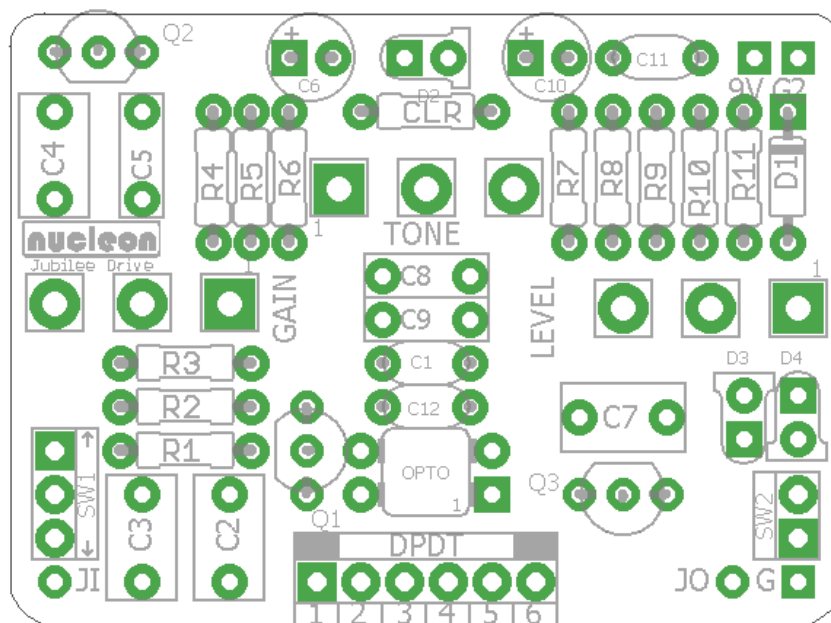


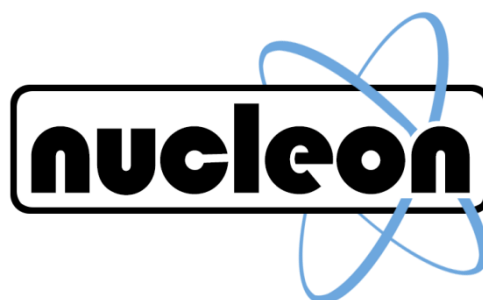
Nucleon Jubilee Drive

The Jubilee Drive resembles the basic circuit layout of a classic Marshall preamp, using JFETs instead of tubes. It nails that basic Marshall tone instantly. You can use it to boost a tube amp or view it as a preamp, going into a clean amp with a lot of headroom. It stacks really well with other pedals in front of it. Set the Jubilee to the edge of breakup (level and gain at 10 or 11 o'clock, tone at 3 or 4) for rhythm and then boost it with your favorite mid hump overdrive machine to lift it up in the mix.



Please note that this project was designed and named well before I heard of the Alexander Silver Jubilee pedal. It is in no way related other than general terms used in guitar effects and is certainly not a reproduction of that circuit.

This project is for personal (DIY) use only. Commercial (re)selling or distribution of the PCB, its design layout or this build document is prohibited. These materials are not to be sold as part of a kit. The PCB and its design can only be used in commercial pedals when purchased from Nucleon FX and provided that you do not 'goop' the PCB, remove the Nucleon logo or otherwise attempt to hide its origins. Construction and use of the PCB and project information is at your own risk. Nucleon FX cannot be held accountable for any damages to equipment or yourself.



BOM

Resistors	
R1	1M
R2	1k
R3	15k
R4	1k
R5	15k
R6	10k
R7	1M
R8	1k
R9	15k
R10	15k
R11	15k
CLR	3k3 - 10k

Diodes and misc	
D1	1N4001
D3	1N4001
D4	1N4001
Optocoupler	TLP222G
Q1, Q2, Q3	J201

Capacitors	
C1	47p
C2	470p
C3	560p
C4	220p
C5	22n
C6	47u
C7	1u
C8	2n2
C9	10n
C10	100u - 470u
C11	100n - 1u
C12	100n

Controls	
GAIN	500k
LEVEL	100k
TONE	25k - 100k
SW1, SW2	SPDT Toggle
Bypass	DPDT Stomp

JFETS

Preselect your JFETS for optimum performance with a breadboard and resistors R1, R2, R3. Measure the voltage at the drain of the J201. You're aiming for about 5V to 6V. If your J201 supply is limited vary R3 between 12k and 20k to tune your bias point.

Clipping Diodes

I suggest 1N4001 silicon diodes. They have a subtle but noticeable effect, adding slightly more compression without losing output level. You could try other diodes with lower threshold voltages. Higher (like LED) will have no effect.

If you want the diodes to be always on instead of switchable, jumper the pads of SW2 together. You can also omit the clipping altogether, just leave the switch and diodes off.

Bass Response

C2 and C3 determine the bass content of the effect. 470pF is very crisp, 560pF is my preferred value. If you want even more beef try 680pF. I suspect 470pF works great on stage in the context of a full band mix. 560pF or 680pF would be better for the bedroom guitarist.

If you don't want to switch between two different settings, jumper the pads of SW1 together and only install either C2 or C3.

Current Limiting Resistor

CLR is a current limiting resistor for the LED. Adjust to taste, 4k7 is a good starting point for red/green. I use 15k for blue LEDs.

Tone Control

The stock TONE pot is a 25kA. 100kA is easier to source and will work well.

Board Mounted Pots

Use board mounted pots and tag them to the PCB by soldering only one leg at first. Fit the PCB to the enclosure and solder the remaining legs. Then reflow the first leg to relieve any tension from it. Put some thick double sided tape on the back for isolation.

Capacitor types

When it comes to capacitors, I roughly followed these guidelines when designing the PCB:

- smaller than 1nF: Multi Layer Ceramic (MLCC) for filtering
- smaller than 1nF: WIMA box caps in audio path
- 1nF - 10nF: Whatever I have around, usually 'greenies' or MKP box caps
- 10n - 1u: Panasonic ECQ-V in audio path
- 100n - 1u: MLCC for power filtering
- 1u - 470u: Electrolytics

This is mostly due to what's available in my personal stock. You can deviate from this.

Wiring

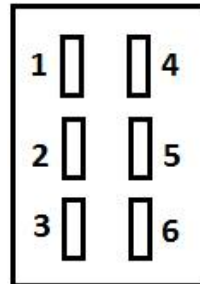
JI - tip of input jack
JO - tip of output jack
G - sleeve of output jack

9V - sleeve of power jack
G2 - center of power jack

Bypass DPDT

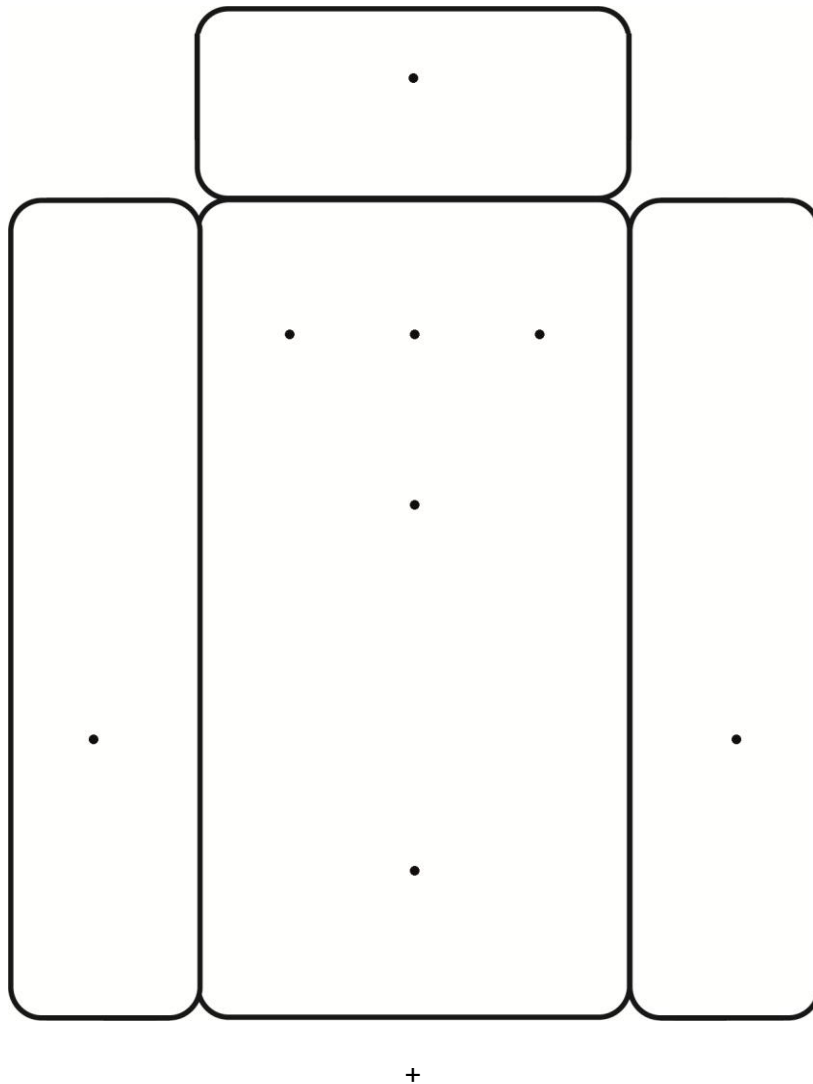
Two sets of three (1 + 2 + 3 and 4 + 5 + 6)
corresponding to columns on a DPDT
switch.

1 and 4: top lug
2 and 5: center lug
3 and 6: bottom lug



For quick and easy wiring consider using the Nucleon Bypass board.

Drill template



Drill Sizes

Pots: 7 mm minimum (use 8mm if you need some wiggle room)

Toggle switch: 6mm (7mm for extra wiggle room)

Jacks: 9 or 10 mm

Stomp: 12 or 13 mm (5 inches usually)

DC Jack: 7 mm (small barrel, no switch) to 13 mm (round 'Boss style' switched jacks)