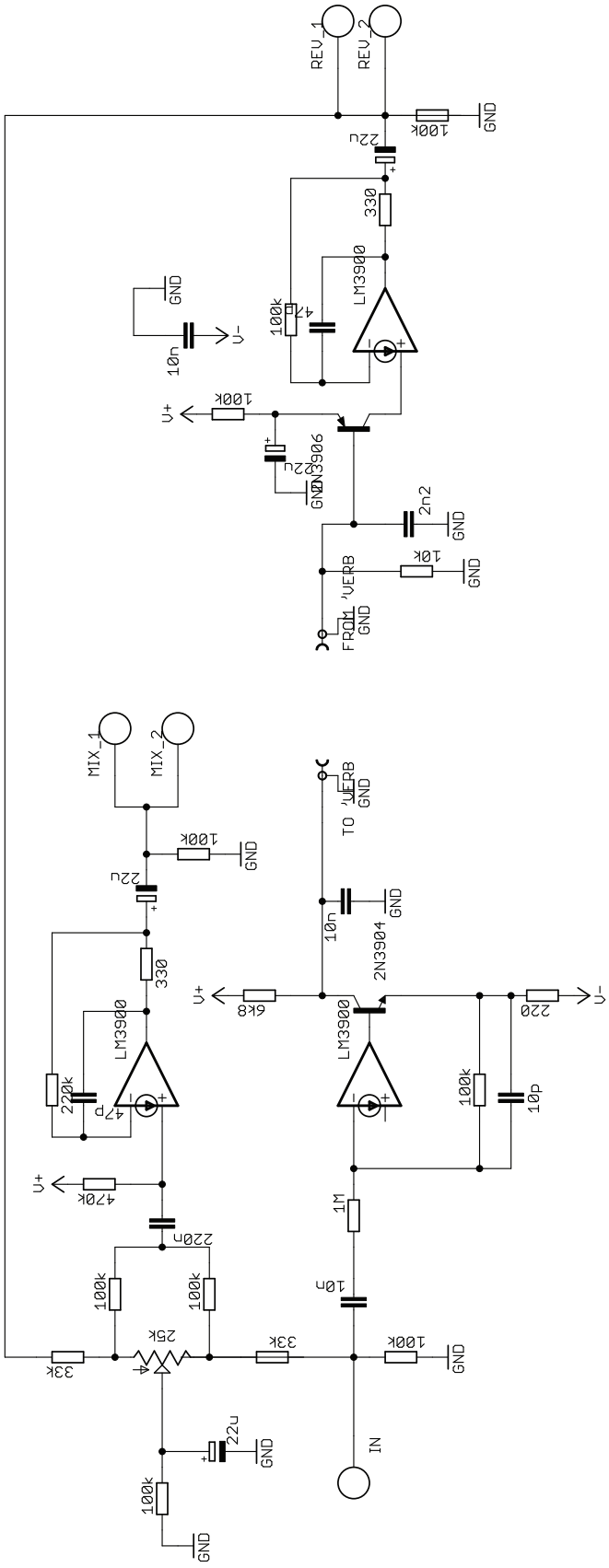
PREAMP SCHEMATICS



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POSITIVE SLEW

BOM

Qty	Value	
3	100p	
3	470n	
3	47u	
12	1N4148	
1	LM3900N	
3	220	
6	22k	
3	220k	
3	150k	
9	1M5	
3	25k	TRIMMER
3	25k	POTENTIOMETER

