CHRISTIE AW3 BRAIN MODIFICATIONS & ALIGNMENT TIPS WHEN RUNNING 70MM

Author: Brad Miller
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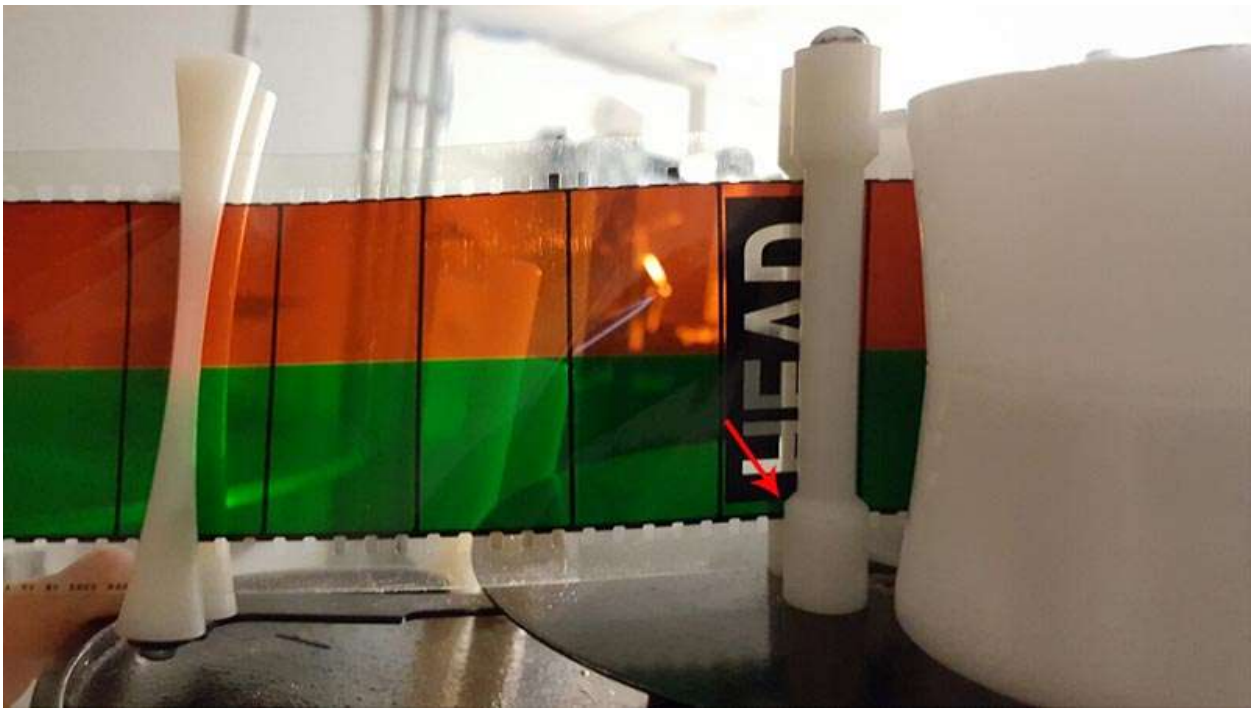
TOOLS NEEDED:
Power drill
5/64 inch drill bit
Clamping pliers (aka: Vice-Grip)
Medium/large flat head screwdriver (depends on brain vintage)
Small flat head screwdriver (depends on brain vintage)
#2 Phillips screwdriver (depends on brain vintage)
#1 Phillips screwdriver (depends on brain vintage)
Standard allen wrench set

