FRANKENHOLGA 612PAN

These instructions cover the modification of a standard Holga 120Pan - removal of the plastic lens and adaptation to accept a 90mm large format lens. These notes can be read in conjunction with my video of the modifications - see my YouTube channel:

https://youtu.be/8m0X13xxVQo

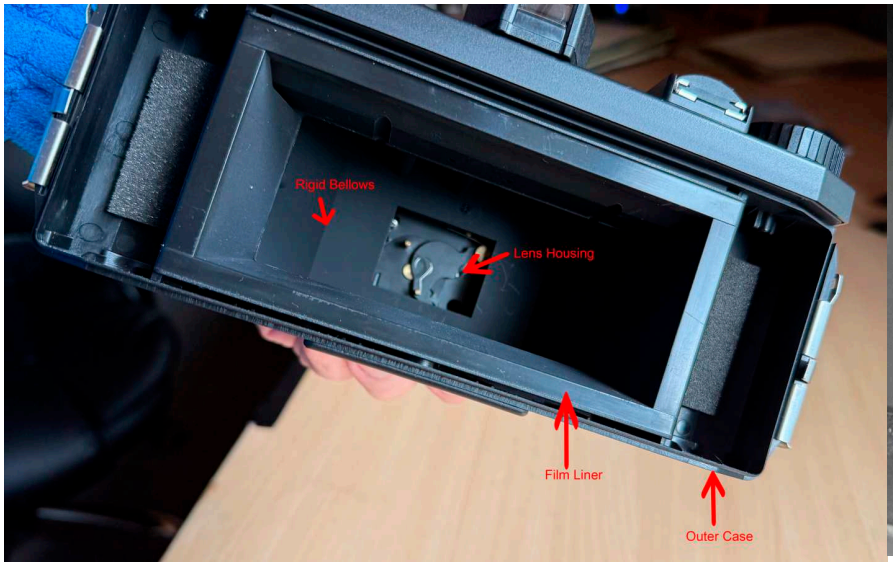
YOU WILL NEED

Holga 120 Pan camera
M42mm screw lens to Nikon adapter
M42-39mm Helicoid focussing adapter
33mm (ID) - 45mm (OD) washer
Self adhesive black felt
M2 bolts
Ground Glass
90mm Schneider Angulon Copal 0 large format lens (or similar)

Large format locking ring wrench
Superglue
2 pack Epoxy adhesive
Sanding tools
Jewellers screwdrivers
Dremel tool
2mm Drill
White acrylic marker pen

DISMANTLING

- Remove the back and access the lens assembly
- Take the film liner out (just pulls away)
- Remove the two screws holding the lens and housing in place (leave the lens attached to the lens housing we don't need this any more!)



Internal Parts of the Camera



Location of screws holding the lens housing

- Pull the housing and lens assembly away and cut the flash wires away.
- Lever the film winding knob off the top plate (held on with rubber cement)

