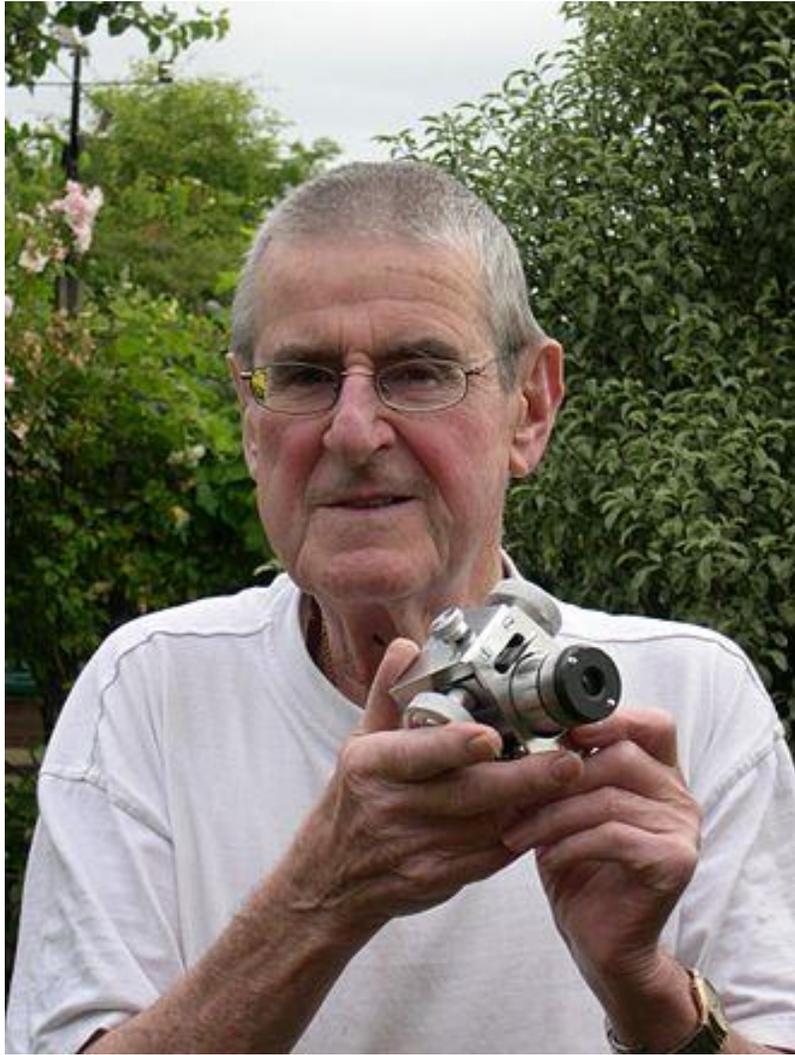


Everything you need to know about
taking on a project for the
Crayford Manor House
Astonomical Society Dartford





The first Crayford focuser



The Project

To build a Dobsonian Mount
for a
200mm F8 Telescope

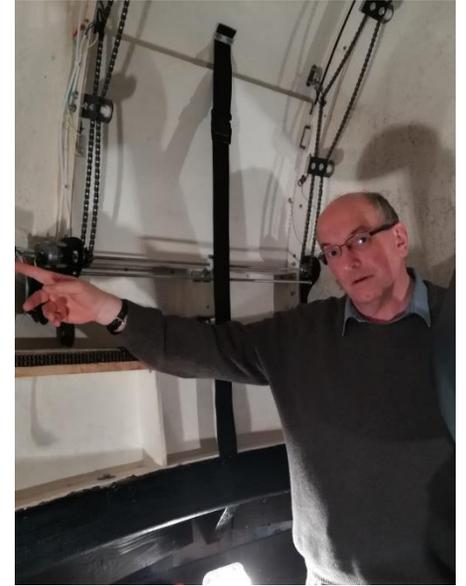
The first thing to do is get your team together



Chief Engineer

DIY D.O.B

The Big Build



Musical & Imaging
Director



Technical input



Quality Control Officer and
Project Manager



This is the old mount
deconstructed



This is all we can use for the
new mount

This is the design
we decided on
at the presentation,
but we decided it
would be made from
birch faced ply
and varnished



We needed

- 1 x Sheet of Aluminium
- 3 x Levelling feet
- 3 x PTFE Pads
- 3 x Drainage pipe caps
- 10 x Corner plates
- 2 x 8mm x 50mm bolts with lock nuts
- 1 x 8mm X 300mm studding
- 2 x 8mm pronged T nut
- 2 Lifting handles
- 1 x Length of 5mm thick PTFE flat strip
- 2 x Mounting rings
- 1 x 2440mm x 1220mm 18mm plywood
- 1 x LP of a suitable musical attribute
- 1 x Nameplate
- Various nuts, bolts, washers and screws

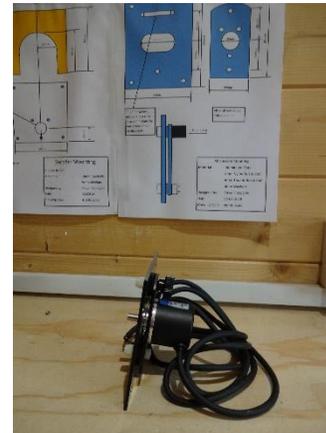


Beware



CMHASD Treasurer
Keith Rickard

What would be a really
good idea is
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!



Keith asked for 2 encoders to be added one for the altitude and one for the azimuth.

To accommodate this a drainage endcap is fitted fixed to the centre spindle with a 200mm disc, the encoder is fitted to the base.

The altitude encoder can be fitted through the side panel.

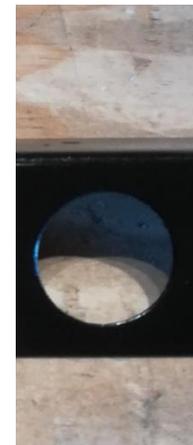


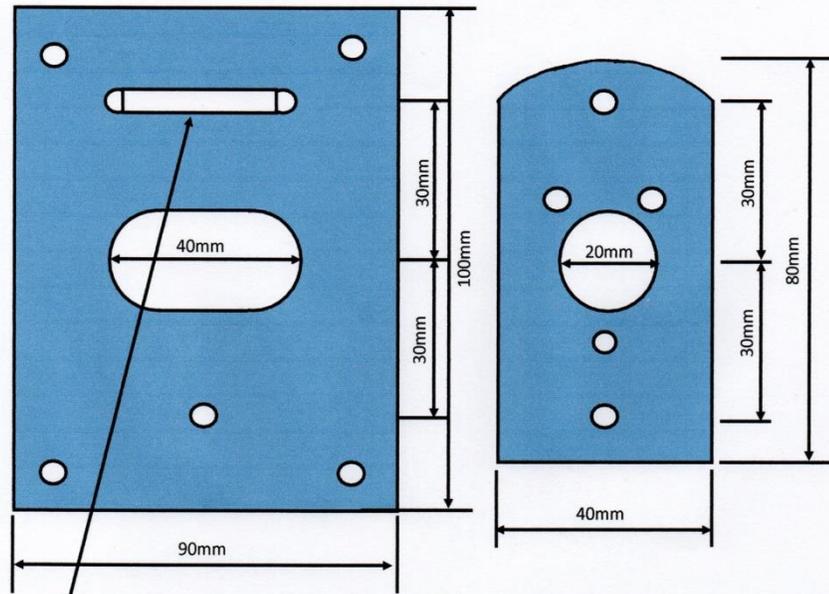


Beware



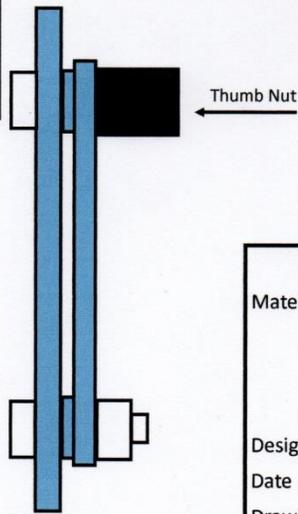
What would be a really
good idea is
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!





