

## “DRY RUN” (TEMPORARY) SUSTAINIAC® INSTALLATION

Over the years of doing many Sustainiac® installations, we have learned to spot certain guitar characteristics that will reduce sustainer performance. Usually, the problem is that a high-pitched squeal (oscillation ) will occur when the sustainer is operated in HARMONIC MODE. The problem is magnetic interference.

The rules are:

- A. We never put a sustainer into a guitar having more than 24 frets.
- B. Metallic paints or numerous metal objects (like pickup trim-rings) near the pickups cause problems. Metal objects that are of concern are the non-magnetic ones (aluminum, copper, etc.). Magnetic metals (steel) tend to provide a magnetic shielding effect, and therefore aren't of concern. The pulsating driver fields cause pulsating currents to flow in the non-magnetic metals, these currents then generate their own pulsating magnetic fields. This is the problem.
- C. Never have the neck pickup (Sustainiac driver) on a slant. Forget about it, this won't work.
- D. We have had guitars with none of the above examples that simply didn't work well for some *unknown reason*.

We will do a dry run on any “oddball” guitar if routing is involved. Once you have committed to route, you can't “unroute”. In a "suspicious" case, we typically do a quick "dry run" hookup with the sustainer, to determine how well it will work. This is an easy, temporary Sustainiac installation, before doing the final installation. It typically takes about 15 minutes to hook up. First, read the following 11 steps, and then proceed.

1. Mount the driver into the neck pickup slot. Adjust **both the driver and bridge pickup** so that they are both close to the little e-string (within 1/16 inch when fretted up high), and about 3/16 inch from the big E.
2. Don't mount the Sustainiac controls. Leave the pickup selector wired up as is, except unsolder the bridge pickup output wire from it (or from wherever else that wire is connected).
3. Don't shorten any Sustainiac wire harness wires, but strip and tin the ends of the following wires: (10-pin connector) Black, green, yellow, brown, gray, red; (8-pin connector) White, black, gray, violet. In other words, strip and tin all but the orange/blue wires. There are two of each, and they aren't needed for this.
4. Solder both black wires to guitar ground (a potentiometer body). Also, solder the battery (-) lead to ground, at the same point that the black wire of the 8-pin connector is soldered to.
5. Solder the white wire to the bridge pickup output wire. This will either be a terminal of the pickup selector or the bridge pickup volume control (if there is one). Keep this wire away from the brown/gray wires of the 8-pin, and also away from the violet/gray of the 10-pin. This is the sustainer input wire.
6. DRIVER WIRE: Connect the driver shield to ground. Tack solder (splice) the driver red wire to the gray wire (10-pin), and the driver brown wire to the brown wire (10-pin). It is useful to put a piece of small heatshrink tubing (supplies) on the gray/brown wires, then slide them over the splices to prevent shorting. Don't heat the tubing, or it will shrink tight. Make sure that the brown/gray wires are kept away from the white wire and bridge pickup wire. Let all of the wires in steps 5,6 "hang out" in the air, so that they aren't jammed next to other guitar signal wires.
7. Tack solder the red wire to the battery (+) wire.
8. Tack solder the green wire to ground. The sustainer is now in Standby mode.
9. When you connect the yellow wire to ground, the sustainer should turn on. If not, re-visit steps 1-8 to make sure you did every thing right. Use either a jumper wire with alligator clips on both ends, or tack solder the yellow wire to ground to turn the sustainer on.
10. The sustainer should now be running in NORMAL MODE, producing mostly fundamentals. If there are mostly harmonics instead, then you must reverse the driver red/black wire connections in step 6.
11. HARMONIC MODE: If everything is functioning well in NORMAL mode, connect the violet/gray wires (8-pin) together. This places the sustainer into HARMONIC MODE. If squealing occurs in HARMONIC MODE, turn the sustainer gain pot down a little. You should be able to get a good strong harmonic mode on most frets. If you have to turn down the gain to a level where the sustainer is very sluggish before the squealing

stops, then it could be that nonmagnetic metal is causing your problem. One solution would be to make a similar part out of steel, to replace the aluminum part. **Or electronic crosstalk.** The Sustainiac circuit board is a signal radiator. So are the violet/gray wires of the 8-pin connector and the brown/gray wires of the 10-pin connector. If any of these are close to any pickup signal wire, then the system can oscillate. The orange/white wires (8-pin connector) contain pickup signal. Also the volume/tone controls etc. Take care to maintain spacing between radiators and pickup signal wires.