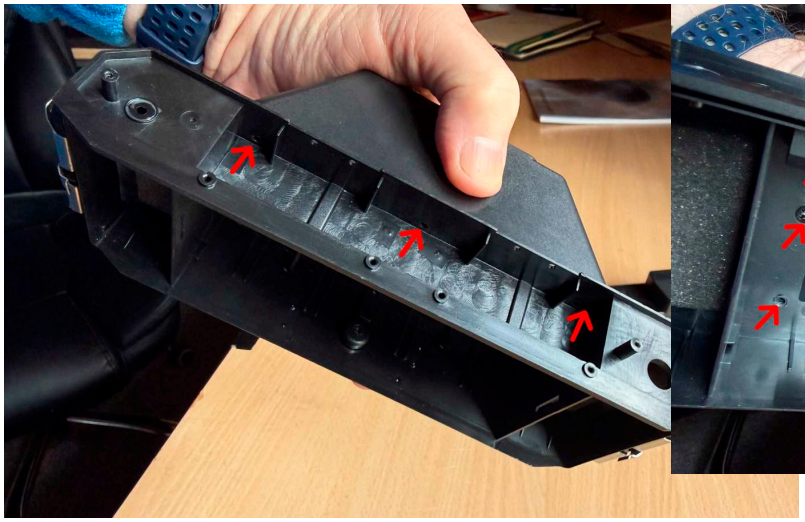


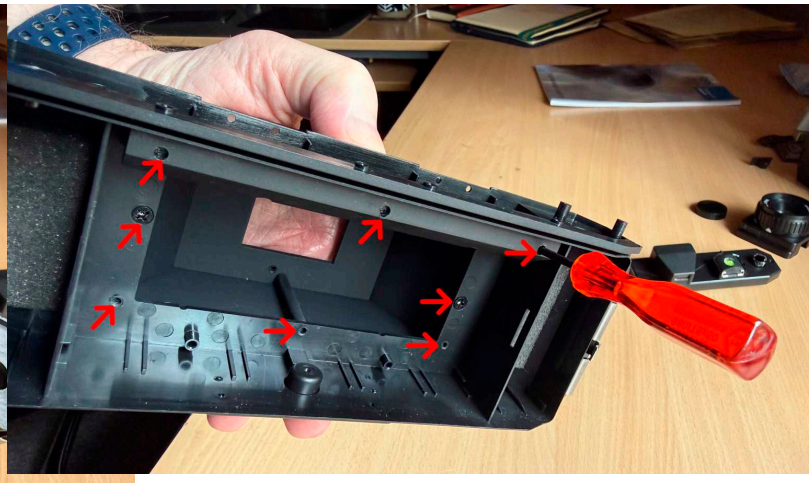
- Remove the three screws holding the top plate on



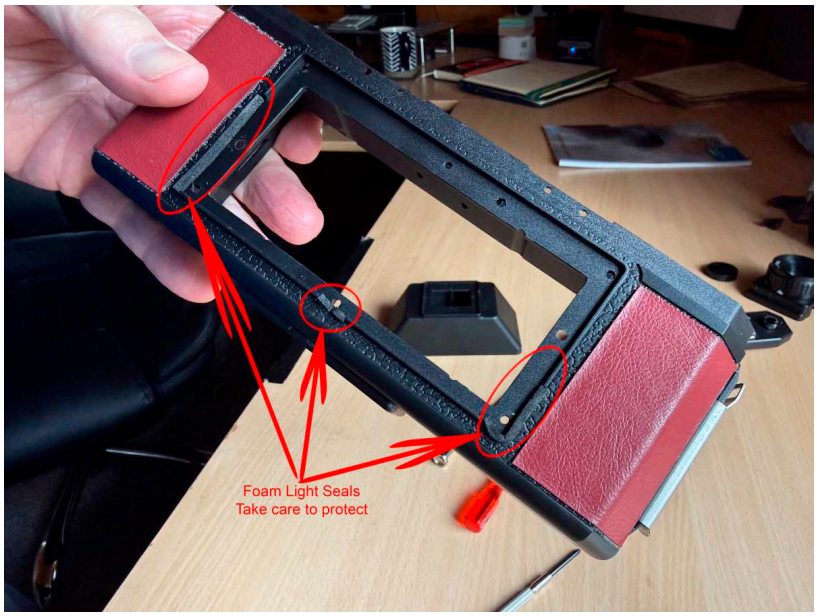
Screw locations holding the top plate

- Using a long reach screwdriver, access and remove three small screws holding the front bellows housing through the body housing.
- Remove the remaining three small screws and two (larger) screws at the sides of the bellows housing
- The front bellows housing will now lift away (be careful not to damage the light seals on the main body!)





