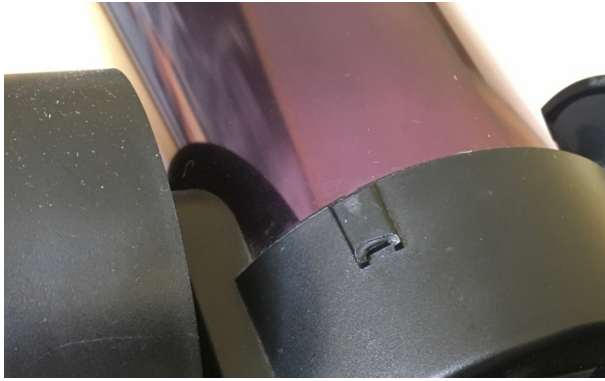
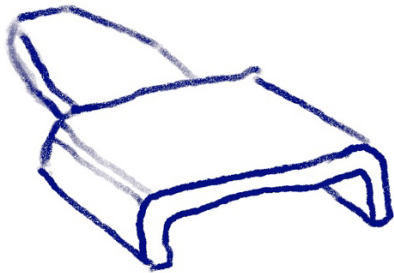


Repairing the Finder Scope mount on my ETX90  
by Dave Wilson (texasdavew@gmail.com)  
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I recently bought a used ETX90 and the finder scope mount was broke:



I wanted to fix this mount but also wanted it to look as original as possible. This required shaping the mount channel so that I could embed a reinforcement piece inside the raised plastic mount base instead of bolting or gluing something on top of it. After lots of thought I envisioned a part that looked like this:



I just had to figure out how to make it. It needed to be metal, strong enough to hold the finder scope nib – but thin enough not take up too much space. After an exhaustive search, I found the metal that I could shape into an embeddable insert from... a USB connector:



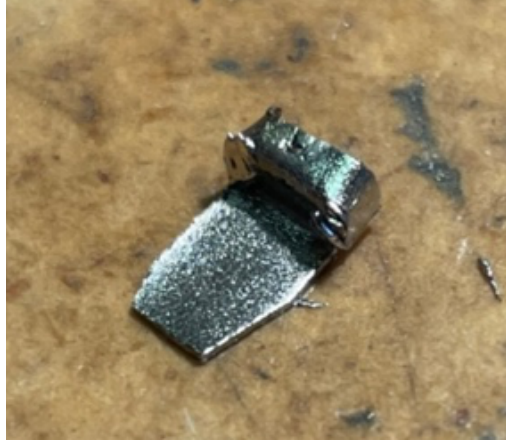
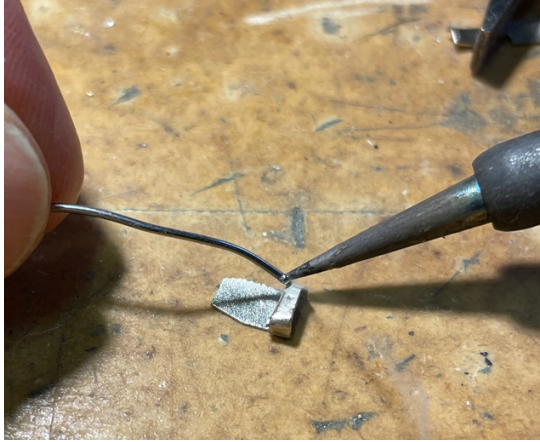
From this USB metal, I used pliers to bend it and tin-snips to cut it into a T-shape:



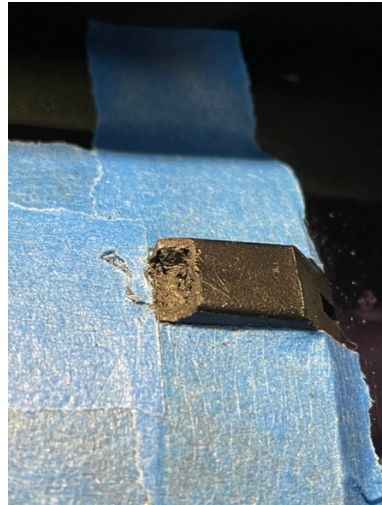
I compared the shape I needed to the nib on the finder scope holder, then I bent the T-Shape metal into shape needed for the insert to be embedded into the scope:



I then soldered the corners of the part to give it added strength. I angled the sides of the flat tab to allow it to penetrate into the plastic and accommodate insertion. This beautiful little part was exactly what I had in mind:



Once the part was ready, I had to prepare the mount to accept it. I put several layers of tape around the mount to protect the plastic from heat and scrapes. To shape the channel opening – I used a soldering iron and carefully melted the plastic into the opening shape that I wanted. I thought of this a little like how the dentist hollows out a tooth to prepare it to accept the filling. It may have been better to use a small milling device instead - something like a Dremel tool. Lacking that, I proceeded with the soldering iron:



The plastic melted fast and then hardened fast. This gave me a clue that it would accept the hot metal part. I then used a small screwdriver and some small pointed sharp files to break away the bits of molten plastic to reveal the rectangle-shaped-opening to fit the metal insert. Note that I didn't hollow out an opening in the plastic for the angled "tab" part of the metal insert because the tab will melt its way into the plastic. The result doesn't look "pretty", but since the metal piece will melt its way in – it sufficed.

