EQ Development tool

Based on:
Friedman BE-OD
Rev G3
Diezel VH4
EQD Talons
Amp Tone stack

Effect type:
Pedal Development Tool
Eq Add-on

Build difficult:
Advanced

Enclosure type:
1790NS

Get your board at:
Volcano Device

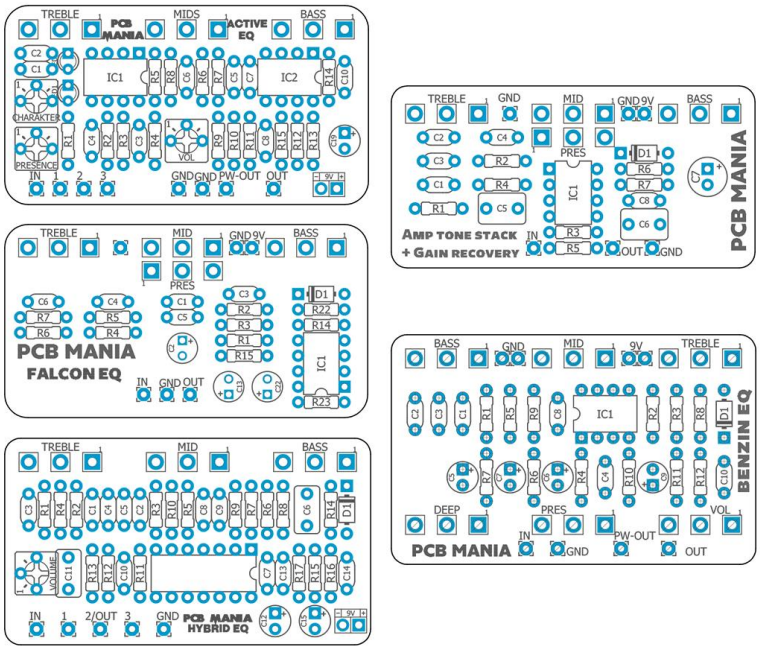
Get your kit at:
Das Musikding (Europe)

Project overview:

Have you ever wonder how it will be an Acapulco gold with extended EQ? or how nice it would be a Tube screamer with an active EQ section? Maybe Wampler Plexi with the Eq Section of the Freeman Be-od to make your own ultimate plexi? Well now all of that is possible with our new EQ pack, consisting of 5 modular boards with the isolated tone controls of some of the most famous pedals out there.

We created the EQ packs answering our need of creating and developing new projects. This set of 4 different EQ sections had been designed with the idea of being an add-on to any of pedals that lacks of a tone stack or that has one that you don't feel it takes the best out of your unite.

Our ultimate goal is to allow YOU to create your own designs, mixing and experimenting with classic effects, with one knob fuzzes and more!
Important! You should be able to read schematics to fully understand how and where to add this eqs on the best possible way.



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Introduction

This pack includes five of the most versatile and useful tone stacks in order to fulfil al your needs and to cover the whole spectrum of possibilities.

Hybrid EQ: Based on the the EQ section of the REVV G3 and G4 present on our Revolution III and IV. Combines a Baxandall section for the bass and treble frequencies with an active mid control section.

In this project we have included a Volume trim pot instead of the vol pot on the Revv. This could be bypassed, or you can connect an external pot through the numeric PADS (1, 2/OUT, 3)

Active EQ: Based on the Freeman BE-OD and the Dirty Shirley EQ section. We consider this EQ the best fit for Preamp emulator projects and high gain pedals.

Certainly the most complex of the pack. Includes an internal Presence control, followed by Character trimpot that regulates how a set of LEDs compress the signal. Then we jump into a passive treble control, followed by an Active Bass section. Now's when you have to choose if you want to have a volume control of the overall circuit inserted here from your main PCB board (Tube screamer, Plexi, etc) or to place just an internal trimmer as an additional control. After this volume section it comes the active mids control.

One of the characteristic that makes this board the best solution for preamps and high output circuits it's the Power output option, this works the best for those high output preamps to go and feed directly into a power amp, and the regular output will be tamed into a more pedal friendly volume. If you are using this board with a pedal that's not famous for his big output (Klon centaur for example) you should use the power output.

Amp Tone stack + Gain recovery: This Tone section is more focus on the ones that prefer a more classic and amp alike approach on their builds.

