

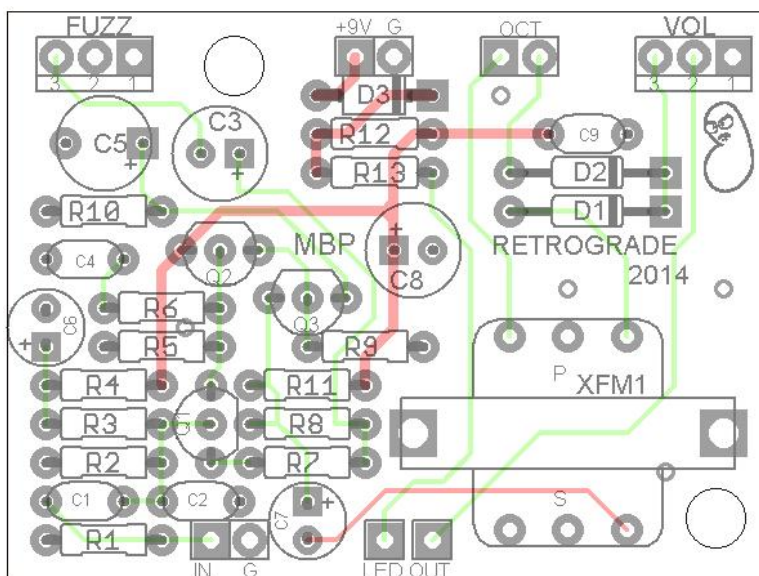
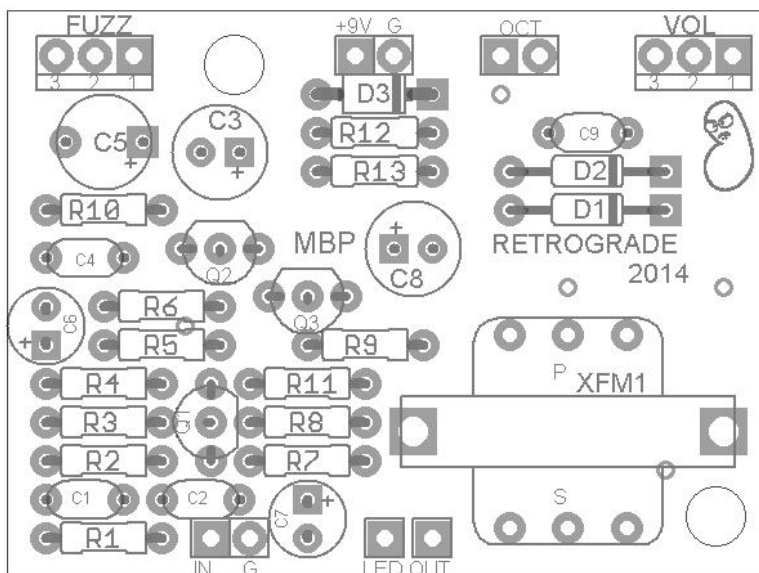
# RETROGRADE

## 2014 edition

FX TYPE: Octave

© 2014 madbeanpedals

**1.965" W x 1.465"H**



Resistors		Caps		Diodes	
R1	1M	C1	100n	D1, D2	1n34a
R2	680k	C2	150pF	D3	1N5817
R3	820k	C3	100uF	Transistors	
R4	180k	C4	1n	Q1	2N5087
R5	220k	C5	220uF	Q2, Q3	2N4401
R6	220R	C6	33uF	Switch	
R7	1k	C7	33uF	OCT	SPST
R8	47k	C8	100uF	Transformer	
R9	22k	C9	100n	XFM1	42TM022
R10	470R			Pots	
R11	1k2			FUZZ	1kB
R12	47R			VOL	500kA
R13	4k7				