This 4mm groove needs to be arched to accommodate the movement of the locking screw

All small holes to be drilled at 4mm

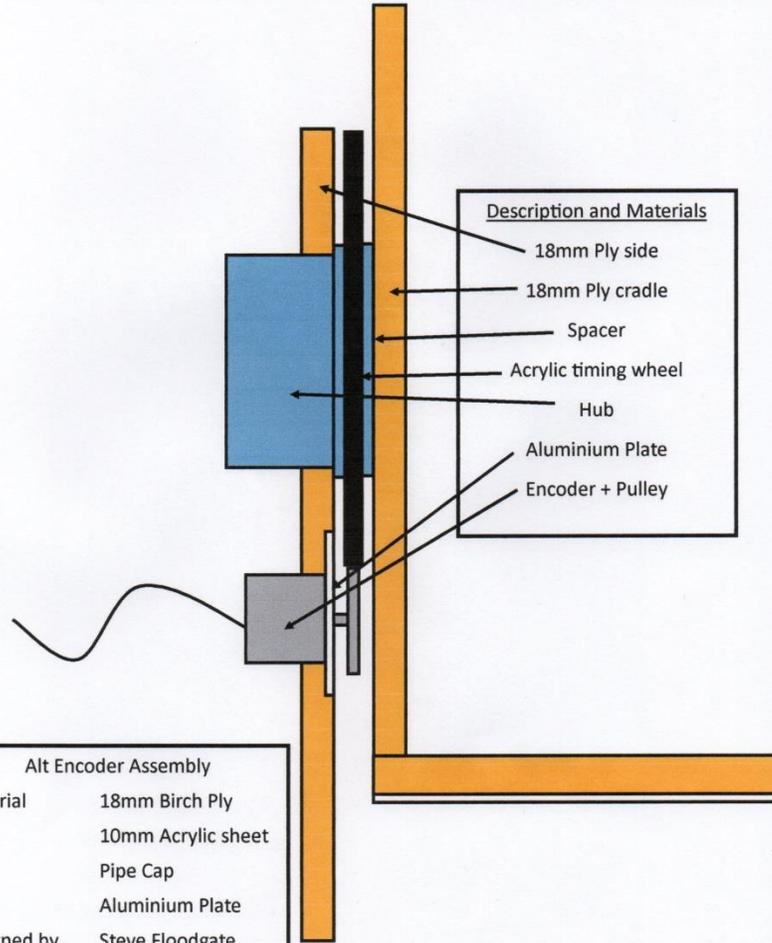


| Alt Encoder Mounting | |
|----------------------|----------------------|
| Material | Aluminium Plate |
| | 4mm Nylon Nut & Bolt |
| | 4mm Thumb Nut & Bolt |
| | 4mm Washers |
| Designed by | Steve Floodgate |
| Date | 02-04-2018 |
| Drawing Scale | Not to scale |

The Encoders need to be moveable so that when we mount the telescope we do not damage the pulley or the timing belt. We also need to keep them in constant contact, so they have to be spring loaded.

This is the plan of the two aluminium plates that are needed for each encoder.

Cross section of Alt Encoder assembly

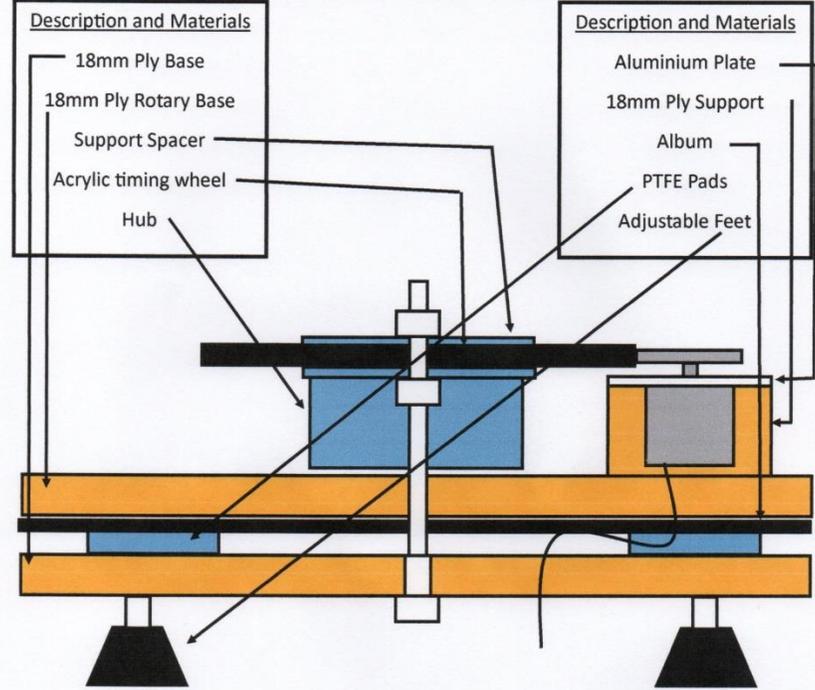


- Description and Materials**
- 18mm Ply side
 - 18mm Ply cradle
 - Spacer
 - Acrylic timing wheel
 - Hub
 - Aluminium Plate
 - Encoder + Pulley

Alt Encoder Assembly

| | |
|---------------|---|
| Material | 18mm Birch Ply 10mm Acrylic sheet Pipe Cap Aluminium Plate |
| Designed by | Steve Floodgate |
| Date | 31-03-2018 |
| Drawing Scale | Not to scale |

Cross section of Azimuth Encoder assembly



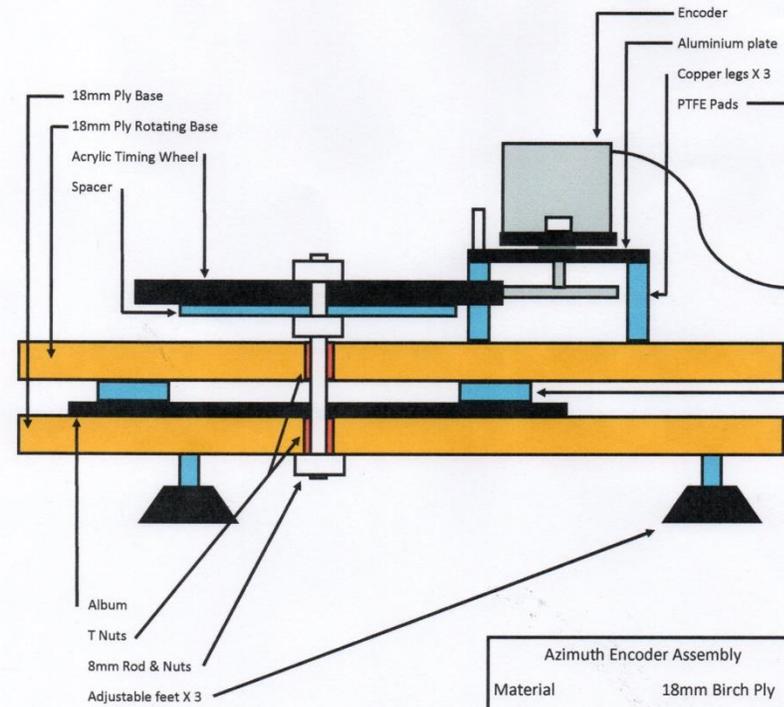
- Description and Materials**
- 18mm Ply Base
 - 18mm Ply Rotary Base
 - Support Spacer
 - Acrylic timing wheel
 - Hub