Recreates the 3 bands tone stack on the same way as it's on tube amplifier and on many other famous amp in a box pedals (Catalinbread dirty little secret). This board allows you to experiment with different values in order to get different tone response based on many classic amps.

Following the tone section we have an external Presence control that follows the same amp a like logic. As usually this tone stacks suck a lot of volume and gain, we have included at last one gain recovery stage. If you want to go with a more vintage approach you can easily bypass this last section.

Falcon EQ: Based on EQD Talons tone section. Advertised as an active EQ by the people form Akron, Ohio this EQ acts as a booster of the selected frequencies above twelve o'clock.

Includes an external Presence control that goes before the 3 band tone stack.

Benzin EQ: Based on the tone control of the Diezel VH4, this is definitely the one with more knobs, the one that will make tweakholics and high fans fall in love as equal!

At first it might look like pretty similar to the **Amp Tone stack + Gain recovery**, as the first section looks pretty similar. Both start with the 3 band Amp tone stack and the Gain recovery stage. However the first difference is the Presence control, located after the gain recovery stage and bounded with the Deep Control.

This design also includes the possibility of have two simultaneous outputs as the **Active EQ**, featuring the same type of power output and tame output.

Important! You should be able to read schematics to fully understand how and where to add this eqs on the best possible way.

How to use them: there are many different ways of using this EQ boards, for example if you want to use them with our Preamp sections based on Bajaman designs you can simply add them after the preamp section, like if it was another pedal in series. The same principle applies with fuzzes or drives that lacks of a tone control section. You can even try them even before the main Effect.

For that purpose we even recommend to box the Eqs as if they were normal pedals so you can plug them and compare them easily.

However if you want to insert this EQS as a replacement for a pedal that already has a Tone control, like a TS 808, KoT, Klon, etc, you should be able to read schematics and spot which is the best part to place them and which parts of the original circuit you should remove. Any doubt you have about this could be answered on our Facebook group [PCB Guitar Mania – Builders Group.]

Bill of materials – Active EQ

Resistors	
Part	**Value**
R1	2K2
R2	33K
R3	33K
R4	2K2
R5	470K
R6	2K2
R7	2k2
R8	22K
R9	100K
R10	2K2
R11	150k
R12	100k
R13	20K
R14	22K
R15	2k2

Capacitors	
Part	**Value**
C1	10n
C2	4n7
C3	22n
C4	220n
C5	2n2
C6	10n
C7	220n
C8	2n2
C10	100n

Electrolytics Capacitors	
Part	**Value**
C19	22uf

Potentiometers	
Part	**Value**
BASS	100K C
MIDS	100K C
TREBLE	100K B

Trimpots	
Part	**Value**
CHARAKTER	100k
PRESENCE	10k
VOL	50k A

IC	
Part	**Value**
IC1	TL072
IC2	TL072

Diodes	
Part	**Value**
LED1	3mm LED
LED2	3mm LED

Shopping list – Active EQ

Resistors		
Qty	**Value**	**Parts**
1	100K	R9
1	100k	R12
1	150k	R11
1	20K	R13
2	22K	R8, R14
4	2K2	R1, R4, R6, R10
2	2k2	R7, R15
2	33K	R2, R3
1	470K	R5

Capacitors		
Qty	**Value**	**Parts**
1	100n	C10
2	10n	C1, C6
2	220n	C4, C7
1	22n	C3
2	2n2	C5, C8
1	4n7	C2

