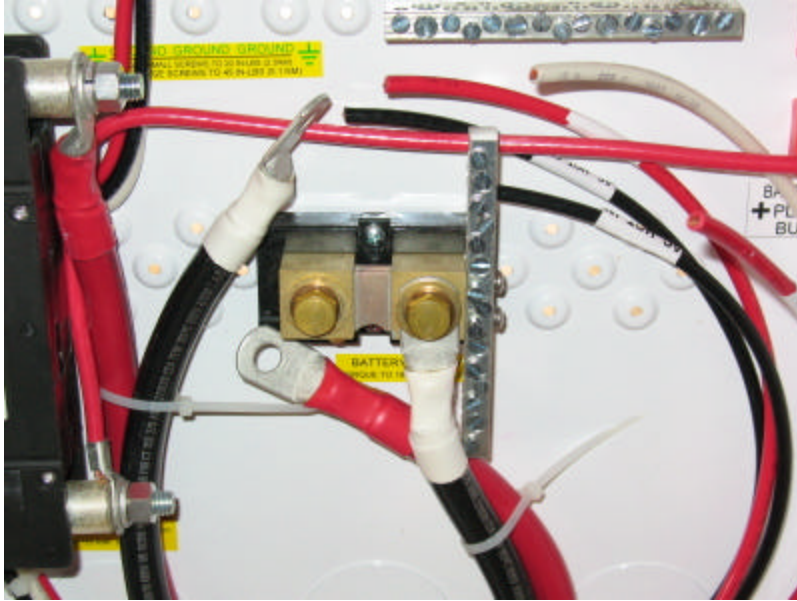


Midnite E-Panel/Apollo T80 Shunt Board Issues
Compiled by: John Raynes, RE Solar, Torrey, UT
Date: June 14, 2007

The E-Panel's shunt and neutral bar assembly as configured doesn't allow for the required clearance of the Apollo shunt board.



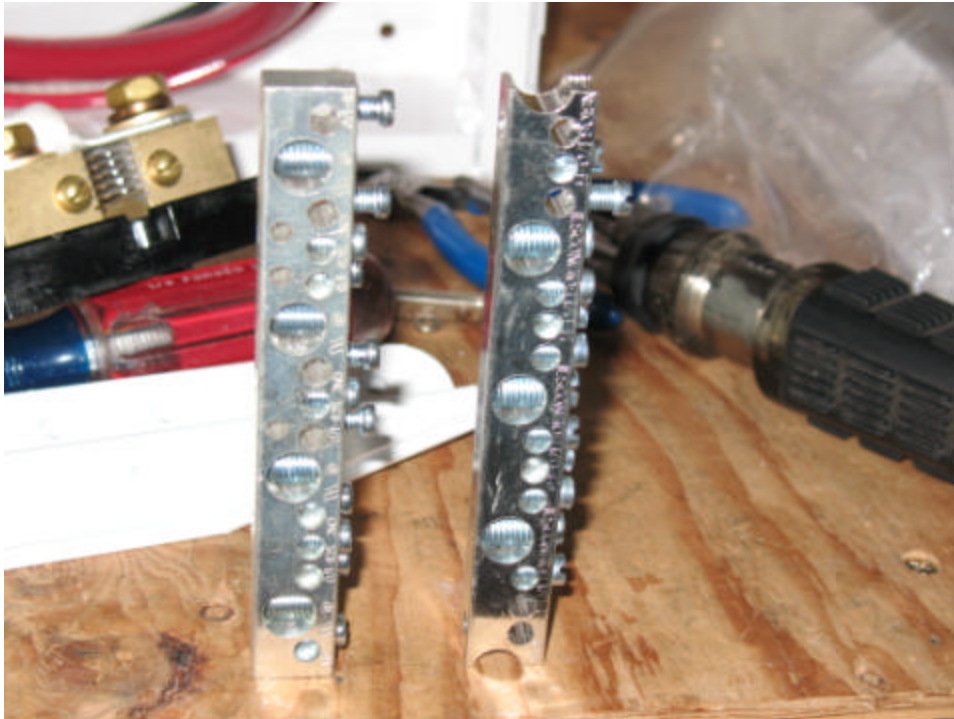
The neutral bar needs to be shifted up (as seen in the above picture) in order to leave room for the shunt board to overhang when it is attached to the Kelvin terminals (on the underside of the shunt). But doing that would cause the neutral bar to extend up into the ground bar assembly above it, so instead, I flipped the shunt 180 degrees.



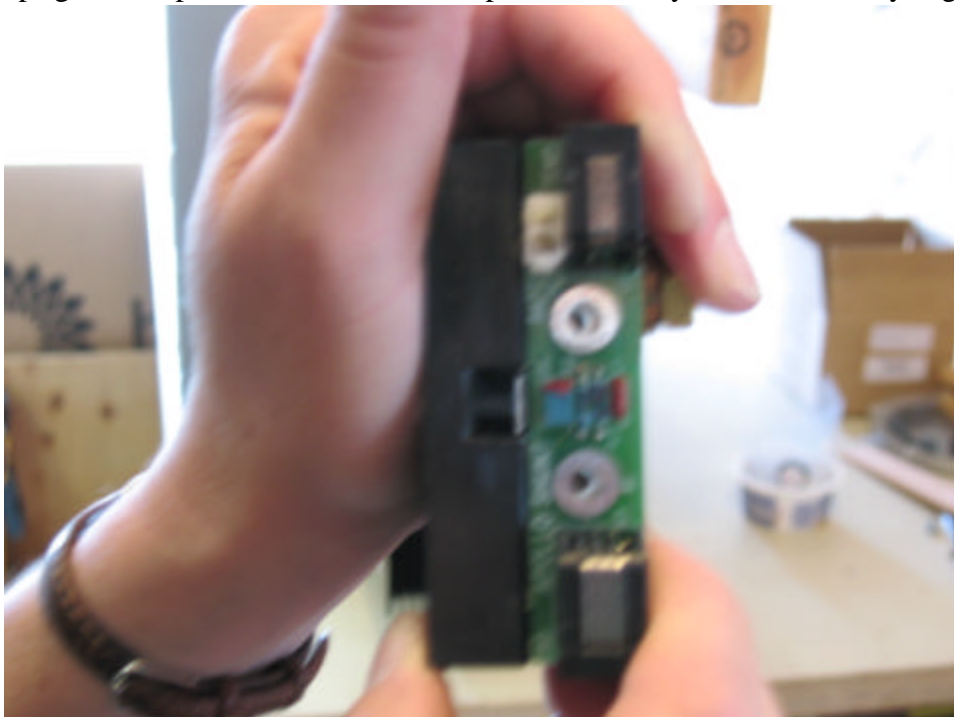
I also shifted the shunt to the right a couple of holes so that the neutral bar didn't get too close to the main DC breaker stabs. I could have mounted the neutral bar on the opposite end of the shunt but that would have meant drilling and tapping a couple extra holes and I'm basically a lazy guy.

