ANAMORPH

FX TYPE: Delay

Enclosure Size: 1590BB

"Softie" compatibility: none

Overview

The **Anamorph** consolidates some of the different analog delay projects I've offered into a single build. The goal was to combine the best and most useful elements of those different circuits into the feature-set that I felt most users want in a single project. Features of the Anamorph include

- 15v operation (9v input) for high headroom
- Analog elements from the DM-2
- Clock and modulation from the Memory Man
- Clock calibration (not featured in the Memory Man)
- Stereo outputs
- Tails or buffered bypass
- Full sized components (1/4W resistors)
- 4 layer PCB for low noise operation

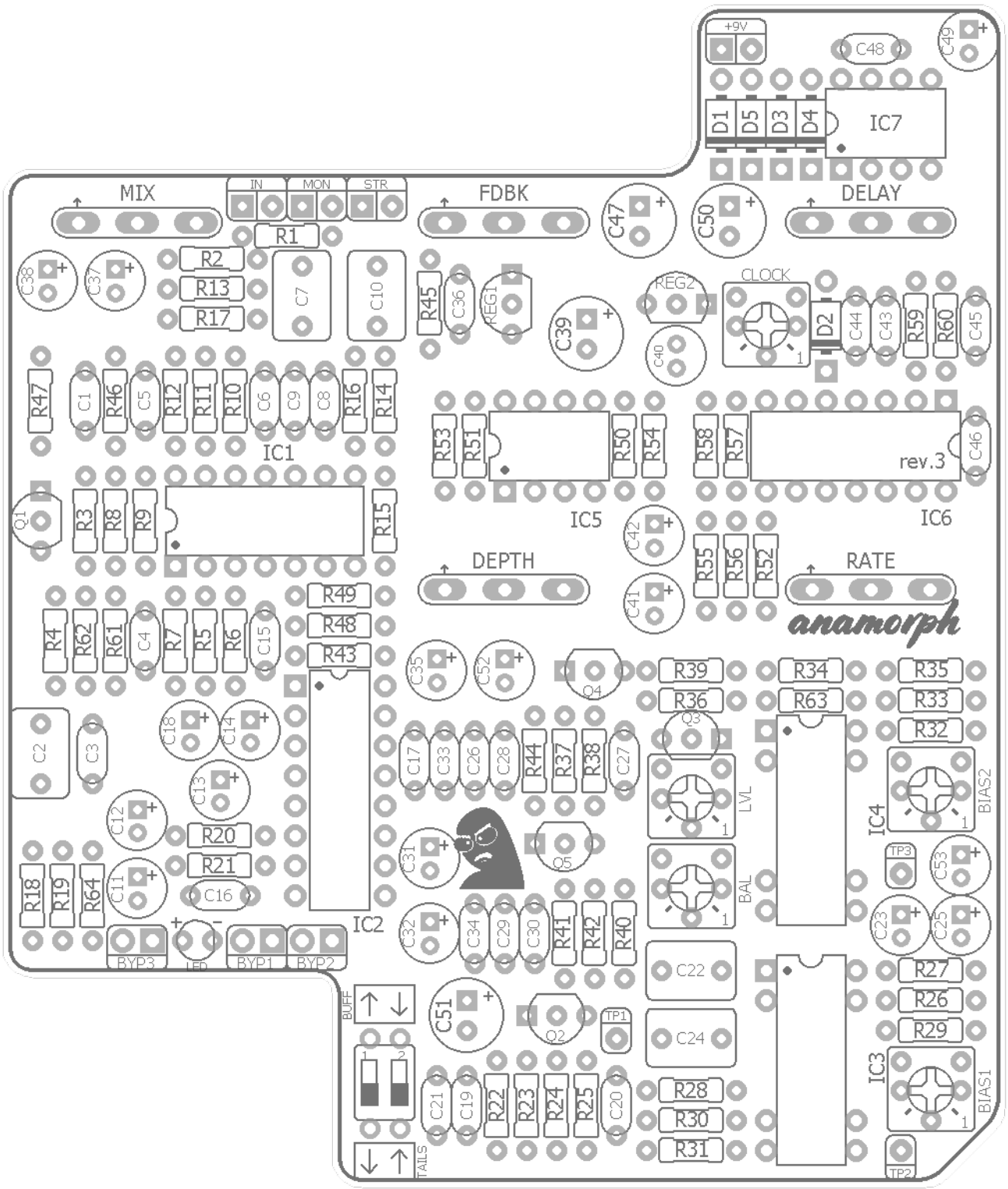
Audio Controls

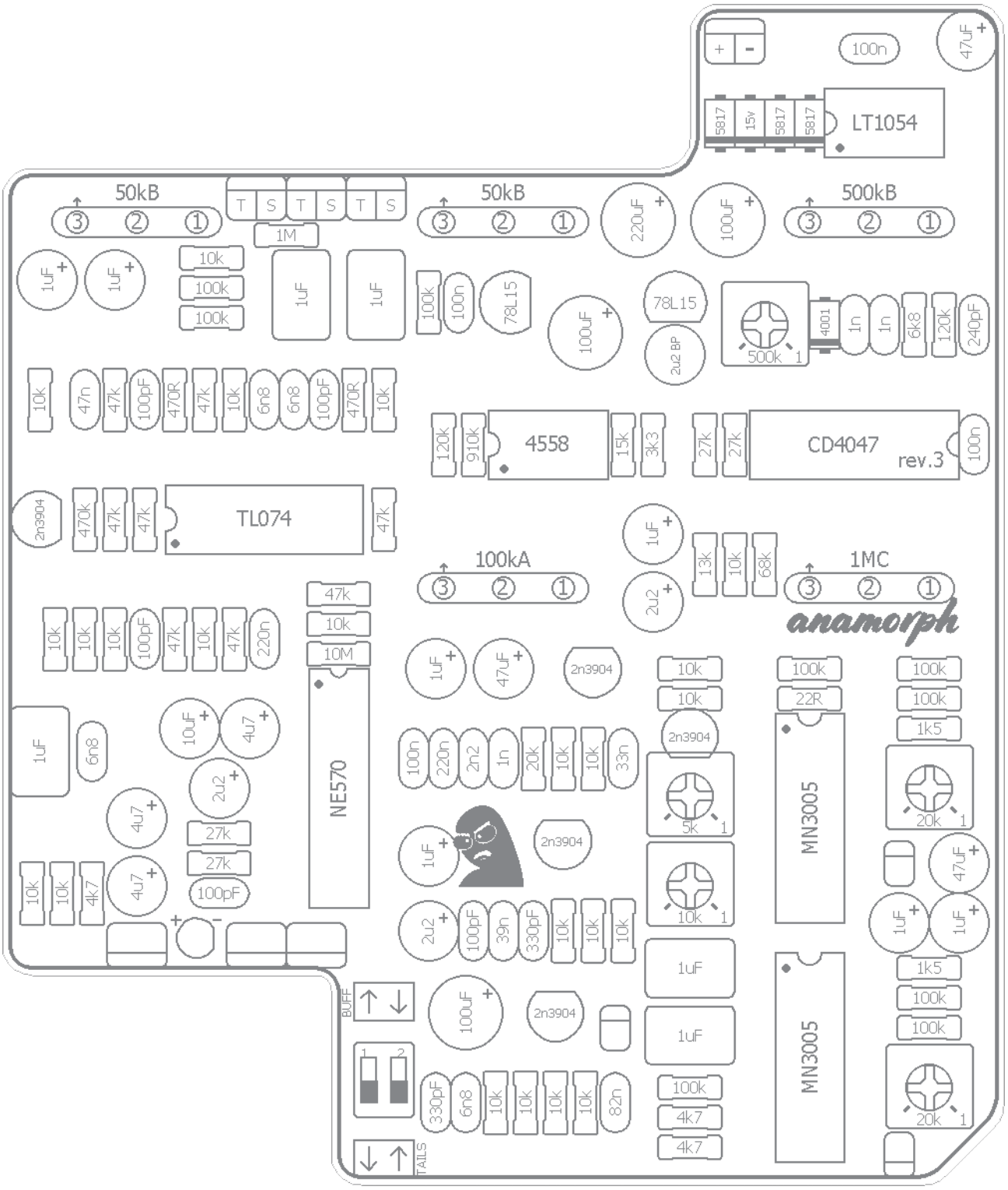
DELAY - Controls the delay time from slap-back to approximately 550ms.
FDBK - Controls the delay repeats from one to many to self-oscillation.
MIX - Delay signal volume.
RATE/DEPTH: Sets the speed and intensity of delay modulation.

