

Repairing The Wheel Axle On a KitchenAide Top Rack, Version 1.0

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The weak links on my KitchenAide dishwasher are the wheels that carry the top rack. The wheel carrier is made of resin plastic which holds up well to the hot water but is brittle. This video explains the problem and how to replace the carrier:

<https://www.youtube.com/watch?v=TCC6gTu3un0>



Tiny spring fingers hold the wheels on and when they break off, the wheel follows. Here you see one finger gone but I have replaced it with a piece of stainless steel wire. This works well as long as one finger remains. Eventually, both fingers break off.

This must be a very common problem because, when I searched on-line for replacement parts, it was the first hit. The choice was to either buy a new wheel carrier with wheels that will certainly fail in the same way or repair what I had. Given that I have a lathe, the decision was easy.

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The first step was to scribe lines between the two cut-out areas in order to locate my new mounting hole. Then I used my 1/8" spotting drill at the intersection and followed with a #27 to give me a 6-32 clearance hole. Using a countersink mounted in a brace-and-bit, I carefully cut the recess. The screw must be flush with the surface to avoid binding. Fortunately, there is enough thickness to sink the screw head and still have strength.



Next, I ground off the post in the carrier with a Dremel cut-off wheel. My goal was to establish a flat surface and not tear up the remaining plastic too much.

I found a spacer that happened to be a good sliding fit to the inside of the wheel and about the right length. This was topped with a washer that also fit. The washer retains the wheel. After adding a screw, I was able to try out this new axle. It worked well so it was on to the lathe to make the axle out of nylon.



I took the dimensions from the spacer and turned the new axle. Here you see the overall length complete along with the outside diameter of the axle. I parted off with my hacksaw blade grooving tool². The nylon squirms so I ended up with a crowned top.



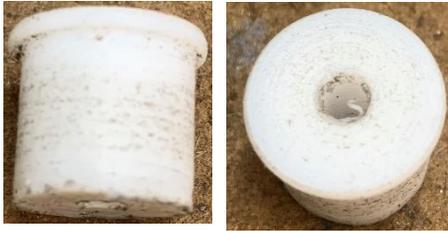
I mounted the small end of the axle back in my 3-jaw chuck being careful not to apply too much pressure. The nylon easily distorts which would throw off the cut. After facing the end, I reduced the diameter of the retaining section being careful not to crash the cutter into the jaws. There is a lot of stringy swarf which was removed with a file. This was safely done by resting my left arm on the headstock housing, holding the end of the file in the my left hand and holding the handle with my right hand³.



I again used my spotting drill and #27.

² https://rick.sparber.org/MakingA_GroovingTool.pdf

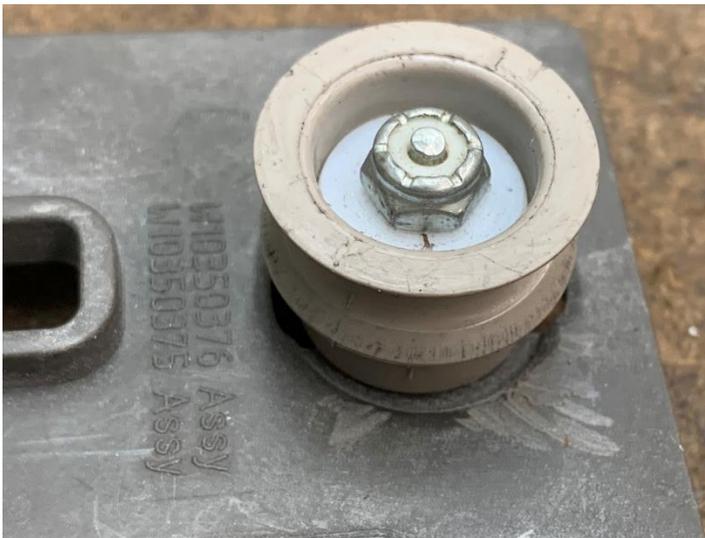
³ This outstanding video from Joe Pieczynski explains it all: <https://www.youtube.com/watch?v=i7J8HFJ2yj8>. By the way, all of Joe's videos are outstanding.



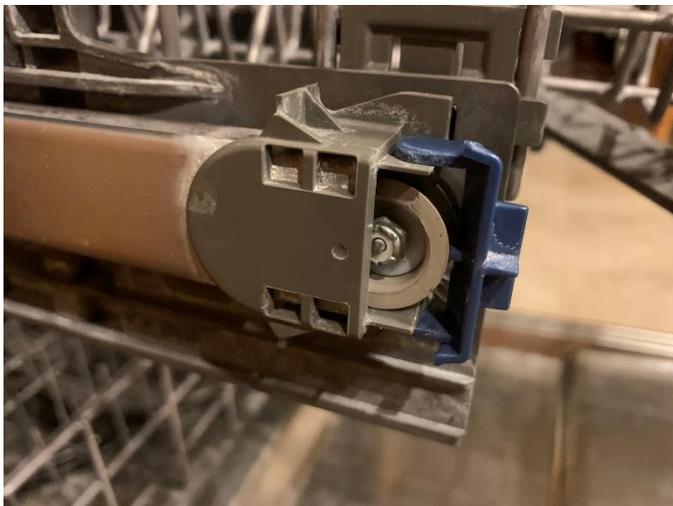
There is nothing remarkable about this part *except* that it solves a very annoying problem.



I'm using a nickel-plated flat head screw and a nickel-plated nylon lined lock nut. These will be replaced with stainless before they start to rust.



The trick was to tighten the nut just enough that the wheel does not bind. I think the binding came from the nylon distorting from the downward force and locking into the wheel. When properly tightened, the wheel spins freely and does not wobble. Ah, bliss!



With the wheel carrier and my new axle back in place, all is well. Over time, I'm sure the other 3 wheels will fall off but I'll be ready to repair them. I could have done them now but there is a possibility that my repair has some unexpected problem so I prefer to live with it a while.

Barring any surprises, this repair should outlast the dishwasher. I improved on the original design which is a good thing plus again justified owning my lathe which is always very gratifying!

I welcome your comments and questions.

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