

A PVC Video Camera Carrier For Telescopes With 2" Focusers



Ted Blank
4/2017



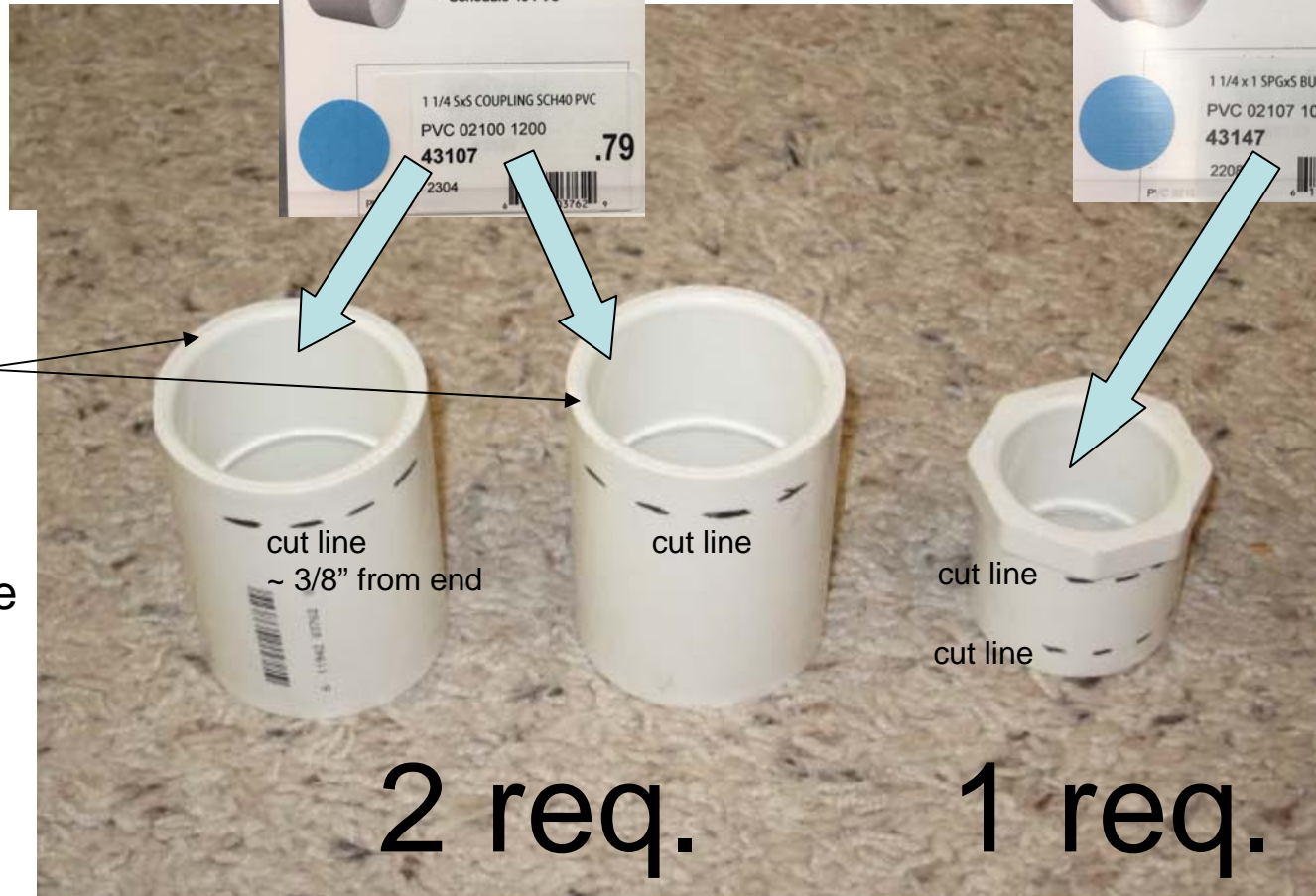
Introduction

- Due to limited inward focus travel, a video camera with a focal reducer may not come to focus in a Newtonian reflector (solid or strut design) without shortening the struts or moving the primary mirror forward
- Some refractors may have the same problem
- This presentation describes how to make a PVC camera carrier which will allow certain models of video cameras with focal reducers to come to focus without scope modifications
- The camera must be small enough to completely fit inside the PVC carrier. This is true of both the PC164CEX-2 and RunCam Night Eagle Astro models.
- A focuser which accepts 2" eyepieces is required

Required PVC Parts:



Be sure to cut off the end which has the most raised, embossed lettering. The process of embossing widens the end of the coupling too much.



2 req.

1 req.