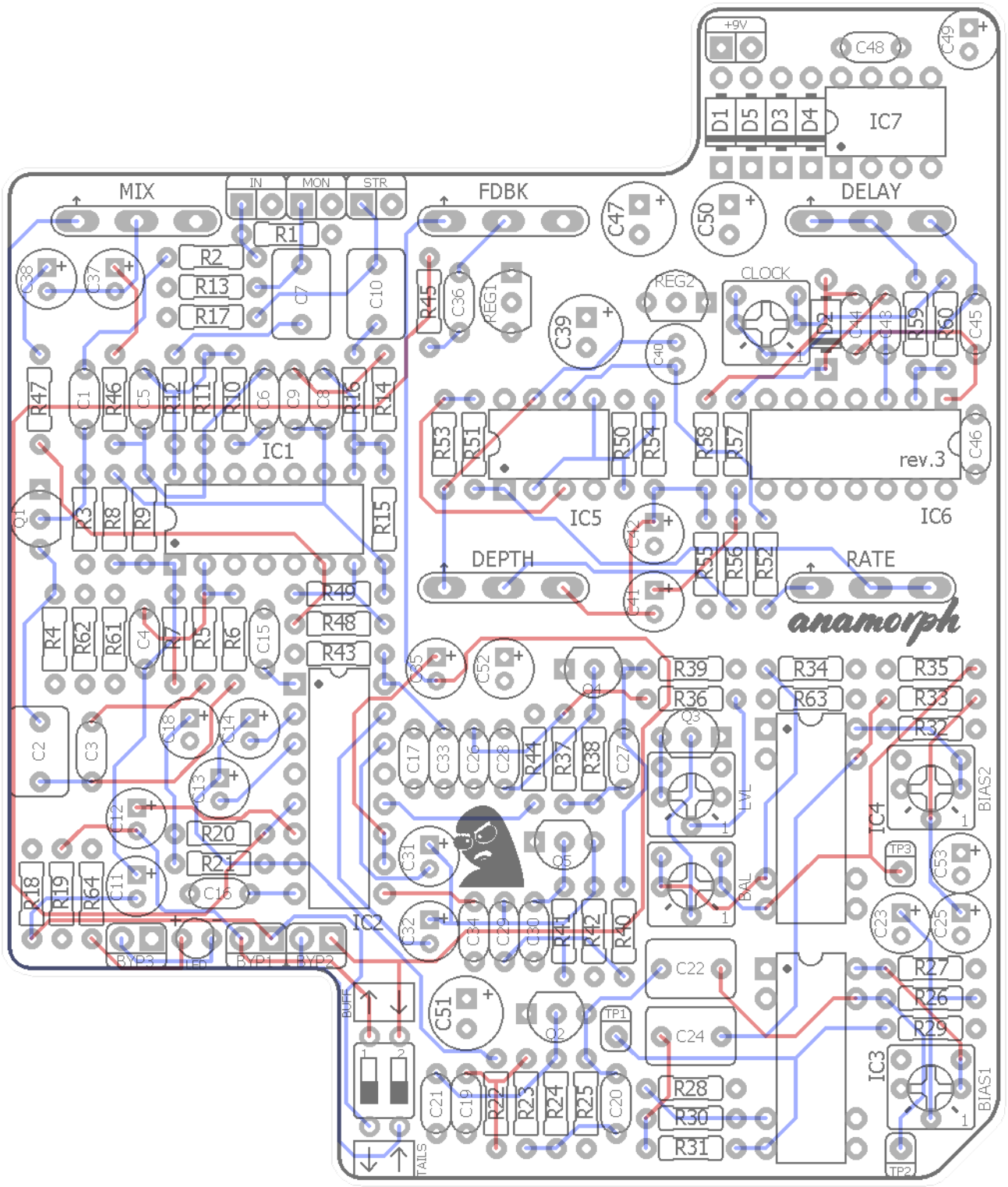
Biasing Controls

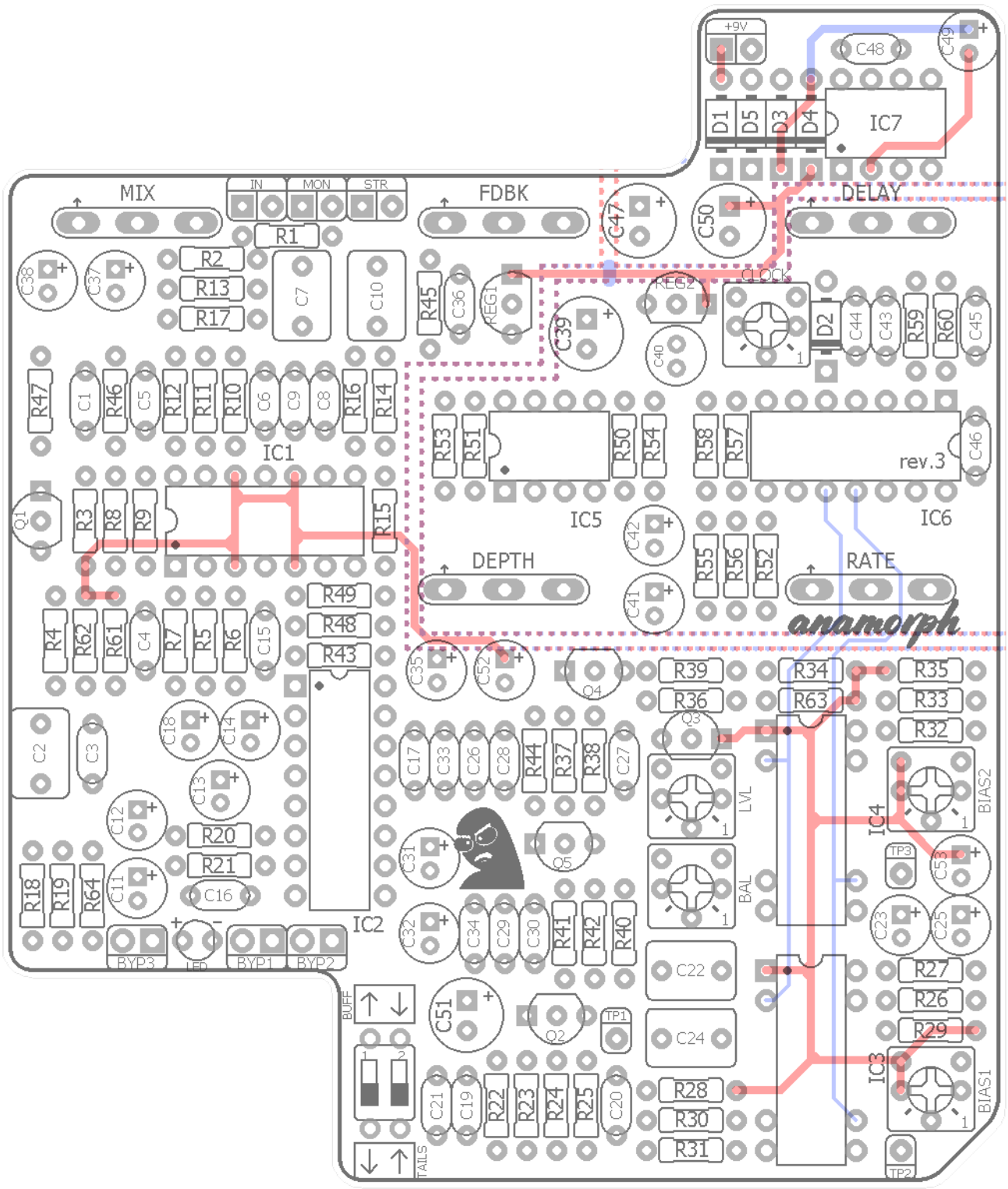
BIAS1,2 - Sets the input bias voltage of the two BBDs.
BAL - Used to mix the two outputs of the second BBD.
LVL - Sets the volume output of the second BBD.
CLOCK - Used for fine calibration for the maximum allowable delay time.