- Description and Materials**
- Aluminium Plate
 - 18mm Ply Support
 - Album
 - PTFE Pads
 - Adjustable Feet

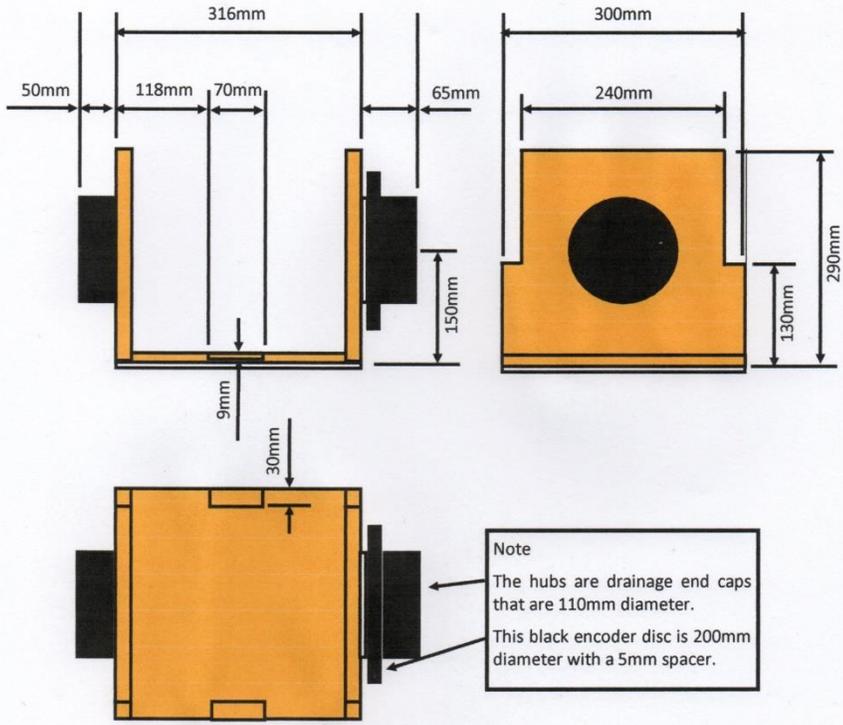
Azimuth Encoder Assembly

| | |
|---------------|---|
| Material | 18mm Birch Ply 10mm Acrylic sheet Pipe Cap Aluminium Plate |
| Designed by | Steve Floodgate |
| Date | 31-03-2018 |
| Drawing Scale | Not to scale |

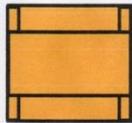
Cross Section Of Azimuth Encoder Assembly



| Azimuth Encoder Assembly | |
|--------------------------|-----------------|
| Material | 18mm Birch Ply |
| sheet | 10mm Acrylic |
| | Aluminium plate |
| Designed by | Steve Floodgate |
| Date | 04-05-2018 |
| Drawing Scale | Not to scale |