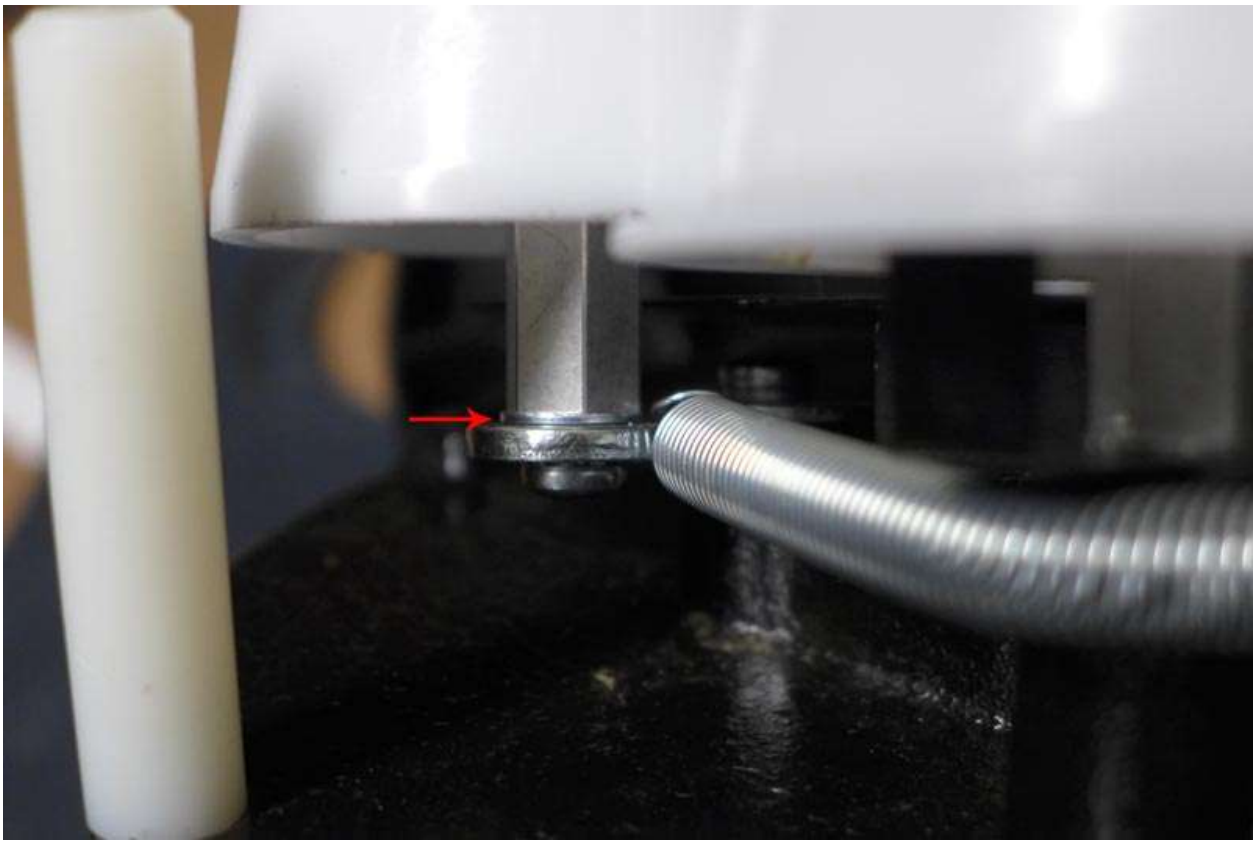
There are a number of places the film can get scratched in a Christie brain when running 70mm. With polyester 70mm stock and curling issues from dry climates, more opportunities for scratching become a reality.

For starters, the two stripper rollers need to NOT be touching. In fact you want a solid dime's thickness of spacing in between them as pictured below. This is easily accomplished by loosening the two screws on top of the stripper rollers and physically separating them, then tightening the screws back down. When these rollers are too close together, if you have any shedding of the print, dirt will collect at the beveled edges and cause scratching of the edges of the image. Having the rollers too close together can also cause a bounce when a splice passes through which can cause dts playback problems.

Next inspect the alignment of the two stripper rollers in relation to where the image area of the film is riding. Below is a typical picture showing misalignment that can cause scratching at the point of the arrow.



To prevent this misalignment from scratching, washers can be used. If the film is riding “too high” as in the picture above, a washer (or two or three) can be placed underneath the roller’s shaft like is seen in this picture.



