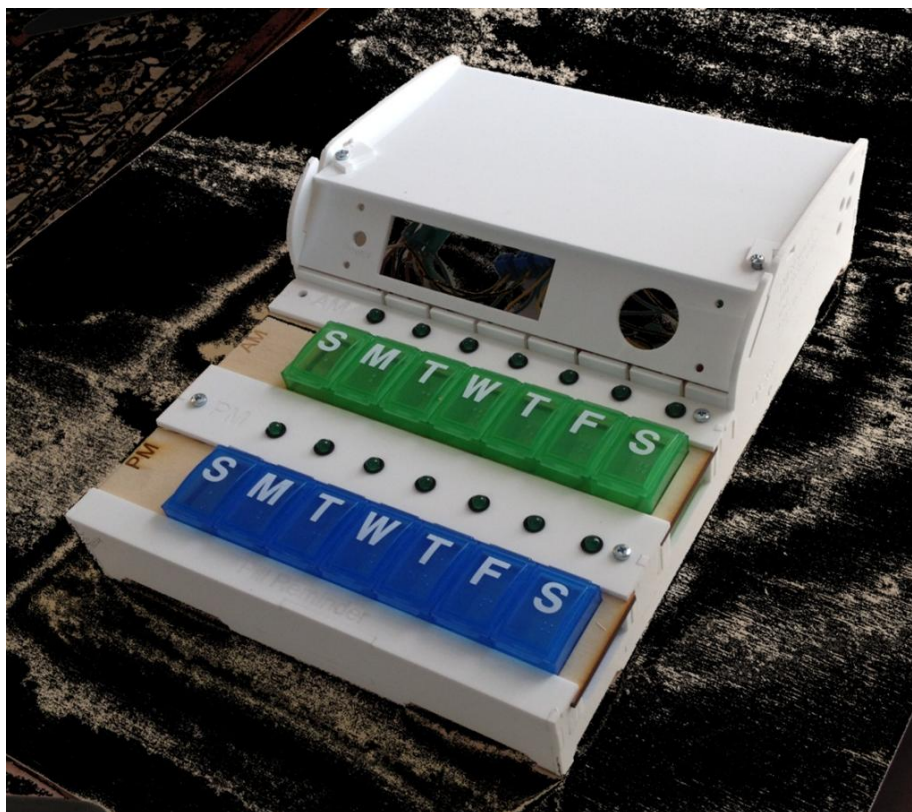


The Case for Your Pill Reminder



Assembly Documentation

(Applies to Pill Reminder Case rev 19)

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<http://www.shrimpware.com/pillreminder/TOU.html>.



Introduction

This document contains instructions for assembling the Pill Reminder enclosure. The parts list included in this release package (“Documents” folder) contains a link for ordering a kit of the pieces of the enclosure, precut for you. Alternatively, you can laser cut your own pieces using the CAD files contained in the “Hardware | Enclosure CAD Files” folder in this release package.

The Pill Reminder enclosure parts can be cut from 3mm Baltic birch plywood for “cheap but cheerful” version, or out of your favorite color 3mm (0.118 inch) acrylic for the more “real product” look. In either case our advice is to always double check the fit of the parts BEFORE you glue them together. Once you're sure you have the right parts in the right places use just a little dab of glue to hold things together. With wood you'll have a chance to correct a mistake; with acrylic the glue (solvent really) is a final act.

These instructions are meant for use with any material you choose, and the photos will be of either material. The only real difference is in how you apply the plastic solvent or wood glue.

Note: We have found that acrylic sheets can vary in thickness from one manufacturer to another. The plans for the Pill Reminder case are made for 3mm material. If your acrylic is slightly thinner, the design will still work.

Be sure to check the web for updates and links to information about the Pill Reminder:

<http://www.shrimpware.com/pillreminder>

We hope you enjoy the project!

Shrimpware LLC

Parts List

For your project you will need:

		Description	Qty
1.		Pill Reminder Case plans	1
2.		24x18 sheet of 3mm Baltic Birch plywood or 24x18 sheet of 3mm acrylic plastic (recommended)	1
3.		M3 metric machine screws, 10mm long	18
4.		M3 metric nuts	14
5.		25mm hex standoffs with M3 threads	4
6.		Water resistant wood glue (ex Titebond III) or Acrylic solvent – we prefer the more liquid kind	
7.		Philips screw driver	
8.			
9.		12-inch padded bar clamp	3
10.			
11.		7-Day pill dispensers – large size	2 or 4
12.			
13.			



Before you begin

The Pill Reminder case is easy to assemble if you carefully follow the instructions.

However, if you're like me, then you will no doubt jump ahead, not read all the notes, and put glue where ever it makes sense. This strategy might work for you, but the glue is unforgiving once it sets. If you take this approach you might consider procuring a second set of parts right off the bat so that you can toss the first assembly and do it right the second time!

One way to improve your chances of a first success is to dry fit all the pieces, using some rubber bands to hold it all in place. A dry assembly allows you to see how everything goes together, look for any spots that might be tight so you can adjust them with a razor knife, or see some places where things go together in a way that you were not expecting. You might find yourself confused because our directions are not perfect – it's nice to resolve these issues before you have a load of glue dripping all over the place.

We strongly suggest putting the case together, then take it apart and do it a second time with the glue.

Once you have the case done you can fit the assembled electronics into it. Download the software and you should have a working Pill Reminder.

We wish you the best of luck!

Step 1 Cut the Case Parts

Note: This step can be skipped if you purchase a kit of precut parts from the Parts List.

You will first need to cut out the parts. There may be other ways to do this, but we recommend using a laser cutter. CAD files in .cdr and .dxf formats are contained in the “Hardware | Enclosure CAD Files” folder of this release package.

One 24x18 inch sheet of any 3mm material should be enough to cut all the parts. It is important that the material be no more than 3mm thick; if not you will need to adjust all the tabs to fit the new material.

We recommend opaque acrylic, also known as Plexiglas; the cast material with the paper protection is best. We've found sheets of acrylic for as little as \$14.00. At the same time, different vendors of “3mm” or “1/8 inch” actually supply sheets of different thickness. As long as your acrylic sheet is 3mm or less then these plans should work fine.

A cheaper choice is Baltic birch plywood as it is dimensionally true, is water resistant to a point, and can be finished easily.

Laser Cutters are a specialty tool, to be sure. If you don't know where to find one, you might look for a “maker space” in your area, such as the well known TechShop DIY shop. Alternatively, you could look for a commercial short run manufacturer in your area or the internet. Prawn Designs (www.prawndesigns.com) will also cut you a kit for a price.

We do not recommend cutting these parts by hand. You might be able to do it, but these plans are designed for precision cutting.

Once you have your parts, you're ready to go.



Step 2 Lay Out the Parts



Place the main parts on a table in the correct orientation to be assembled.

Place the large piece with four tabs in the middle with the label “front” far away from you. The two complex figured side pieces appear to be the same, but one of them has a label “left” on it. Place that near the tab on the base that is also labeled “left”.

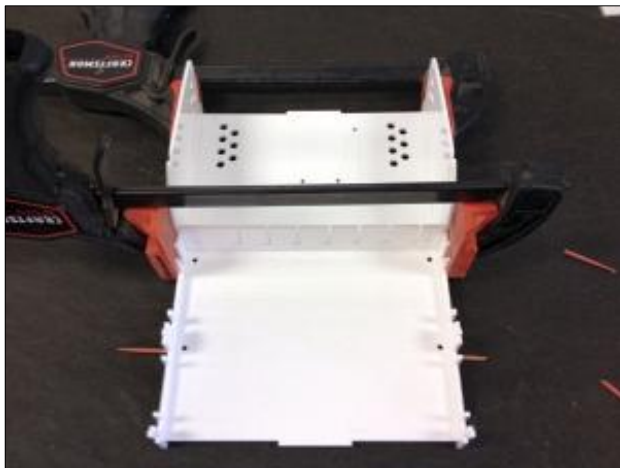
Note the cross piece labeled E is also laid out.



Step 3 Acrylic: Cement the Base Pieces Together

Find the Base, Left, Right, and E pieces. Note that the “E” on the E piece should go towards the left side. Also note that the arrow on the E piece must point up. Set the four pieces together.

As mentioned earlier, your acrylic might be a tad thinner than 3mm. If so, you should use shims (e.g. broken toothpicks) to hold the base to the top of the slots as the solvent sets. See the photo to the right.