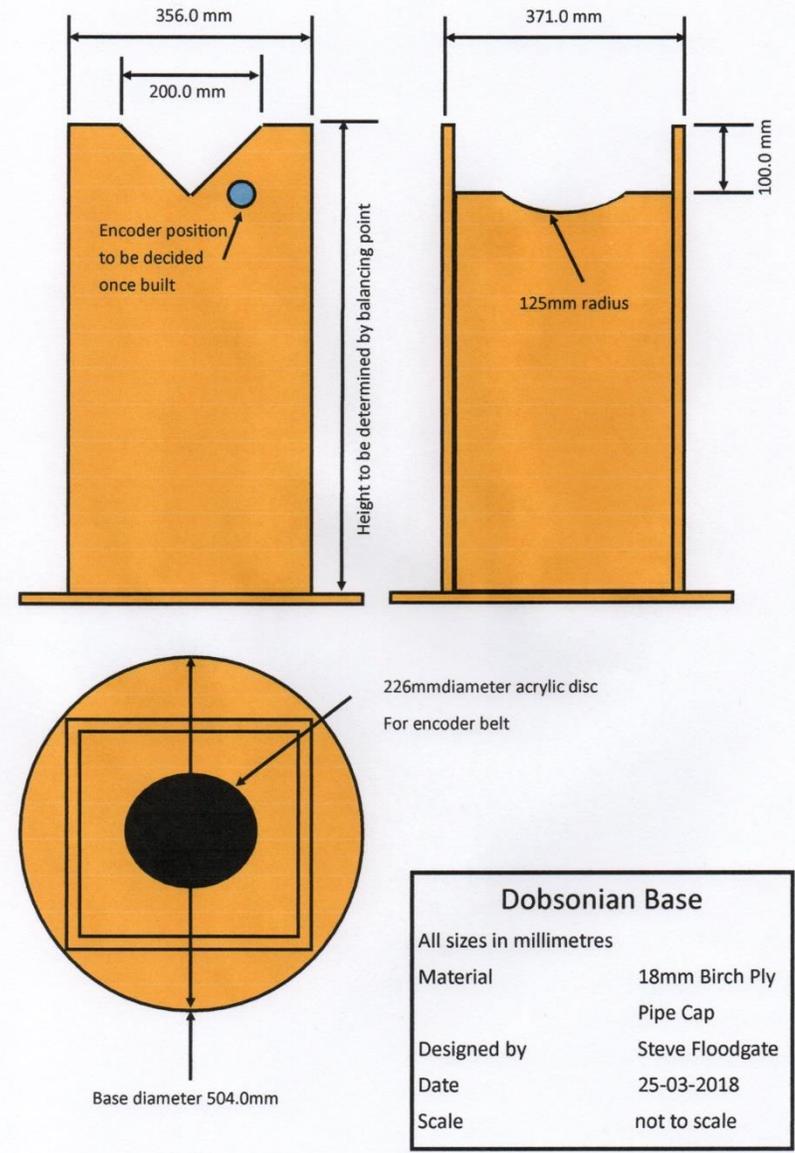


If needed a top will be added to encase the tube

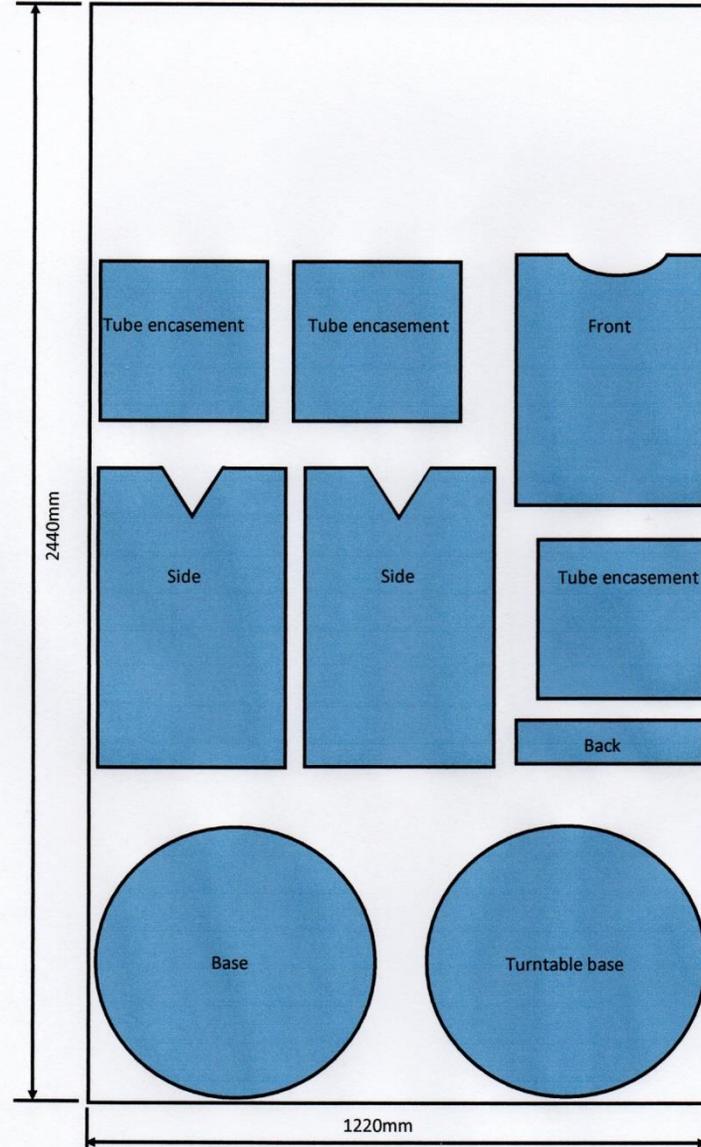


| Dobsonian Base | |
|--------------------------|---|
| All sizes in millimetres | |
| Material | 18mm Birch Ply Pipe Cap Aluminium Plate Acrylic Disc |
| Designed by | Steve Floodgate |
| Date | 25-03-2018 |
| Scale | not to scale |