Electrolytics Capacitors		
Qty	**Value**	**Parts**
1	22uf	C19

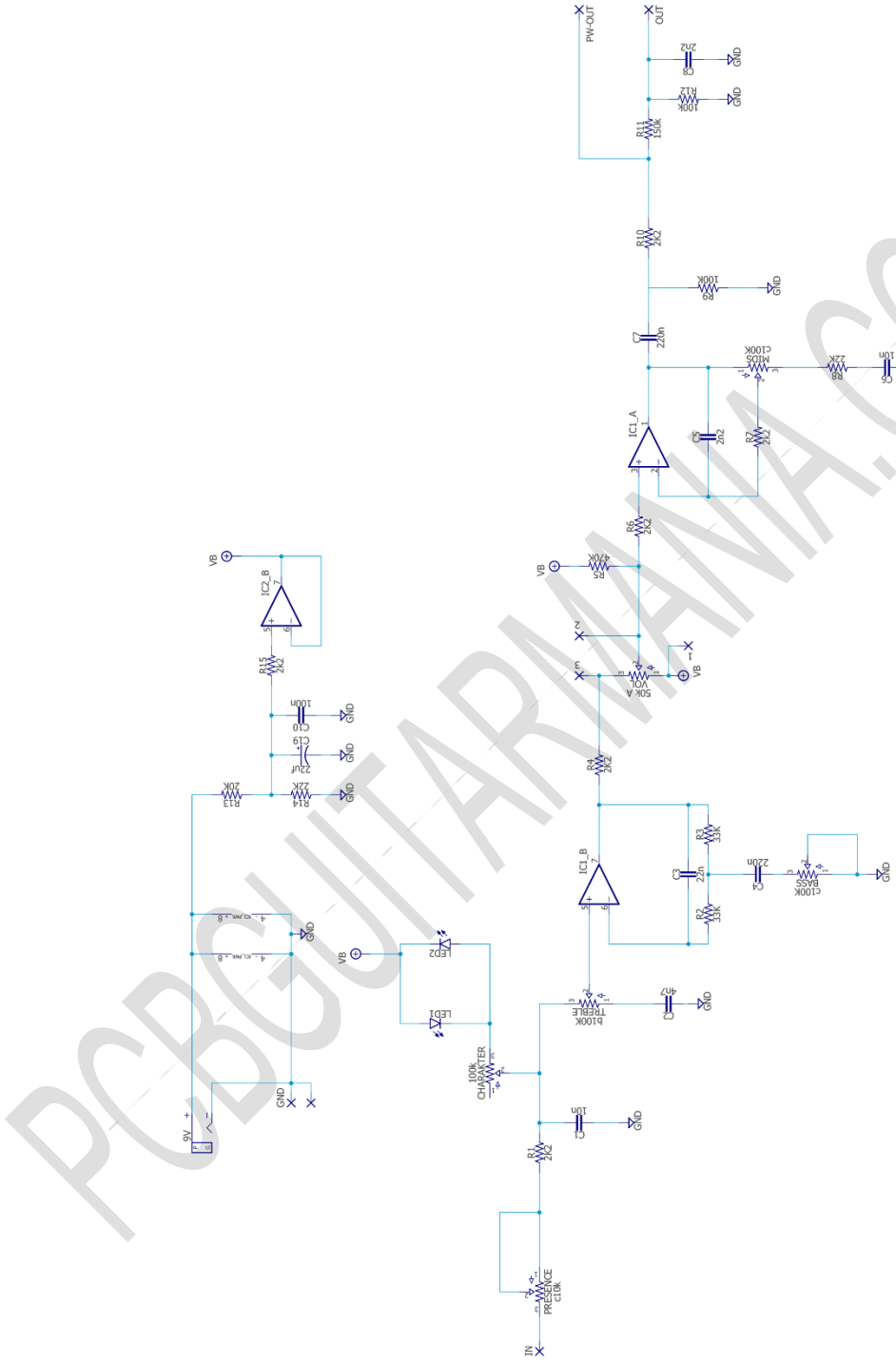
Potentiometers		
Qty	**Value**	**Parts**
1	b100K	TREBLE
2	c100K	BASS, MIDS

Trimpots		
Qty	**Value**	**Parts**
1	100k	CHARAKTER
1	50k A	VOL
1	10k	PRESENCE

IC		
Qty	**Value**	**Parts**
2	TL072	IC1, IC2

Diodes		
Qty	**Value**	**Parts**
2	3mm LED	LED1, LED2

Schematic – Active EQ



Bill of materials – Benzin EQ

Resistors	
Part	**Value**
R1	39k
R2	1M5
R3	100k
R4	10k
R5	4k7
R6	1k
R7	100r
R8	56k
R9	47r
R10	1k
R11	150k
R12	100k

Capacitors	
Part	**Value**
C1	560p
C2	22n
C3	22n
C4	1n
C8	330n
C10	2n2

Electrolytics Capacitors	
Part	**Value**
C5	10u
C6	1u
C7	2u2
C9	10u

Potentiometers	
Part	**Value**
BASS	1M A
DEEP	25K C
MID	25K B
PRES	25K C
TREBLE	250K B
VOL	10K A

IC	
Part	**Value**
IC1	TL072CP

Diodes	
Part	**Value**
D1	1n5817

Shopping list – Benzin EQ

Resistors		
Qty	**Value**	**Parts**
2	100k	R3, R12
1	100r	R7
1	10k	R4
1	150k	R11
1	1M5	R2
2	1k	R6, R10
1	39k	R1
1	47r	R9
1	4k7	R5
1	56k	R8