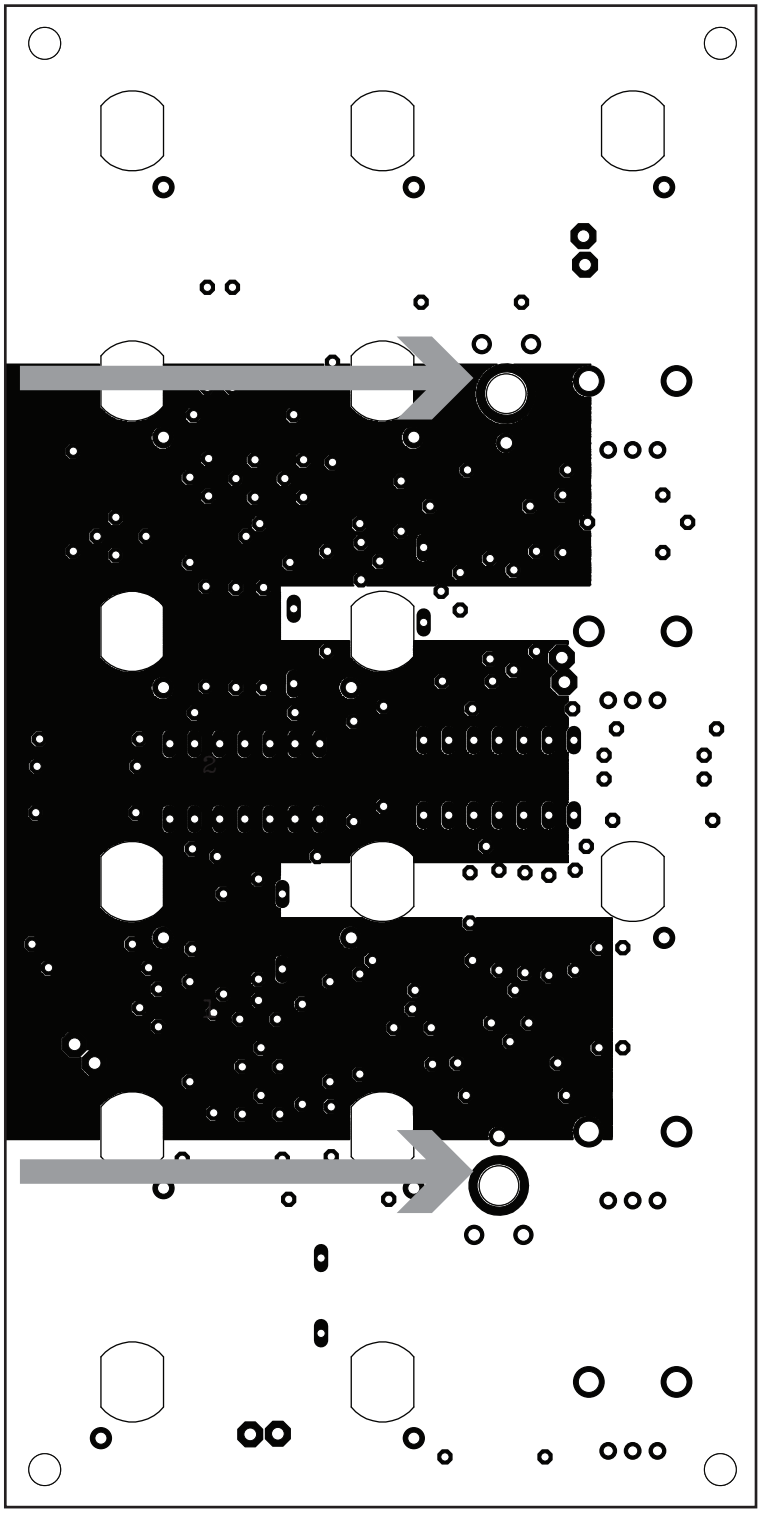
7 3 - 7 5

TRIM INSTRUCTIONS

PATCH BOTTOM PULSE OUTPUT TO INPUT FOR CYCLE ACTION.

ADJUST TRIMMER TO TASTE.

ORIGNAL TRIMMING IS MAX FREQUECNY OF 1KHz FOR TOP SLEW AND 500Hz FOR BOTTOM SLOW. IT MIGHT BE PREFERABLE TO SET THEM TO THE SAME FREQUENCY THOUGH...