Technical assistance for your build(s) is available via the madbeanpedals forum. Please go there rather than emailing me for assistance on builds. This is because (1) I'm not always available to respond via email in a timely and continuous manner, and (2) posting technical problems and solutions in the forum creates a record from which other members may benefit.


+9V
C48
C49
D1
D5
D3
D4
IC7
MIX
IN
MON
STR
FDBK
DELAY
C47
C50
R1
R2
R13
R17
C38
C37
C7
C10
R45
C36
REG1
C39
REG2
C40
CLOCK
D2
C44
C43
R59
R60
C45
R47
C1
R46
C5
R12
R11
R10
C6
C9
C8
R16
R14
IC1
R53
R51
R50
R54
IC5
R58
R57
rev.3
C46
IC6
Q1
R3
R8
R9
R15
C42
C41
R55
R56
R52
DEPTH
RATE
anamorph
R49
R48
R43
R4
R62
R61
C4
R7
R5
R6
C15
C35
C52
Q4
R39
R36
R34
R63
R35
R33
R32
C2
C3
C18
C14
C13
C17
C33
C26
C28
R44
R37
R38
C27
Q3
LVL
IC4
BIAS2
TP3
C53
C12
R20
R21
C31
Q5
C23
C25
R18
R19
R64
C11
C16
BAL
IC2
C32
C34
C29
C30
R41
R42
R40
C22
R27
R26
R29
BYP3
LED
BYP1
BYP2
BUFF
C51
Q2
TP1
C24
IC3
BIAS1
C21
C19
R22
R23
R24
R25
C20
R28
R30
R31
TAILS
TP2


LT1054
5817
15v
5817
5817
100n
47uF
50kB
50kB
500kB
220uF
100uF
1M
10k
100k
100k
1uF
1uF
1uF
1uF
100k
100n
78L15
78L15
100uF
2u2 BP
500k
4001
1n
1n
6k8
120k
240pF
10k
47n
47k
100pF
470R
47k
10k
6n8
6n8
100pF
470R
10k
120k
910k
4558
15k
3k3
27k
27k
CD4047
rev.3
100n
2n3904
470k
47k
47k
TL074
47k
1uF
2u2
13k
10k
68k
100kA
1MC
anamorph
47k
10k
10M
10k
10k
10k
100pF
47k
10k
47k
220n
1uF
47uF
2n3904
10k
10k
2n3904
100k
22R
100k
100k
1k5
1uF
6n8
10uF
4u7
NE570
100n
220n
2n2
1n
20k
10k
10k
33n
5K
MN3005
20k
2u2
4u7
2n3904
47uF
4u7
27k
27k
10k
10k
4k7
100pF
10k
1uF
1uF
1uF
2u2
100pF
39n
330pF
10k
10k
10k
1k5
100k
100k
BUFF
100uF
2n3904
MN3005
330pF
6n8
10k
10k
10k
10k
82n
100k
4k7
4k7
20k
TAILS


MIX
IN
MON
STR
FDBK
DELAY
CLOCK
DEPTH
RATE
IC1
IC2
IC3
IC4
IC5
IC6
IC7
rev.3
anamorph
+9V
REG1
REG2
LVL
BAL
BIAS1
BIAS2
BYP3
BYP1
BYP2
BUFF
TAILS
TP1
TP2
TP3


+9V
C48
C49
D1
D5
D3
D4
IC7
MIX
IN
MON
STR
FDBK
DELAY
R1
R2
R13
R17
C38
C37
C7
C10
C47
C50
R45
C36
REG1
C39
REG2
CLOCK
C40
D2
C44
C43
R59
R60
C45
R47
C1
R46
C5
R12
R11
R10
C6
C9
C8
R16
R14
IC1
R53
R51
R50
R54
R58
R57
rev.3
C46
IC5
IC6
Q1
R3
R8
R9
R15
C42
C41
DEPTH
RATE
R55
R56
R52
R49
R48
R43
R4
R62
R61
C4
R7
R5
R6
C15
anamorph
C35
C52
Q4
R39
R36
R34
R63
R35
R33
R32
C2
C3
C18
C14
C13
C17
C33
C26
C28
R44
R37
R38
C27
Q3
LVL
IC4
BIAS2
C12
R20
R21
C31
Q5
TP3
C53
C11
C16
R18
R19
R64
C32
C34
C29
C30
R41
R42
R40
BAL
C23
C25
IC2
BYP3
LED
BYP1
BYP2
C22
R27
R26
BUFF
C51
Q2
TP1
C24
R29
IC3
BIAS1
C21
C19
R22
R23
R24
R25
C20
R28
R30
R31
TAILS
TP2

