

Making a "HolgAgon"

Steve Barnett had fitted a Schneider Kreuznach 90mm *f*6.8 lens and shutter to a Holga 120 Pan toy camera using readily available fittings and hand tools. He lent it to me for a weekend. I was delighted with the results and decided I had to build one myself.

The components were ordered (on eBay actually) and it was first a matter of waiting for things to arrive, mostly from China.

Materials:

Holga 120 Pan Camera
M42 to Nikon adapter
12 -17mm M42 - M42 Helicoid
M42 Metal Body Cap
90mm Lens, Shutter and Retaining Ring
4 off 2mm x 6mm countersunk head self tapping screws
Black opaque PVC electrical tape
Epoxy adhesive
Spirit Level Accessory for Right Hand Hot Shoe
Range Finder for Left Hand Hot Shoe
Home-made, Plastic Springs (cut from a supermarket milk bottle)

There were a few consumables needed:

Masking Tape
1 sheet of P240 Wet and Dry Paper
1 sheet of P600 Wet and Dry Paper
Matte Black Paint
White Paint
Contact adhesive

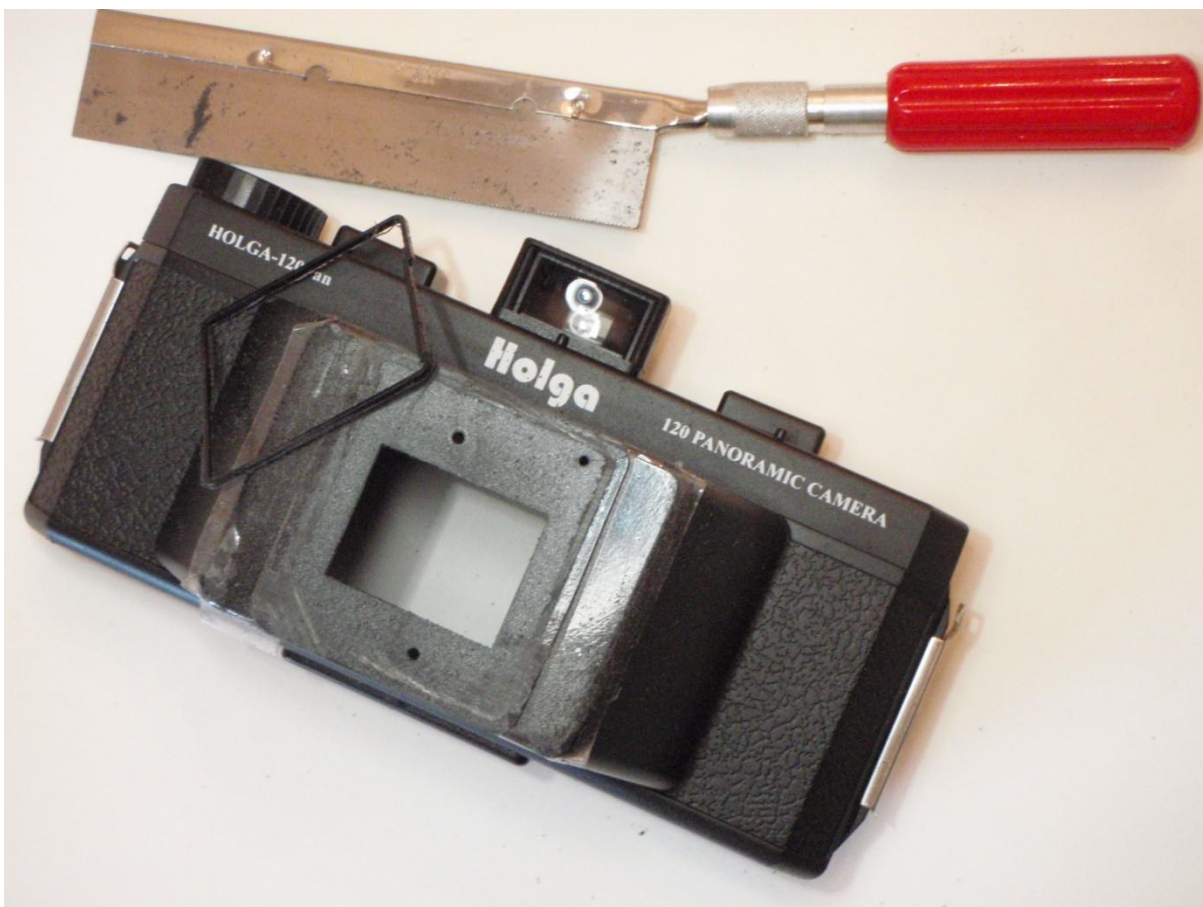
The hand tools required were simple enough:

Thin bladed table knife
Small, long-reach, cross-headed, screw driver
Exacto razor saw (or flush side cutters)
Half round file (100/100 medium cut)
1.5mm twist drill bit
2mm twist drill bit
Bead reamer countersink tool
Dremel or similar small power drill
Pencil
Calliper or Vernier
Compass
Thick Card



The camera arrived unharmed in a damaged box! Here is what you get to start with.

After carefully removing the internal lining by lifting the sides outwards gently and lifting it out and putting it safely to one side, then unscrewing two, self tapping screws, from the inside, the lens and shutter come away easily. The wires to the flash shoes need to be removed as they will be redundant. I just pulled mine out but it might have been safer to cut them at first and deal with the bits later. The front light baffle has to be removed because a flat surface is needed on which to mount the M42 to Nikon lens adapter ring.



I used a razor saw because I had one. Steve used flush side cutters because that was what he had to hand. I immediately scratched the front of the camera because I failed to mask off the vulnerable parts with masking tape before I started the sawing off.

The dust from the sawing seemed to me to be a potential long term problem if it was accidentally retained in the camera, so I decided to completely dismantle the Holga to work on the front away from the rest of the body...



To do this the top of the Holga needs to come off. The first step is to remove the winding knob by sliding a thin, table knife blade under it and carefully prising the knob upwards until the rubbery glue that holds it on gives way and lets you pull it off. Here you can see that there is not a lot of glue to break, not a hard job if you go slowly.

There are three self tapping screws holding on the top, once removed the top simply lifts off. `



This lets you get at all the bits of white tape that held in the wires for the hot shoes. It also reveals a number of holes that might lead to light leaks...



There are a total of eight self-tapping screws holding on the front of the body. Three at the top are accessed by poking a thin, long reach, cross headed screw driver through three holes at the back of the camera at the top edge.

Underneath those are two countersunk headed self-tapping screws to undo and then three more plain self-tapping screws along the bottom edge. The front lens mount comes away readily once all these screws are removed.



Lift it away carefully! There are some interesting arrangements underneath to serve as light seals.

To get the front face of the lens mount flat and smooth a sheet of P240 wet and dry paper was taped to a flat board and then holding the mount in two hands concentrating on keeping it flat to the abrasive surface, it was drawn back and forth until all signs of the cut off light baffle had gone. Then the process was repeated with the P600 wet and dry paper to make a smooth, flat, front surface that remained parallel to the rear. Then a piece of thick card was cut to fit tightly inside the lens mount from inside and pressed up to behind the rectangular hole at the front. With the aid of a straight edge, two pencil line diagonals were drawn on the card from corner to corner of the rectangular hole to determine the centre of the hole. The external diameter of the bayonet part of M42 -Nikon Bayonet adapter was ascertained by careful measuring and a pair of compasses set at half that

diameter. Then, using the centre marked on the card, a circle of that external diameter was scribed onto the front face.

