

# Help! I've Damaged My Wooden Jigsaw Puzzle!

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I make hand-cut wooden jigsaw puzzles (Scroll-Right.com). They're made to last for many years – my goal is for them to last generations. That's one of the reasons I've written this little article. Most of what I'm telling you here also applies to the standard cardboard puzzles.

First, it's inevitable that *things* will happen to jigsaw puzzles. They're a lot of small, at least somewhat fragile pieces that get handled a lot. Pieces will get lost, they'll get chewed on, they'll get damaged. It happens. I recently saw an unboxing video for a wooden jigsaw puzzle from the 1700's – back when they were made as educational toys by cutting up maps. It was, of course, missing one piece. Actually, one piece had been lost and a carefully not trying to look original replacement had been made.

So, what are some of the things that can happen to a puzzle and how can you fix them? As I said, I make hand-cut wooden jigsaw puzzles which means I mess with them a **lot**. That means that things have happened to pieces (mostly when I was starting out). But the good news is it also means I know how to fix those things. Other things haven't happened to me but I know ways to fix them. We'll start with the easier ones and work our way up.

## The image has peeled up!

This can happen with a lot of puzzles. Some wooden puzzles have the image directly applied to the wood (usually a sublimation print). Mine are the more traditional kind where an image is printed out and then bonded to the wood. During handling things can catch the edge of the image and peel it up from the wood. It's not easy with mine, but it can happen. The fix for this is simple – just a little glue. I use Elmer's Clear School Glue. Have a toothpick handy and something to wipe your fingers on. Lift the loose bit and squeeze a tiny bit of glue into the space. You might need the point of the toothpick to help spread it. Squeeze the bit down with your fingers and hold it for a minute or so while the glue grabs. Use your fingers to wipe any excess glue off the edges. You might need the toothpick to get into small spaces like the cuts around the interlocks. Inspect carefully for excess glue – it can make the piece hard to put in place. Let it dry for at least 10 – 20 minutes before you put the piece into the puzzle.

## The image has come completely off!

A variation of the previous problem. My image layer is actually three parts: a heat activated bonding layer, the photographic image, and a protective laminate. I use a press to fuse them together and to the wood. On very rare occasions something will cause the bond to the wood to fail and the image can pop right off. This time you can smear the glue across the whole top of the wood in a nice layer. Make **sure** you've got the image lined up with the piece all the way around. Once again, squeeze the whole thing together while the glue sets. If the piece is too big for your fingers, put down some waxed paper and put the piece face down on it with a weight on the back so the whole image is pressed on to the whole piece. After a minute or two the glue will be set enough for you to clean any excess off of the edges / out of the nooks and crannies.

While I'm aiming these fixes at wooden puzzles like I make, the same things can happen to your store bought cardboard puzzles and the fix is the same.

## The image has a scratch or other damage.

I haven't had this one happen (protective laminate for the win) but I know how to fix it: colored markers and a steady hand. You might sub this one out to the most artistic person you know. You'll probably be able to spot the fix on close inspection, but it will be less obvious than the damage.

## Part of a piece has broken off!

Sometimes puzzle pieces have fragile bits. Actually, all puzzle pieces are somewhat fragile, but there can be bits that weaker than we want. The ultra-fine blades used for making hand cut puzzles really won't cut flesh (unless you really try) but being unable to hurt you physically, they like to hurt you emotionally. One of the ways they do this is to drift to the side *just* a bit at *just* the right point to make something fragile. If one of these little bits breaks off, *and you can find it*, it's easy to fix. If not you're probably going to have to live with the hole since it probably isn't big enough to make a replacement piece.

This time you would prefer to have some wood glue but if you don't (or it's not a wooden puzzle) good old Elmer's will still work. Put a tiny bit around the edge of the broken off bit and fit it into the piece it fits into. Trying to glue it back to what it broke off from is just a recipe for failure. Glue it into the spot it goes into. Clean any excess glue off of the top (if you press the piece into place from the back the excess should all be on the back). Let it dry and it **look** just fine when the puzzle is assembled. The only hint of

the problem will be the extra line showing where the break happened but that should be even thinner than the gap between pieces and very hard to see.