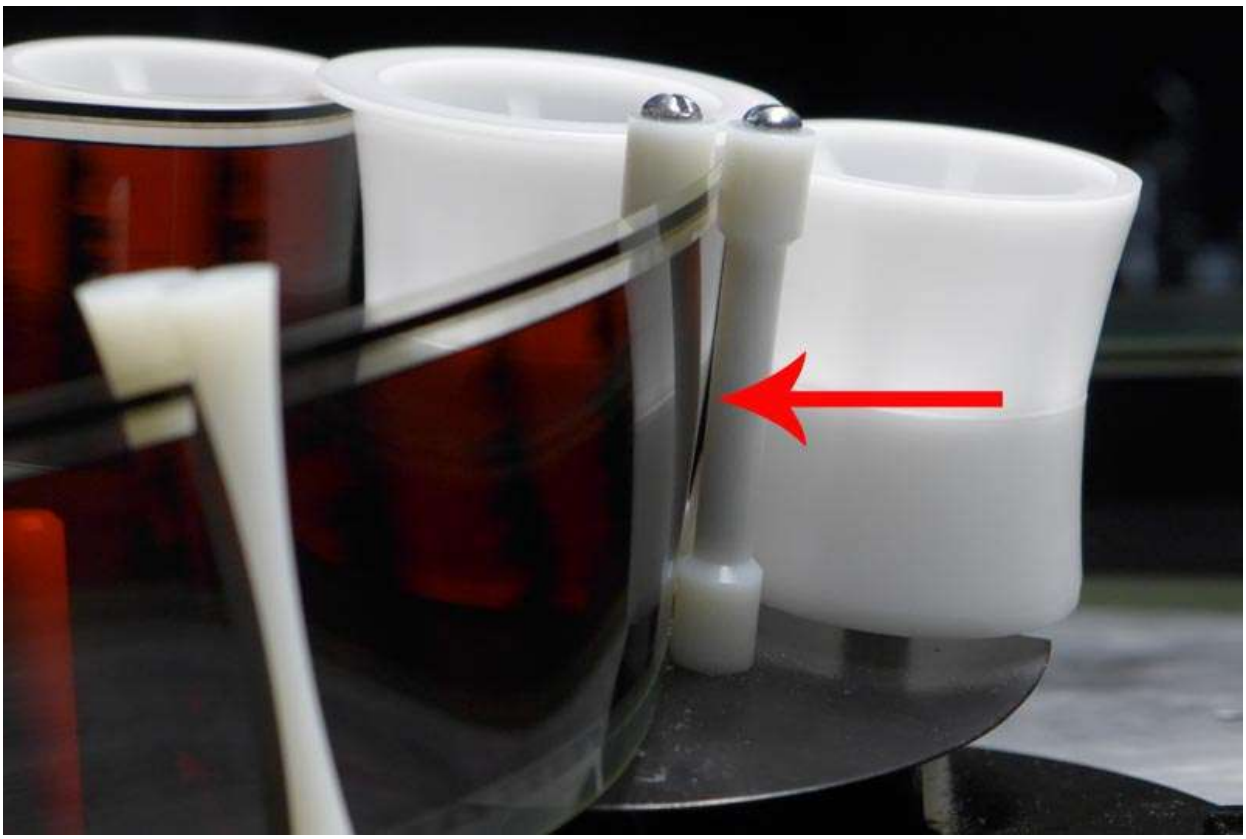
Similarly, if the film is riding “too low”, the washer(s) can be added below the stripper posts to correct for the alignment problem.

Once you have re-assembled the brain, pay particular attention to the alignment of the half-circle stripper post base plate. Before fully tightening the set screw on this plate, spread both flange-less rollers apart so they are evenly spaced in relation to the center roller and then tighten down the base plate set screw with the flange-less rollers in this position. This keeps the angle correct for the strippers, which helps for smooth payout.

This is how the alignment should look once correct. Note the stripper posts are ONLY coming into contact with the sprockets outward.

