

# INSTRUCTIONS FOR CONVERTING THE OBSESSION TYPE SECONDARY HOLDER TO A SIMPLE X Y AXIS ADJUSTER

This conversion eliminates the guess work and inaccuracies inherent in the three screw adjuster as used on the Obsession and other truss type Dobsonian telescopes. It does not alter the basic adjuster, the unit can be returned to the original configuration at will.

Refer to the four accompanying photos for visual information coded by letters in this document.

## Pre-Assembly Checklist:

First remove the mount from the scope and remove the canister with the mirror.

Remove and put away two of the three long screws with their tubes, nuts and springs. With a good and sharp screw driver remove two of the three long screws and put away. Some care is needed to do this as the screws are held in place by a glue which will come apart with a careful twist.

Have on hand the materials as shown in photo D

A supply of stainless steel 3/8th inch washers

Two 8/32 x 1 1/4" stainless steel screws

Two Nylon 3/8th inch washers

Four (two shown) 8/32 nylon lock nuts, stainless steel

Two #8 neoprene washers. These are normally used in sheet metal roofing construction. See final note on this file.

One 3/8th" stainless steel nylon lock nut.

One 1/8th inch thick 3/8th inch silicone washer See final note on this file

## To assemble:

Turn the two 1 1/4" screws into the two vacant holes in the base plate as shown and lettered L in the photos. Tighten securely.

Thread onto these two screws two of the 8/32 lock nuts as shown and labeled D and tighten securely. These two nuts become the pivot point for the angle change of the mirror.

Place one of the springs onto the remaining long screw as shown and labeled E

Reposition the base plate over the three bolts as shown. It does not matter which holes go where.

Replace the long tube over the remaining long screw and install the brass nut labeled G

Place one of the neoprene washers onto each of the remaining two screws. They are labeled F. Thread onto the two short screws the two remaining 8/32 nylon lock nuts and tighten just to the point where they begin to "bulge" the neoprene washers. This adjustment is important as it becomes the flexible member of the angle adjustment.

Re-install the canister, with the mirror and the lanyard or heater as you choose.

## The modification is complete

Pay close attention to the configuration of the various washers exactly as shown.

Place a target for centering on the mirror and insert it with about three washers and one nylon washer into the spider mount. The nylon washer furnishes the bearing surface for rotational movement.

Using the laser, add or take away washers until the laser dot centers on the centered target over the mirror. In some cases you might need to remove all the washers, **but not the nylon washer**. When the vertical adjustment is correct, place the second nylon washer on and against the spider top.

Next place the silicone (red) washer followed by another ss washer and the ss nylon lock nut. Do not have any other nuts on the bolt, only washers at the bottom for vertical spacing.

While holding the unit with the mirror properly facing the focuser, tighten the lock nut until it just begins to bulge the silicone washer. This should produce a smooth but firm feel to turning or rotating the mirror holder.

## **The conversion and installation is complete.**

Assemble the telescope, and using a good laser collimator, watch the primary and rotate by hand the mirror housing. You will note this will move the laser dot vertically across the face of the primary mirror, it will not do anything else. When the dot is resting on an imaginary line running horizontally across the primary stop, turn the one adjusting screw to move the dot to the center donut.

And that is it.

If you have not been accurate in rotating the housing and placing the dot on an imaginary line across the primary, some minor adjustment can be done with both axis. It is best to do one at a time, do not attempt to adjust both at the same time.

The pre-loading of the large bolt with the silicone washer will hold the mirror in place, no locking device is needed.

The remaining long screw is of course precisely as it was but now its movements will be very precise, it will only move the laser beam horizontally across the primary face.

You have a true X Y axis mirror mount.

