

## Keeley Five Star SD-1 Mod

After trying my hand at the TS808 mods, I thought I'd go for a more general improvement for the SD-1. The Keeley mod doesn't just take the pedal back to another pedal, it improves where the other ones flaw and is my favourite SD-1 mod so far! It uses a germanium transistor as a diode to get a different sound but I found using a plain old NOS germanium diode to be better in tone, I socketed the board so you could swap them out and also experimented with Sillicum diodes which also sounded good - more on that later!

### Five Star Mod

You will need:

- 1Uf Capacitor (preferably metal film) x 2
- 0.1uF Capacitor (preferably metal film) x 2
- 2k4 metal film resistor x 1 (red-yellow-orange-gold)
- 620K metal film resistor x 1 (blue-red-orange-gold)
- 47pF capacitor (semi-optional. Sounds just as good without it)
- Germanium Transistor (see below for more options - highly recommended!)
- Single in line socket, look like [this](#). Used if you want to quickly swap the diode config and/or to put the transistor in without damaging it.

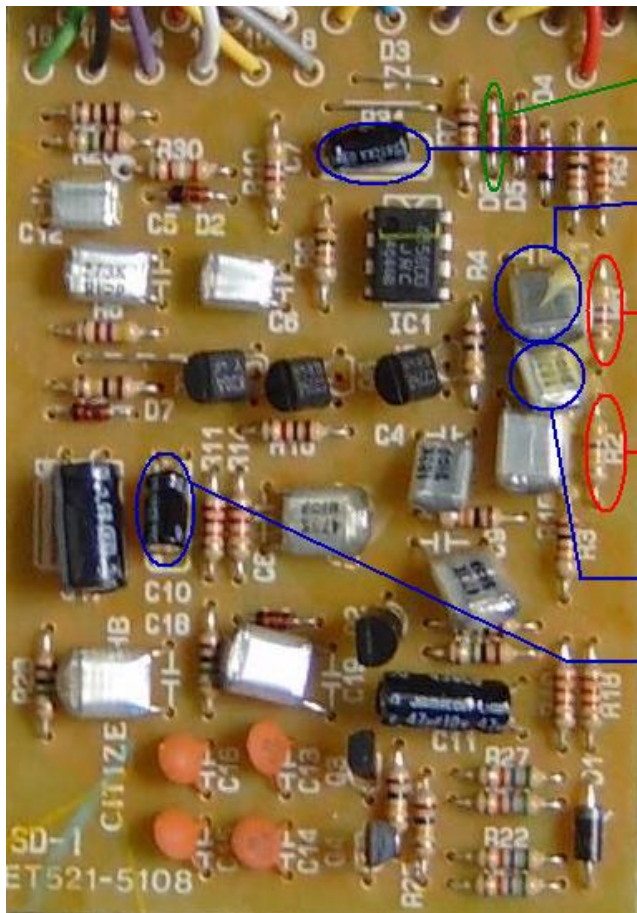
Optional:

- Germanium Diode (I used NOS 1N34a ones from small bear. [Link](#))
- Sillicum Diode (I used 1N4148 ones from small bear. [Link](#))
- On/On SPDT switch to swap modes
- You can also use various LEDs in the clipping section, I haven't tried this yet so the results may vary

### *Replacing Components* [\[Top\]](#)

- Remove C10 > replace with 1uF capacitor
- Remove C7 > replace with 1uF capacitor
- Remove R6 > replace with 2.4k resistor (red-yellow-orange-gold)
- Remove R2 > replace with 620k metal film (blue-red-orange-gold)
- Remove C3 > replace with 0.1uF capacitor
- Remove C2 > replace with 0.1uf capacitor

Referance Diagram:



D6 - This is where the action happens! You can either replace this diode with a SIL socket to swap different types of diode, put in the germanium transistor or attach a switch. (see below)

C7 - Replace with 1uF capacitor

C2 - Replace with 0.1uF capacitor

R6 - Replace with 2k4 resistor

R2 - Replace with 620 Ohm resistor

C3 - Replace with 0.1uF capacitor

C10 - Replace with 1uF capacitor

## [Diode Switching \[Top\]](#)

There are several options here;

- Germanium Transistor
- Diodes
- Toggle switch

We will start with the germanium transistor. You will first need to have either installed a SIL socket in D6 or have a heat-sink ready to get rid of the heat and avoid breaking the bloody thing! I prefer to use the socket even if you only plan on having one option, it gives the mod more versatility.

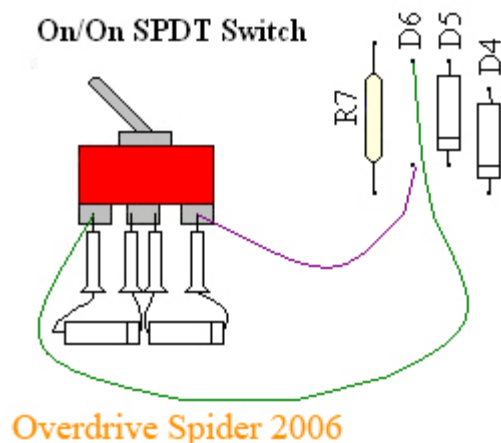
You will notice quite obviously that the transistor has three legs, where there are only two holes for a diode. Hmm...buggar! The trick is to use two of the legs in order to make the transistor function as a diode - ask me if I understand how the bloody hell that works! Anyway, on Mr Keeleys site, he says that you need to use the base and emitter if using a PNP the base leg will go to where the black stripe where the diode was and the emitter will go to the other side. If you don't know which legs are which, google the model name of the transistor with the word 'datasheet' after it and it should be easy to find.

The diodes are quite simple. When you look down at the board, you will see diodes D4 and D5 on the right of D6. If you look you can see a black stripe on these diodes. Make sure the black stripe on the sillicum or germanium diode that you use points the same way and insert it into the board.

## [Switching \[Top\]](#)

In order to switch between these modes you will need a SPDT switch and a single in line socket if

you want to be able to replace the clipping section easily. This is a really cool mod inspired by [Beavis audio research's Ultimate Tube screamer](#) when they used a SIL socket attached to a switch to make swapping and changing easy. I decided to 'borrow' that idea. What you need to do, is wire the left hand side with a SIL socket (you can take the plastic off) and some wire. The middle needs to have two SIL sockets and the right needs one SIL socket and some wire. Like this:



Make sure that the black stripe of the diodes points the right way or the switch won't work.

#### [47pF Capacitor \[Top\]](#)

On the Keeley site it just says '47pF cap across the clipping diodes which needless to say made me confused! I finally figured out what he ment when I emailed around (in otherwords, I asked Berarduur) and he said to put it in parallel with D6. I did it and didn't really notice much difference, it made the pedal slightly smoother, but I used a germanium diode rather than a transistor.

The easiest way to do this is to solder the cap to the bottom of the board, I'll add a reference diagram in the next few days.