BACKSIDE OF CIRCUIT BOARD

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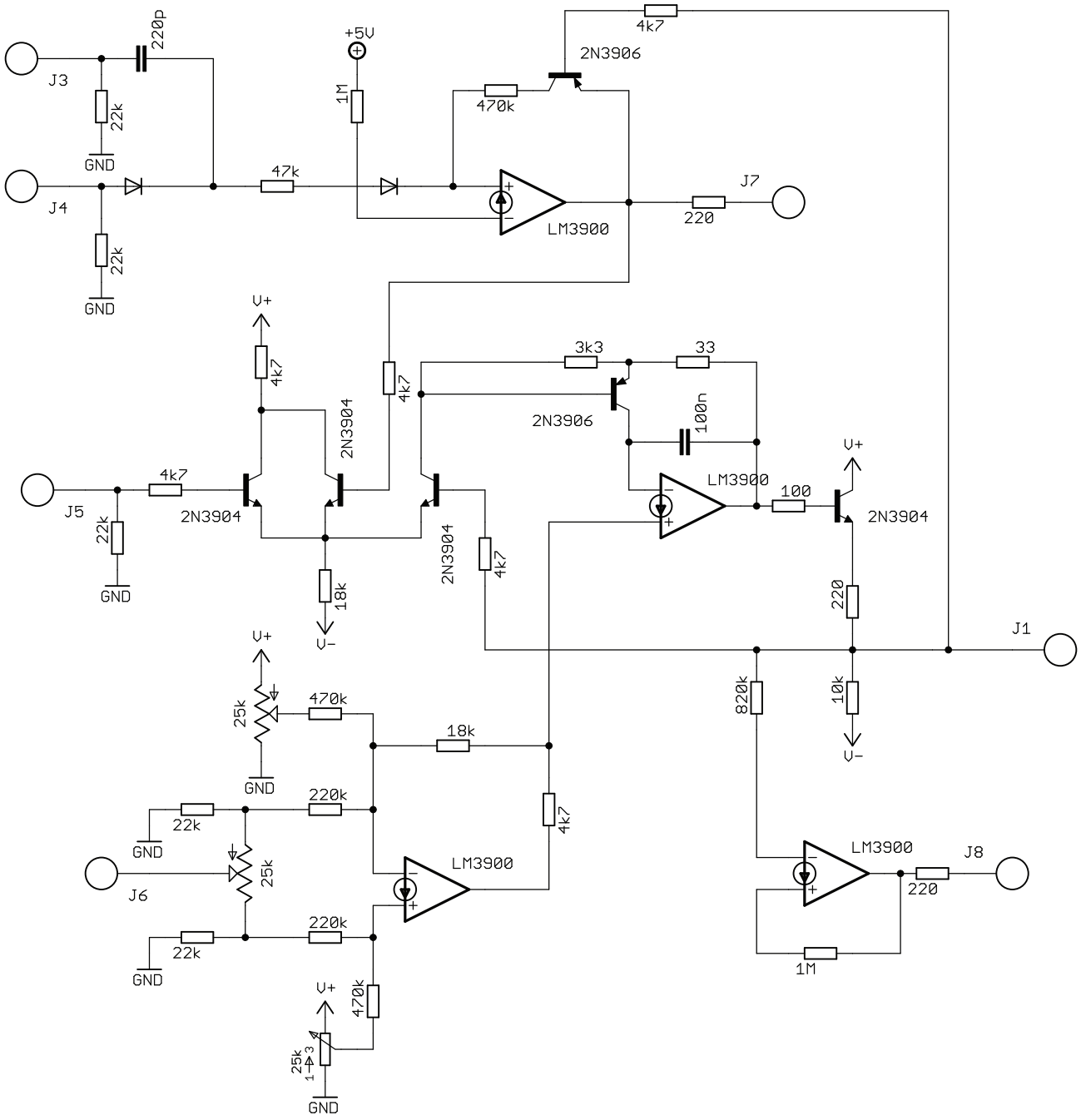
POSITIVE SLEW SCHEMATICS