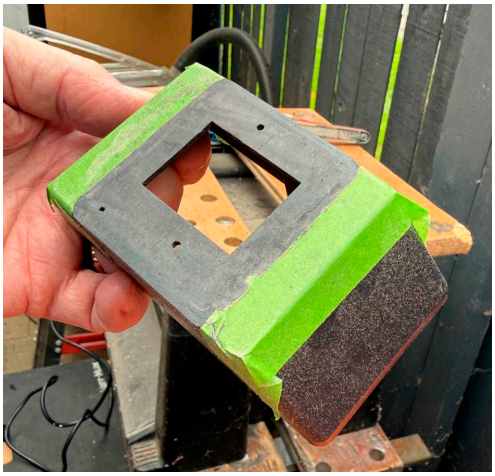
Locations of the 8 screws holding the rigid bellows in place



MODIFYING THE LENS BELLOWS AND ADAPTER RING

- We need to remove the rigid light trap from the front of the bellows unit.
- Place masking tape to protect the areas outside the light trap which we are about to remove.



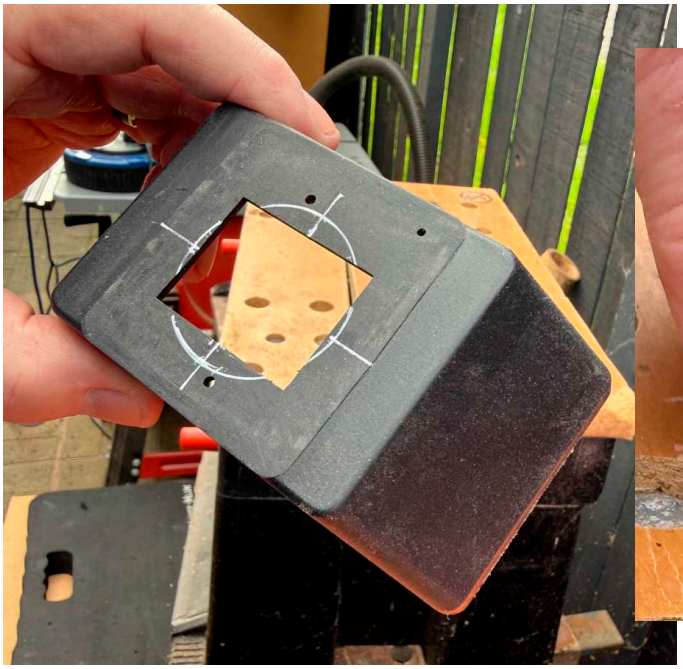


- Using a mix of power and hand sanding, carefully remove the old light trap until the whole of the bellows unit sits flush.
- Now we can remove the lugs on the lens adapter ring in the same way



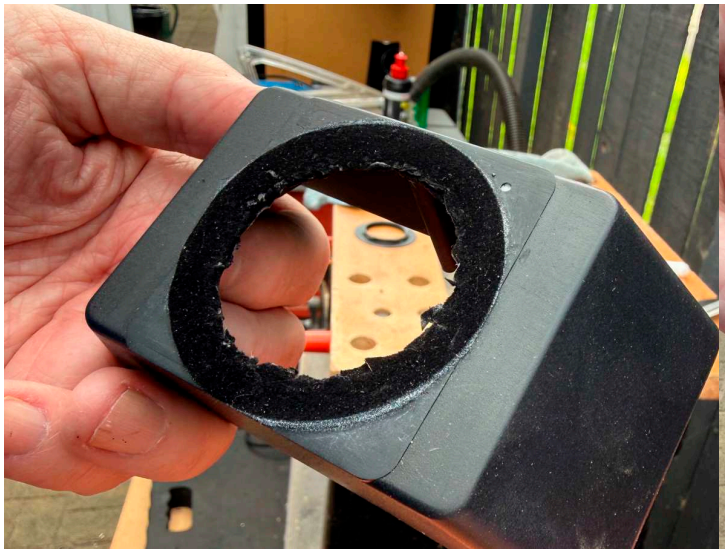


- Mark the centre line of the existing aperture in the bellows, followed by marking the inside of the adapter using the centre lines as a guide.