With the plastic of the mount shaped and the insert piece ready, now came the moment of truth. Heating up the part and inserting it into the plastic of the telescope. At this point – I would either ruin the mount or fix it as I had no real idea of how the plastic would accept the heated tab.

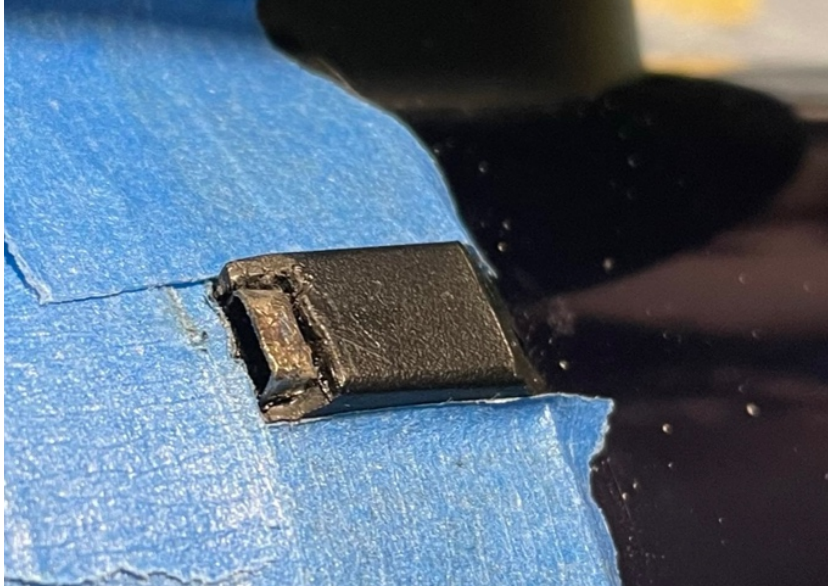


I heated up the part with the torch until it was red-hot. Then I let it cool a little and with angled pliers I pressed it into the rectangular opening and further into the plastic behind it. I was careful to press it in straight and flat until the raised metal part seated into the opening:



And voila – it was in. I let it cool and then gave it a little pull and lift test. It's in solidly and not coming out easily:





At this point, I tested the fix. I attached the scope finder mount use by pushing the nib into the metal opening and turning in its mounting screw. It holds solidly.

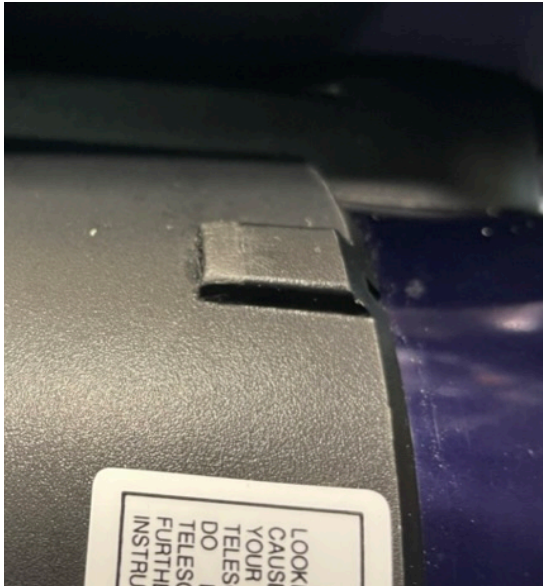
With the metal piece in place and tested, I wanted to cover the metal insert so that it looked as close the original as possible. Basically a “bondo” job to cover it like an auto body repair. The perfect material for the job was Apoxie Sculpt. The black color is very close to the scope’s color. I combined two small equal size parts of this and kneaded it together.



I used a wooden popsicle stick to press the Apoxie Sculpt flat and into the shape of the mount. Then I cleaned it up with a small screwdriver. Next, I took the finder scope fixture and pushed its nib into the opening to make sure no Apoxie Sculpt was obstructing it. Once the shape was clean and right, I discovered small miracle. The gloves I used to handle the Apoxie Sculpt are “Venom Steel” gloves and the grip pattern closely matched the mottled texture of the scope. So, I used my gloved finger to emboss the Apoxie Sculpt with the matching mottled design.



24 hours later, the Apoxie Sculpt is hard and the mount is strong and secure. The result was exactly what I was hoping for:



This fix took some thinking and some nerve but, in the end, its exactly the fix I wanted:

