

# ARCTIC Mounting Plate

December 16, 2014

The mounting plate may seem the most basic, and simple, component of the system; but in actuality, it is the first point of critical alignment of the entire instrument. The ARCTIC mounting plate differs from the other instruments in that much of the housing is incorporated in this monolithic piece. This maintains structural rigidity while decreasing the total hours of machining time.

Figure 3 shows the ARCTIC mounting plate dimensions while figure 2 is the standard mounting plate dimensions. Each latch is located 90 degrees apart and approximately 18 inches from the axis defined by the optical path. Latch points are of different design from the standard, but located at the same distance. This was necessary due to the shape of the filter wheel. There is a 0.025 inch gap surrounding each side of the latch point. This is mirrored in the tolerance of counterbores that bolt the latch points to the mounting plate. The upper two latch points, towards left in figure 3, use four 3/8-16 bolts with helicoils in the mounting plate. The bottom two latch points use five 3/8-16 bolts into helicoils in the mounting plate. The tolerancing will allow for adjustment so that the latches will clamp as squarely as possible. Compared to the standard mounting design the ARCTIC latch points are at a slightly, 0.007 inch, increased diameter. This will not cause any problems and can be compensated for in the adjustment. The latch points will be made of Aluminum 7075 to prevent gauling on the SS latches.

The NA2 port of uses two kinematic mounting points that are used for indexing to great accuracy. These are the two pieces that come out of the instrument from the sides, top and bottom of figures 3. These two pieces will locate the entire instrument in the telescope optical path. They will each be pinned to an accuracy of 0.001 inch, with machining tolerances to match. A deviation from the telescope beam of greater than 0.025 inch will cause a significant degradation of image quality and great care will be taken to ensure the best possible image. The kinematic pieces will be made of 7075 and be bolted to the main housing, each with four 5/16-18 bolts into helicoils.

