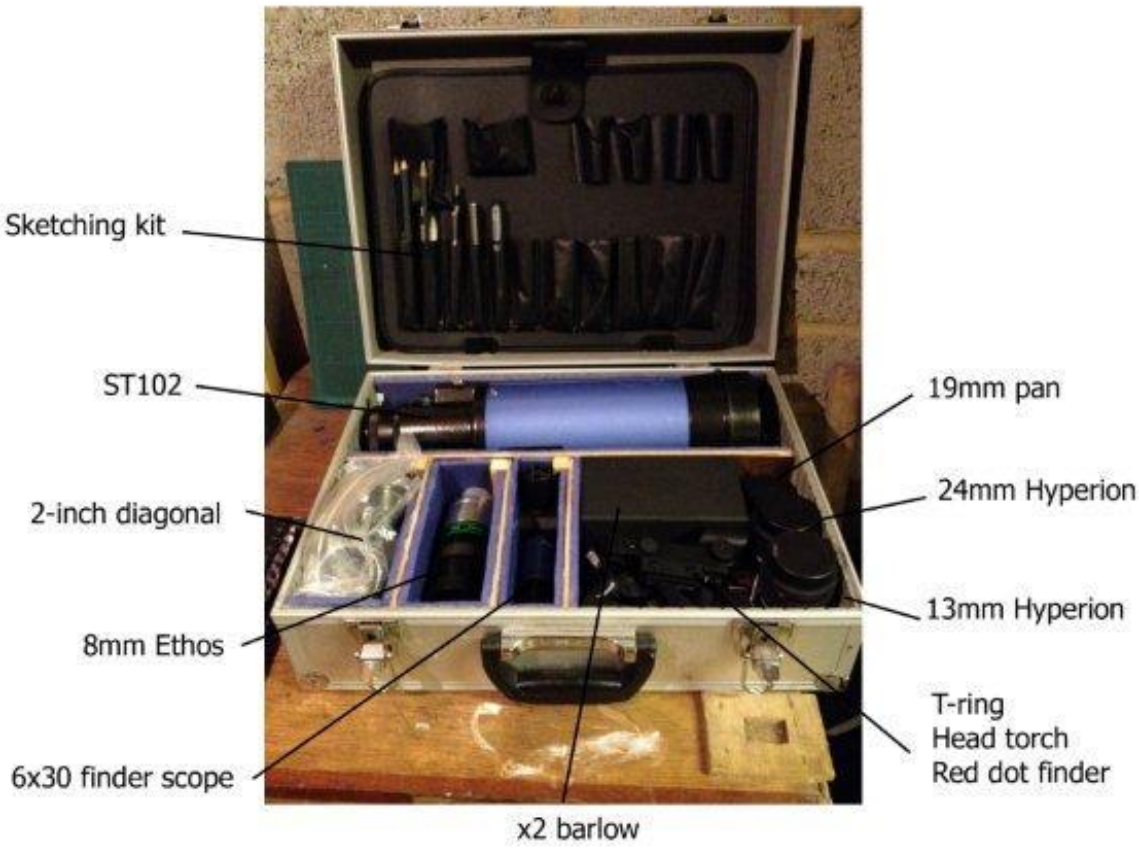
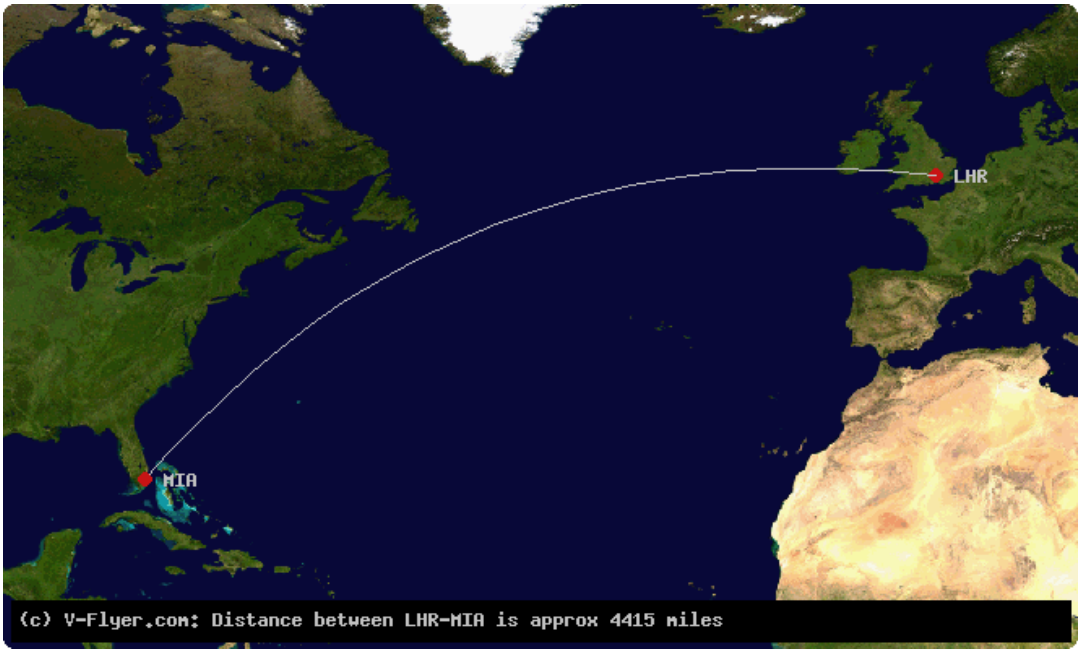
Getting Started This article describes fitting a 4-inch f5 refractor into an Airline Carry-On Briefcase for the Winter Star Party.





