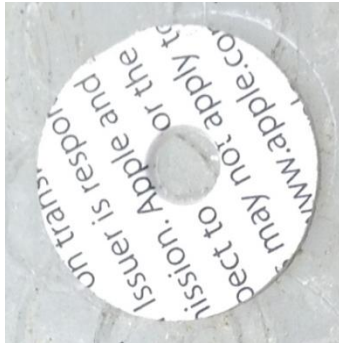


# Low Cost Plastic Insulating Washers, version 1.1

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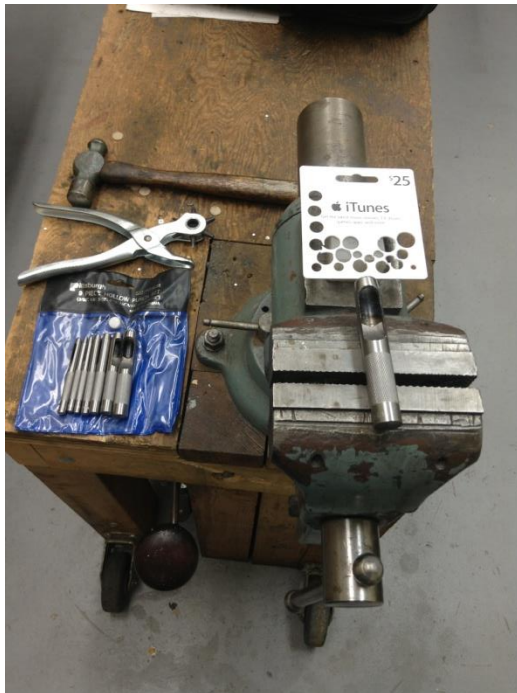
By R. G. Sparber

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Sometimes I need insulating washers but never seem to have the right size. But since I am your typical pack-rat that doesn't throw things away, making these washers is fast and easy.

This washer is actually about 0.5" in diameter.



My washers are punched from old gift cards. Do avoid those that have raised features and stay away from areas that have embedded metal. I have found that iTunes® gift cards are ideal.

The outside diameter of the washer is cut with a Harbor Freight® hollow punch:

<http://www.harborfreight.com/9-piece-hollow-punch-set-3838.html>

I cut the inside hole with a leather revolving hole punch. I don't recall where I got this tool but see that Harbor Freight sells a similar one:

<http://www.harborfreight.com/leather-punch-tool-97715.html>

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<sup>1</sup> You are free to copy and distribute this document but not change it.

You will also need a block of wood or soft plastic to back up the hollow punch and a small hammer.

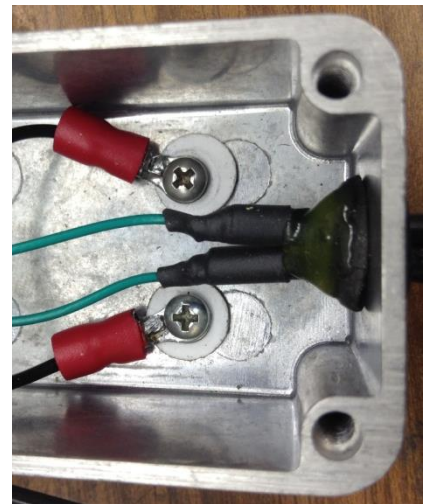


A sharp tap with the hammer on the end of the hollow punch and I have my washer blank. My backing block is soft enough to not damage the cutting edge of the punch yet firm enough to support the plastic sheet. You can see the blank stuck in the end of the punch.



I found it easier to center the revolving hole punch on the blank than to punch the center hole first and then try to align the hollow punch. Try it both ways to see which works best for you.

Here are the washers in place. They insulate two bolts as they pass through the bottom of a metal box. I used a plastic washer on each side and a 1/4" diameter washer inside the box wall.



## **Acknowledgement**

Thanks to Joe Mortenson for pointing out that some plastic cards have embedded conductors which should be avoided.

I welcome your comments and questions.

Rick Sparber

[Rgsparber@aol.com](mailto:Rgsparber@aol.com)

Rick.Sparber.org