Capacitors		
Qty	**Value**	**Parts**
1	1n	C4
2	22n	C2, C3
1	2n2	C10
1	330n	C8
1	560p	C1

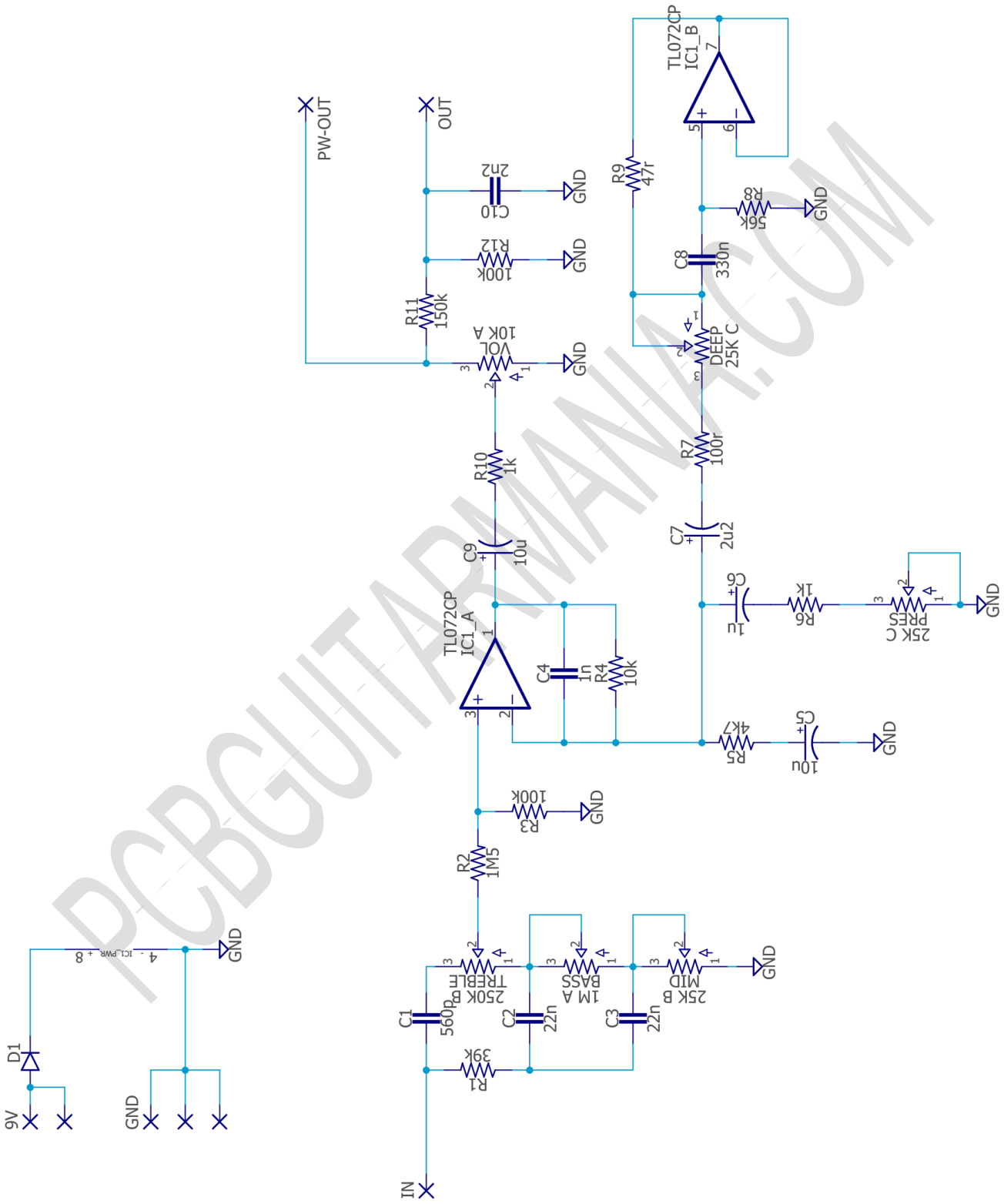
Electrolytics Capacitors		
Qty	**Value**	**Parts**
2	10u	C5, C9
1	1u	C6
1	2u2	C7