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NEGATIVE SLEW

BOM

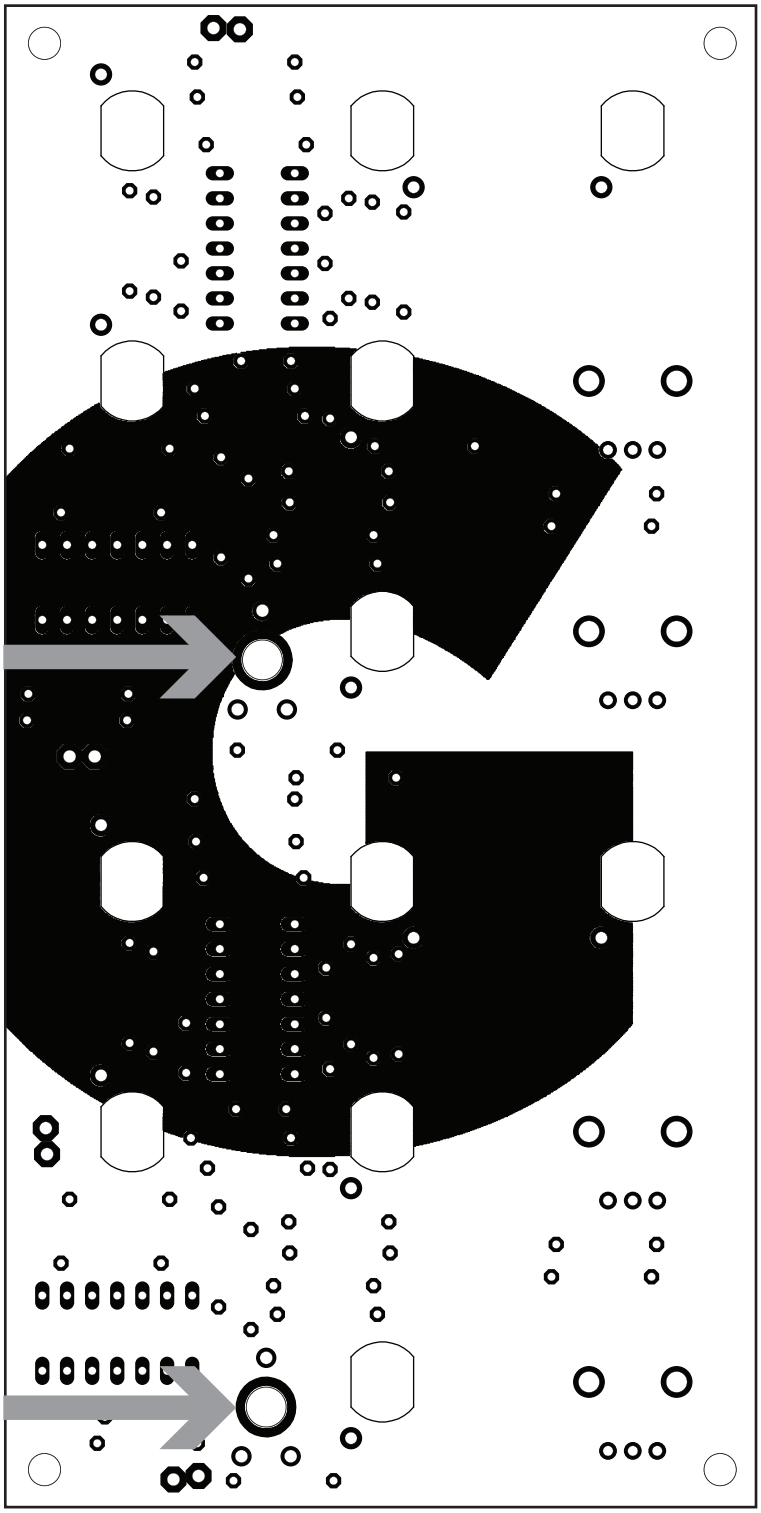
Qty	Value	
2	10n	
2	120p	
2	330n	
2	CA3086	
2	LM3900	
2	33	
4	220	
4	4k7	
4	6k8	
6	10k	
4	18k	
4	22k	
2	100k	
6	220k	
2	330k	
8	470k	
2	820k	
2	1M	
2	25k	TRIMMER
4	25k	LINEAR POTENTIOMETER

7 3 - 7 5

TRIM INSTRUCTIONS

PATCH PULSE OUTPUT TO INPUT FOR CYCLE ACTION. ADJUST TRIMMER TO TASTE.

ORIGNAL TRIMMING IS MAX FREQUECNY OF 1KHz FOR TOP SLEW AND 500Hz FOR BOTTOM SLOW. IT MIGHT BE PREFERABLE TO SET THEM TO THE SAME FREQUENCY THOUGH...



