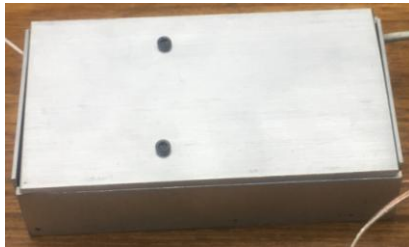


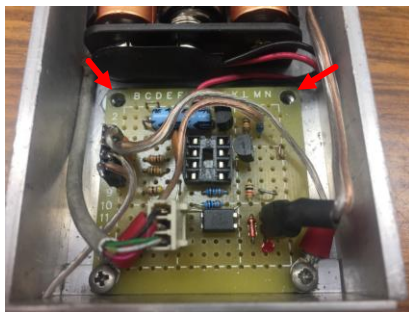
A Hidden Circuit Board Anchor, Version 1

By R. G. Sparber

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In a recent project I needed to secure the lid of a homemade project enclosure



and also secure a circuit board that is inside. The red arrows point to the two anchor holes needing to be filled.

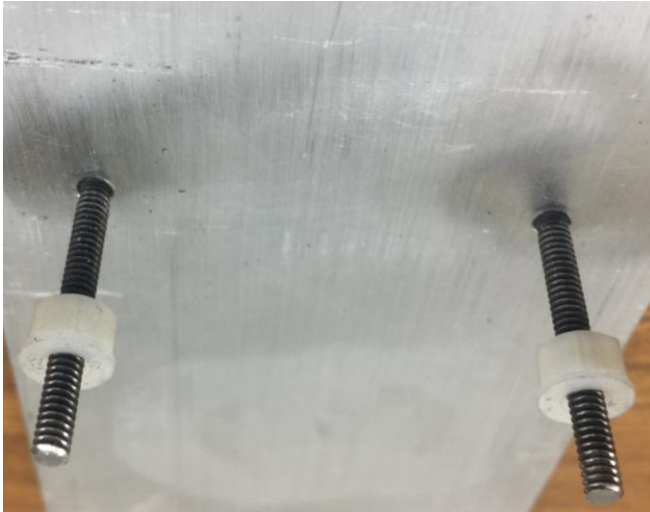


Normally I would do this with threaded standoffs. A screw would come in from the back of the enclosure and into the standoff. The threaded shank passes through the circuit board. Then another standoff would extend from the top of the circuit with the threaded shank passing through the lid. A nut on top would secure the lid to the box.

In this project, that was not an option. I needed the bottom of the enclosure to be smooth. This means threading in from the top and cutting threads into the bottom of the enclosure.

The threaded shank of these standoffs are not long enough to pass through the circuit board and into another standoff. I could fabricate special standoffs but this quickly became a lot more trouble than it was worth.

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After a bit of head scratching, I realized it would be possible to build a hidden circuit board anchor.

Tapped holes already existed that aligned with the holes in the circuit board.

First I drilled holes in the lid that aligned with the holes in the circuit board. This was done by placing the enclosure on top of the lid and match drilling. Then I enlarged the holes in the lid.

I selected screws that were long enough to pass all the way through the enclosure.

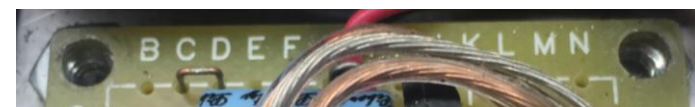
Next, I threaded nylon nuts onto each screw. Initially, the bottom face of the nuts were about 1/8 inch back from the end.



Spacers with holes in them were placed between the circuit board and the back of the enclosure. My screws were 4-40 and I was able to use 6-32 nuts for the spacers.



With the lid in place, I aligned the first screw with its hole in the circuit board. Then I started to turn the screw while pushing down. The nylon nut hung up on the top face of the circuit board so stopped turning. Then the screw fed in until it engaged the threaded hole in the bottom of the enclosure. When the head of the screw was snug on the top of the cover, I stopped turning. The second screw was fed in the same way.



I then had the circuit board held tightly between the bottom of the enclosure and the nylon nut while the cover was held tightly between the bottom of the screw head and the threaded bottom of the enclosure.

A belt sander was used on the bottom of the enclosure to remove excess screw length.

Removing these screws initially might cause them to unscrew slightly from the nylon nuts. But when the nuts no longer contacted the circuit board, the screws spun right out.

I welcome your comments and questions.

If you wish to be contacted each time I publish an article, email me with just "Article Alias" in the subject line.

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