Potentiometers		
Qty	**Value**	**Parts**
1	10K A	VOL
1	1M A	BASS
1	250K B	TREBLE
1	25K B	MID
2	25K C	DEEP, PRES

IC		
Qty	**Value**	**Parts**
1	TL072CP	IC1

Diodes		
Qty	**Value**	**Parts**
1	1n5817	D1

Schematic – Benzin EQ



Bill of materials – Falcon EQ

Resistors	
Part	**Value**
R1	10K
R2	10K
R3	10K
R4	3K3
R5	3K3
R6	2K2
R7	2K2
R14	1K
R15	1K
R22	10K
R23	10K

Capacitors	
Part	**Value**
C1	3n3
C3	47n
C4	22n
C5	4n7
C6	4n7

Electrolytics Capacitors	
Part	**Value**
C2	1u
C13	2u2
C22	10u

Potentiometers	
Part	**Value**
BASS	B50K
MID	B50K
PRES	B5K
TREBLE	B100K

IC	
Part	**Value**
IC1	TL072

Diodes	
Part	**Value**
D1	1n5817

Shopping list – Falcon EQ

Resistors		
Qty	**Value**	**Parts**
5	10K	R1, R2, R3, R22, R23
2	1K	R14, R15
2	2K2	R6, R7
2	3K3	R4, R5

Capacitors		
Qty	**Value**	**Parts**
1	22n	C4
1	3n3	C1
1	47n	C3
2	4n7	C5, C6

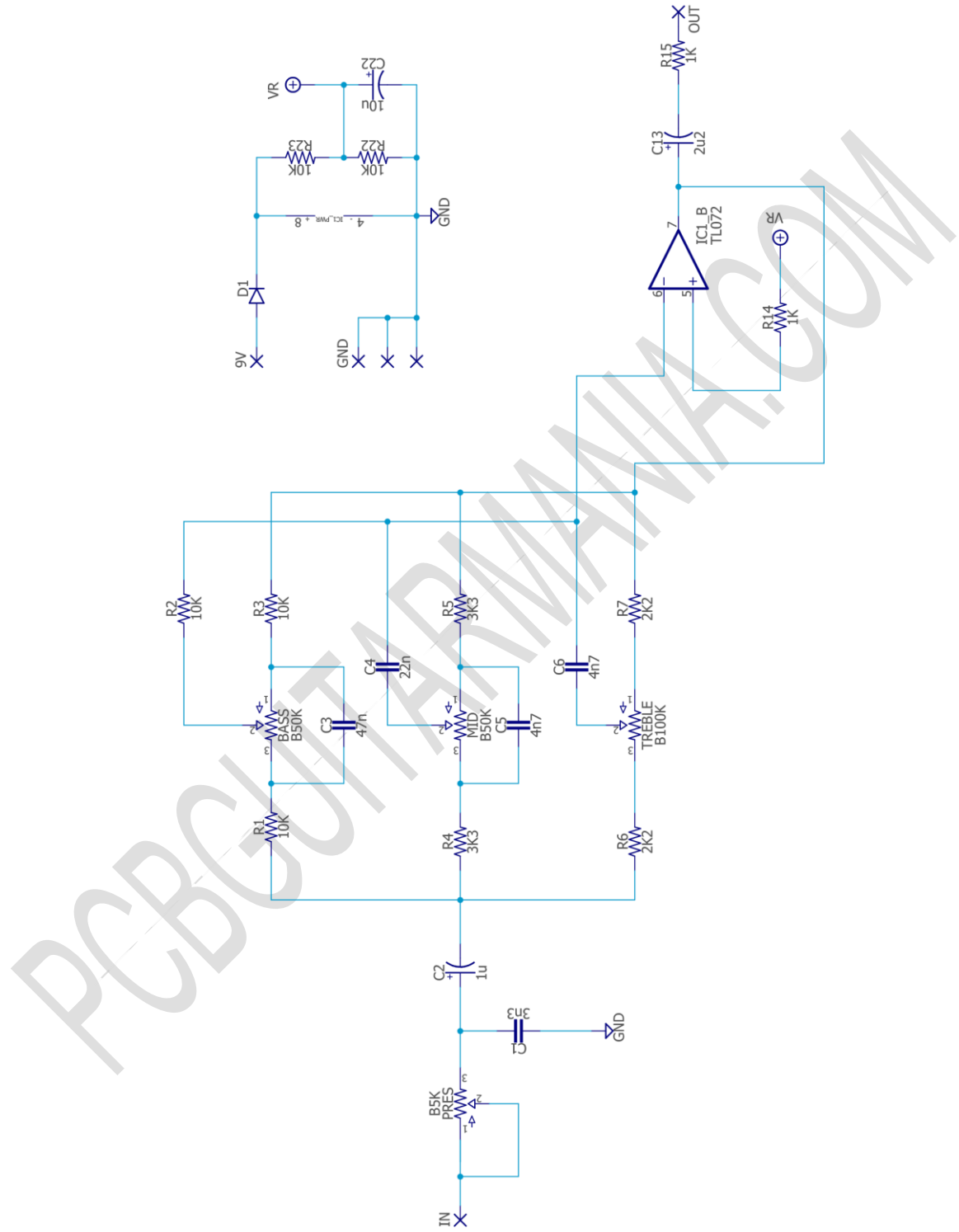
Electrolytics Capacitors		
Qty	**Value**	**Parts**
1	10u	C22
1	1u	C2
1	2u2	C13