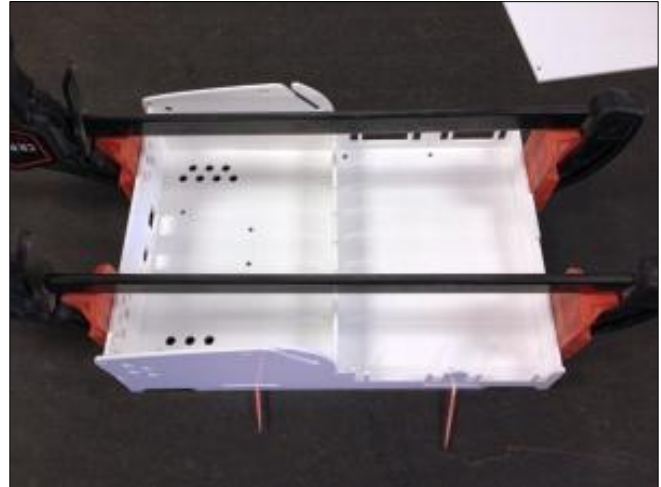
Place bar clamps or rubber bands in place to hold the parts as shown to the left. Position the clamps so that they are not on top of a tab.

Run a small bead of solvent across the lines where the parts meet the base. Don't put solvent where the tabs are – it will just run out.

Be sure to place a line of solvent to glue the E piece to the base. Let your assembly sit for at least 5 minutes.



Now place the front and back pieces on the base. Again use shims if your material is too thin. Reposition your clamps as shown to the right. Put small lines of solvent along the lines where the front and back meet the base.



Now place the flap door into the two holes at the back of the case and use a clamp to hold it in place as shown to the left.

Place solvent along the line where the back piece meets the side pieces. Be very careful to avoid getting any solvent into the hinge.

Wait at least 5 minutes for the solvent to begin to set.

Step 3 Wood: – Glue the Base Pieces Together

If you're using wood then the work is a little more involved. Using some kind of glue spreader (e.g. a small stick), dab a bit of glue along the “left” side of the big base. Don't put glue on the end of the tab.

With the complex side piece labeled “left” laying flat on the table, insert the base piece into the tab positions. You can see this in the background of the photo below.

Now apply glue to the piece marked E. Use a dab of glue on the shoulder and a little swipe of glue on either side of the tab.



Insert the E piece into the complex side piece where the slot is labeled “E”. Be careful to note the arrow on the E piece. This arrow should face AWAY from the base piece; in other words, when the box is assembled the arrow will be pointing “up”.

You now have one side piece with the base and piece E glued to it.

Apply glue to the free ends of the E piece and to the opposite side of the base piece. Carefully place the second side piece onto the base. You may have to jiggle the pieces a bit to get them all in, but take your time, it isn't hard to do.



Once you have your pieces assembled, locate the top flap door piece marked in one corner with a G. DO NOT apply glue to this piece. Carefully slip the two small tabs on this piece into the circular holes in the two side pieces. You will need to gently spread the two side pieces to fit this top flap on.

The Back Piece - Now locate the piece marked “back”. Note that it only fits one way. Place dabs of glue on the back edge of the bottom piece and on the tabs of the “back” piece. Fit the back piece to the case.

The Front Piece - Locate the piece marked “front”. Note that it only fits one way. Place dabs of glue on the front edge of the bottom piece and on the tabs of the “front” piece. Fit the front piece to the case.

At this point you should pause to let the glue dry a little bit. Sometimes the wood side pieces can be bowed a bit. You could use a bar clamp to hold them in place while the glue dries.

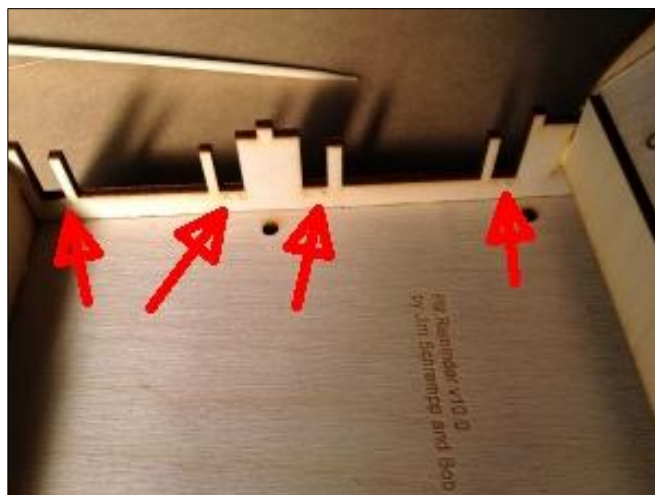
Looking at it from the back, your box should now look like the photo below.



