

# Re: Need help setting up my TASCOS Telescope

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  - *Date:* 06 Jul 2007 08:01:28 GMT
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Hibb <[whatsamatayou@xxxxxxx](mailto:whatsamatayou@xxxxxxx)> wrote:

Thanks Larry G and KO.

I played with it some more today and figured some things out. I was able to view Venus. It was a blurry blob tho. I did not expect it to be much more than that.

I think this one is a 525X scope when using the 3X extender with 4mm lens. I started out with the 25mm lens tonight and once I got that to work I moved up to the 12.5mm and then tried the 4mm but I did not get to the 1.5X erecting eyepiece or the 3X Barlow before the "skeeters" started eating me up.

Hello, there, and what I've seen on the Web agrees with the previous poster who suggested that this Tasco 58T/302058 has an aperture of 60mm and a focal length of 700mm.

Now we come to some basics, which previous remarks may have suggested, about the advantages of eyepieces with lower powers, or longer focal lengths.

A basic caution is that while a 60mm scope like this literally can provide a magnification like 525X with the right combination of eyepiece and Barlow or other devices, the useful magnification is much lower. A usual guideline is that the useful maximum is around 2X the aperture in millimeters; so here we take 60mm and multiply by 2 for a useful maximum of somewhere around 120X.

This is why telescopes advertised by power, and especially advertised for powers far beyond the useful range for the scope's aperture, have negative reputations -- although the scope might be quite useful as long as the magnification is kept in a reasonable range. The utility can vary, as with any scope, depending on the quality of the optics and also the stability of the mount -- but choosing a power within the useful range of the aperture is a key to success.

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An important point is that you can calculate magnification by taking the focal length of your telescope, evidently 700mm, and dividing by the focal length of eyepiece.

How about 25mm, which people have wisely recommended? That's 28X, which could be really nice for viewing objects beyond our Solar System like bright star clusters; lower powers mean a wider field. Many valuable observations were made in the 17th and 18th centuries with telescopes at around this power or a bit lower.

At 12.5mm, or half the focal length for the eyepiece, you'll get twice the power: 700 divided by 12.5mm or 56X, still well within the reasonable range of the scope.

If we take 120X as the likely useful limit for this scope, then this would be produced by a 5.83mm eyepiece. The 25mm plus the 3X Barlow would yield 84X, which might be nice for lunar or planetary viewing, assuming that the Barlow is of reasonable quality.

It follows that a 4mm eyepiece at 175X is likely a bit beyond the useful range, and apt to exceed the available resolution of the scope so that you actually see less detail rather than more in comparison to the highest magnification within the useful range — although, if it were going to be useful (or not too counterproductive), the Moon might best withstand it.

A combination of the 12.5mm eyepiece plus a 2X Barlow, if the latter type of Barlow were available for your eyepiece and scope, would yield the equivalent of a 6.25mm eyepiece, or a magnification of 112 — which I'd guess might be close to the useful maximum, and of interest for lunar and planetary viewing.

However, given the eyepieces and lens I've seen mentioned, I might guess that the following could be useful:

25mm 28X  
12.5mm 56X  
25mm + 3X Barlow 84X

There was no moon tonight so I think I might have better luck practicing viewing the moon since it is closer and brighter. It was also a little hazy with some light clouds tonight so it was not the best viewing conditions.

Just a note that while the Moon is, of course, a natural attraction to see what a telescope can do, trying that 25mm eyepiece on a moonless sky, especially in an area with less light pollution, might be quite

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impressive. If you look into the Messier objects, you'll find that some are quite bright and cover a rather large area of the sky, which is where lower magnifications with a wider field can be really nice. In this season, something like M7 or M8 in the southern sky could be really beautiful — and in winter, of course, there are the Pleiades, also known as M45, and the Great Nebula in Orion or M42, to mention some favorites.

[...]

It looks like my wife bought this for me around 1998 since there was a calendar of astronomical events for 1998 and 1999 in the box.

Please let me just say that it's a delight when a telescope actually gets used. Galileo used around 30X for some of his discoveries, and I hope that you find the scope both exciting and educational, with the help of more experienced people here also.

Most appreciatively,

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