That's all it takes, in theory to make the adjustments. In practice, well...

Midnite cuts their bus bars at different places than Outback does, so in Midnite's case the holes at the end of the busbar weren't the same spacing. Fortunately I had an extra Outback busbar, where the holes lined up, so I swapped it out. Remember what I just said about being a lazy guy?

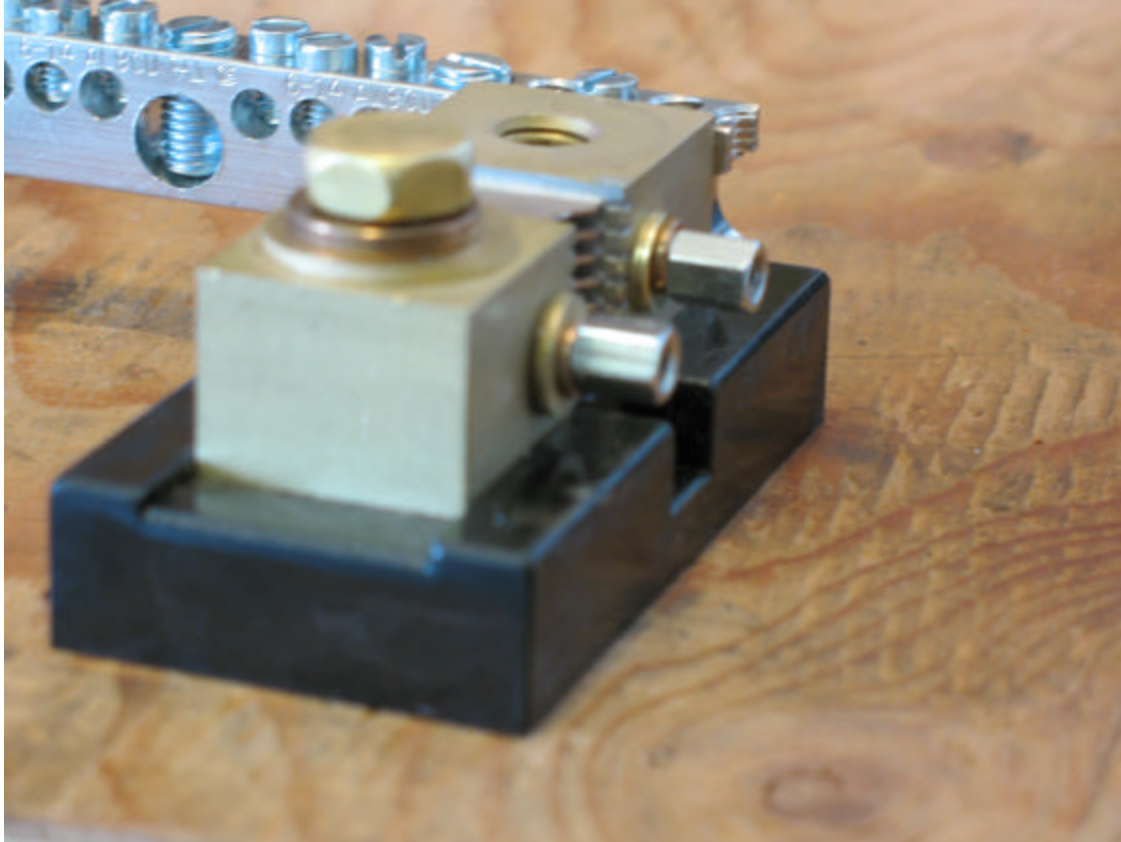


There's an item of note regarding the Apollo shunt board as well. When I went to mount the shunt board to the shunt, the holes didn't line up because the long edge of the shunt board butted up against the phenolic shunt base. The picture isn't very clear but I think you get the idea.



I don't think that this is a Midnite problem per se. I think it is an Apollo problem wherein they didn't leave enough clearance for variation amongst the different shunts that are procured by the power panel guys. I'm guessing that the specs on the locations of the Kelvin terminal drill holes aren't very tight, cause all the slop is accounted for in the final shunt calibration.

Anyway, I built up the standoff height with some extra brass washers I had lying around, and that took care of things, but I think Apollo might want to consider specifying a 7/16" standoff rather than a 5/16", 'cause us wrenches will end up doing some crazy things to deal with this.



I was concerned about using non-brass washers, since there are already so many dissimilar metals in the millivolt signal path (is using an off-the-shelf mechanical standoff as a low-level signal carrying conductor a good idea to begin with)?

And that's how I spent part of my afternoon. All's well that ends well.