Introduction

As I am travelling to the Winter Star Party from England, I have a requirement for a small, airline portable telescope. After the wettest winter for years, the idea of observing under palm trees by the Caribbean sounds fantastic.

My 14" f5 Newtonian, alas, simply won't fit in my hand baggage so I needed something smaller. In addition to the 14", I also have a Giro altaz mount and a lightweight ali tripod (for a long focus refractor) which can easily go in my hold luggage so I considered making a lightweight Newtonian from an 8.5" f5 mirror set. Work and family commitments were getting in the way but I spotted a second hand ST102 for £90 and snapped it up at Christmas. This fits nicely on the Giro and provides a lovely wide field of view for deep sky observing.

The next question was how to get it from England to Florida. I have an old equipment case that, with the dew shield removed, can accommodate the telescope. Simple wooden compartments lined with left over camping mat foam (from a dew shield for the 13") would keep everything protected and is pretty easy to make. After some sketching and layout options, I had a plan to hold:

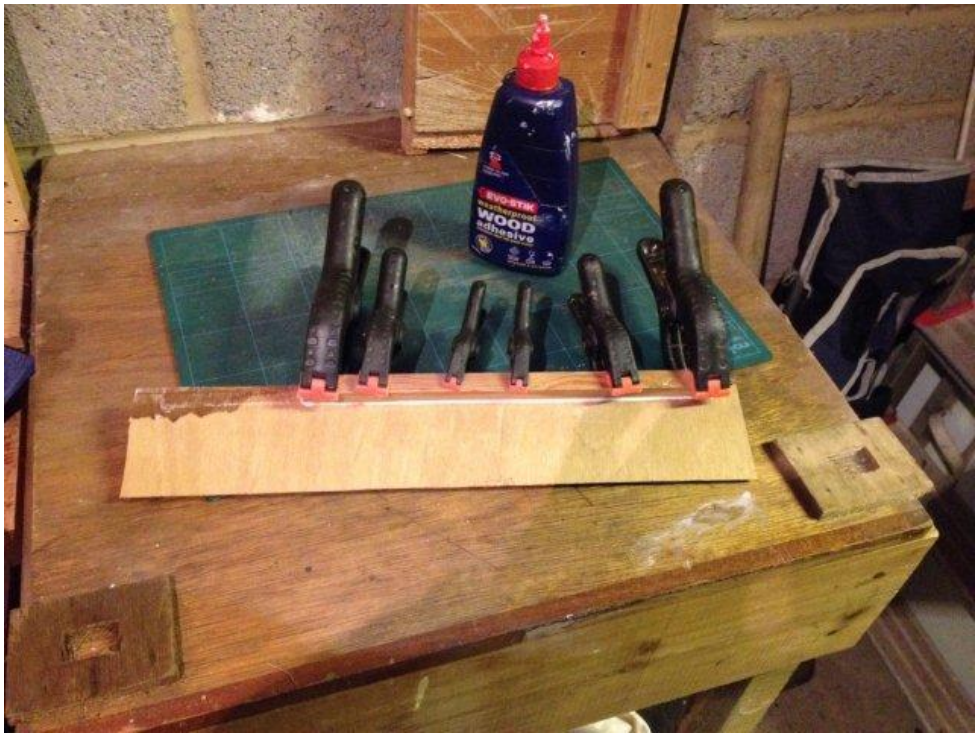
- ST102 – a 4-inch f5 refractor
- 2" diagonal
- 6x30 finderscope
- Red dot finder
- Head torch
- Dim red torch
- Red head torch
- 8mm Ethos
- 19mm Panoptic
- 13mm Hyperion
- 24mm Hyperion
- Baader UHC filter
- 2" barlow
- Pocket sky atlas
- Notebook
- Sketching kit
- T-ring

My DSLR and binos simply wouldn't fit so I'll stuff them in my laptop bag instead. The dovetail, tripod, tube rings, tripod tray and finder bracket will go in my hold luggage with everything else.

The first step was to cut a thin piece of 3mm ply to form the base layer inside the case. It is possible to glue it to the case but I decided against this. Not only does this make it a permanent fixture, I

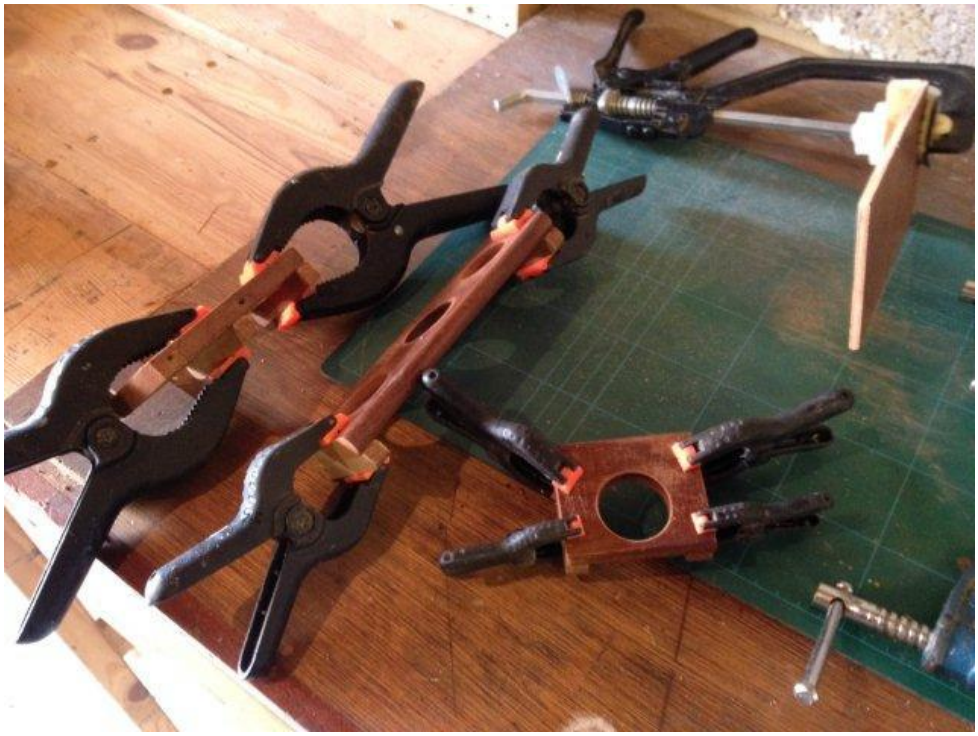
deliberately made it a tight fit so it is quite hard to remove.