Resistors		Resistors		Caps		Caps		Transistors	
R1	1M	R33	100k	C1	47n	C33	220n	Q1 - Q5	2n3904
R2	10k	R34	100k	C2	1uF	C34	100pF	Regulators	
R3	470k	R35	100k	C3	6n8	C35	1uF	REG1	78L15
R4	10k	R36	10k	C4	100pF	C36	100n	REG2	78L15
R5	10k	R37	10k	C5	100pF	C37	1uF	ICs	
R6	47k	R38	10k	C6	6n8	C38	1uF	IC1	TL074
R7	47k	R39	10k	C7	1uF	C39	100uF	IC2	NE570
R8	47k	R40	10k	C8	100pF	C40	2u2 BP	IC3	MN3005
R9	47k	R41	10k	C9	6n8	C41	2u2	IC4	MN3005
R10	10k	R42	10k	C10	1uF	C42	1uF	IC5	4558
R11	47k	R43	10M	C11	4u7	C43	1n	IC6	CD4047
R12	470R	R44	20k	C12	4u7	C44	1n	IC7	LT1054
R13	100k	R45	100k	C13	2u2	C45	240pF	Switches	
R14	10k	R46	47k	C14	4u7	C46	100n	MODE	2-pos. DIP
R15	47k	R47	10k	C15	220n	C47	220uF	Trimmers	
R16	470R	R48	10k	C16	100pF	C48	100n	LVL	5k
R17	100k	R49	47k	C17	100n	C49	47uF	BAL	10k
R18	10k	R50	15k	C18	10uF	C50	100uF	BIAS1	20k
R19	10k	R51	910k	C19	6n8	C51	100uF	BIAS2	20k
R20	27k	R52	68k	C20	82n	C52	47uF	CLOCK	500k
R21	27k	R53	120k	C21	330pF	C53	47uF	Pots	
R22	10k	R54	3k3	C22	1uF	Diodes		FDBK	50kB
R23	10k	R55	13k	C23	1uF	D1	1n5817	MIX	50kB
R24	10k	R56	10k	C24	1uF	D2	1n4001	DEPTH	100kA
R25	10k	R57	27k	C25	1uF	D3	1n5817	DELAY	500kB
R26	100k	R58	27k	C26	2n2	D4	1n5817	RATE	1MC
R27	1k5	R59	6k8	C27	33n	D5	15v Zener		
R28	100k	R60	120k	C28	1n				
R29	100k	R61	10k	C29	39n				
R30	4k7	R62	10k	C30	330pF				
R31	4k7	R63	22R	C31	1uF				
R32	1k5	R64	4k7	C32	2u2				

Value	QTY	Type	Rating	Value	QTY	Type	Rating
22R	1	Metal / Carbon Film	1/4W	1uF	7	Electroltyic	25v Min.
470R	2	Metal / Carbon Film	1/4W	2u2	3	Electroltyic	25v Min.
1k5	2	Metal / Carbon Film	1/4W	2u2 BP	1	Electroltyic, Non-Polar / BiPolar	25v
3k3	1	Metal / Carbon Film	1/4W	4u7	3	Electroltyic	25v
4k7	3	Metal / Carbon Film	1/4W	10uF	1	Electroltyic	25v
6k8	1	Metal / Carbon Film	1/4W	47uF	3	Electroltyic	25v
10k	23	Metal / Carbon Film	1/4W	100uF	3	Electroltyic	25v
13k	1	Metal / Carbon Film	1/4W	220uF	1	Electroltyic	25v
15k	1	Metal / Carbon Film	1/4W	1n5817	3		
20k	1	Metal / Carbon Film	1/4W	1n4001	1		
27k	4	Metal / Carbon Film	1/4W	Zener	1	15v	1W
47k	8	Metal / Carbon Film	1/4W	2n3904	5		
68k	1	Metal / Carbon Film	1/4W	78L15	2	TO-92 style	
100k	9	Metal / Carbon Film	1/4W	TL074	1		
120k	2	Metal / Carbon Film	1/4W	NE570	1		
470k	1	Metal / Carbon Film	1/4W	MN3005	2		
910k	1	Metal / Carbon Film	1/4W	4558	1		
1M	1	Metal / Carbon Film	1/4W	CD4047	1		
10M	1	Metal / Carbon Film	1/4W	LT1054	1		
100pF	5	Ceramic / MLCC	25v Min.	DIP	1	2-pos. Dip switch OR Mini DPDT	
240pF	1	Ceramic / Mica	25v Min.	5k	1	Bourns 3362p OR 6mm style	
330pF	2	Ceramic / MLCC	25v Min.	10k	1	Bourns 3362p OR 6mm style	
1n	3	Film	25v Min.	20k	2	Bourns 3362p OR 6mm style	
2n2	1	Film	25v Min.	500k	1	Bourns 3362p OR 6mm style	
6n8	4	Film	25v Min.	50kB	2	PCB Right Angle	16mm
33n	1	Film	25v Min.	100kA	1	PCB Right Angle	16mm
39n	1	Film	25v Min.	500kB	1	PCB Right Angle	16mm
47n	1	Film	25v Min.	1MC	1	PCB Right Angle	16mm
82n	1	Film	25v Min.				
100n	4	Film	25v Min.				
220n	2	Film	25v Min.				
1uF	5	Film	25v Min.				

2u2 BP:
https://www.mouser.com/ProductDetail/647-UVP1H2R2MDD
https://smallbear-electronics.mybigcommerce.com/electrolytic-radial-50v-non-polarized/

CD4047:
https://www.mouser.com/ProductDetail/595-CD4047BE
https://www.taydaelectronics.com/cd4047-4047-ic-cmos-monostable-multivibrators-926.html
https://stompboxparts.com/semiconductors/cd4047be-cmos-monostable-astable-multivibrator-ic/
https://smallbear-electronics.mybigcommerce.com/ic-cd4047/

LT1054:
https://www.mouser.com/ProductDetail/595-LT1054IP
https://stompboxparts.com/voltage-regulators/lt1054-charge-pump-ic/
https://smallbear-electronics.mybigcommerce.com/ic-lt1054cp/

v571 (sub for NE570):
https://stompboxparts.com/semiconductors/v571d-dual-compander-ic/
https://cabintechglobal.com/semi (Under Analog Signal Processing section).

XVIVE MN3005:
https://cabintechglobal.com/semi (Under BBD section).
https://synthcube.com/cart/xvive-mn3005-bbd-clone-ic-14-pin-dip-package?search=mn3005&description=true
https://smallbear-electronics.mybigcommerce.com/mn3005-xvive-bbd-clone-dip-14-8-pins/
https://smallbear-electronics.mybigcommerce.com/mn3005-bucket-brigade-delay-analog-ic-original-nos/

78L15:
https://www.mouser.com/ProductDetail/511-L78L15ACZ
https://smallbear-electronics.mybigcommerce.com/ic-78l15/
https://stompboxparts.com/semiconductors/lm78l15acz-voltage-regulator-15v/
https://www.taydaelectronics.com/mc78l15ac-mc78l15-terminal-positive-voltage-regulator-ic-15v-0-1a-to-92.html

Bourns 3362p:
https://www.taydaelectronics.com/potentiometer-variable-resistors/cermet-potentiometers/3362p.html
https://stompboxparts.com/pots/trim-pot-3362p/

6mm trimmer (sub for Bourns):
https://www.taydaelectronics.com/potentiometer-variable-resistors/trimmers/6mm-top-adjustment.html
https://smallbear-electronics.mybigcommerce.com/6mm-trimpot/

DIP Switch
https://smallbear-electronics.mybigcommerce.com/dip-switch-2-position/
https://stompboxparts.com/switches/dip-switch-2-position/
https://www.taydaelectronics.com/dip-switch-2-positions-gold-plated-contacts-top-actuated.html