## A piece is gone!

This can be the hardest or easiest problem to fix. With a cardboard puzzle or a laser-cut wooden puzzle (if the piece edges are black it's laser cut) you have a shot of getting a replacement piece. A wooden puzzle without black edges from a big manufacturer **might** be one where you can get a replacement piece. It's worth asking. First, take a picture of the part of the puzzle with the missing piece. Make it close enough you can see what piece is missing, show enough of the puzzle so they can locate the missing piece, and as clear as you can make it. Email the maker and explain the situation and ask if it's possible to get a replacement piece. If you do get one, problem solved!

Now my puzzles are cut by hand so each and every piece is absolutely unique. Or perhaps you can't contact the maker or they don't offer replacement pieces. Now what do you do?

Simple. You need to **make** a replacement piece. The first thing to do is to get the shape. Assemble the puzzle around the missing piece and put a sheet of paper under it. Now take a *very* sharp pencil and very carefully trace the edge of the hole. Slide the paper out and look at your 'piece'. I find that going over the pencil line very carefully with a fine pointed pen gives you a drawing that will scan or copy better. If you're going to be getting the image into your computer a simple way to make sure it's the correct size is to draw a box around it of a known size. Now scan the image (or take a photo with your phone). When you open the image in your drawing program scale the **box** to exact correct size. This should make your 'piece' the right size. Check by printing out a copy and putting it behind the puzzle section. If it's off just fiddle with the size until it's right.

In any case, once you have your shape you can start working on your replacement piece. There are several ways to make pieces.

For a cardboard puzzle, you need some cardboard of the same thickness, possibly less the thickness of the image (more on that later). Glue a copy of your shape to the cardboard and cut it out. I would suggest one of the swivel craft knives with a small point. Don't try to cut all the way through in one pass – just keep going over the line. Make sure you're on a mat or

other safe surface! Usually three or four passes will get you through nice and clean. Note: for cardboard you can lay your puzzle section over the cardboard and trace the 'piece' directly on to it.

For a wooden puzzle you need some wood of the same thickness. Most puzzle makers use Baltic Birch. Craft stores sell it in small sheets and you shouldn't need much. Laser cut puzzles are generally 1/8" (3mm) and hand-cut ones are 1/4" (6mm). This is because it's hard for lasers to cut through wood and hand cut ones are cut on a scroll saw where it's actually easier to cut 1/4" wood than 1/8" (more control). Just measure how thick your puzzle is.

A trick to stick your pattern down well enough to cut but still have it come off clean is put a bit of blue painter's tape on the wood first. Now you can glue the pattern to the tape so it won't come off. When you're done cutting the tape will peel off taking the pattern with it.

If you have access to a scroll saw you can use it to cut out your piece. You won't need the ultra-fine puzzle blade (probably) but you *will* need at least a #3 blade. It doesn't matter how thick the cut is because you only care about the one piece. You just need to make sure you can follow the outline as exactly as possible.

If you don't have a scroll saw you can use a fret saw. It's just a frame that you stretch the blade across. You use the same blade you'd use in the scroll saw. You can get really nice, fairly expensive fret saws but you just need one good enough to work.

It's better to cut a little too big than too small. If you go a little outside the line or can't quite get into one of those nooks that's ok. Some sandpaper and needle files will let you slim things down to the exact fit. Keep checking the fit of your piece once it's cut out. Sneak up on getting it right because it's rather hard to put wood back on once you cut or sand it off. Worst case, just start over now that you've practiced.

If you have access to a laser cutter and your missing piece was thin enough then you can use that to cut the replacement. Maker spaces are a great place to get access to tools and people who know how to use them.

A more modern way to make the replacement piece would be to use a 3D printer. Print out the shape of your piece, make it the right thickness and you should be good. Probably going to have to do a bit of sanding, but

that's not hard.

Ok, now you have your replacement piece, how do you replace the image? There are lots of possibilities. You're probably going to want to make the replacement image on paper and then glue it on to the piece as discussed earlier.

If you have access to a copy of the completed puzzle image that you can cut up (copiers and printers are wonderful things) **and** it's the right size it's just a matter of laying your puzzle section over the copy, getting it lined up and then carefully marking your missing 'piece'. Cut it out with that swivel craft knife, glue it on and you're golden!

If not, put your piece shape on paper and turn to that artistic family member or friend (or yourself if possible). Paint, markers, colored pencils – whatever gets the job done. Cut out and glue down your image layer and finish your puzzle.

Hopefully you won't ever need to use any of these fixes, but isn't good to know that you **could** if you had to?