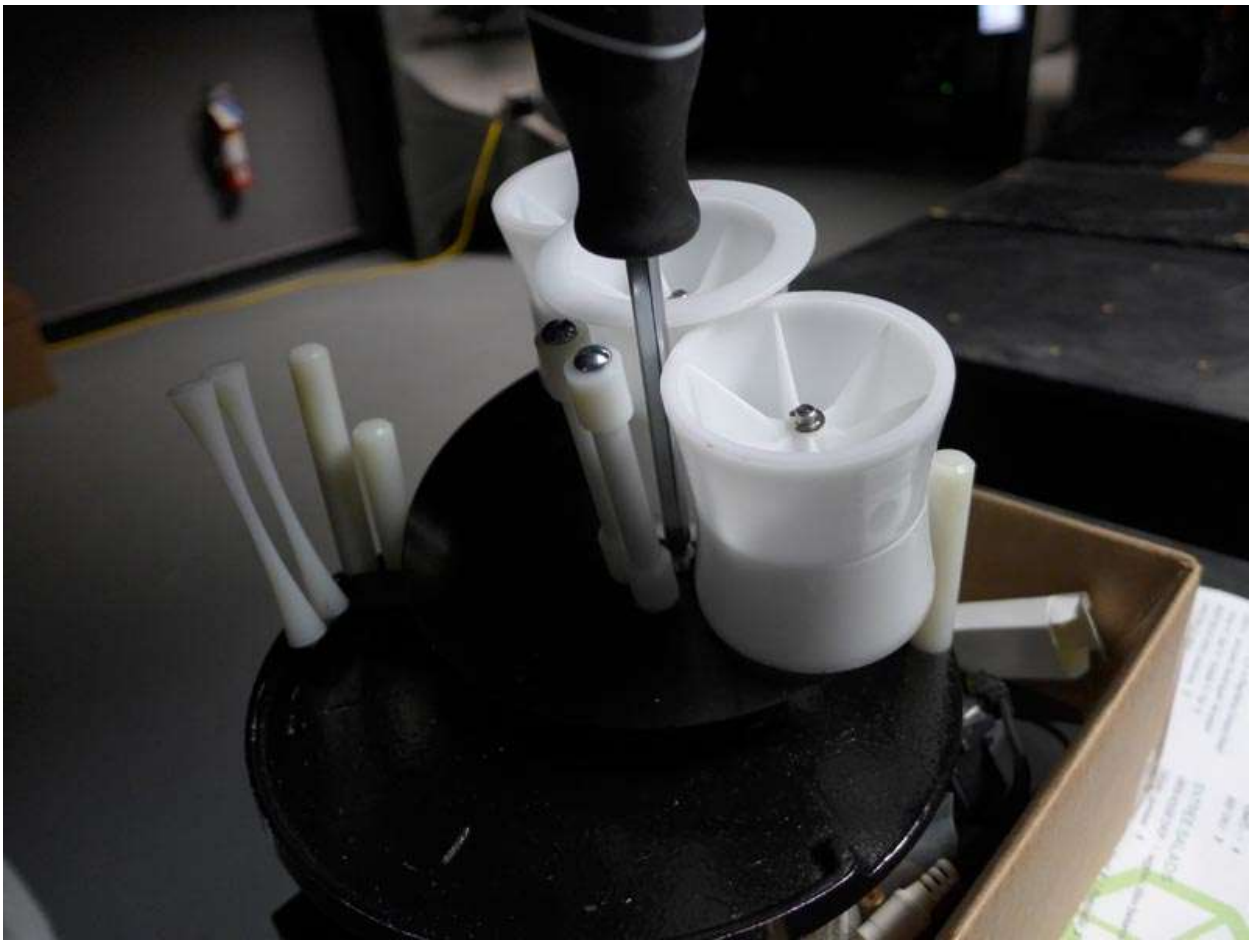
At this point the above modifications should be the only changes you need to make to run 70mm film without the threat of scratching. Unfortunately polyester 70mm film behaves differently than traditional 70mm magnetic acetate film stocks, and it is particularly sensitive to curling in dry climates. The following steps will assist with these situations.

As the climate changes, the film will curl outward towards the right and the center of the film will rub up against the center of the right stripper post leaving a scratch down the middle of the film. Below is a picture of this issue where the curl is about to scratch. (Pay special attention to the space between the middle of the film in proximity to the stripper post as noted with the arrow.) This curl will be most prominent at the beginning of the film.



In addition to the concern of scratching on the right stripper post, as the film curls just a little bit more, the film will then scratch on the payout arm's "wishbones" as the edges of the film press up against one wishbone forcing the image area to press into the other wishbone. The below procedure will prevent the scratching.

First unscrew the bolt behind the two stripper rollers. You will need a #2 Phillips (or occasionally an allen wrench).