Potentiometers		
Qty	**Value**	**Parts**
1	B100K	TREBLE
2	B50K	BASS, MID
1	B5K	PRES

IC		
Qty	**Value**	**Parts**
1	TL072	IC1

Diodes		
Qty	**Value**	**Parts**
1	1n5817	D1

Schematic – Falcon EQ



Bill of materials – Hybrid EQ

Resistors	
Part	**Value**
R1	100k
R2	4k7
R3	2k
R4	100k
R5	470k
R6	10k
R7	22k
R8	1m
R9	10k
R10	1k5
R11	10k
R12	470k
R13	2k
R14	10R
R15	20K
R16	20K
R17	1K5

Trimpots	
Part	**Value**
VOLUME	A50k

IC	
Part	**Value**
IC3	TLO74

Diodes	
Part	**Value**
D1	1N5817

Capacitors	
Part	**Value**
C1	47n
C2	100n
C3	4n7
C4	47n
C5	47n
C6	220nf
C7	2n2
C8	10n
C9	10n
C10	100p
C11	220nf
C13	100n
C14	100n

Electrolytics Capacitors	
Part	**Value**
C12	100u
C15	22u

Potentiometers	
Part	**Value**
BASS	A100K
MID	B100k
TREBLE	A50k

Shopping list – Hybrid EQ

Resistors		
Qty	**Value**	**Parts**
2	100k	R1, R4
1	10R	R14
3	10k	R6, R9, R11
1	1K5	R17
1	1k5	R10
1	1m	R8
2	20K	R15, R16
1	22k	R7
2	2k	R3, R13
2	470k	R5, R12
1	4k7	R2

Capacitors		
Qty	**Value**	**Parts**
3	100n	C2, C13, C14
1	100p	C10
2	10n	C8, C9
2	220nf	C6, C11
1	2n2	C7
3	47n	C1, C4, C5
1	4n7	C3

Electrolytics Capacitors		
Qty	**Value**	**Parts**
1	100u	C12
1	22u	C15

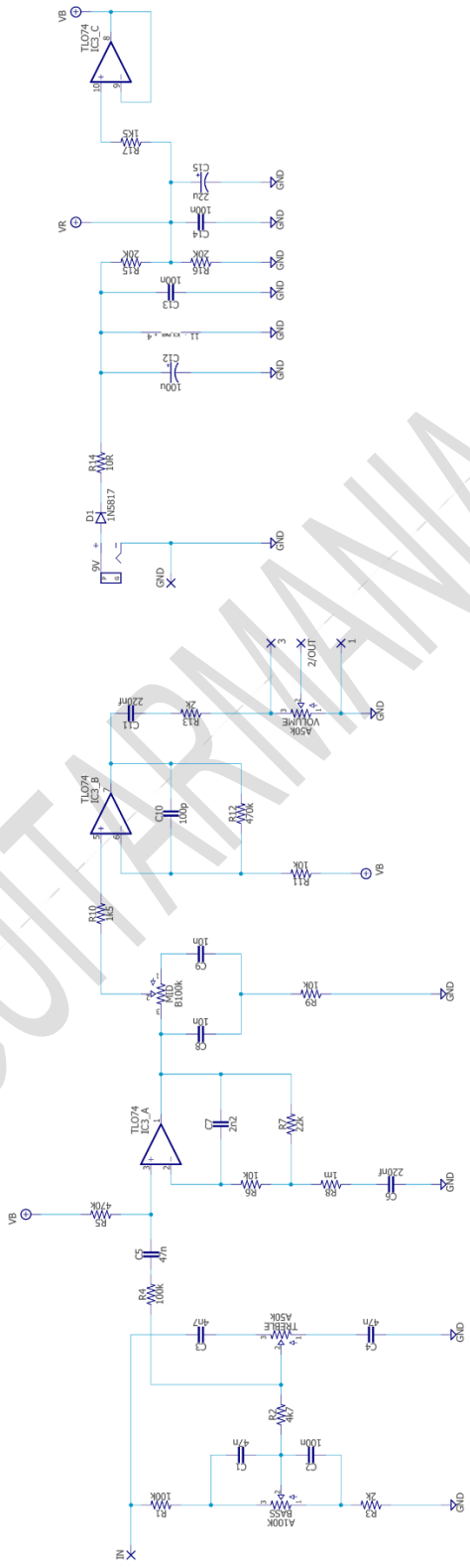
Potentiometers		
Qty	**Value**	**Parts**
1	A100K	BASS
1	A50k	TREBLE
1	B100k	MID