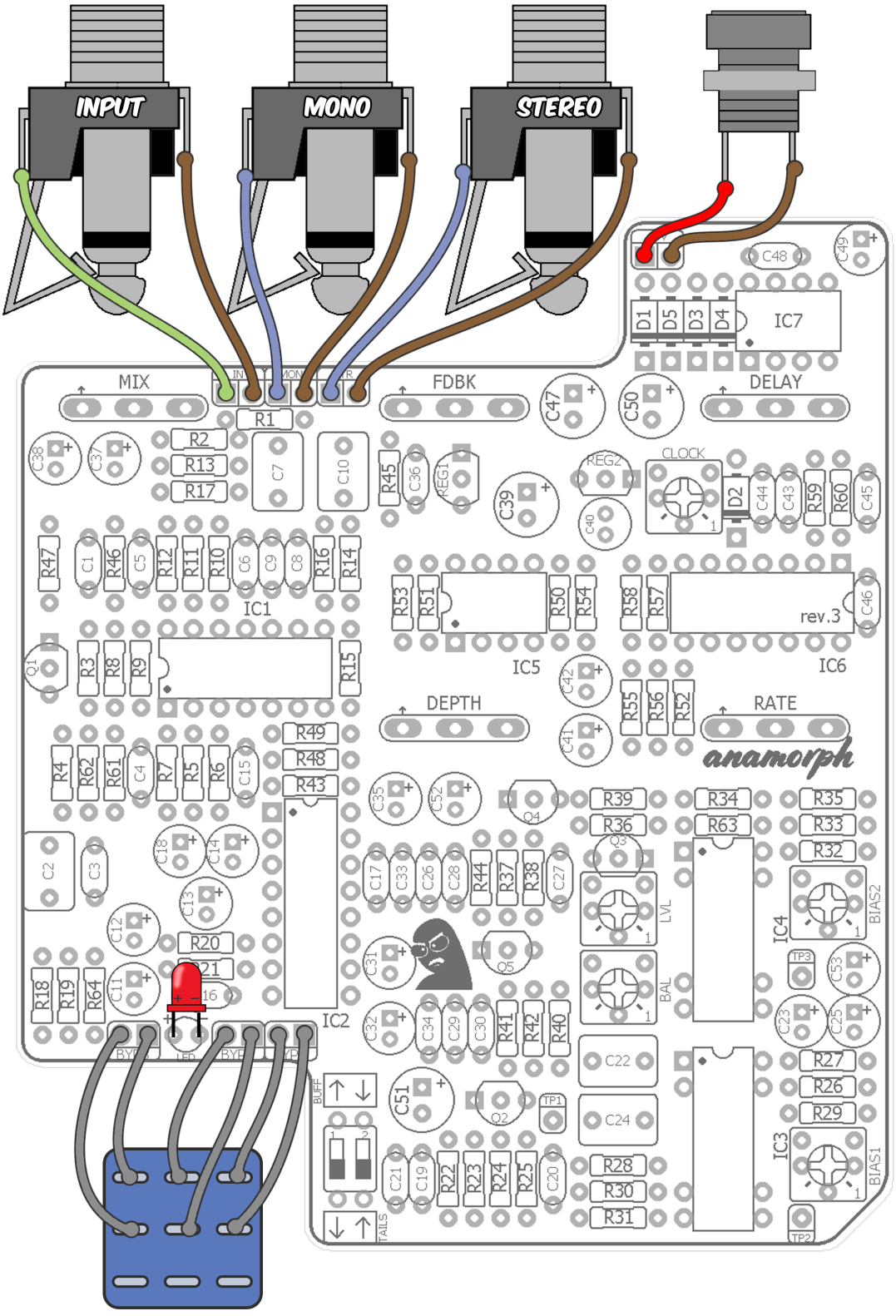
Sub-Mini DPDT (On/On) - Sub for DIP switch:
https://lovemyswitches.com/taiway-sub-mini-dpdt-on-on-switch-pcb-mount-short-shaft/
https://smallbear-electronics.mybigcommerce.com/dpdt-on-on-sub-mini-pc-mount-short-lever/

16mm Pots:
https://stompboxparts.com/pots/16mm-potentiometer-short-pcb-leg/
https://smallbear-electronics.mybigcommerce.com/alpha-single-gang-16mm-right-angle-pc-mount/

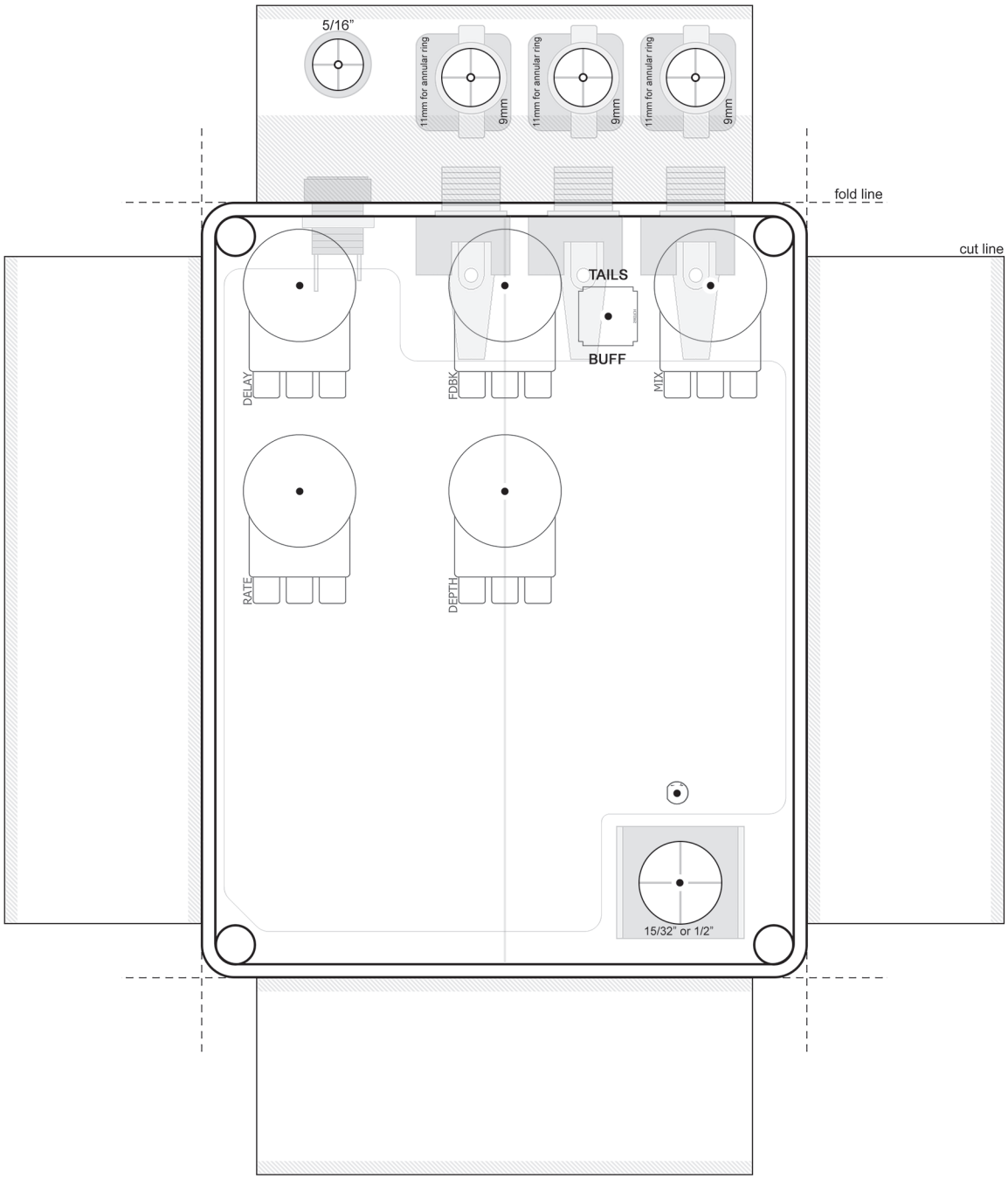
DC Jacks:
https://smallbear-electronics.mybigcommerce.com/dc-power-jack-all-plastic-unswitched-2-1-mm/
https://stompboxparts.com/power-connections/dc-power-jack-2-1mm-low-profile/
https://lovemyswitches.com/thinline-lumberg-dc-power-jack-2-1mm/