Value	QTY	Type	Rating
47R	1	Metal / Carbon Film	1/4W
470R	1	Metal / Carbon Film	1/4W
220R	1	Metal / Carbon Film	1/4W
1k	1	Metal / Carbon Film	1/4W
1k2	1	Metal / Carbon Film	1/4W
4k7	1	Metal / Carbon Film	1/4W
22k	1	Metal / Carbon Film	1/4W
47k	1	Metal / Carbon Film	1/4W
180k	1	Metal / Carbon Film	1/4W
220k	1	Metal / Carbon Film	1/4W
680k	1	Metal / Carbon Film	1/4W
820k	1	Metal / Carbon Film	1/4W
1M	1	Metal / Carbon Film	1/4W
150pF	1	Ceramic	16v or more
1n	1	Film	16v or more
100n	2	Film	16v or more
33uF	2	Electrolytic	16v or more
100uF	2	Electrolytic	16v or more
220uF	1	Electrolytic	16v or more
1n34a	2	Germanium	
1N5817	1		
2N5087	1		
2N4401	2	max 300hFE	
SPST	1	SPST or SPDT	
42TM022	1	300Hz - 3.4kHz, 1.5k	100v
1kB	1	16mm	
500kA	1	16mm	

The **Retrograde** derives from the Tycobrahe Octavia™ which is another one of those mythical and practically unobtainable classic stompboxes. This one is very popular for collectors and it is not rare to see them go for over \$1000 on eBay. Or, you could build it for \$30. Just sayin'.

This is my favorite analog octavia by far and the design is super simple and elegant. The Retrograde is a wall of nasty fuzz, with a pronounced octave generated by an inexpensive transformer. The Retrograde also features the ability to turn the octave off with the flip of a switch, and can be built into a 1590B. As with almost any analog octave effect, the most pronounced upper octave is achieved by using the guitar's neck pickup, with the tone rolled all the way off and notes played around the 12th fret. You can also get ring modulator type sounds with chords or with the volume knob on your guitar rolled down. Best of all, you get a great "dive-bomb" effect when doing double-stop bends! You can read up a little more on the circuit here: <http://fuzzcentral.ssguitar.com/octavia.php>

#### **Mouser:**

2N4401 transistors: <http://www.mouser.com/ProductDetail/Fairchild-Semiconductor/2N4401TFR/?qs=sGAEpiMZZMutXGli8Ay4kMNqEp6F%2fk5e7170TNaYA%252bA%3d>

42TM022 transformer: <http://www.mouser.com/ProductDetail/Xicon/42TM022-RC/?qs=sGAEpiMZZMv0IfuNuy2LUaR7iCoLh1pOqvQ%252bUAwdFkk%3d>