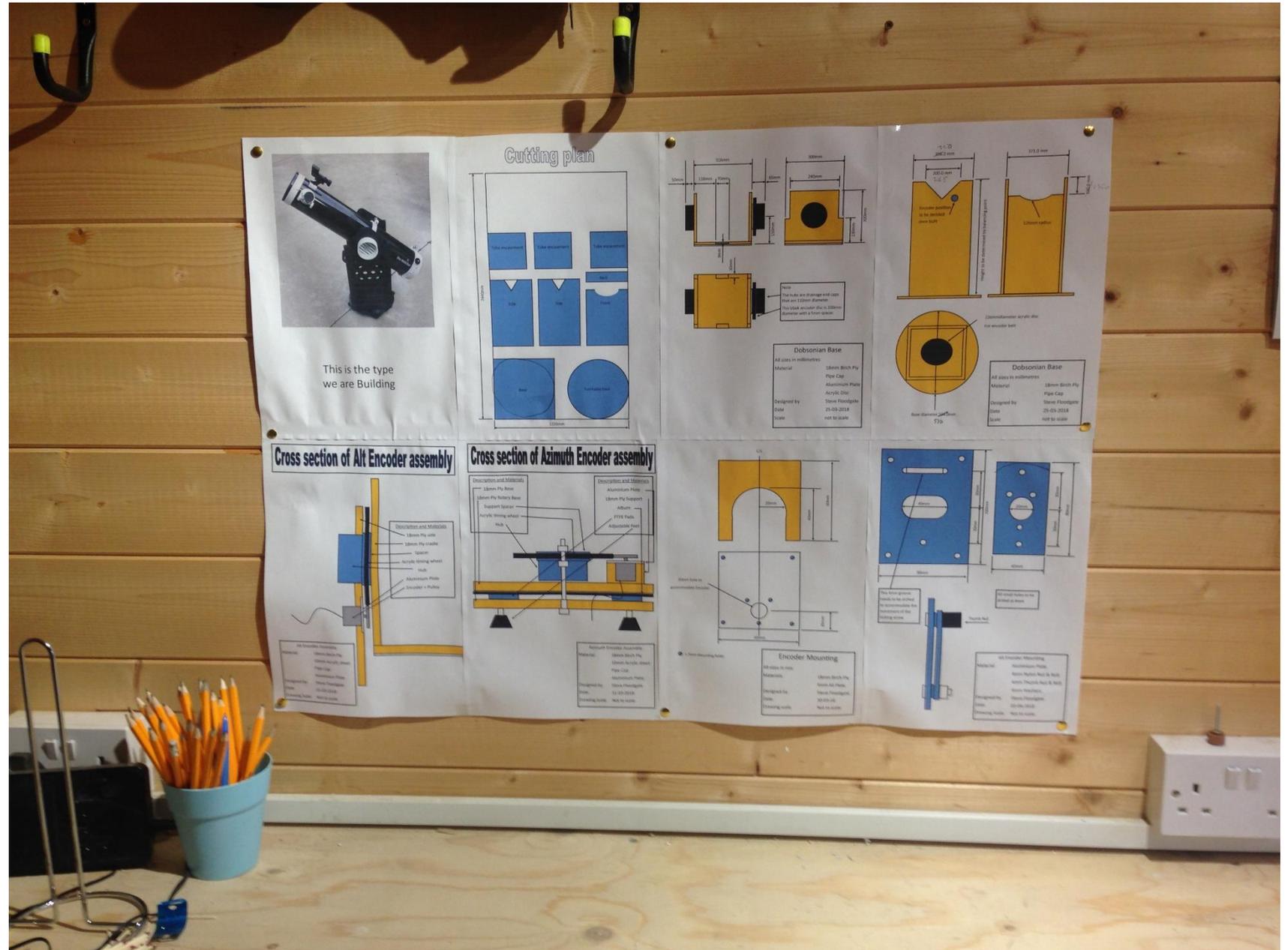
The Plans



Cutting plan



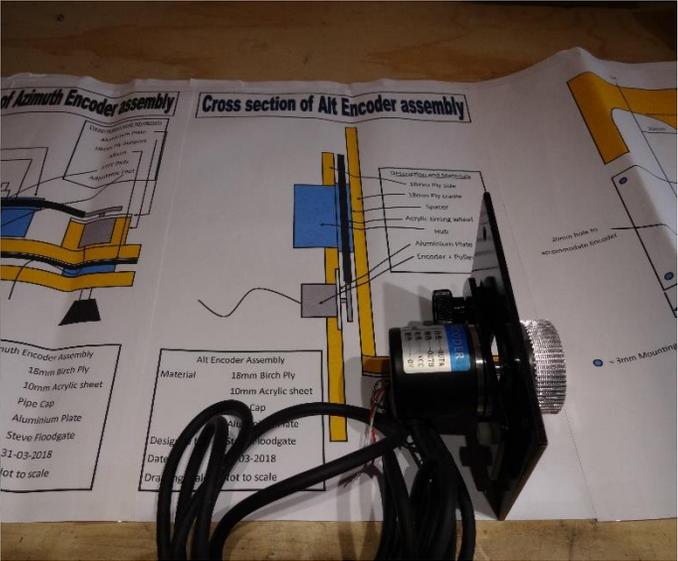
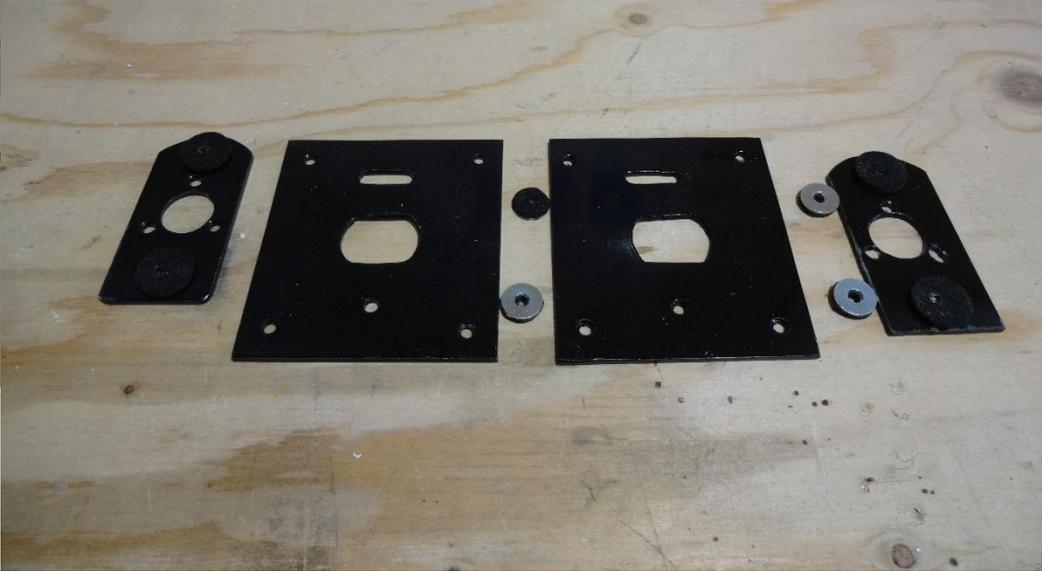
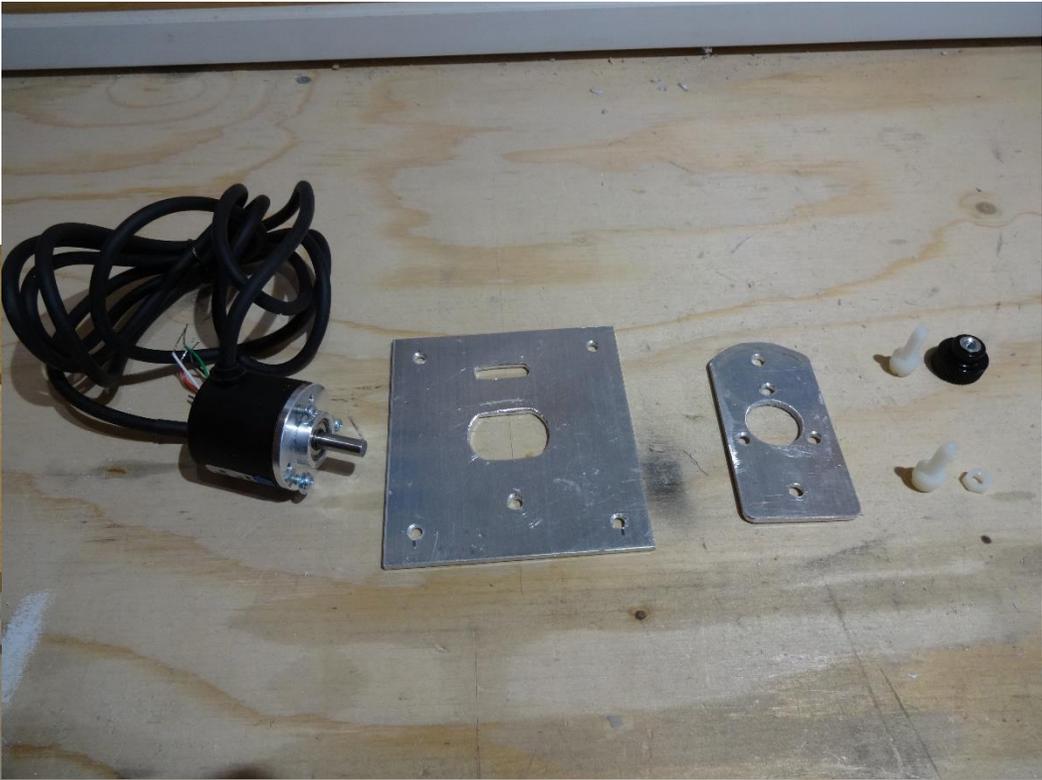
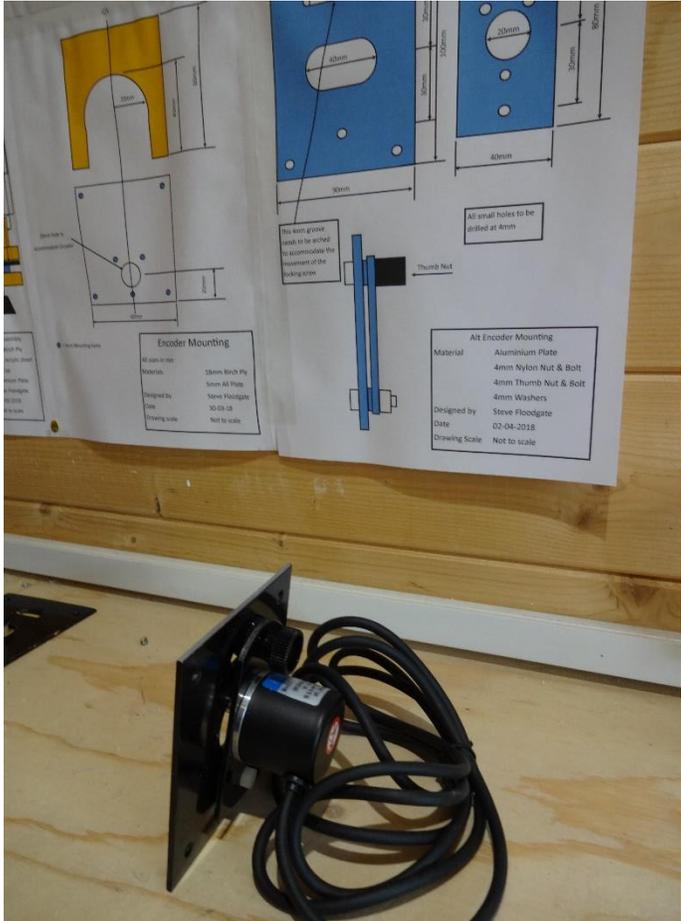
The plans are done now all we have to do is build it



When the plywood's been delivered
we can begin



While you are waiting



You can make the bits Keith has added.



Cutting the acrylic discs to exactly
226mm diameter



Ding! Dong!