1/4" jacks:
https://lovemyswitches.com/1-4-mono-jack-lumberg-klbm-3/
Sub - Lumberg Stereo Jack: https://lovemyswitches.com/1-4-stereo-jack-lumberg-klb-3/

My preferred 3PDT switch:
https://lovemyswitches.com/pro-3pdt-latched-foot-switch-solder-lugs-feather-soft-click/


INPUT
MONO
STEREO
MIX
FDBK
DELAY
CLOCK
DEPTH
RATE
IC1
IC2
IC3
IC4
IC5
IC6
IC7
rev.3
anamorph
LED
BYPASS
BUFF
TAILS
LVL
BAL
BIAS1
BIAS2

Note: *Drill Guides are approximate and may require tweaking depending on the types of jacks, switches and pots you use.*



Alternate:
https://drill.taydakits.com/box-designs/new?public_key=bXZFR041OFJBYytyZHlVUnJCcmZWdz09Cg==
(This template has not been tested through the Tayda Drilling service, but is based directly on the print version above.)

They Tayda drill template does include the external Tails/Buff hole. If you are not using that be sure to delete the hole on the template. It is the 5mm hole on the “A” side located at 15.557, 40.15.

IC1	TL074
1	7.55
2	7.55
3	7.55
4	15.14
5	7.55
6	7.55
7	7.55
8	7.55
9	7.55
10	7.55
11	0
12	7.55
13	7.55
14	7.55

IC2	NE570
1	1.21
2	1.77
3	1.77
4	0
5	1.78
6	1.77
7	4.81
8	1.78
9	1.78
10	4.83
11	4.83
12	1.78
13	15.14
14	1.77
15	1.77
16	0.91

IC3	MN3005
1	15.07
2	7.46
3	7.96
4	7.95
5	0
6	7.47
7	8.05
8	1.08

IC4	MN3005
1	15.07
2	7.46
3	7.92
4	7.92
5	0
6	7.47
7	8.82
8	1.04

IC5	4558
1	varies
2	~7.9
3	~7.8
4	0
5	~7.9
6	~7.9
7	varies
8	15.01

IC6	CD4047
1	7.06
2	7.93
3	7.95
4	15.01
5	15.01
6	15.01
7	0
8	0
9	0
10	7.47
11	7.47
12	0
13	7.07
14	15.01

IC7	LT1054
1	1.65
2	4.97
3	0
4	0
5	0
6	2.57
7	1.29
8	9.2

Q1	2n3904
C	15.14
B	5.97
E	5.51

Q2	2n3904
C	15.14
B	4.73
E	4.08

Q3	2n3904
C	15.07
B	7.92
E	7.3

Q4	2n3904
C	15.14
B	7.14
E	6.51

Q5	2n3904
C	15.14
B	6.44
E	5.79

REG1	78L15
I	17.46
G	0
O	15.14

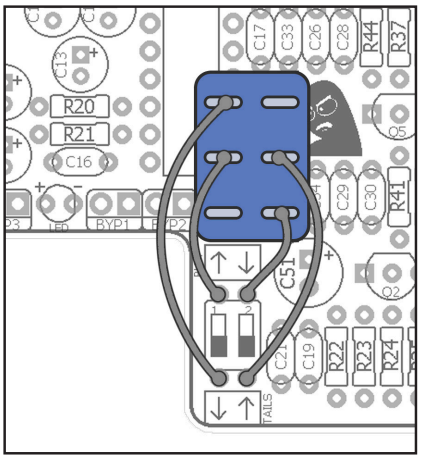
REG2	78L15
I	17.46
G	0
O	15.01

- 9.5vDC One Spot
- Current Draw: ~63mA
- Some results will vary depending on trimmer settings.
- Clock freq. @ max delay time: 10.48kHz

- It should be noted that although I've labeled the Anamorph as a "stereo delay" it is not true stereo. True stereo requires independent delay lines and many, many more parts to accomplish. Not impossible for DIY but also not very practical. The way the stereo output works in the Anamorph is by making a copy of the dry signal and mixing it with an inverted (out of phase) copy of the delay signal. When the two outputs are used, it creates a stereo widening effect. Much more lush sounding than a mono effect. The delay signal still sits very much in the middle of the two outputs, but the mix with the dry signal makes it sound huge. That said, you do not have to run the Anamorph in stereo. You can use it in mono setups by just using the Mono output.

- While it's certainly possible to design an stereo analog delay that is true-bypass, I chose to make the Anamorph buffered bypass instead. This allowed for a "Tails" bypass option (delay trails fade naturally when the effect is bypassed). Since Tails may not to be to everyone's taste, the Anamorph also has a no-Tails option. When the no-Tails option (labeled BUFF by the DIP switch) is used, the delay will cut off abruptly when the effect is bypassed. The two modes are selected by the DIP switch settings indicated on the Anamorph PCB.

- If you'd like to have that option be external, you can replace the 2-pos. DIP switch with a Submini DPDT On/On switch. Use the guide below to wire the Submini DPDT. You'll want to make those wires pretty long to reach the drill spot designated for the DPDT at the top of the enclosure.



- The base circuit is modeled after the DM-2 but there are a number of design departures. These are small improvements I've added based on my experience working with analog delays over a number of years. Most, but not all, are focused on the compander to improve its performance and response.

- At the end of this document there are a few mod ideas suggested which you can try yourself. I've also included some alternate BOM values if you want to change the pre and post emphasis filter networks to align with other popular analog delays like the AD900, FX-90, etc. These are untested in the Anamorph but some builders may enjoy tweaking the project to something other than the DM-2 "sound".

- About this build: it's not for beginners. You shouldn't take this project on unless you've built at least a few pedals already and are comfortable with the possibility of debugging a rather complex circuit. That said, I've made it as easy as I can. If you follow the calibration procedure, have a multimeter and audio probe you should be able to successfully build the Anamorph. Just have patience and be attentive throughout the whole process!

The Anamorph requires calibration to function. There are a number of trimpots that need to be set to “tell” the circuit how to behave. Fortunately, it’s really not hard and can be done by ear. Of course, you can also calibrate using an oscilloscope, but since the majority of DIY’ers don’t typically have a $300-500 tool like that, I will simply describe how you can get perfectly fine results just using basic tools.

The only tools required for this process are a digital multimeter and audio probe. If you do not have an audio probe, make one! You can find info about it on the mbp forum or the DIYSB forum. It also helps if you have some sort of prototyping rig so that you don’t have to solder up all the 1/4” jacks and DC jacks to do this step. And, I hope it goes without saying that you do not want to box this project up UNTIL calibraiton is complete.

Getting Started

1. Load in all the ICs except for the two BBDs, IC3 and IC4.
2. Set all trimpots to their center position.
3. Set all pots fully CCW except the Delay control. Set that to full CW.

