

# Orion OMC-140 Maksutov-Cassegrain Telescope



## Introduction

The Maksutov-Cassegrain telescope is similar in design to the more familiar Schmidt-Cassegrain telescope (SCT) except they use a deeply curved corrector plate and often have an aluminised, or silvered, "spot" directly applied to the corrector plate, rather than using a central hub with the secondary mirror mounted in an adjustable mounting. There appears to be no valid reason why a "Mak" should perform any better than a similar sized SCT, yet many of them are reported to be superior to their SCT cousins. The central obstruction is often quoted as being the reason why refractors produce higher contrast images than an equivalent SCT. The central obstruction of the OMC-140 is approximately 36% of the area of the corrector plate, so is no "better" in that respect than a typical SCT.

The focal length of the OMC-140 is 2000 mm, with a corrector plate 140mm in diameter, giving a focal ratio of f14. The back plate is threaded to take standard Meade and Celestron accessories. Note the central baffle tube is quite narrow, the longer variety of Barlow lenses foul the baffle tube - even when used with the 2" adapter tube. The modern trend of shorter (or "shorty") Barlow lenses should be OK in this respect.

The OMC-140 can be purchased in standard form with 1/4 wave optics or for approximately 100 UK pounds more at a certified 1/6 wave. The optical tube comes complete with a Vixen GP compatible dovetail plate, this plate has several 1/4" Whitworth threaded holes (photographic tripod thread), 6 x 30 finder, 1 1/4" right angle adapter and 25mm Plossl eyepiece. A dew shield and 2" adapter are available as options.

## Operation

The OMC-140 was purchased second hand from a friend who had already found a means of mounting it alongside his refractor. This mounting was achieved with a pair of tube clamps from an old Vixen 6" refractor that had been drilled and tapped to take three Allen headed bolts. On the inside of the tube clamps a length of plastic electrical conduit cover had been formed into a ring to protect the tube from damage by the Allen bolts. By bolting these tube clamps to a standard Losmandy dovetail plate, it was easy to install the OMC-140 side by side with my existing Meade 10" SCT on a Losmandy G-11 mount. The side by side mounting plate is Losmandy part number DSBS. Balancing the two telescopes was easy as the DSBS plate can be moved from side to side and each telescope's dovetail plate can be moved forwards and backwards for balance.



Having added the telescope to the existing mount, the first job was to re-calibrate the Losmandy Gemini "goto" system. In the past, using the rather loose fitting Meade SCT mirror, the alignment was prone to errors of up to half a degree. The OMC-140 appears to have no noticeable mirror shift when focusing, by using the OMC-140 for mount alignment, rather than the Meade, seems to have produced a much better alignment.

Focusing on bright stars as part of the mount alignment, gave nice dark backgrounds to the sky with crisp star images. The "in and out" off-focus images appear very similar and symmetrical indicating good optics and collimation. There are three plugged holes on the back plate to give access to collimation screws should it be necessary.

The telescope was purchased for planetary viewing and needless to say Mars is currently the favourite (August 2003). Despite the present low altitude of Mars from the UK, a surprising amount of surface detail could be seen without difficulty. This in part may be due to the relatively slow focal ratio of the optics, certainly Mars is dazzling in the Meade 10" f6.3 SCT and is too bright to see many surface details without filters.

Focusing a Meade or Celestron SCT can be troublesome due to an often large amount of image shift when focusing, this is especially difficult when using a CCD camera to take images of the planets. With the Meade 10" SCT the image of a planet will often move right out of the field of view when focusing, on the OMC-140 there is no discernible image shift and the focus knob turns with a silky smoothness.

There are a couple of minor points to note, using one of the longer "traditional" barlow lenses with the 1.25" adapter doesn't allow the barlow to fit inside the baffle tube within the telescope. It almost fits with the 2" (optional) adapter. Using a Televue x2.5 barlow wasn't

a problem as the barlow is quite short. Also, when using the telescope without a right angle adapter (with the 1.25" adapter), there wasn't sufficient focus travel to allow some of my eyepieces to focus. Again this isn't a problem with the longer 2" adapter. I suppose the bottom line is the 2" adapter is needed for many applications!

The previous owner of the OMC-140 had it mounted alongside an Astrophysics 6" refractor, it performed almost as well as the very expensive AP refractor. Compared to my Meade 10" SCT it certainly outperforms it visually on Mars and produces pin sharp star views.

The OMC-140 is available directly from Orion Optics (not to be confused with the USA Orion) or from many dealers. The telescope seems to be produced to order and may take a couple of months to be delivered. The current cost of the optical tube assembly is approximately 600 UK pounds (August 2003).



Since originally writing this review, the focus assembly became loose with no obvious means of re-fitting it. After a short telephone call to Orion, the method of re-fitting it was established. The rear cell of the telescope is removed after taking out the three Allen headed bolts, and the two Pozidrive bolts used to fix the finder scope. The rear cell cover was a very tight fit and not easy to pull off. With the cover removed, re-fitting the "micrometer" focus assembly took only a minute or two. The image, shown above right, was taken prior to re-fitting the focus assembly.

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