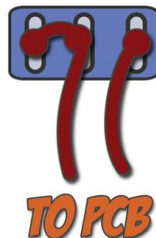
#### **Smallbear:**

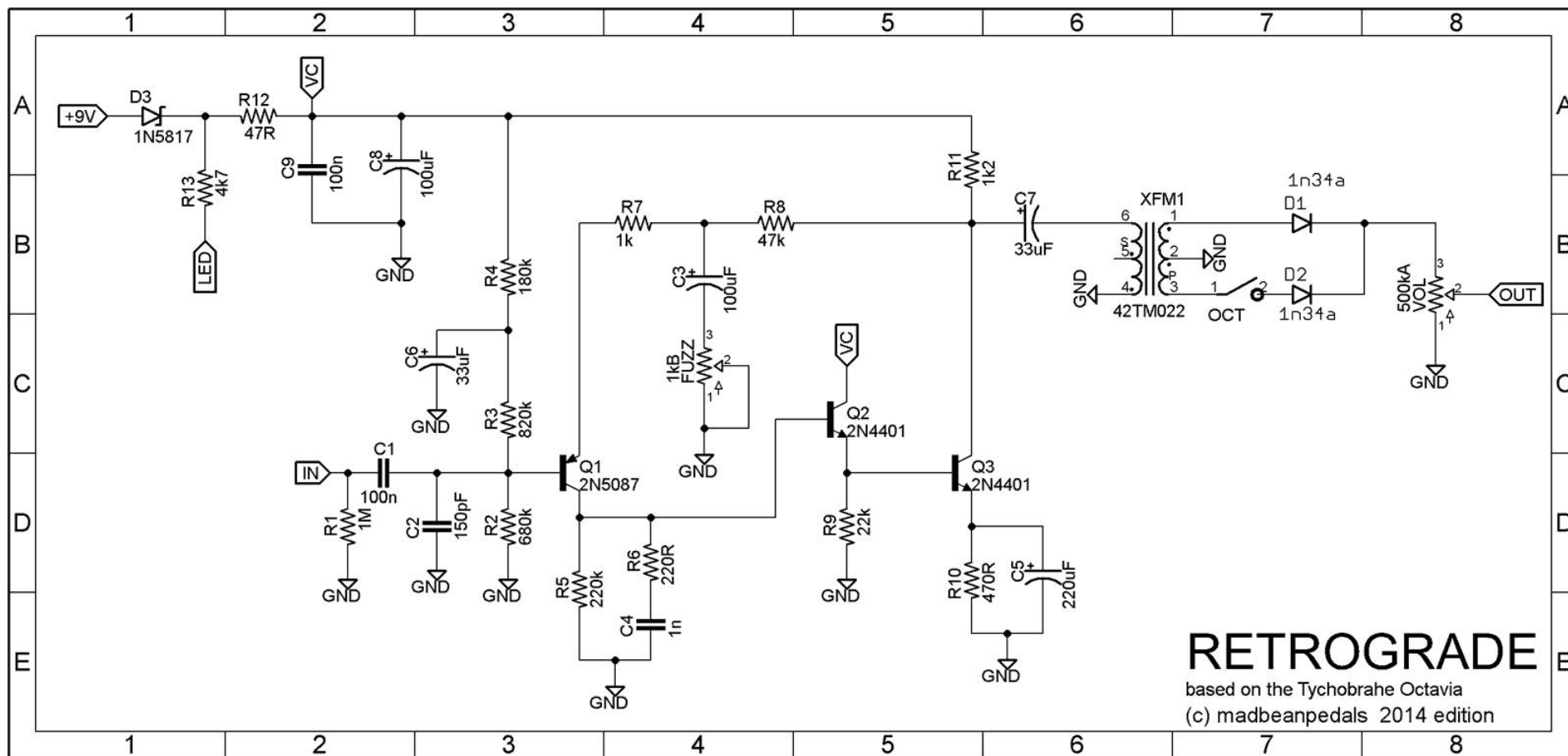
2N4401 transistors: <http://www.smallbearelec.com/servlet/Detail?no=288>