Required Other Parts:

3 required



Other tools and materials required:

1/4-20 drill and tap set

1/8" hex wrench

Cut-off saw or chop saw

Hacksaw

Portable drill

Clear PVC cement

Important – when purchasing, insure that outside diameter of the two couplings is slightly under 2” (some may be slightly over, reject these)



Slightly under 2” outside diameter, measured near center.

The other end of the large couplings might have one small embossed number. Just sand or scrape this number down smooth.





Cut through reducing bushing even with black line to leave inner ring flush with the new cut end. This inner ring will serve as a stop for the 1 ¼" camera focal reducer.

Location of this cut not critical. About 1/8" in from hex end is good.

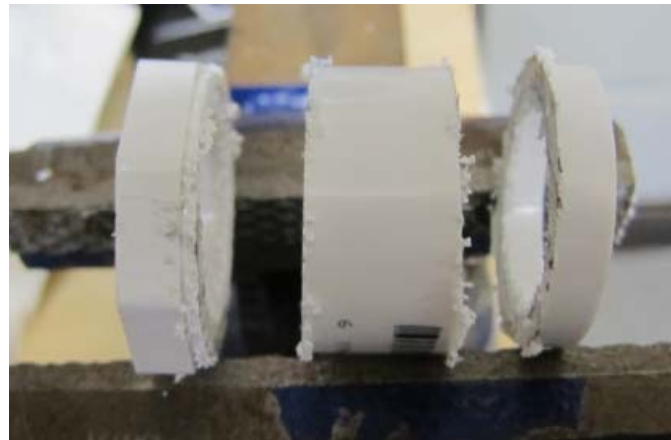
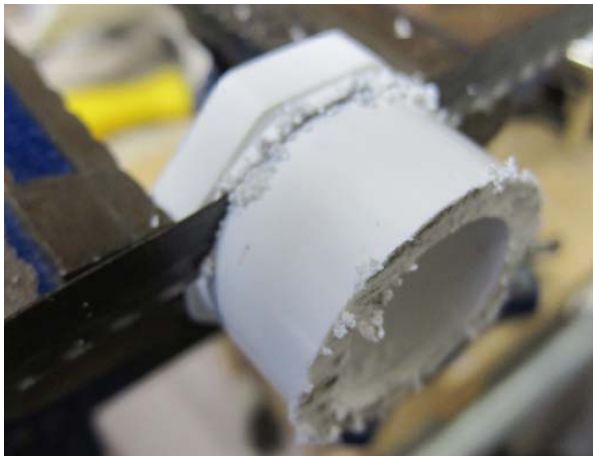
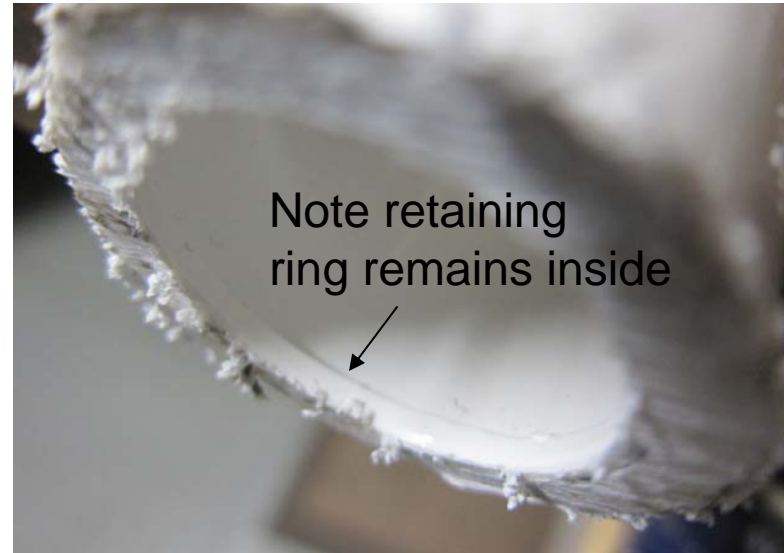
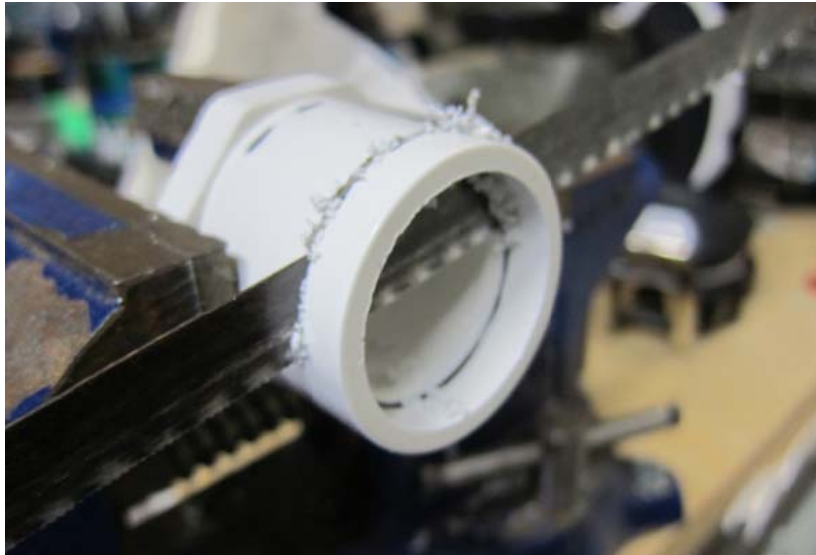
Cut the two large couplings so the ends are flat and square