Trimpots		
Qty	**Value**	**Parts**
1	A50k	VOLUME

IC		
Qty	**Value**	**Parts**
1	TLO74	IC3

Diodes		
Qty	**Value**	**Parts**
1	1N5817	D1

Schematic – Hybrid EQ



Bill of materials – Amp Tone Stack + Gain Recovery

Resistors	
Part	**Value**
R1	47k
R2	22k
R3	1M
R4	4k7
R5	1k
R6	10k
R7	10k

Capacitors	
Part	**Value**
C1	680p
C2	22n
C3	22n
C4	3n3
C5	1U
C6	1u
C8	100n

Electrolytics Capacitors	
Part	**Value**
C7	220u

Potentiometers	
Part	**Value**
BASS	A 1M
MID	A 25k
PRES	B 25k
TREBLE	B 250k

IC	
Part	**Value**
IC1	TL062

Diodes	
Part	**Value**
D1	1n5817

Shopping list - Amp Tone Stack + Gain Recovery

Resistors		
Qty	**Value**	**Parts**
2	10k	R6, R7
1	1M	R3
1	1k	R5
1	22k	R2
1	47k	R1
1	4k7	R4

Capacitors		
Qty	**Value**	**Parts**
1	100n	C8
1	1U	C5
1	1u	C6
2	22n	C2, C3
1	3n3	C4
1	680p	C1