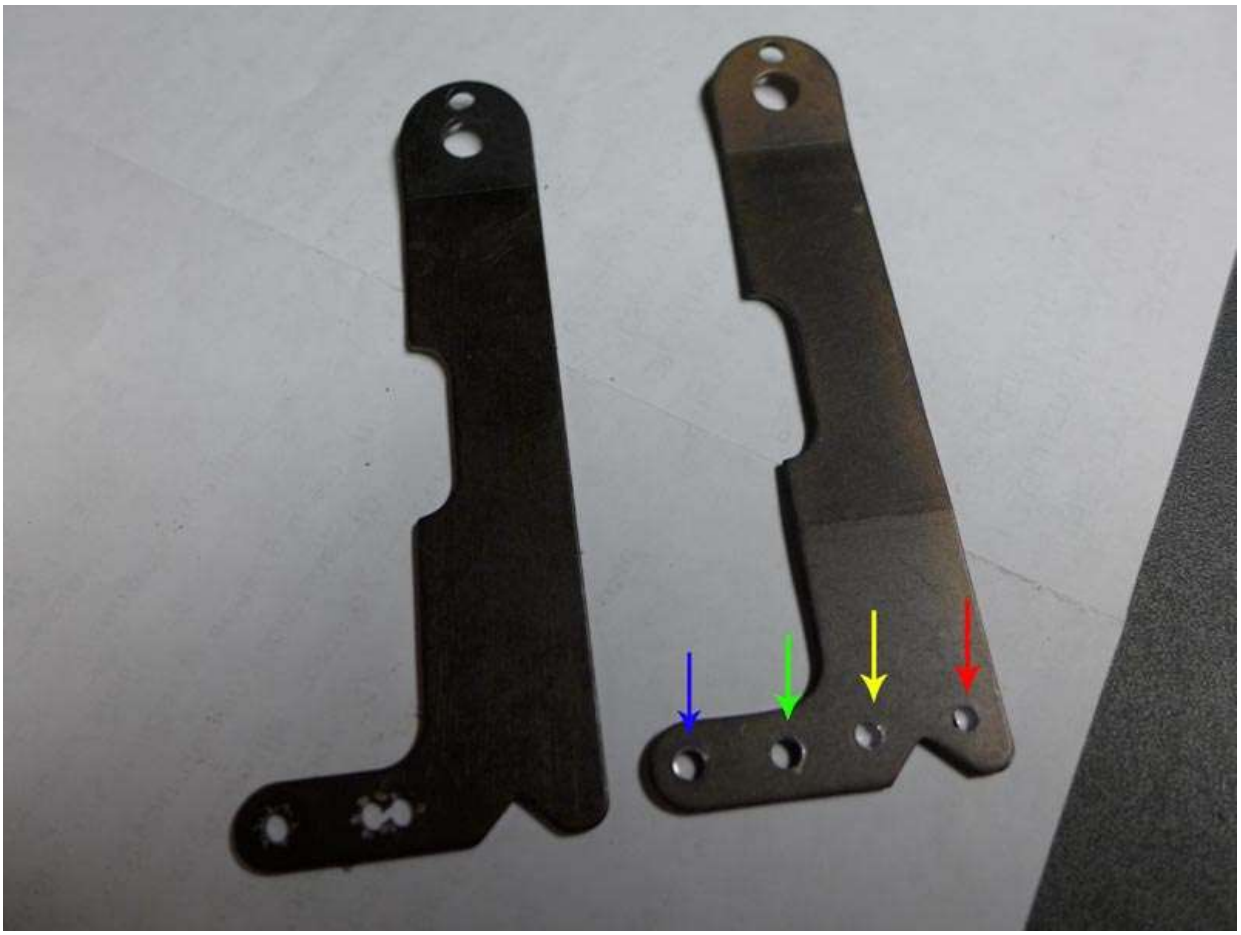
Now remove the stripper base plate entirely. Don’t lose the bolt.

Using an allen wrench (or occasionally a flat head or phillips screwdriver, depending on vintage), remove the bolt that secures the payout arm.

Now lift and remove the payout arm entirely (don’t lose the bolt).

On the underside of the payout arm there are 2 screws that hold the two “wishbones” in place. Unscrew them. Do not lose the wishbones or the screws.

You now need to drill 2 NEW HOLES in the end of the payout arm. Pictured below is a factory original arm on the left and a modified arm on the right. Note you are drilling a new hole where the YELLOW and RED arrows are. You need a 5/64 inch drill bit. To secure the arm for drilling, a simple locking set of pliers clamped to a sturdy surface will suffice.