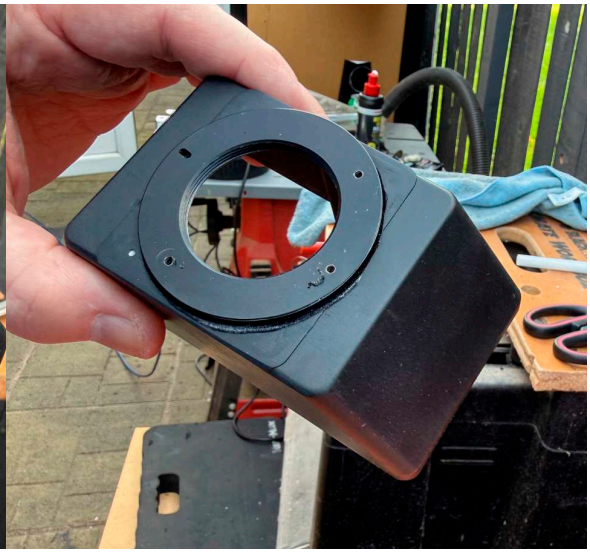




- Using a Dremel tool (or half round file), carefully remove some of the plastic housing - it will be too small at this stage.
- Slowly and carefully enlarge the opening until the adapter ring becomes a snug fit.
- Cut a ‘light seal’ to match the outer diameter of the adapter ring from self adhesive black felt and stick it to the front of the bellows
- Now the adapter ring can be pushed through.



Self adhesive black felt (light seal)

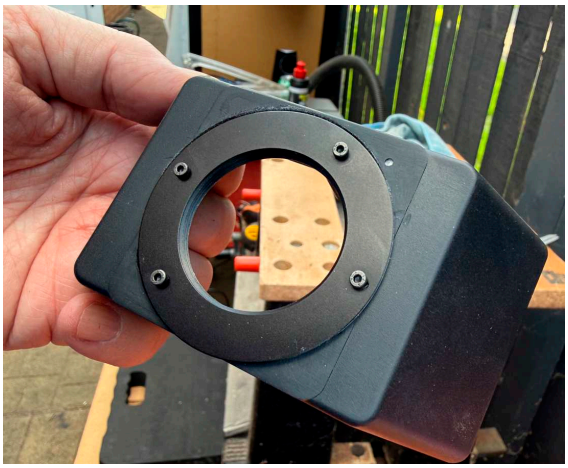


Adapter ring drilled to receive bolts

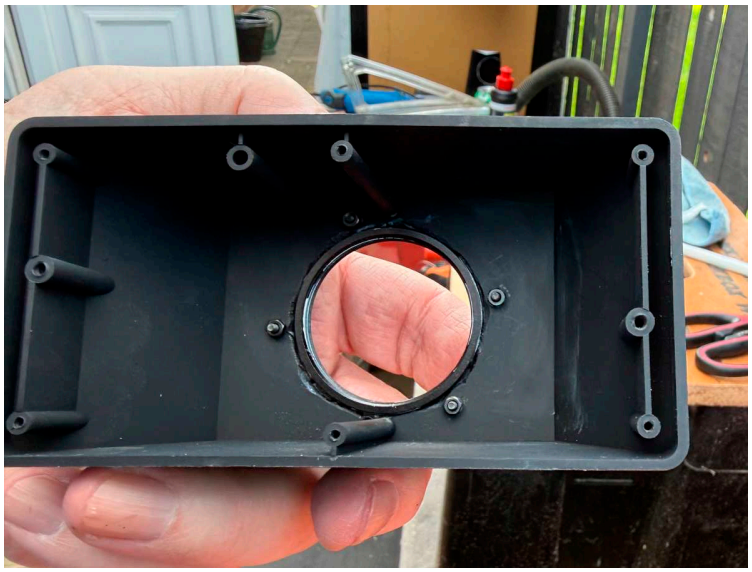
- Drill 4No 2mm holes through the adapter ring and bellows - make sure that they do not foul any supports on the inside.
- Using 2mm ‘mini’ bolts, secure the adapter ring to the bellows.