BACKSIDE OF CIRCUIT BOARD

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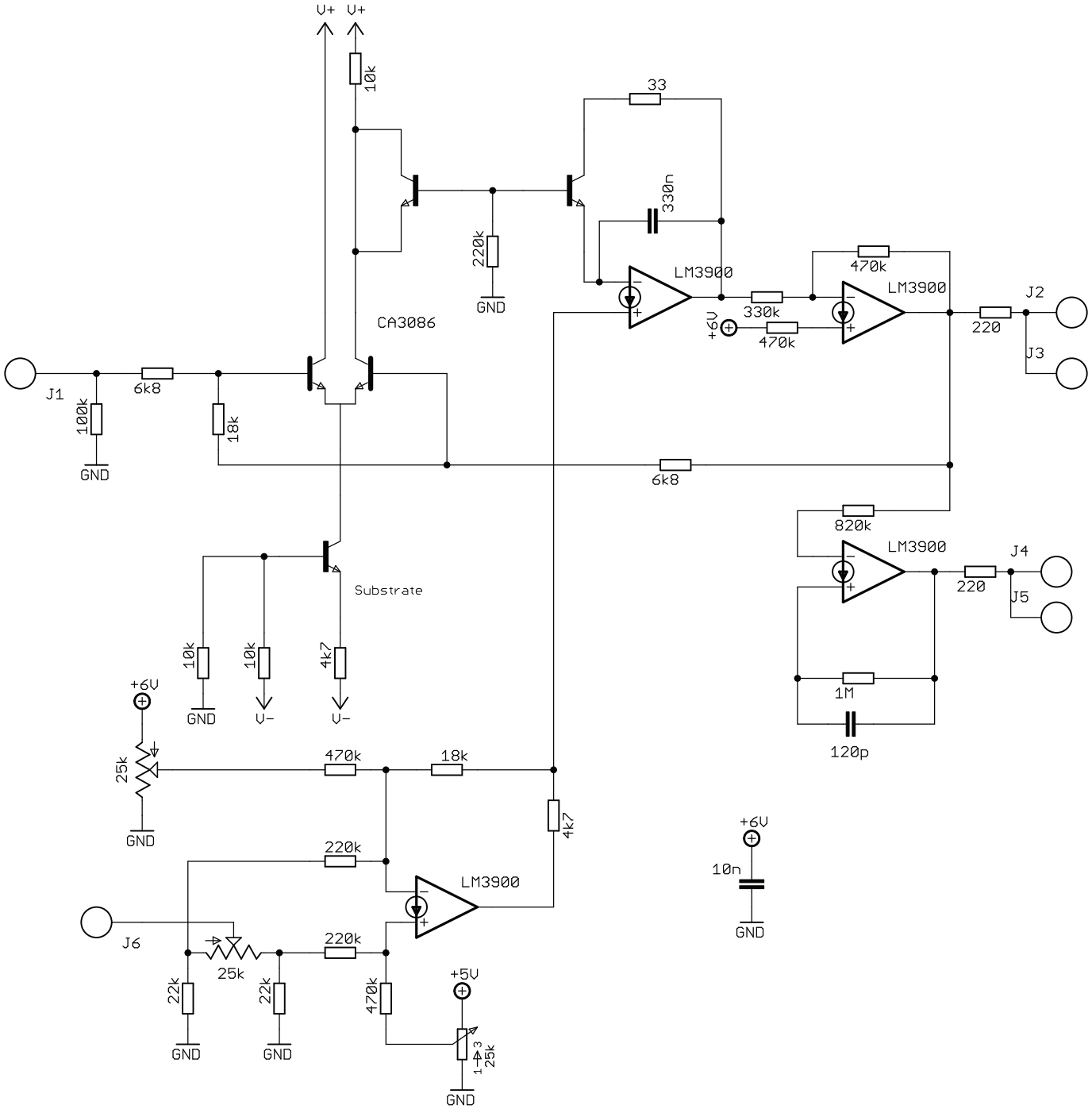
NEGATIVE SLEW SCHEMATICS