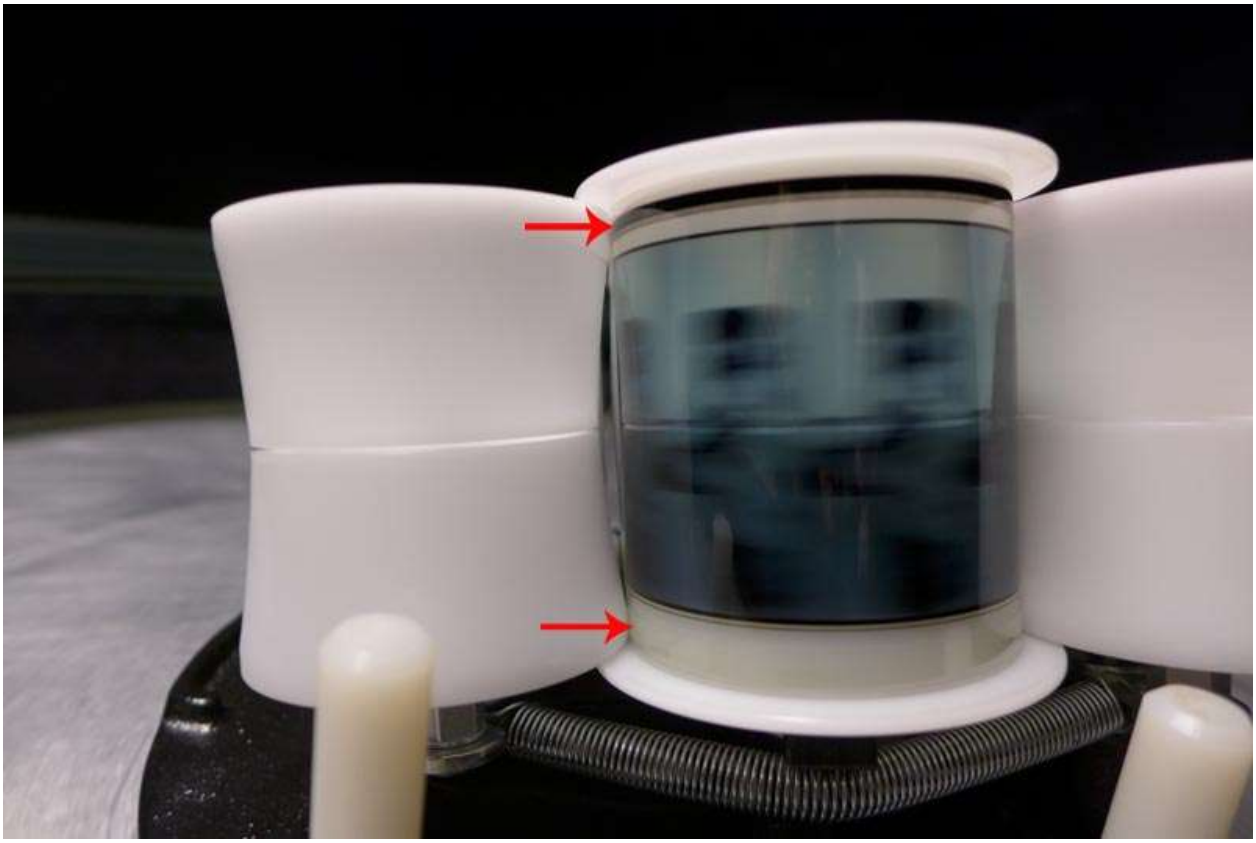
Now re-mount the two wishbones in the new “medium” position using the original BLUE hole and the newly created YELLOW hole. (Note the photo above with the arrows was taken looking at the UNDERSIDE of the arm.)

This now gives you a wider spread between the two wishbones so the film can’t get trapped in between them as it curls and widens when passing through.

Next remove the right stripper post entirely so the curl of the film cannot press against the right post and create a scratch. Simply unscrew with a medium/large flat head screwdriver and save the bolt and stripper for future use.

You now have a brain that will not scratch when 70mm polyester film starts to curl. Please note in this picture below, the brain on the left has been outfitted with the wishbones at the widest spread while the brain on the right has been outfitted with the wishbones in the medium spread. Convert your payout arm to the medium first, and only if the curling starts to get excessive and you feel it is at a threat of scratching even with this post spacing should you revert to the widest option. This widest option pictured on the left should never be needed, but as long as you are drilling one hole (the yellow arrow) for a wider spacing, it is little extra effort to drill that second hole (the red arrow) so it is ready in the event the need arises.

Finally, before using your modified brain, ensure the two flange-less rollers are making even contact with the flanged center roller as seen with the two red arrows for the left roller. If for example only the bottom edge of the flange-less rollers are making contact, your film COULD walk right up and out of the brain during operation. If you find this is an issue with your brain, the only solution is to gently bend the shaft slightly so it lands squarely on the center roller.



This is the brain in action after performing ALL of the above modifications. Please note you MUST thread to the RIGHT side of the existing (left) stripper roller, just as you would if the (right) stripper roller that you removed was still there, otherwise erratic payout and overall wackiness will ensue.