The ply's arrived







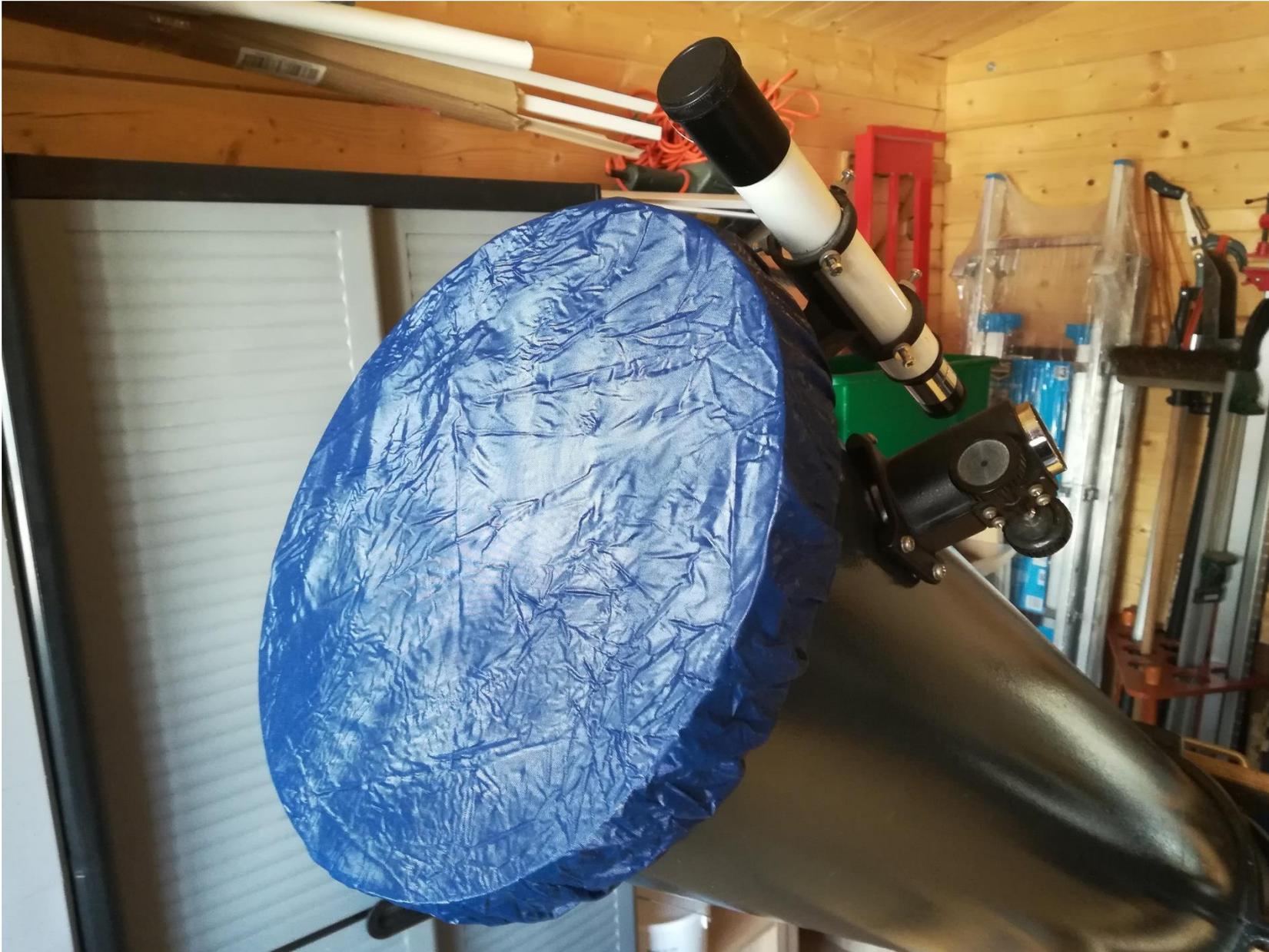
Tube encasement finished
And balancing nicely





When are encoders?





I added a new finder scope end cap.

And we added a shower cap to protect the tube itself.

Proof that even a person of average height can still view the zenith.



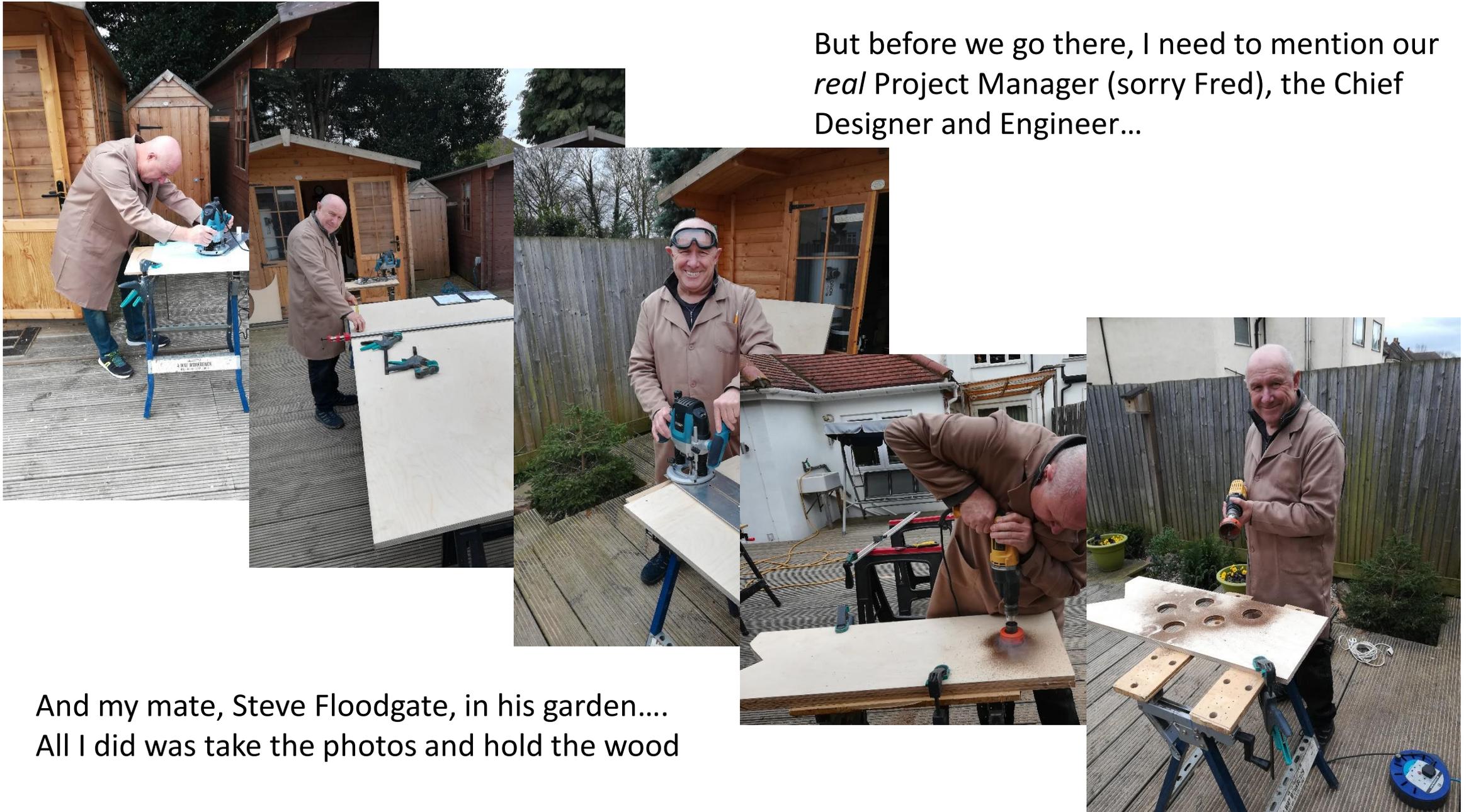
Well average for me that is.

Dave we need an appropriate LP



This one Steve

But before we go there, I need to mention our *real* Project Manager (sorry Fred), the Chief Designer and Engineer...



