

# Resurrecting Trashescopes

By Mark Coady

Maybe you know someone who got a department store 60mm telescope, with their .965" eyepieces and Barlow lenses, for Christmas and realize that the darn thing is just no good for astronomy. Maybe you came across one at a garage sale, or found one on EBay at a ridiculously low price, and picked it up. It's no wonder they earned the nickname "Trashescopes". But, regardless of how they came into your possession, and before relegating them to the local dump, consider upgrading them to fully functional astronomical telescopes.

## Exchanging the .965" Eyepieces

Quite often the lenses in these trashescopes are actually quite good and capable of viewing the heavens but the .965" eyepieces that come with them won't allow you to focus properly on anything other than the moon - and not even that with some of them. You need at least inch and a quarter eyepieces to view the heavens - anything smaller just won't do - and there are two ways of adapting inch and a quarter eyepieces to these types of telescopes, both with their advantages and disadvantages.

The simplest, and cheapest, is to buy a .965" to inch and a quarter hybrid diagonal. These fit into the focuser and act as a 90° star diagonal at the same time. The cost is between \$40 and \$50 from astronomy retailers but sometimes they can be found cheaper on EBay. You will need inch and a quarter eyepieces but with the usual  $f/10$ , or greater, focal ratio you can get away with Kellners which will set you back about \$20 to \$30 for a pair. The one disadvantage is that the extra focal length added by the diagonal can result in possible inability to focus when using high power eyepieces or Barlow lenses.

A better, but more expensive, way to achieve this is to replace the actual focuser with an inch and a quarter focuser. You simply take out the three screws where the old focuser attaches to the tube, replace it with the new focuser, and put the screws back in. A standard star diagonal will be necessary if you want to comfortably view the heavens. With the focuser changed, high power eyepieces, and sometimes even Barlow lenses, can be used. The cost for a new focuser can be upwards of \$75 depending on where one is obtained. Occasionally, one can be found on EBay, with the star diagonal included, for between \$40 and \$50 (including shipping).

## Changing the Finderscope

These trashescopes usually have finderscopes that are totally useless as their field of view is just too small and their magnification, if any, is meaningless at this size. Replace them with a red dot finder. If the new finder won't fit where the old one went, drill new holes in the red dot finder base or use tie-wraps to secure them to the tube. These will set you back between \$30 and \$50. Sometimes they can be cheaper on EBay.

## Changing the Mount

Next to the cheapo eyepieces and finderscopes, the worst thing about these trashscopes are the rickety mounts and tripods. They aren't designed with astronomy, or ease of use, in mind and can often move, or bounce around, in the slightest of breeze.

Sometimes these can be fixed with a few replaced bolts, nuts, and washers but often they are beyond repair. If you can't repair the mount then consider adapting the tube to a sturdy photographic tripod. Take a piece of 2X2 wood and tie-wrap it to the tube. Then drill a hole in the wood and set a long nut in it that takes 1/4"X20 bolts (the same bolt used on photographic tripods - 45 cents each at Home Depot). Then mount the assembly on the tripod and you're all set.

**Caveat Emptor - *may the buyer beware***

If the price of upgrading a trashscope is going to approach the cost of a new telescope or a good used one, then the decision whether to upgrade one becomes a moot point and it can then be happily disposed of at the local dump. But, with a little ingenuity and some modest cash outlay, one easily be resurrected and given new life. I have successfully resurrected a 60mm Tasco with a replaced focuser - which recently was donated to the PAA and auctioned off at the April 14th meeting - and a 70mm Orbitor with a hybrid diagonal which will stay in my arsenal of telescopes.