Step 4 The Cross Pieces Positions

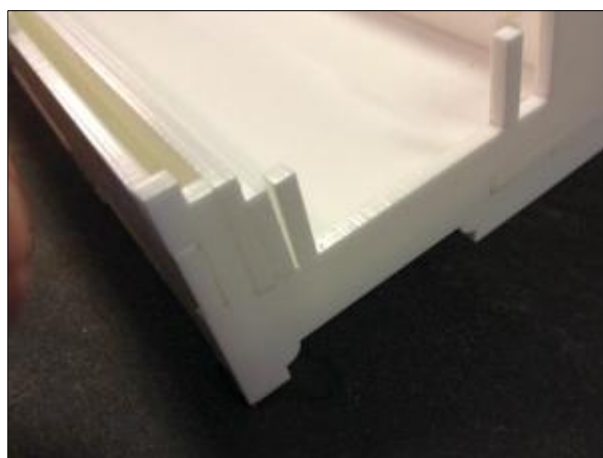
Locate the two pieces labeled C, the two labeled D and the W, X, Y, and Z pieces.

Note that inside the left side piece are small labels indicating where these pieces belong. As you glue these pieces in place, be **very** sure that the side of each piece with the mark on it goes against the side of the case with the labels.



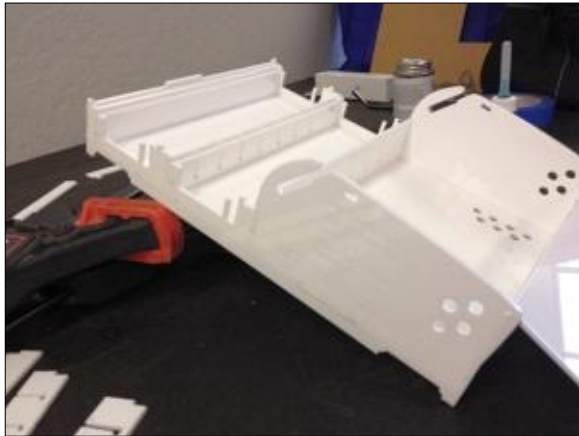
Step 4 Acrylic: Cross Pieces

If you are using acrylic, then tip the case forward and place the C, W and D, Y pieces in place. Be sure the pieces are far forward in their slots and that they are seated completely down on the base.



The photo on the right above shows the C and W pieces in place, ready for application of solvent. Ensure that the C piece is nearest the front and the W piece is towards the back – this is very important! Note that they are both seated completely down in their position. Also note that this acrylic is thinner than 3mm and so there is a slight space to the back of the W piece. You can insert a shim here to hold the pieces in place while the solvent sets.

Apply solvent across the line where piece W meets the base. Also apply a line where piece W and piece C meet. Repeat this with pieces D and Y. The D piece is nearest the front and the Y nearest the back.

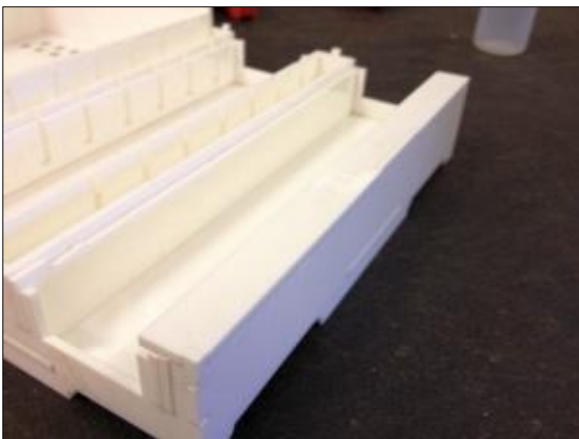


Now tilt the case with the front up.

In this position you can now place the C, X and D, Z pieces in place. Use the letter on the left side of the case to guide your placement.

Use shims if needed and apply solvent as you did for the other cross pieces.

Allow the solvent to set for at least five minutes.