I then cut a partition to firmly hold the scope. This was made from the same ply and a length of ½" pine edging glued (with wood glue) to give it structure. Note that the pine does not go the full length of the ply as it would clash with the scope's focussing handle. No Nails glue was then used to bond the camping mat around the partition.

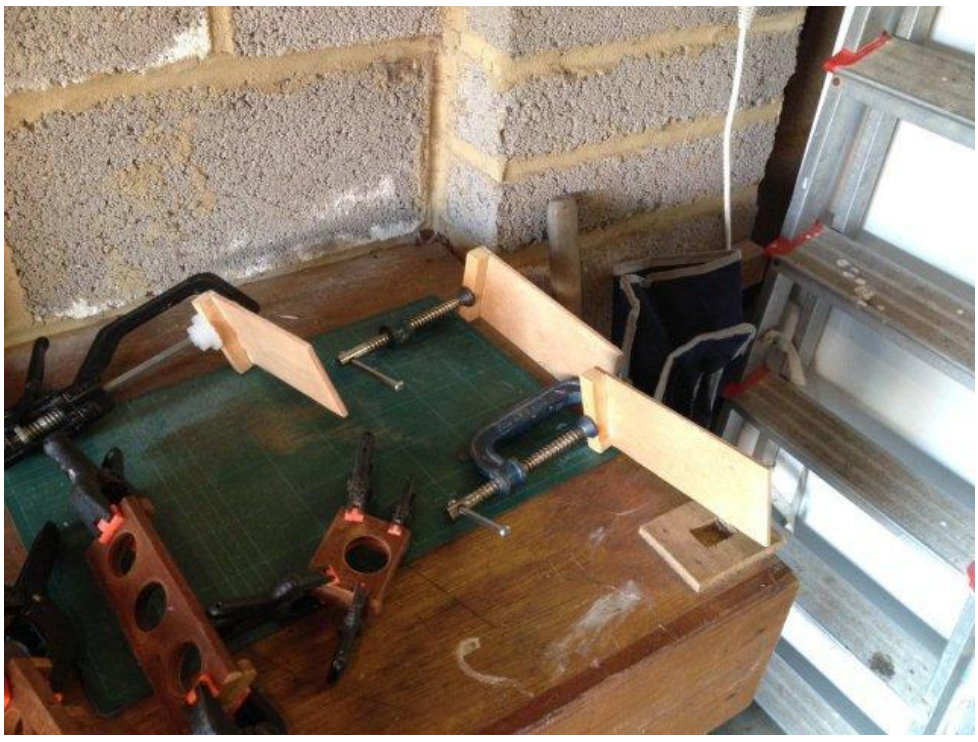


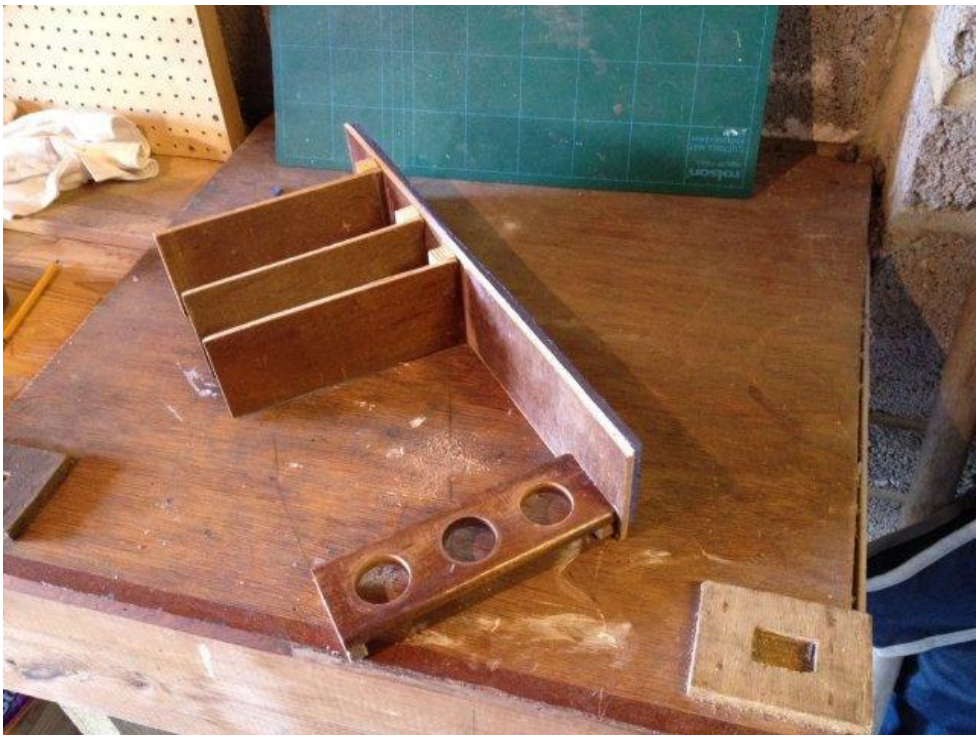
Eyepieces

Next up was the eyepiece holders. I took an 8mm Ethos and 19mm panoptic and two hyperions. I wanted the eyepieces standing up to save space but the Ethos is too tall, preventing the lid from closing. That meant the Ethos would need a compartment to lie in but the other three could stand