File the ends flat,
and remove all burrs



Make the two cuts on the bushing.
Keep cuts straight, but perfect flatness is not as important here.
Clean up all burrs, file flat, chamfer edges...



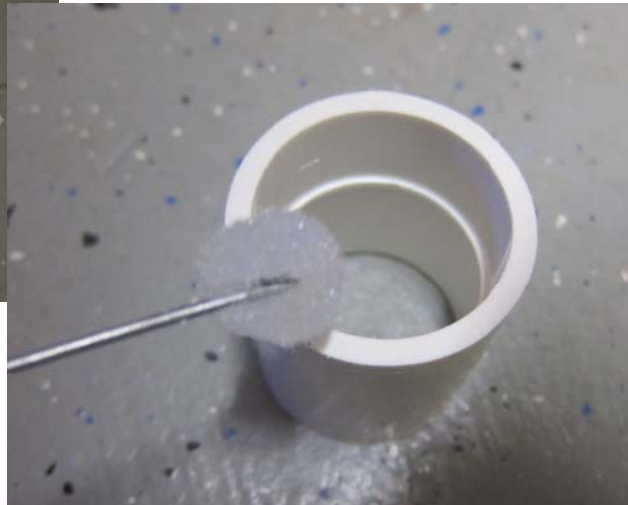
File and sand all edges and corners smooth



Glue the cut ends of the two couplings together with clear PVC cement



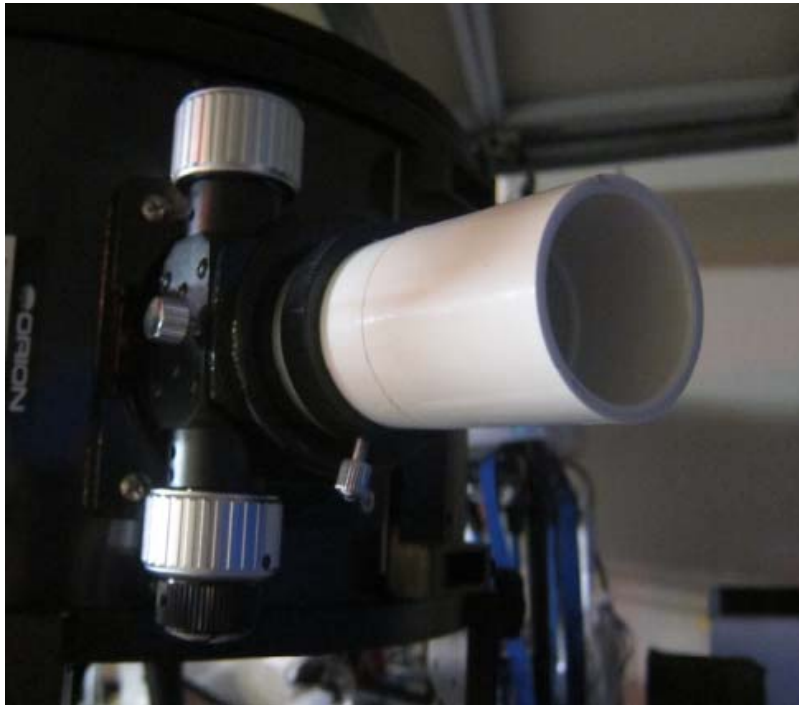
Very little cement needed



Careful alignment here is important



Insure the assembly slides easily
into your 2" focuser drawtube



Place the cut bushing
“ring-end down” on a flat surface



Place a small ring of cement on the inside of one end of the long glued-up coupling (doesn't matter which end)



Invert the coupling and press the glued end down carefully over the bushing.



Allow a few minutes to dry.

Mark 3 spots 120 degrees apart for setscrews



Drill and Tap for setscrews



Plastic is soft, you can drive the tap in and out with a reversing drill.

Prepare camera, insert and carefully center using setscrews



Once everything looks good, remove camera and spray end with flat black paint to eliminate reflections



Now you can insert the carrier into your 2" drawtube far enough to allow the camera + focal reducer to come to focus, without shortening struts or moving the primary.



(Also works for the PC164CEX-2 camera)