Lastly, apply the piece with the words Pill Reminder on it. This fits on top of the front piece. This is the most difficult piece to apply solvent cleanly. We recommend tipping the case up on its back and applying a sparse amount of solvent to the line between the loose piece and the front piece.

If you get solvent in places you don't want it, do NOT wipe it up. Your best result will be to just let the solvent evaporate; there will be some marring of the finish, but not much.

Step 4 Wood: Cross Pieces

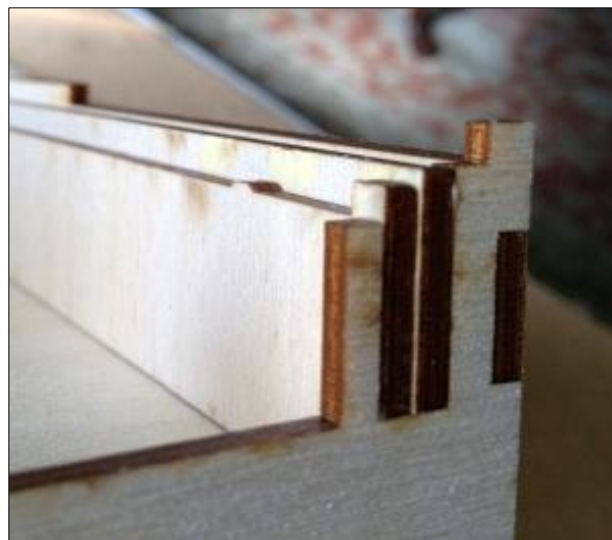
Wood gluing is a bit more involved than acrylic.

C and W - Pick up the C and W pieces. Put some glue on the sides of each end of the C piece and place it in the slot closest to the front. Dab some glue all along the side of the C piece that is now towards the back of the case.

Pick up the W piece and place a small dab of glue on each side of each end tab. Press it into the slot next to the C piece. NOTE that the C piece should be nearest the front of the case. Look closely at the photo to the right.

Use your fingers to squeeze the sides of the two pieces together so that the glue bonds them.

It is very important that each of these two pieces fit all the way to the bottom of the slot they are resting in. Check both sides and apply a clamp if needed.



C and X – Pick up the C piece you have placed with the X piece. Apply glue as you did on the last C piece. Place it in the slot labeled CX with the C piece furthest to the back of the case. Now apply glue to the X piece and slide it in place next to the C piece.

Note in the photo at the right that the C piece is towards the back of the case and the X piece is about to be put into place.

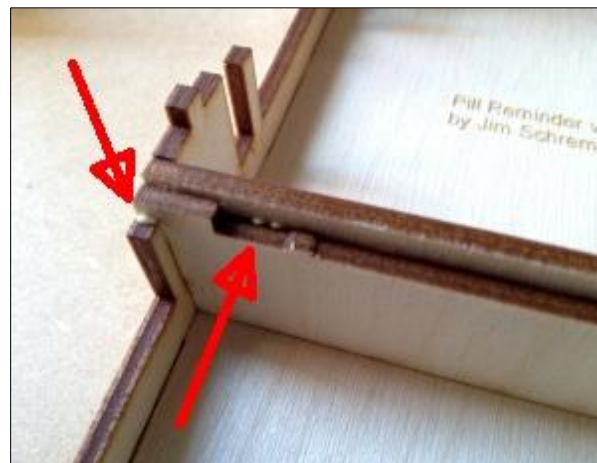
Note that the X piece is not symmetrical. The end of the piece with the X goes to the left side of the case – also marked with an X.

Squeeze the two pieces together and make sure they are both pressed all the way into the slot.



Now is a good time to look for stray bits of wood glue. In the photo at the right you can see two places where little bits of glue have squeezed out. In most parts of the case a bit of extra glue doesn't hurt anything.

However, in the case of these cross pieces you should remove any little dabs of glue that you see.



D and Y – Repeat the process with the D and Y cross pieces. In this case the D piece goes into the slot in the position nearest the front, and the Y goes nearest the back.

The photo below shows the XC and DY pieces in place. Note that they are fully seated in the slots.



D and Z – For the last time, repeat the process. With these two pieces, the D goes into the slot in the position nearest the back and the Z piece goes in nearest the front.

Now locate the top piece with the Pill Reminder label on it.

Test fit the piece in place and note the parts of the case that it will rest on.