And my mate, Steve Floodgate, in his garden....
All I did was take the photos and hold the wood

But Steve still has some way to go match his inspiration and predecessor, John Wall, in *his* back garden.....with his 32" and 42"



We needed

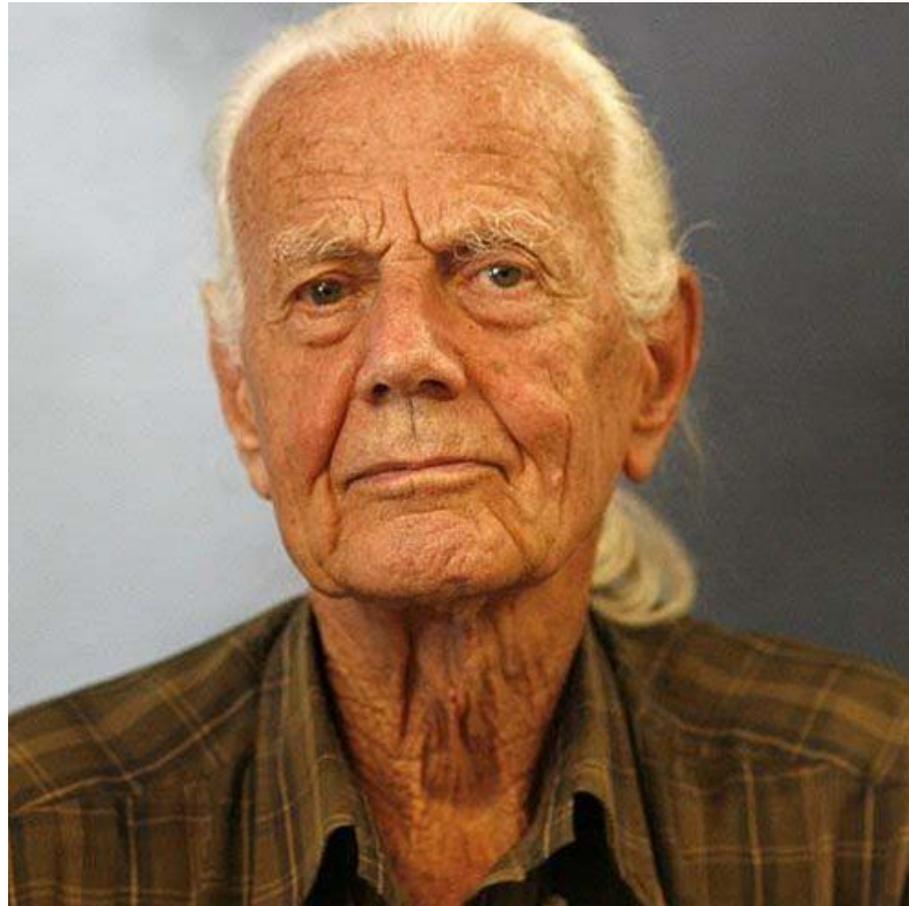
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- 1 x LP of a suitable musical attribute
- 1 x Nameplate
- Various nuts, bolts, washers and screws



A 12" vinyl LP of *suitable musical attribute*

- Gustav Holst's *Planet Suite*
- Beethoven's *Moonlight Sonata*
- Elton John's *Rocket Man*
- David Bowie's *Space Oddity*
- David Bowie's *Life on Mars*
- Or nothing quite so predictable....

So to our choice of vinyl LP disc lets look to another of our inspirations:
The founder of The Sidewalk Astronomers in the U.S. and the inventor of
the Dobsonian Telescope Mount: Mr John Dobson



Anita DOBSON (On My Own: Eastenders theme)



Ladies & Gentlemen, this is Anita



Nearly Done



Time taken on the project

It took about 10 hours to sort out the plans and draw them up. This includes ordering the encoders and other extras.

It took 2 hours to rough cut out the plywood and another 8 hours to machine finish all the parts and cut outs for the encoders.

It took around 3 hours to make the encoder brackets.

It took around 2 hours to make the eyepiece holder and smarten up the original Scope rings.

It took about 4 hours to varnish all the parts.

It took 2 hours to build the tube encasement box.

It took about 5 hours to fit it all together and test it and fettle any bits that needed fettling.

It took somewhere in the region of 4 hours to fiddle about to get it all to work

In total this adds up to around 40 hours + all the weeks waiting for Keith to do his bit.

Mind you if you ask my wife she might say it was a lot longer than 40 hours, but hey! Sometimes you just have to be in the shed out of the way.

Actual costings

| | | |
|------------------------|---------|----------------|
| Adjustable feet | £7.99 | Amazon |
| PTFE Pads | £7.98 | Amazon |
| Encoders X2 | £16.40 | Amazon |
| Delivery charge | £3.32 | Amazon |
| Acrylic sheet | £13.20 | Ebay |
| Various parts | £20.00 | Ebay |
| | | |
| Plywood | £80.00 | Alsford Timber |
| Drainage end caps X 3 | £13.17 | Screwfix |
| Pronged T nuts X 2 | £0.46 | Screwfix |
| 8 mm x 300 mm Stud X 1 | £0.86 | Screwfix |
| Lifting Handles X 3 | £7.65 | Screwfix |
| Baader film | £6.00 | Ebay |
| LP | £5.00 | |
| Aluminium plate | Free | Cupboard |
| Keith's expenses | £80.00 | |
| | | |
| Total | £262.03 | |

Since Anita....?

Guess what!
They wanted another three built!
Anita was just the beginning.



We already have the scopes.....

Jim Burchill's old telescope:

A Skywatcher 200mm F5

The societies old telescope with newly renovated mirrors:

An Orion DX 300mm F5

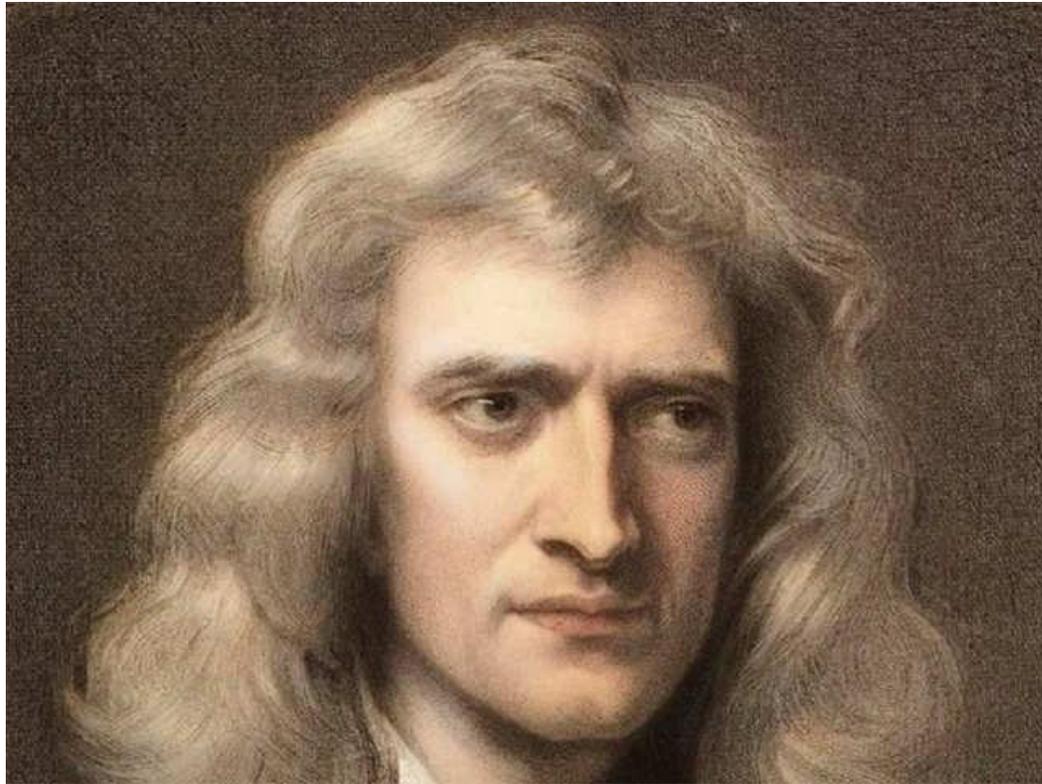
Both scopes sitting un-Dobbed and un-named, and un-used and un-loved in the society storage cupboard