42TM022 transformer: <http://www.smallbearelec.com/servlet/Detail?no=341>

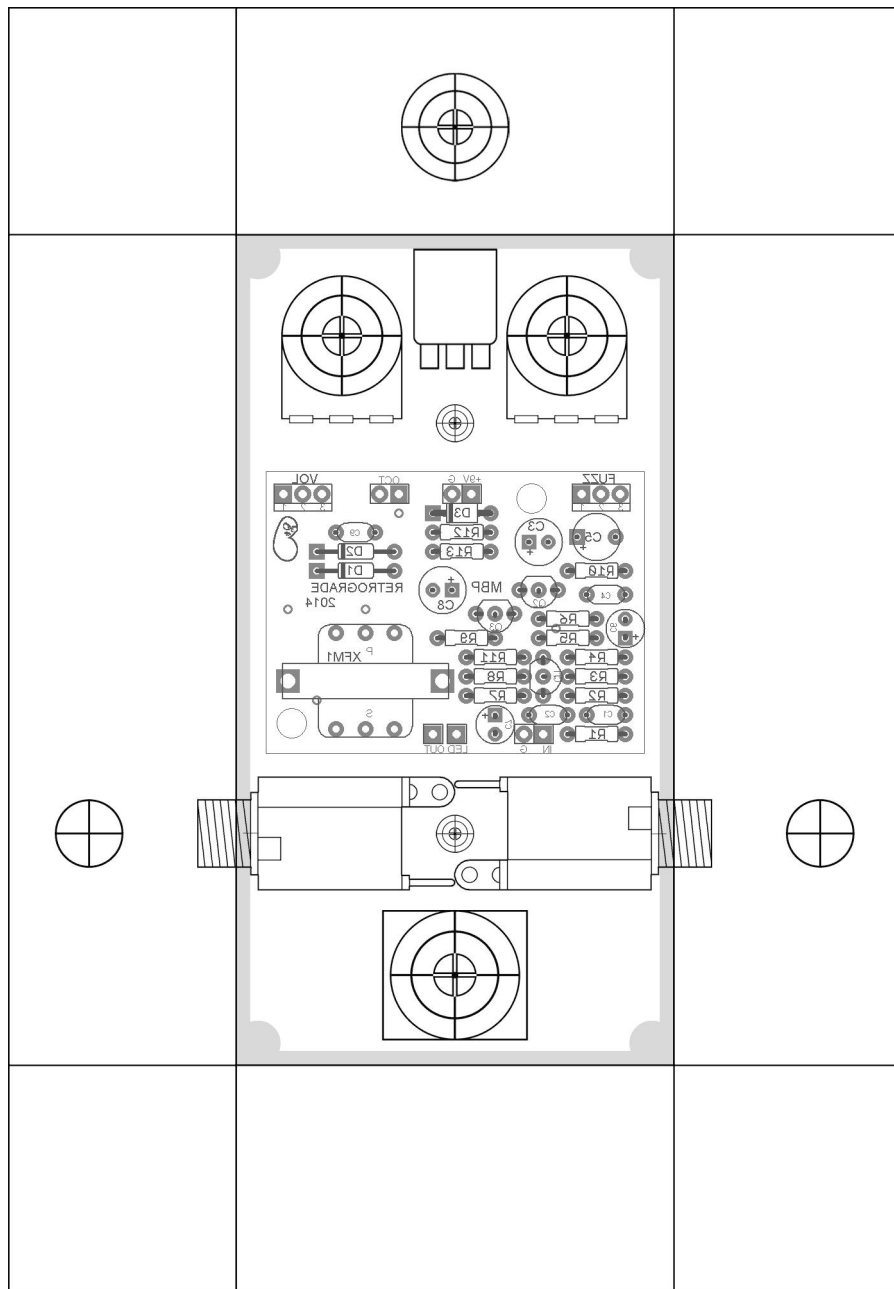
- 1) You can sub other BJT NPN transistors for the 2N4401. Suggestions are 2n3904 or 2n3565 (for the mojo). Hfe should not exceed 300 for substitute transistors.
- 2) Please use the Standard Wiring Diagram as a reference for wiring the Retrograde: [http://www.madbeanpedals.com/tutorials/downloads/StandardWiring\\_MBP.pdf](http://www.madbeanpedals.com/tutorials/downloads/StandardWiring_MBP.pdf)
- 3) There are two holes on the fabricated PCB to allow for stand-offs. One is at the top of the board and the other on the lower right. If you are using the standoff on the lower right, clip off part of the base with some scissors to allow the PCB to be mounted flush to the enclosure (or it will be too wide). Use this type: <http://www.smallbearelec.com/servlet/Detail?no=76>
- 4) For the OCT switch, wire two leads from the PCB to the two lugs of the switch. If using an SPDT (On/On), wire one lead to the center lug and tie it to one outside lug. Now wire the other lead to the remaining lug. It does not matter which lead goes to which lug.

#### **SPDT example**





**4.64" W x 6.68" H**  
**1590B Enclosure**



Download the Photoshop template for this guide here:

[http://www.madbeanpedals.com/projects/Retrograde/docs/Retrograde2014\\_Drill.zip](http://www.madbeanpedals.com/projects/Retrograde/docs/Retrograde2014_Drill.zip)

Download the PREVIOUS version of the Retrograde documentation (2012/2013 ed.):

<http://www.madbeanpedals.com/projects/Retrograde/docs/Retrograde.zip>

***Terms of Use:*** You are free to use purchased **Retrograde** circuit boards for both DIY and small commercial operations. You may not offer **Retrograde** boards for resale or as part of a "kit" in a commercial fashion. Peer to peer re-sale is, of course, okay.