2mm ‘mini’ bolts



Adapter ring fixed through rigid bellows

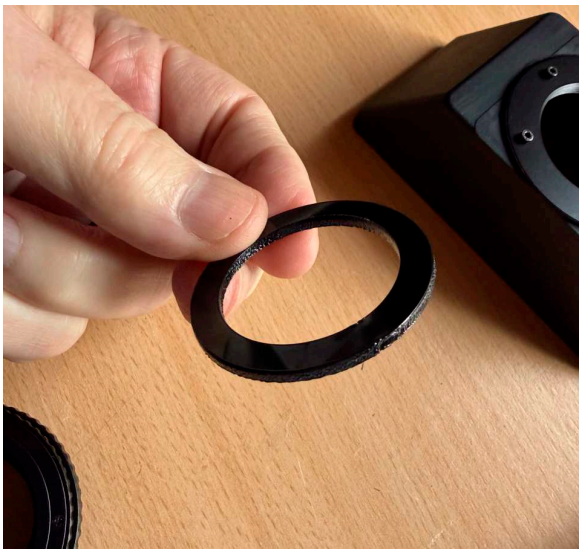


Bolt fixings from the inside view

THE HELICOID AND LENS ASSEMBLY



The helicoid



Washer/spacer

- Source a 33mm - 45mm washer/spacer - I made mine in a laser cutter in 2mm acrylic, but you can use a solid core card or plywood painted black.
- Mix some 2 pack epoxy resin and apply to the outer (42mm) helicoid face - be careful not to contaminate any other part of the helicoid.
- Attach the spacer onto the glued face of the helicoid, being careful to centre it properly and leave to fully harden overnight.



Washer/spacer epoxied to 42mm side of helicoid



Location of screws fixing the helicoid

- We now remove the retain ring of the helicoid (39mm face)
- Unscrew the three sections of the helicoid





Lens and helicoid attached

- Attach the lens through the spacer and screw the retaining ring from the back using a wrench to get a really secure fit.
- Re- assemble the other pats of the helicoid and ensure that the device will move freely.

‘This part of the video is not too great!”

RE-ASSEMBLY



- Screw the new helicoid and lens assembly into the bellows unit. (Make sure it’s tight!)
- Plug up the old flash wire hole (you can use silicone) to prevent light leaks.
- Re-attach the bellows to the main body making sure all screws are replaced - do not damage the fragile light seals attached to the main body.
- Secure the top plate with three screws
- Superglue the film winder knob in position - make sure not to contaminate any part of the body that will prevent it from turning when the glue has dried.
- Re-insert the film mask



- Use a piece of ground glass (made from normal glass and ground to make opaque with carborundum paste!)
- Temporarily tape the glass over the film mask (this allows us to range focus the lens.)

CALIBRATING THE LENS

- Just like using a large format camera we can focus the lens (using the new helicoid) with a Lupe and dark cloth.
- Place a subject at a known distance, focus on the subject and mark the helicoid with a marker to establish the range.
- Repeat for several distances. - You will note that the closer you get to infinity the marks will get closer together.



- When complete, the ground glass can be removed and the camera can be loaded with film and used.
- I added a fancy nameplate to the front of mine.





AUTHORS NOTE:

If you choose to follow my notes and video for your own modifications, some aspects of your build may differ from mine. It's important to realise that the lens may be a different thread, in which case you will need a larger 42mm-42mm helicoid unit. Accordingly you may wish to modify some of the details discussed here. In any event I do not give warranty or guarantee that any of the above will work when undertaking a project of your own. These notes are intended as **GUIDE ONLY.**



Neston Park - set at infinity and F22, 0.5 secs

Weather was not the best for testing the camera, wet damp and cold.....Apart from a bit of spotting and a few minor adjustments, this is a straight scan with no artistic tweaks! As is the image below.



Neston Cross - set at infinity and F22, 0.5 secs