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ENVELOPE

BOM

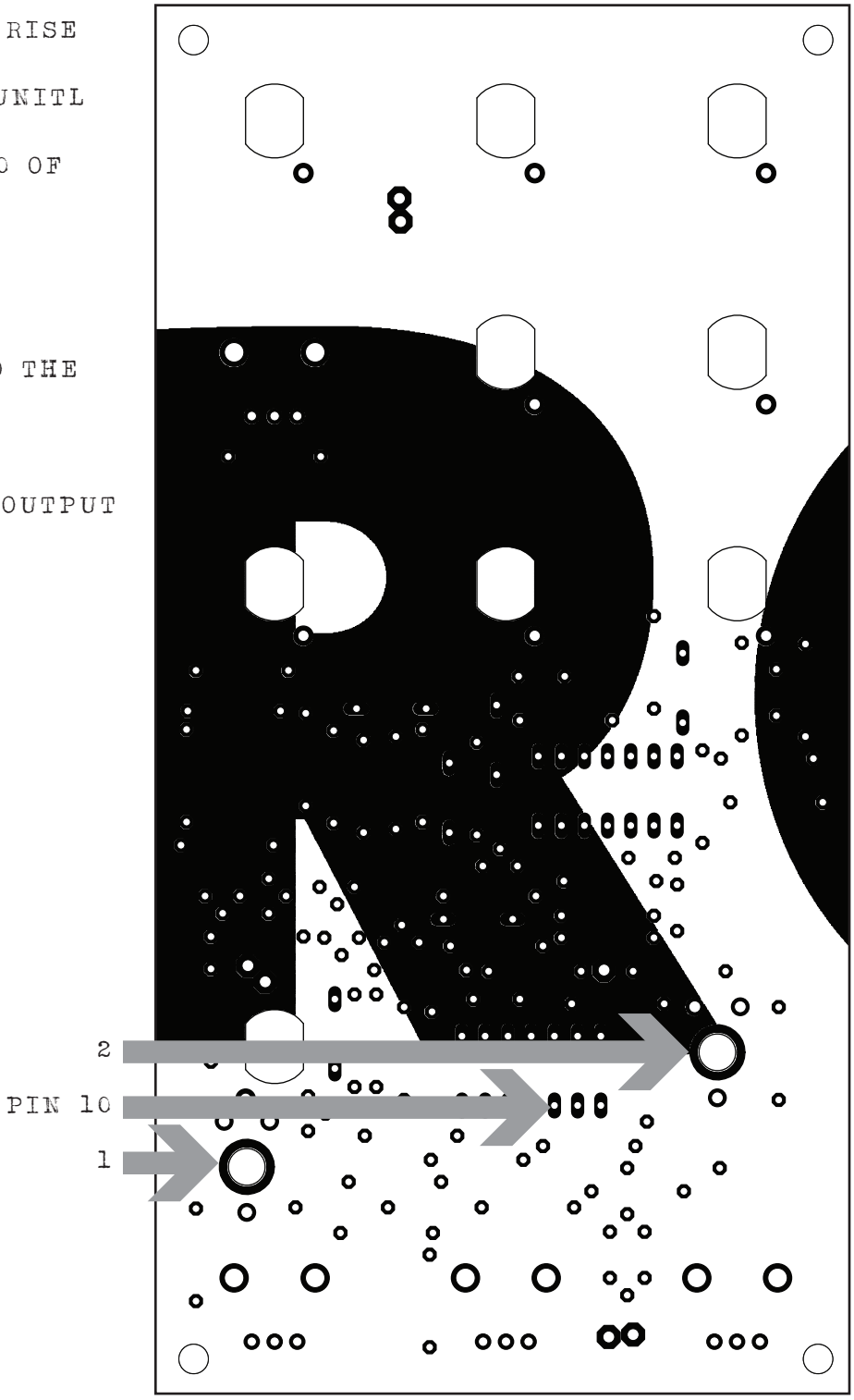
Qty	Value
1	100p
1	10n
1	220p
1	33p
1	470n
6	1N4148
6	2N3904
2	LM3900
3	2N3906
1	33
5	470
2	10M
2	1k
1	3k3
2	6k8
1	15k
7	33k
2	68k
2	82k
2	22k
1	2k2
5	100k
2	330k
7	470k
2	1M
2	1M5
1	10k TRIMMER
1	25k TRIMMER
4	25k LINEAR POTENTIOMER

7 3 - 7 5

TRIM INSTRUCTIONS

PATCH END TO START, SET RISE AND FALL CCW. ADJUST 1 UNITL YOU HAVE 4.00V AT PIN 10 OF THE BOTTOM LM3900.