upright. I cut a length of wood to size, glued a plinth to each end and drilled well-spaced 1.25" holes in to hold the eyepieces. Once the glue had dried, the eyepiece holder was then glued to the main partition. (Note that I made several others for my normal equipment toolbox).



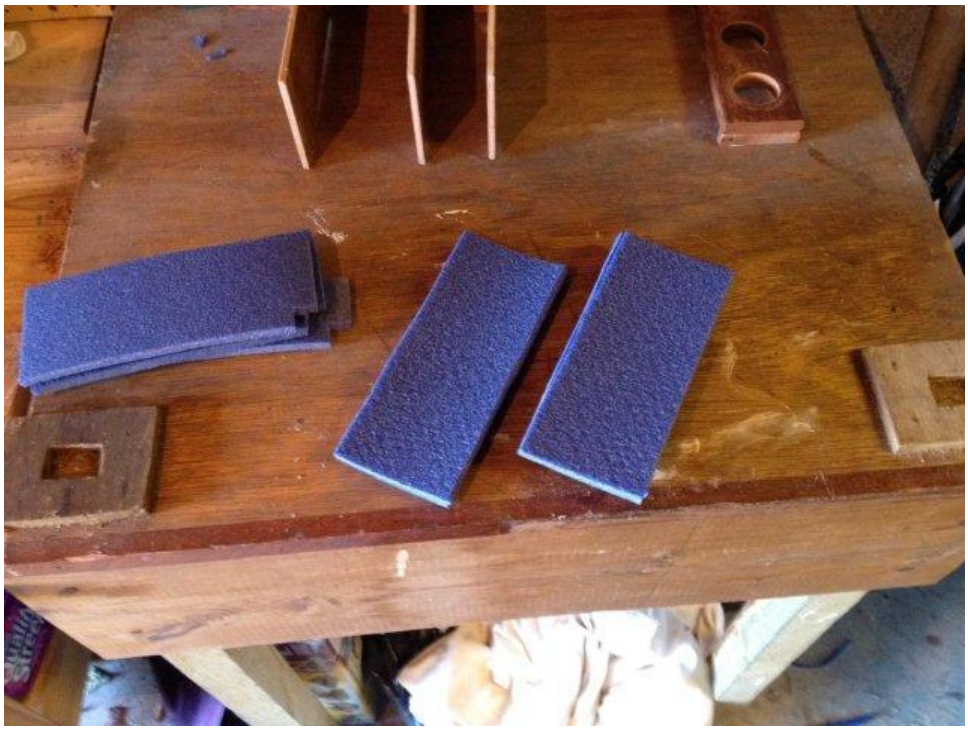
Compartments The compartments were cut from left over 3mm ply and again bonded to ½" pine to give it some structure. Once the glue had dried, the compartments were glue to the main partition. Once that had dried, the whole structure was glued to the base board inside the case. Additional ½" pine was also glued to end ends of the partitions to ensure that they were square and to give more structural strength.