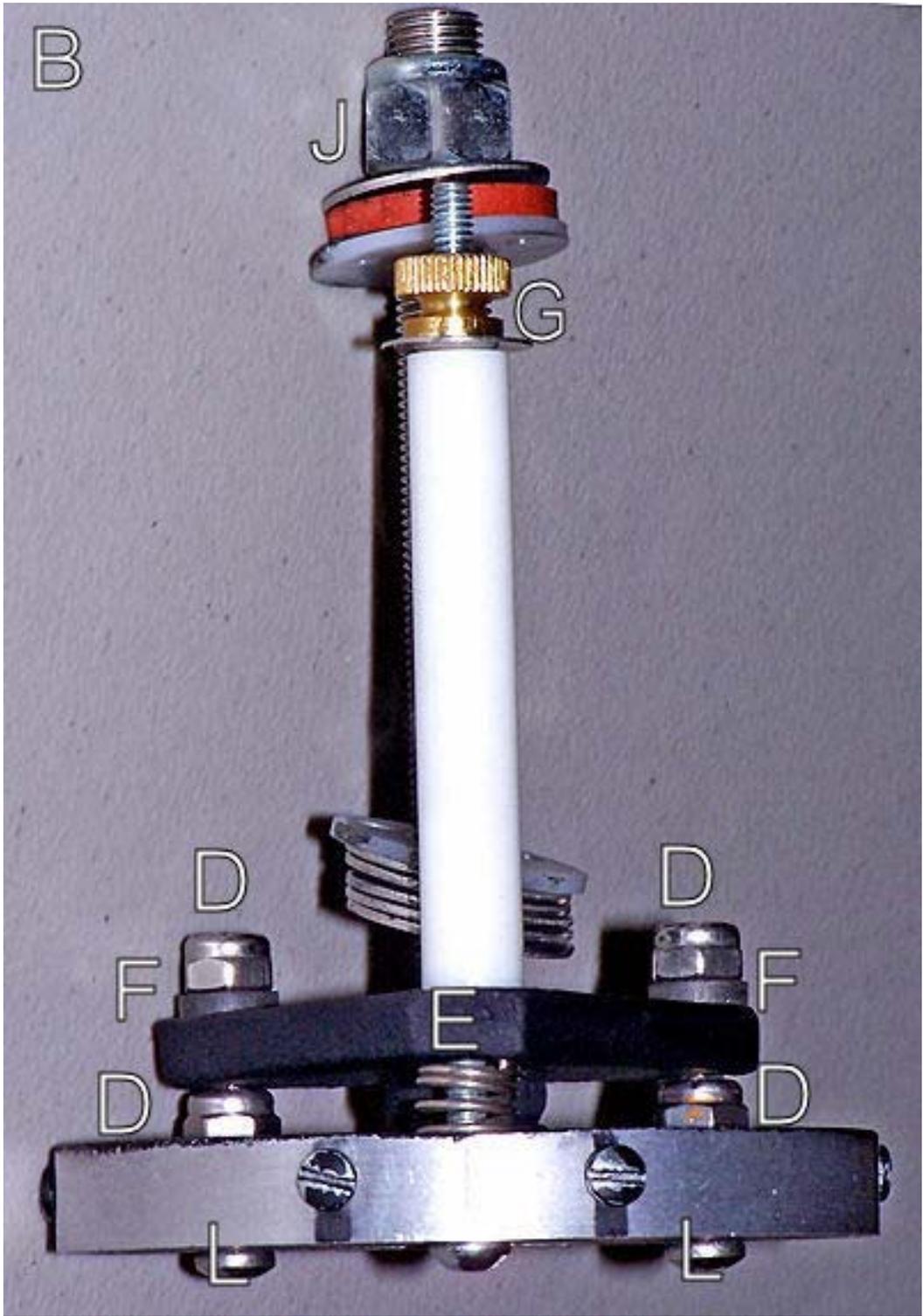
**Note:** All items to do this modification are readily available at very little cost at any good hardware store. However the nylon washers, the neoprene washers and the single silicone washer may be hard to find. This is particularly true of the silicone. The silicone however is an essential component of the system. Silicone has the unique ability to not change its viscosity with temperature change, therefore the pre-load on the rotating function will always be the same regardless of temperature.

For anyone wishing to do this modification I will be glad to supply the nylon, neoprene and silicone washers. Send me an email with your name and address in printable format (meaning in address form) and I will send them to you.

If you once and carefully do this modification you will never change back.

Melvin Shaffer [shafferm@cavtel.net](mailto:shafferm@cavtel.net) Obsession 18"







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