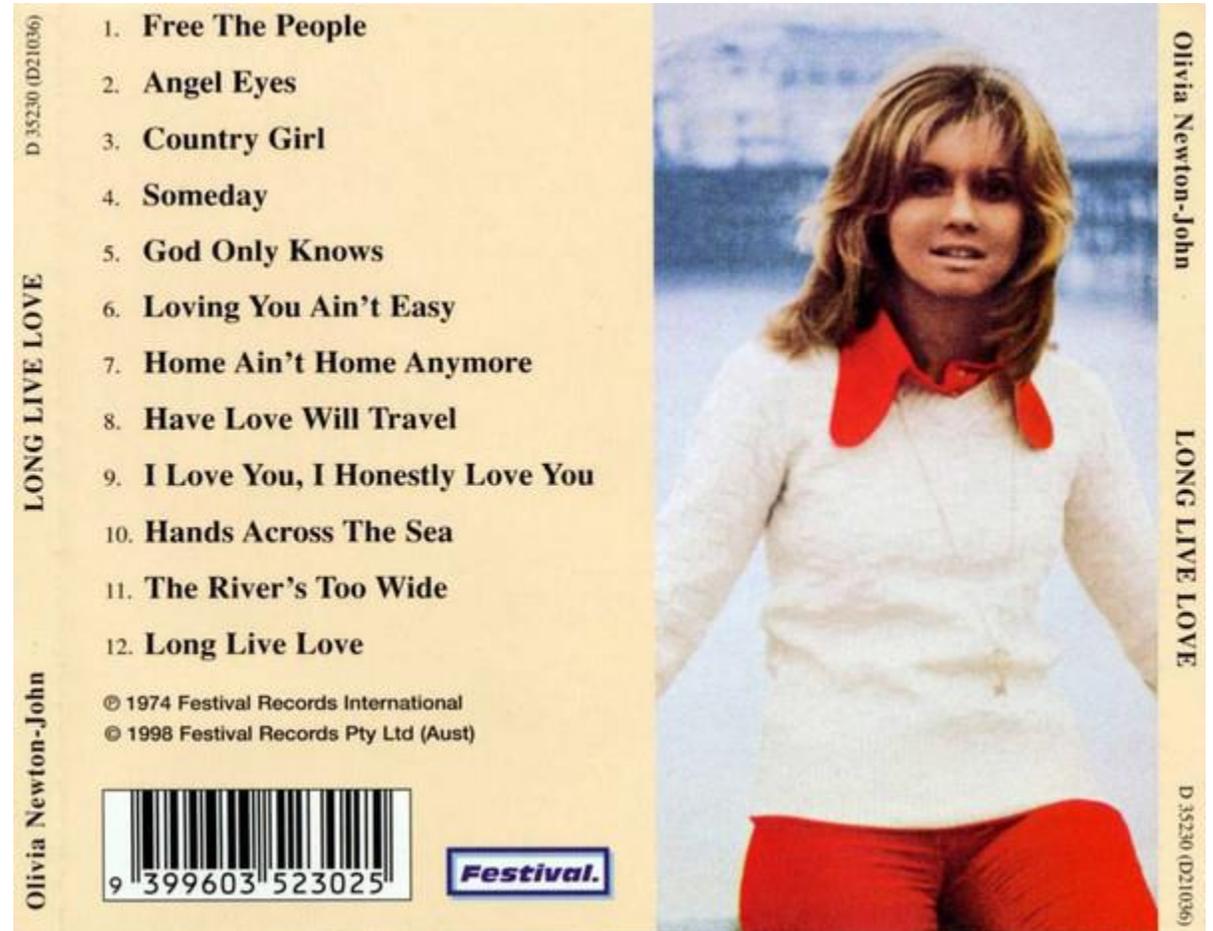
Requiring more cutting of wood, this time with weight-saving holes.....And 2 more 12" vinyl LPs



Inspiration: The Inventor of the Newtonian Reflector



We have Olivia...as in Olivia NEWTON-John



And to show that we don't only choose attractive ladies for our scopes we have ISAAC....As in ISAAC NEWTON....or as in ISAAC HAYES



And finally using a CD....
we can present Tinie...
As in Tinie Tempah

To appeal to a younger
audience

And ideal for outreach



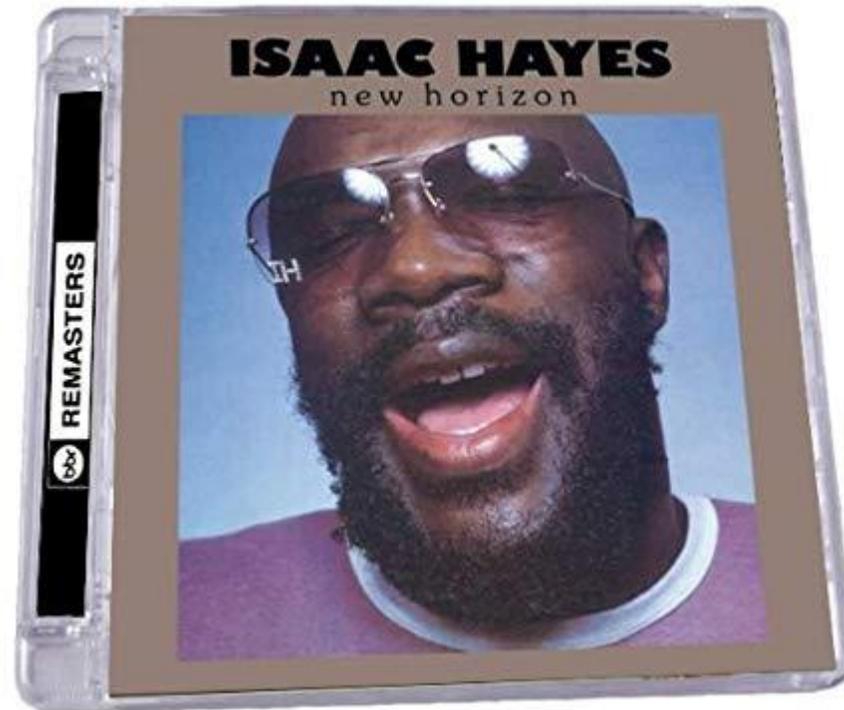


BAA Outreach: New Scientist Live



Crayford Dobs for the future?

Isaac Hayes: New Horizon : couldn't find on vinyl



Any Newtonian scope donation could be named.....

BRIAN MAY



NEW HORIZONS





My name is
Steve Floodgate

And I would like to
present to you the
Crayford Dobs