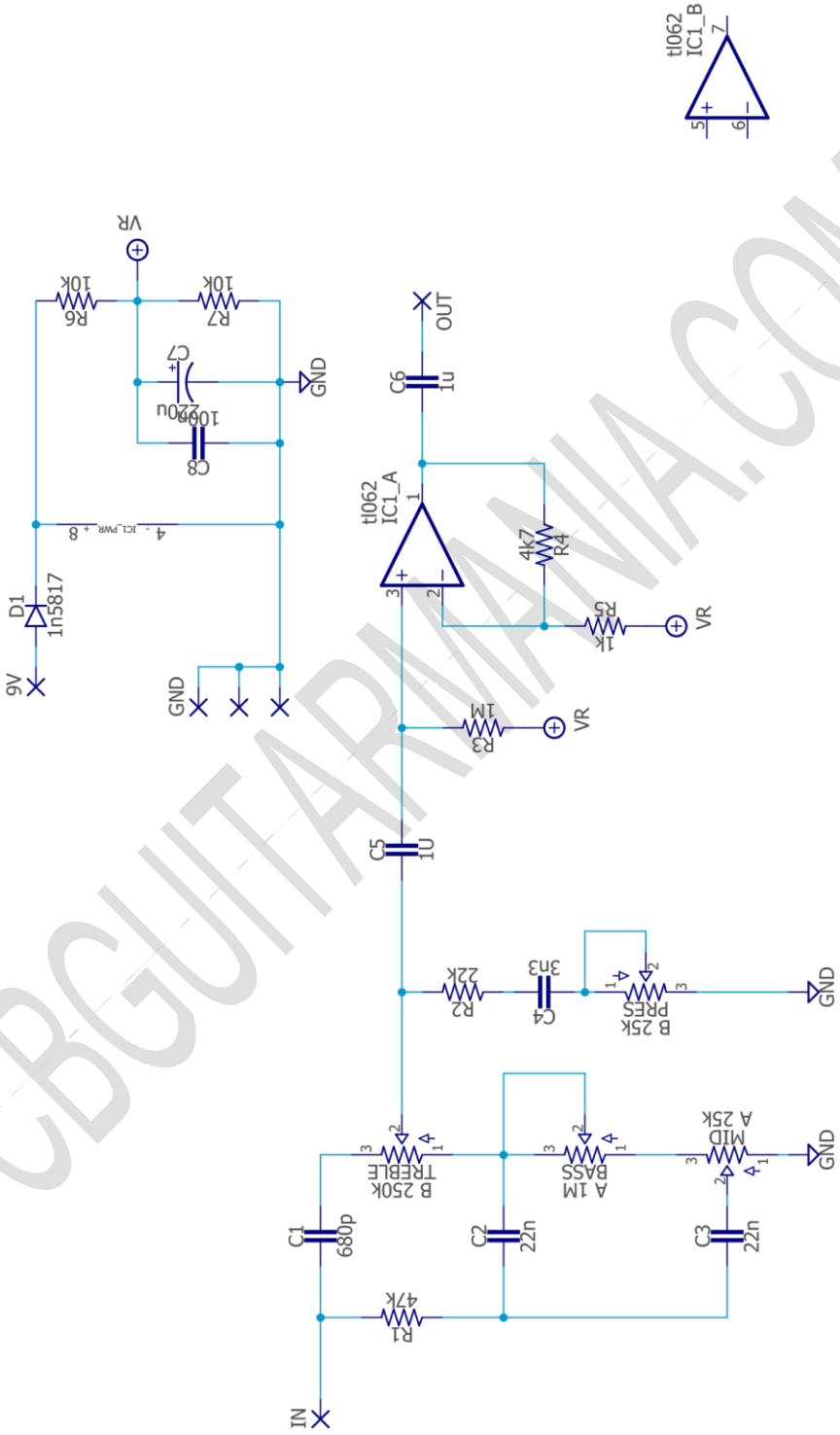
Electrolytics Capacitors		
Qty	**Value**	**Parts**
1	220u	C7

Potentiometers		
Qty	**Value**	**Parts**
1	A 1M	BASS
1	A 25k	MID
1	B 250k	TREBLE
1	B 25k	PRES

IC		
Qty	**Value**	**Parts**
1	TL062	IC1

Diodes		
Qty	**Value**	**Parts**
1	1n5817	D1

Schematic - Amp Tone Stack + Gain Recovery



Wiring Diagram

The easiest way to wire this project would be to use a single common input and split the signal in between all the boards in parallel. Place an individual jack for the output of each board.
You can also use asingle jack for the output with a rotary switch 1p12t to select which EQ is on. We are planning to include a board to mount this switch on future editions.

This board has been designed to match our EZ 3PDT PCB check it here to access to our Pedal Wiring Guide

Drill Template

This Project has been planned to fit into a 1790NS enclosure type. All the EQS in one box with the possibility of trying each of them individually so you can hear what fits the best for your project!

Check the Attached “Drilling templates” to drill the box properly. The files are on Scale 1:1, ready to print in an A4 page.

Licensing and Usage

We really appreciate your trust and support buying this PCB, as well as your will to dive into the DIY electronics world. That’s why for us is really important that you can make this project work properly and to enjoy not only the building process, but also to experiment and play with it on your rig.

We try to reply to every question we receive on our email or in our social media, but we try to encourage all our customers to join our PCB Guitar Mania – Builders Group on Facebook, in order to post all your doubts, issues, suggestions or request, as well to share your builds and have some feedback from us and other fellow builders!

All of our projects have been tested following this same guide on their standard configurations. Although, not all of the variations and mods have necessarily been tested. These are suggestions based on the schematic analysis, and on the experiences and opinions of others. Feel free to share with us your opinions and suggestions regarding the mods your own personal experimentation.

These boards may be used for commercial endeavors in any quantity unless specifically noted. No attribution is necessary, though accreditation or a link back is always greatly appreciated.

If you are a builder planning to make your own run of pedals we also offer the service of custom made boards with your brand and logo, design according your specifications.

The only usage restrictions are that, first, you cannot resell the PCB as part of a kit without prior arrangement with us, and second, you cannot scratch off the silk screen, or other way of trying to hide our logos and the source of the PCBs. Like it’s written above, if you want to have your own designs, with your brand and logo we could certainly reach an agreement.

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