Adaptation of Case and Solar Shield Installation

Materials Required:

- (1) 1/8” drill bit (for drilling holes in plates and case)
- (2) 1/8” x 4” threaded bolts
- (2) 1/8” rubber back washers
- (3) 3D printed bottom shield plates (with large hole in center)
- (2) 3D printed top shield plates (with solid top)
- Power drill
- Case to be adapted (can use any case that is large enough to house the electronics – we used a Pelican 1050 camera case)
- Caulking to waterproof
- Spacers (extra washers or nylon spacers)

Assembly

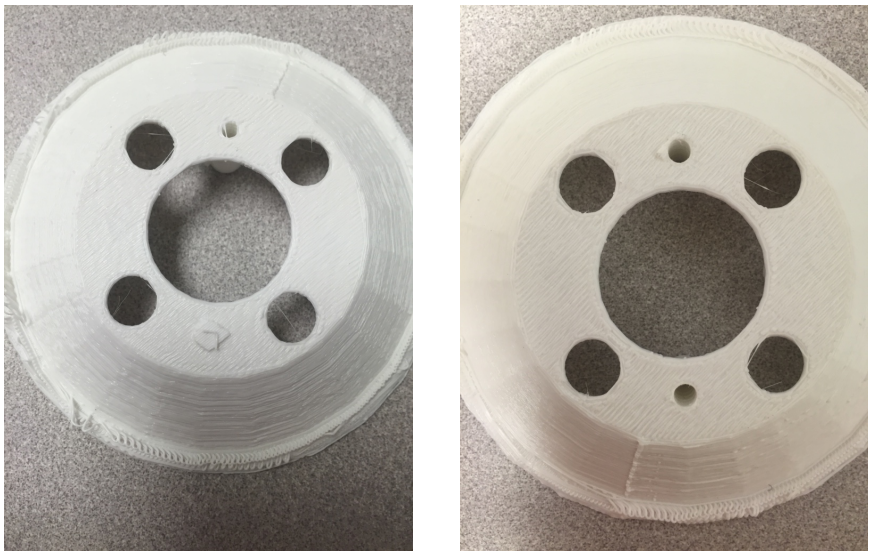

Figure 1: Before and after drilling out the holes in the solar shield bottom plates to make it easier to feed bolts through.

First, clean the 3D printed plates by using a razor blade to remove any extra filament pieces. Next, use a drill to clean out the holes for the bolts on the THREE bottom plates so that the bolts can freely move through the holes (Figure 1, directly above). In ONE of the solid top plates, drill the holes straight through so that a bolt

Figure 2: Holes drilled for the shield marked in yellow. The wires in the middle are for the thermometer.

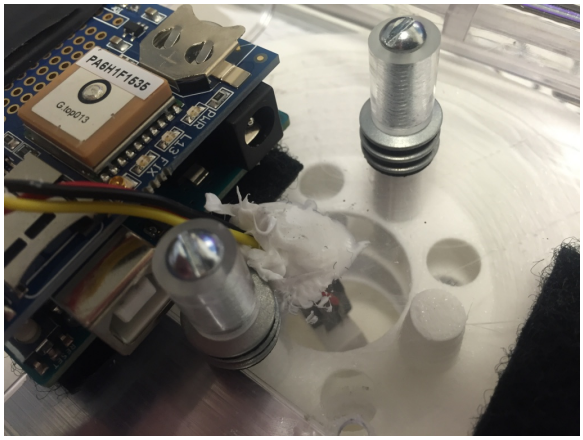

Figure 3: The amount of spacing for the bolts will depend on the thickness of your case and therefore spacers should be used to make the shield fit snuggly. All openings should be caulked to ensure that the case is watertight when sealed.

can pass completely through the plate. Leave the other solid top plate alone; the holes are smaller so that the bolt threads can be tightened into it.

Once the plates are ready, the case itself needs to be prepared. This requires drilling three holes, two for mounting the solar shield plates and one for passing the thermometer wires through the lid of the case. The holes to mount the shield are 1 9/16" (4 cm) apart center to center. The third hole should be placed in the middle of the other two holes (Figure 2, to left).

Next, feed the thermometer wires through the center hole in the case lid and caulk the hole to waterproof the case (Figure 3, to left). Once the wires are fed and the hole caulked, the bolts are fed from the underside of the lid and the solar shield plates assembled on top of the lid. First, stack the three bottom plates, then the top plate with holes drilled through, and last the top plate with no holes drilled through. The thermometer should be seated in the center of the bottom three plates. Ensure that the bolts go into the holes, use an appropriate number of washers or spaces to ensure that the bolts are snug, and tighten the shields onto the case (Figure 4, below).

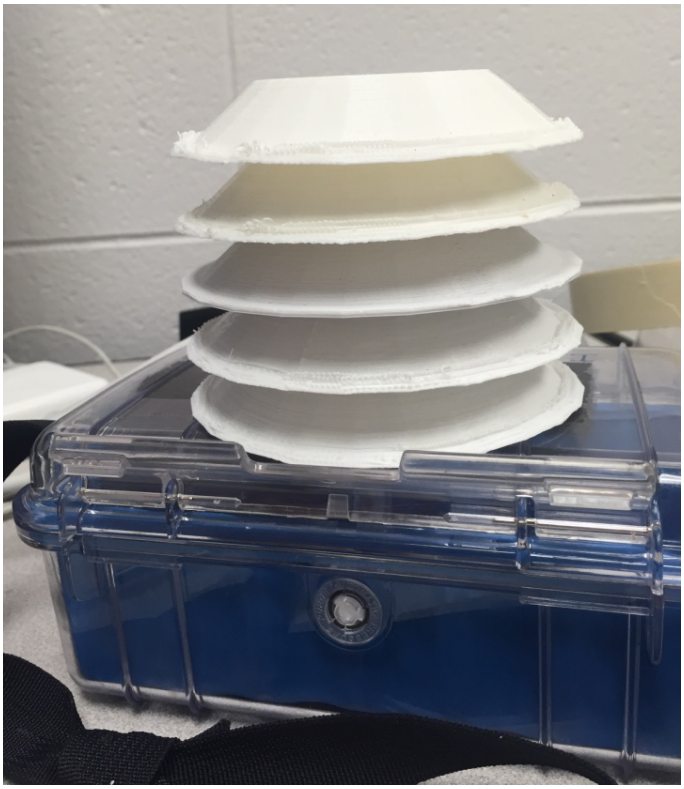

Figure 4: The case with assembled solar shield attached.