PLUG A GATE OUTPUT INTO THE HOLD WHILE THE ENVLOPE CYCLES. ADJUST 2 SO THE OUTPUT IS STABLE



BACKSIDE OF CIRCUIT BOARD

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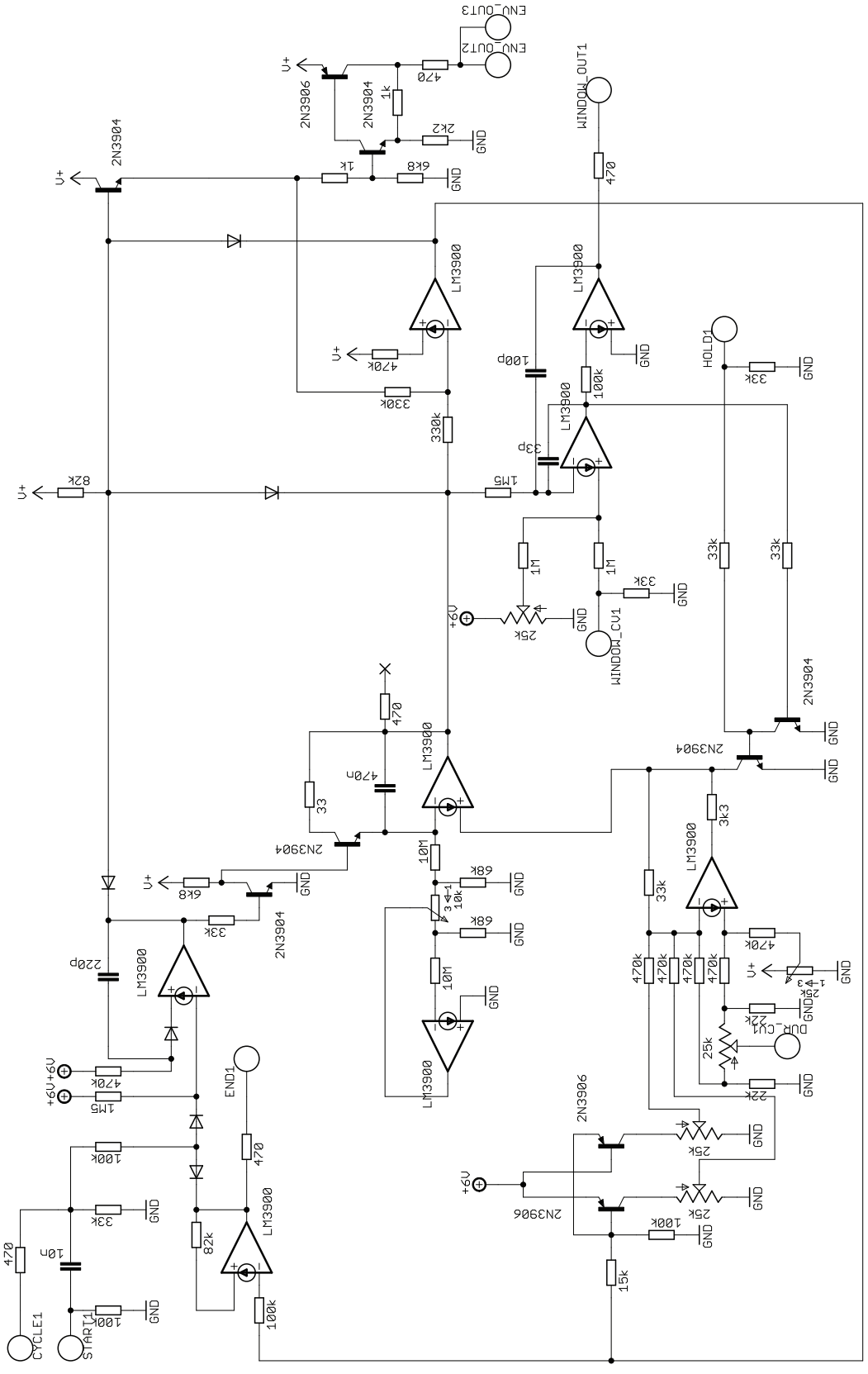
ENVELOPE SCHEMATICS



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POWER SUPPLY

BOM

Qty	Value
3	100n
3	1u
4	10u
6	1N4004
2	LM317
1	LM337
1	100nH
3	LED BUILDERS CHOICE.
1	S24DE150R5PDFA
3	220
1	470
2	10k
2	1k5
1	4k7
3	500 MULTI TURN TRIMMER
3	TO-220 HEATSINK

FOR A SLIM VERSION OF THE PSU.

OMIT EVERYTHING BUT THE POLARIZED CAPS IN THE +12V AND -12V SECTION. BRIDGE MARKED PINS ON THE REGULATORS. AND REPLACE THE ±15V DC-DC CONVERTER WITH A ±12V INSTEAD. THE +6V LINE CAN BE RUN WITH A MUCH SMALLER HEATSINK THAN SUGGESTED, SINCE CURRENT CONSUMPTION ON SAID LINE IS VERY LOW.

ADJUST ALL TRIMMERS FOR +12.00V AT PAD X, +6.00V AT PAD Y, AND -12.00V AT PAD Z.

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PSU SCHEMATICS