Plug in your 9v power

4. Using your DMM, spot check some voltages to verify you have the correct power. Check IC1 pin4, and IC5 pin8. You should have about 15v on both of those. If not, you need to review the voltages on the charge pump (IC7) and check the outputs of the two regulators, REG1 and REG2. Finally, check IC3 pin1. Again, it should be about 15v.
5. Set your DMM to the frequency reading. Check either pin10 or 11 of IC6. Adjust the CLOCK trimmer so that you read about 14kHz on one of those pins. It doesn’t need to be exact, this is just to get started. We’re setting a reasonable clock frequency to calibrate the BBDs, then we’ll go back and set this optimally later on.

Unplug the 9v power. Load IC3. Reconnect power

6. For this next step there is a small mistake on the PCB. If you look at the schematic there are several test points labeled as flags: TP1, TP2, TP3. These correspond to pads on the Anamorph PCB. However, I mislabeled the test points on the PCB, so the “TP1” pad is actually TP2 on the schematic (output of IC3) and the “TP2” pad is actually TP1 on the schematic (input of IC3). Just follow the next step to avoid confusion.
7. Using your audio probe, check TP2 on the PCB. This is the input of the first BBD, IC3. You should have a fairly loud audio signal here (you’ll want to play some notes on guitar or connect an audio source to the effect input for this step, obviously). If you have no signal here, STOP. Go back and audio probe pin7 of IC2 to check for output from the compander. If you have no output there, audio probe pin6 of IC2 to see if signal is going into the compander. Debug as needed.
8. If you have audio at TP2, the next step is to audio probe TP1. This is the output of the first BBD. Adjust the BIAS1 trimpot until you have the cleanest sounding output possible. You can adjust the Delay control to 50% or less if that helps.

9. Unplug the 9v power. Load IC4. Reconnect power

10. Audio probe TP3. Repeat the same process using BIAS2. Adjust that trimmer for the cleanest sounding delay output on the second BBD. You can adjust the Delay control as needed to ensure you get the best result. For both BIAS1 and BIAS2, this is usually right around the middle. You may hear clock noise while calibrating the BBDs directly. Don’t worry, that will go away once it goes through the additional filtering in the circuit.
11. Since we are doing by-ear calibration, just leave the BAL trimmer in the middle. This trimmer requires a scope and is set so that there is minimal distortion on the two BBD outputs. It generally cannot be determined by listening only.

Final Steps

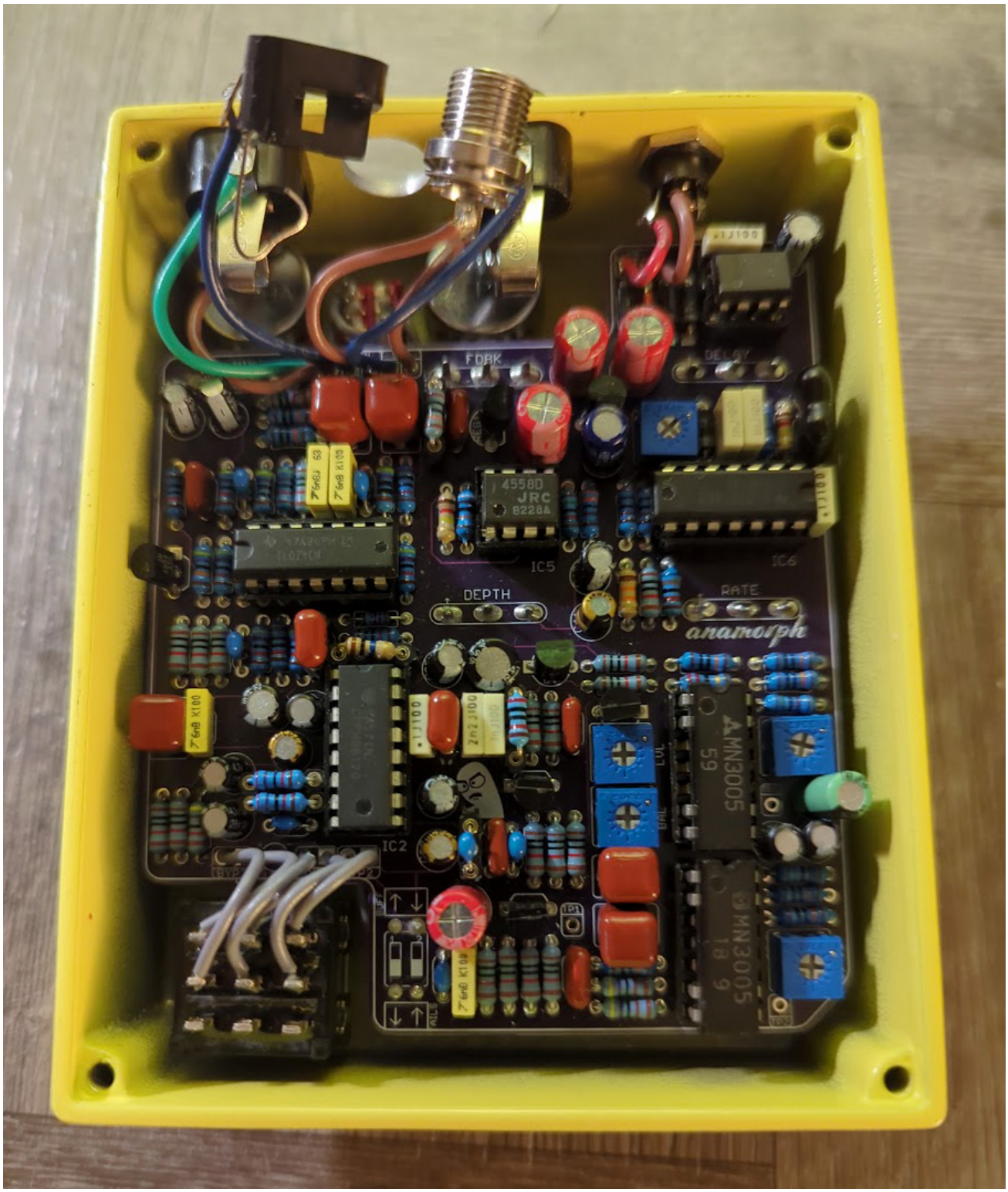
Unfortunately, I forgot to add a test point pad on the PCB for the next part. That's okay, you can just use your audio probe to connect directly to the relevant part.

1. Using your audio probe again, connect to R36 (on the right sided pad). This is the output of the LVL trimmer. Set this trimmer so that the output here is about the same volume as the volume at TP2, the input of IC3. This ensures the audio levels before and after the BBDs are the same. We will adjust this again later on.