A series of holes all round the inside of the circumference of this scribed circle was drilled using a fine drill bit and a small power drill, (a Dremel on loan from Steve). The holes were joined up by running the drill bit along them and the waste fell out cleanly. Then the hole was made smooth and opened up to the correct diameter by careful hand filing with a medium half round file. Lots of checking ensured that the adapter fitted snugly.

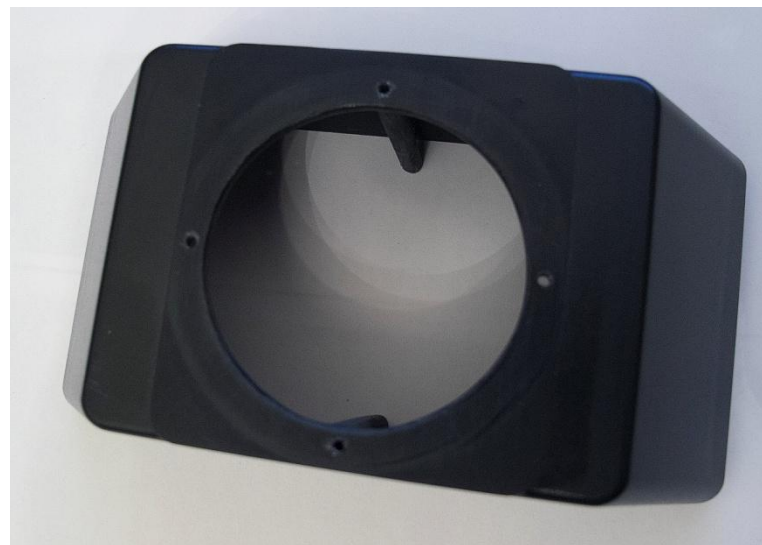


An essential job was that of plugging the hole caused by the conduit that originally held the wires connecting the shutter to the hot shoes. This was easily done by coating a cocktail stick in epoxy and sliding it through the conduit and cutting off the waste flush with the ends of the conduit



The wood was made invisible on the outside by a dab or two of black marker pen.

Four holes were drilled in the flange of the M42 to Nikon adapter. Two to line up with the convenient reinforcing lugs that are conveniently built into the front of the camera at 12 o'clock and 6 o'clock, which in turn were drilled to accept two of the 2mm countersunk headed screws. The other two holes were drilled in the flange at 3 o'clock and 9 o'clock and then through the plastic front face.



The adapter came with a large slotted hole drilled into the flange. This came so close to the main hole that it would leak light. It was blocked with epoxy resin and the inside was painted to prevent light leaks. The adapter was then glued with epoxy resin adhesive and screwed into position. Once

it had dried, the camera body was reassembled but with a lot more taping up and blocking of holes to preclude any future light leaks. The hardest part of this job was getting the winding knob to stay glued on. Steve came to the rescue with some stronger contact adhesive.



It proved necessary to spin the diameter of the heads of the countersunk screws down by holding them in the Dremel chuck and spinning them gently against a file. This was to allow the helicoid to screw completely flush into the M42 thread of the adapter (now flange).