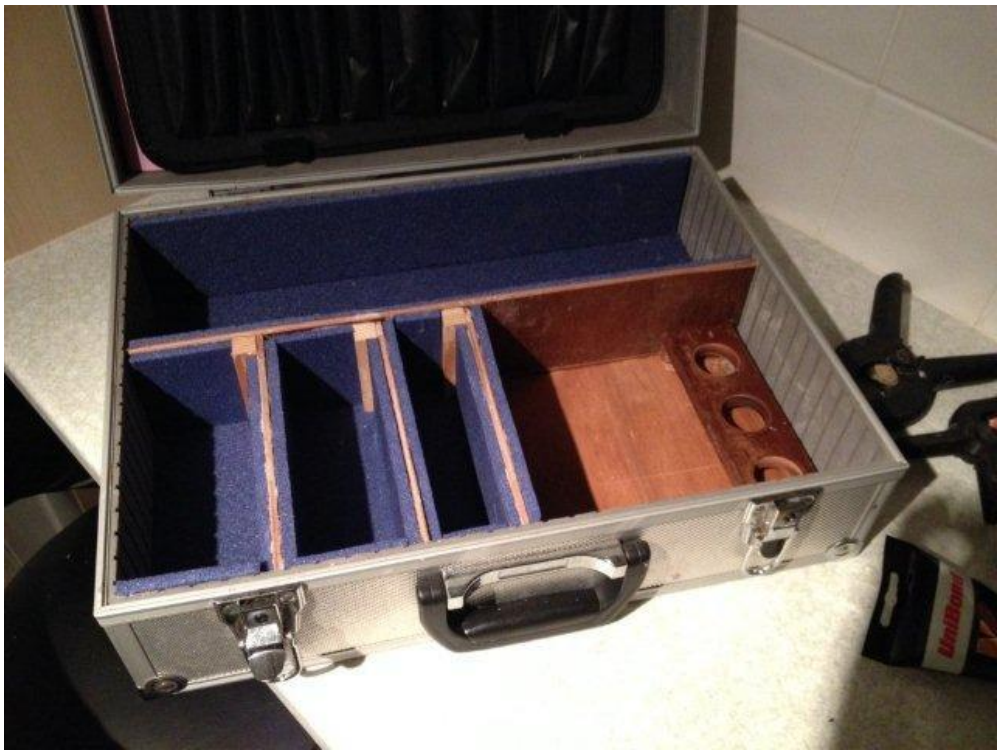




Foam

Now that the compartments were complete, it was simply a matter of cutting foam to size and bonding into place with No Nails glue. I put a foam section on each side, end and the floor of each compartment. Having used stick on felt on an earlier equipment case, I must say that camping mat foam is far easier to work with and also gives more padding. It does, however, take up more space inside the case.





Loaded for Bear

The case was then left to dry and outgas for 24 hours. Once that was done, the equipment was loaded inside in preparation for Saturday's flight to Miami. There's even space for my notebook and battered Pocket Sky Atlas.