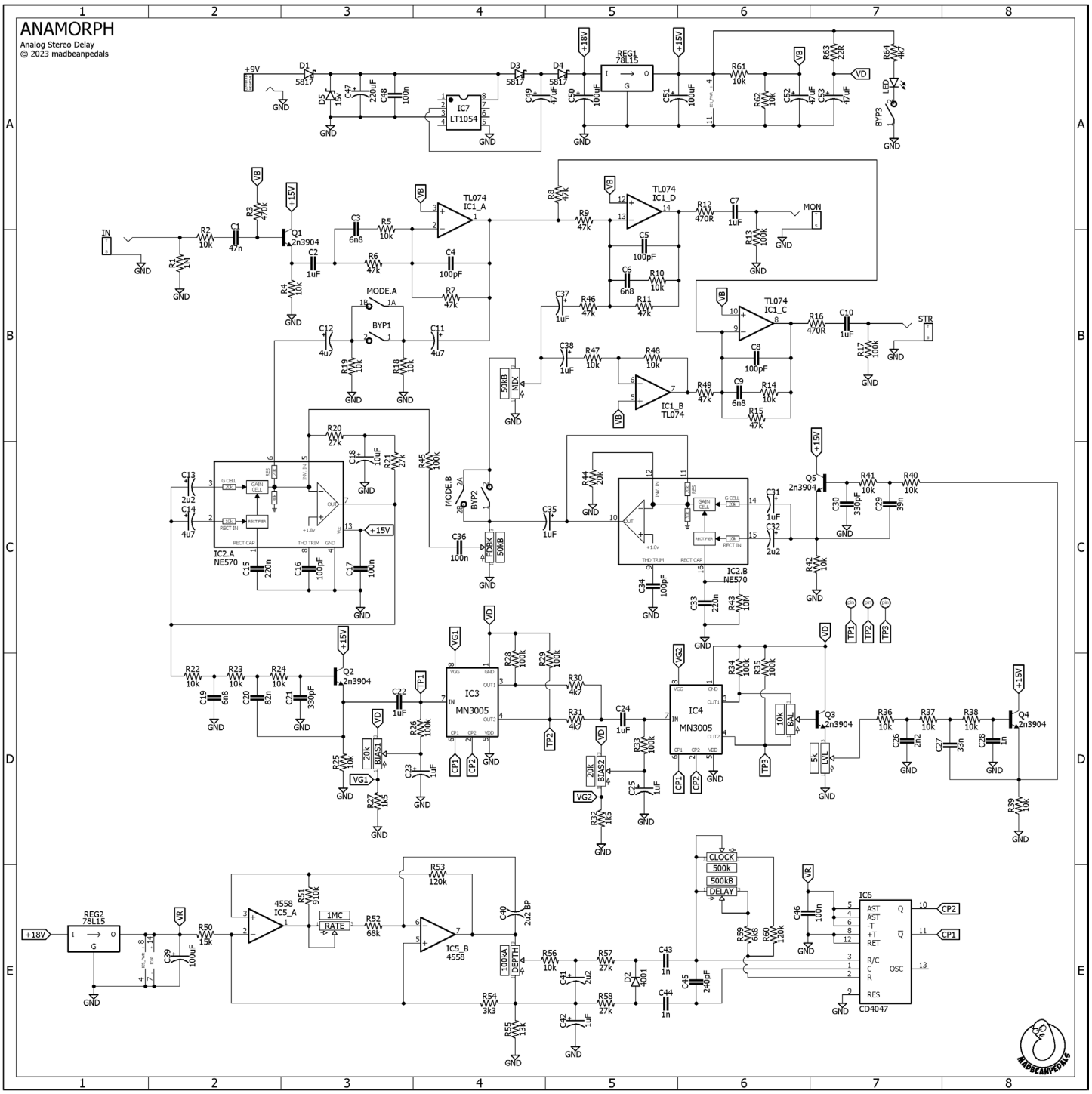
2. We're done with audio probing and now can move on to the final steps. Set the Delay and Mix controls to 50%. Set FDBK to about 75%. Listening to the effect output, adjust the LVL trimpot again so that the delay repeats start to go into self-oscillation. You may need to adjust the LVL trimpot up or down to achieve this. The idea here is that we want the delays to be loud enough through most of the FDBK range to give us the maximum number of repeats, and once we have the FDBK control most of the way up, those repeats will start to self-oscillate. You can make fine adjustments here as much as you need. It won't undo any of the calibration we've already worked through.

3. Now set the Delay control full CW. Adjust the CLOCK trimmer for the longest delay time achievable without any noise or artifact on the repeats. If you go too far, the repeats will start to sound bit crushed and dithered. For me, that setting was about 10.5kHz although I probably could have pushed it slightly lower (lower frequency equals longer delay time here). This resulted in around 550ms or so of delay which is expected for this design.

Calibration is complete! Be sure to check your modulation controls as well.



You can see here how I broke my Wookie by over-tightening his nut. First time.


ANAMORPH
Analog Stereo Delay
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IC1_A TL074
IC1_B TL074
IC1_C TL074
IC1_D TL074
IC2.A NE570
IC2.B NE570
IC3 MN3005
IC4 MN3005
IC5_A 4558
IC5_B 4558
IC6 CD4047
REG1 78L15
REG2 78L15
IC7 LT1054
Q1 2n3904
Q2 2n3904
Q3 2n3904
Q4 2n3904
Q5 2n3904
MODE.A
MODE.B
BYP1
BYP2
BYP3
1MC
RATE
DEPTH
CLOCK
500k
500kB
DELAY
BIAS1
BIAS2
BAL
LVL
IN
MON
STR
LED
GND
+9V
+18V
+15V
VB
VD
VG1
VG2
VR

Below are two alternate BOMs for the pre and post Sallen-Key style filtering. These have not been tested with the Anamorph but do provide an alternative if you want to experiment.

Stock				FX-90				AD-900			
R22	10k	C19	6n8	R22	27k	C19	1n8	R22	10k	C19	10n
R23	10k	C20	82n	R23	27k	C20	8n2	R23	10k	C20	56n
R24	10k	C21	330pF	R24	27k	C21	470pF	R24	10k	C21	330pF
R25	10k			R25	10k			R25	10k		
R36	10k	C26	2n2	R36	27k	C26	2n2	R36	10k	C26	3n9
R37	10k	C27	33n	R37	27k	C27	6n8	R37	10k	C27	39n
R38	10k	C28	1n	R38	27k	C28	470pF	R38	10k	C28	820pF
R39	10k			R39	10k			R39	10k		
R40	10k	C29	39n	R40	27k	C29	6n8	R40	10k	C29	27n
R41	10k	C30	330pF	R41	27k	C30	470pF	R41	10k	C30	470pF
R42	10k			R42	10k			R42	10k		

Note: The FX-90 has one extra LP filter. It's 27k and 2n2 and it goes right before R40/C29

- The Depth control is extremely sensitive. You can reduce that by increasing the value of R56

- The NE570 has default output voltages of 1.8v which is not ideal for most guitar pedal applications. You can increase the voltage output of the compander by increasing the values of R20/R21 and/or decreasing the value of R44. On the DM-2, R20/R21 are 10k. This results in a 3v output on pin7 which is then used to bias the base of Q2. Sticking with that 1/3rd supply voltage rule (since the DM-2 runs on 9v), I selected 27k for the Anamorph which results in about 5v output. You can increase these values to 47k or 68k for higher output. But, you will need to re-calibrate when doing so. 68k will give about 7.5v output which is the same as the Vb voltage.

- R44 is not present on the DM-2. Decreasing its value increases the output voltage on pin10. Using 20k here bumps the output up from 1.8v to about 5v. Decreasing R44 to 8k2 or 10k will again bump the output up to around the Vb level. None of these mods are necessary, but are offered as a conduit for experimentation and learning.

- R45 is the most drastic change. The feedback limiting resistor on the DM-2 is 22k. On the Anamorph I have increased it to 100k. I found the added resistance greatly reduced the amount of low end distortion produced by the compressor portion of the NE570. The NE570 is very much a compromise in its operation, being that it often doesn't respond quickly to large amplitude changes, esp. in low registers. The larger value resistor at in the feedback path seemed to solve the problem here. It would probably be beneficial to add series resistance to pin6 as well, but I didn't think of that until it was too late.