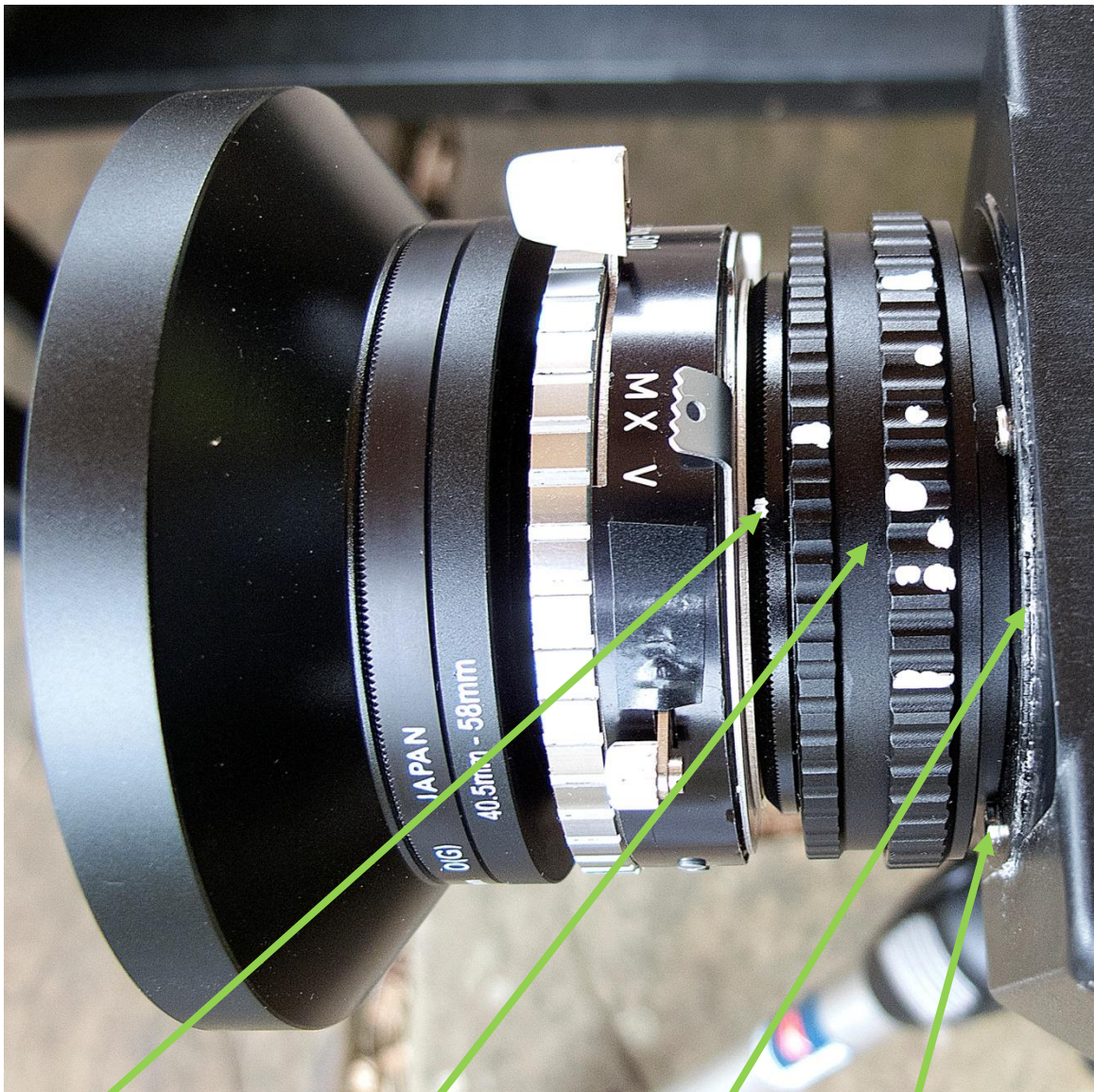
The only other engineering to do was to drill and file out a hole in the M42 body cap to allow the Synchro Compur Shutter and lens to be mounted in the body cap. This then screwed into the front of the helicoid to complete the installation.



It is advisable to obtain or make, as in the picture, a suitable spanner for tightening the retaining ring. When buying a lens and shutter make sure the shutter comes with its retaining ring as these are incredibly expensive to replace, for such a simple "nut"!



The distances of various landmarks were checked and focused on using a fresnel screen clipped to the film plane with rubber bands. Marks were made on the helicoid with white Tippex to give a distance "scale" for focusing. So far these seem to be reasonably accurate. There is some play in the helicoid but the results seem to indicate that this is nothing to worry about.



M42 Body Cap

12 -17mm
M42 - M42
Helicoid

M42 to Nikon
Adapter

2mm
Screw
x4