Figure 1: ARCTIC Mounting Plate

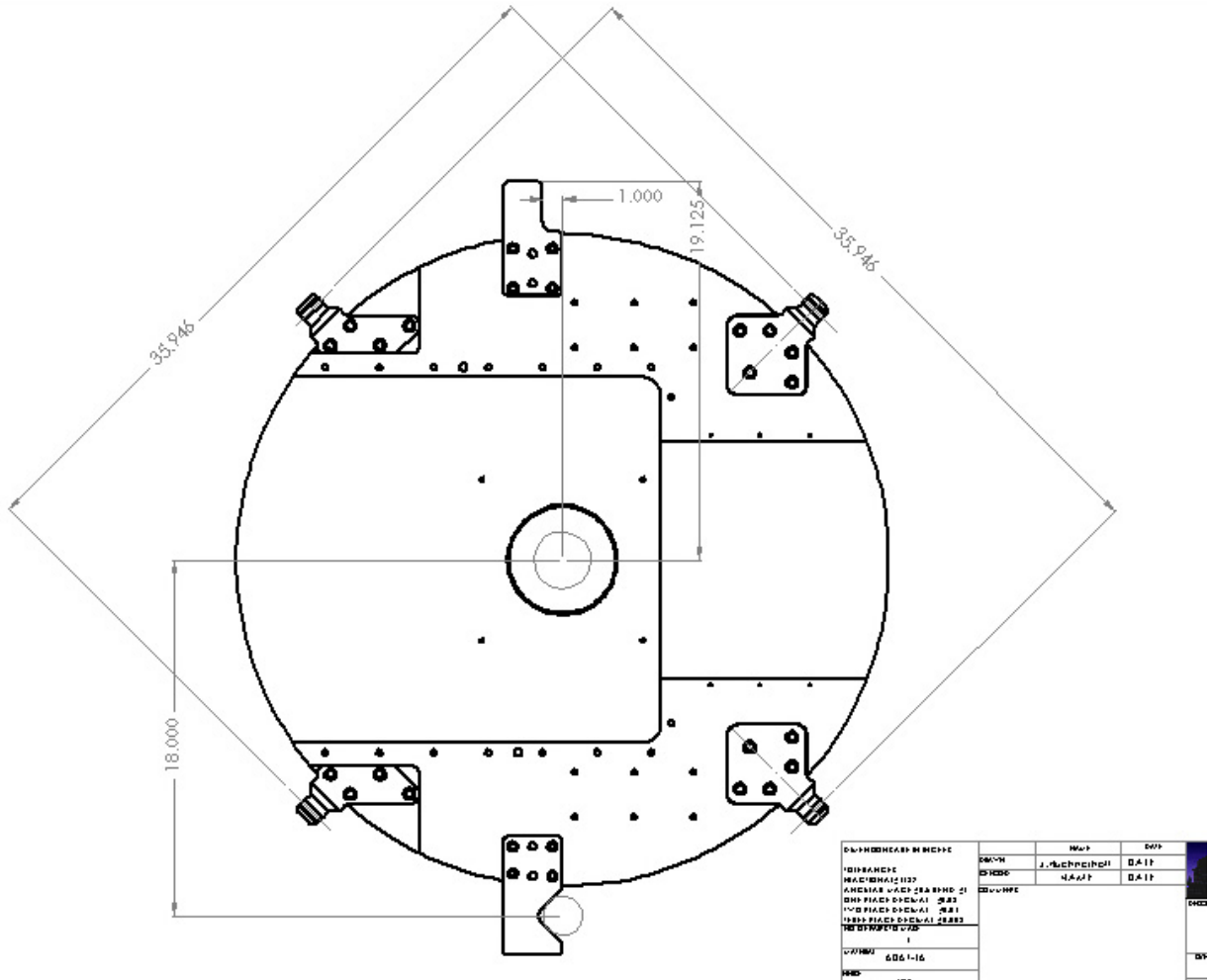


Figure 2: Standard Mounting Plate

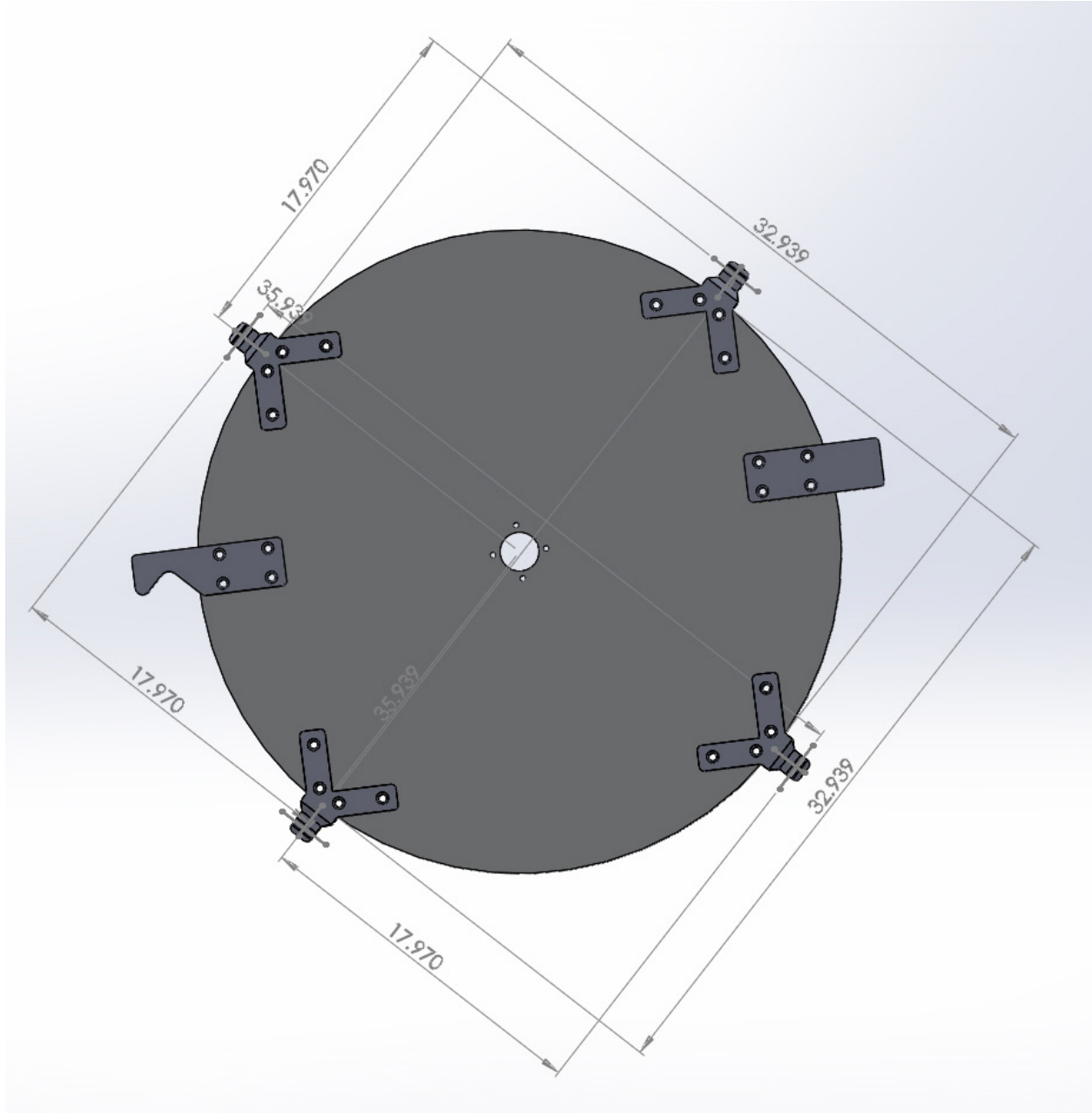


Figure 3: ARCTIC Mounting Plate