Place dabs of glue on the edges and place the piece in position. If the piece is warped you may need to use bar clamps to hold it in place while the glue dries.



Step 5 Painting (optional)

If you want to paint your wood case, now is the time to do it. We recommend spray paint. If you want a smooth finish then paint, sand with 220 grit sandpaper, and paint again.

Step 6 Top Flap Latches

Locate the two small latch dogs, two M3 screws, and four M3 nuts. Assemble the latches on the top flap as shown in the photo. Note that the dogs are not the same. They each have a small square etched into them. The etched square should be faced up when the dogs are in place.



Tighten the screws just enough to give friction to the latches. Then place a second nut on the screw.

Tighten this nut against the first to keep the nuts from coming loose.

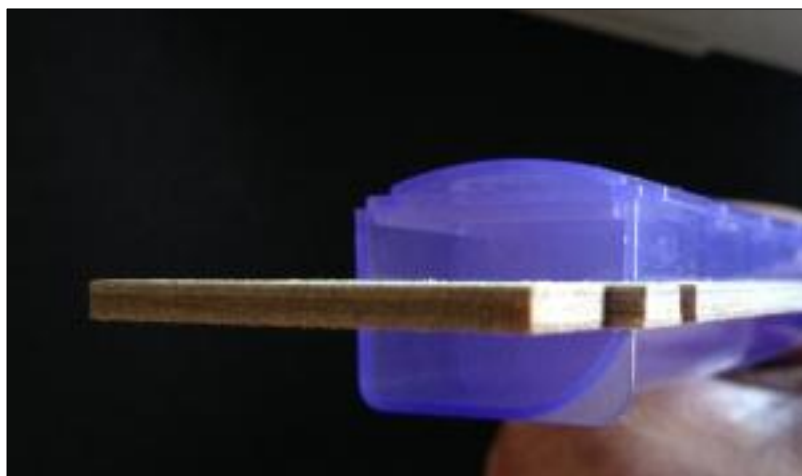


Step 7 The Pill Dispensers

Locate the pill dispensers and the two carrier slides, one labeled AM and one PM.

If you are using acrylic then you cannot press fit the dispensers – you will crack the slide carriers. One option is to cut your sliders from 3mm wood and use them. The other option is to use a file to increase the size of the hole in the carrier so that the pill dispensers fit easily. Then secure them with hot glue.

If you're using wood carriers, press one pill dispenser down into each carrier. Press them in only half way. The fit should be very tight. You may have to use a knife to scrape the slot in the carrier just a tad bit bigger to fit the variation in the size of your pill carrier. Or you might find that your pill carrier is a bit too small and slips through the slot; In this case you will need to glue your pill dispenser to the pill carrier. We suggest hot glue for this.

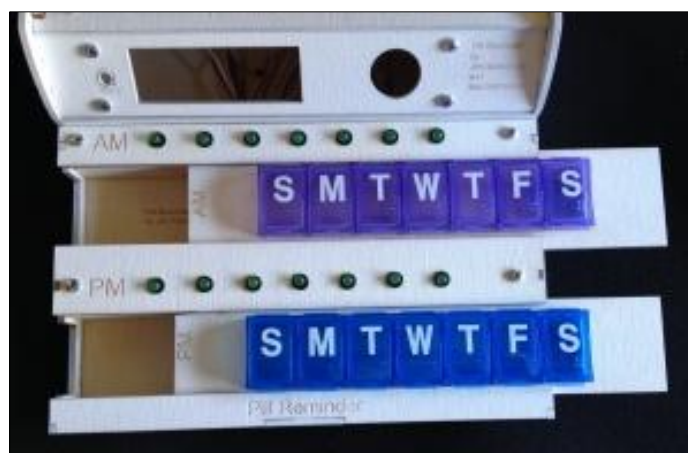


Now slide the AM and PM pill dispenser trays into the case. Note that the AM/PM label should be to the left.

The trays should easily slide in about 80% of the way. The last bit requires slightly more force and the trays will lock into place.

The trays can be removed by pushing them back to the right.

As a Caregiver, you may want to have two sets of pill dispensers and trays: one to leave with the User in the Pill Reminder and one to take home for you to reload with pills for the next week.





Step 8 Final Assembly

You have now completed the assembly of the Pill Reminder case. You need to complete the electronics assembly, and then do the final assembly where the electronics are mounted in the case.

Good luck!
