



LIGO Laboratory / LIGO Scientific Collaboration

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LIGO

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**SLC Manifold/Cryopump Baffle Assembly and
Intallation Procedure**

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Distribution of this document:
Advanced LIGO Project

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Clean room standards

For a clean assembly all LIGO standards should be followed, as presented in the latest version of the

LIGO Contamination Control Plan (E0900047). Clean room garb including UHV gloves should be worn when working with parts.

All tools that come in contact with assembly should be cleaned to class B standards.

Assembly will be done under a portable clean room. Any time a part of the assembly is not covered by the portable clean room or not being actively worked on it should be covered with appropriate clean covers. (C3 polyester or equivalent).

Torque Values for Bolts:

Standard torque values according to manufacturer standards for screw material should be used.

Revision history

V2: 13 July 2011: add additional information for build and installation. Remove Mode claener baffle from document

Required tooling:

Manifold-Cryo Baffle assembly and lift fixtureD1101192

Manifold-Cryo Baffle Alignment Fixture.....D1002675

1. Scope: This document describes the assembly and installation procedures for the Manifold/Cryopump Baffle.

Section 2. Manifold-Cryo Baffle assembly and lift fixture:

2.1 The baffle is assembled on the assembly/transport apparatus, shown in Figure 2 and 2 (D1101192).

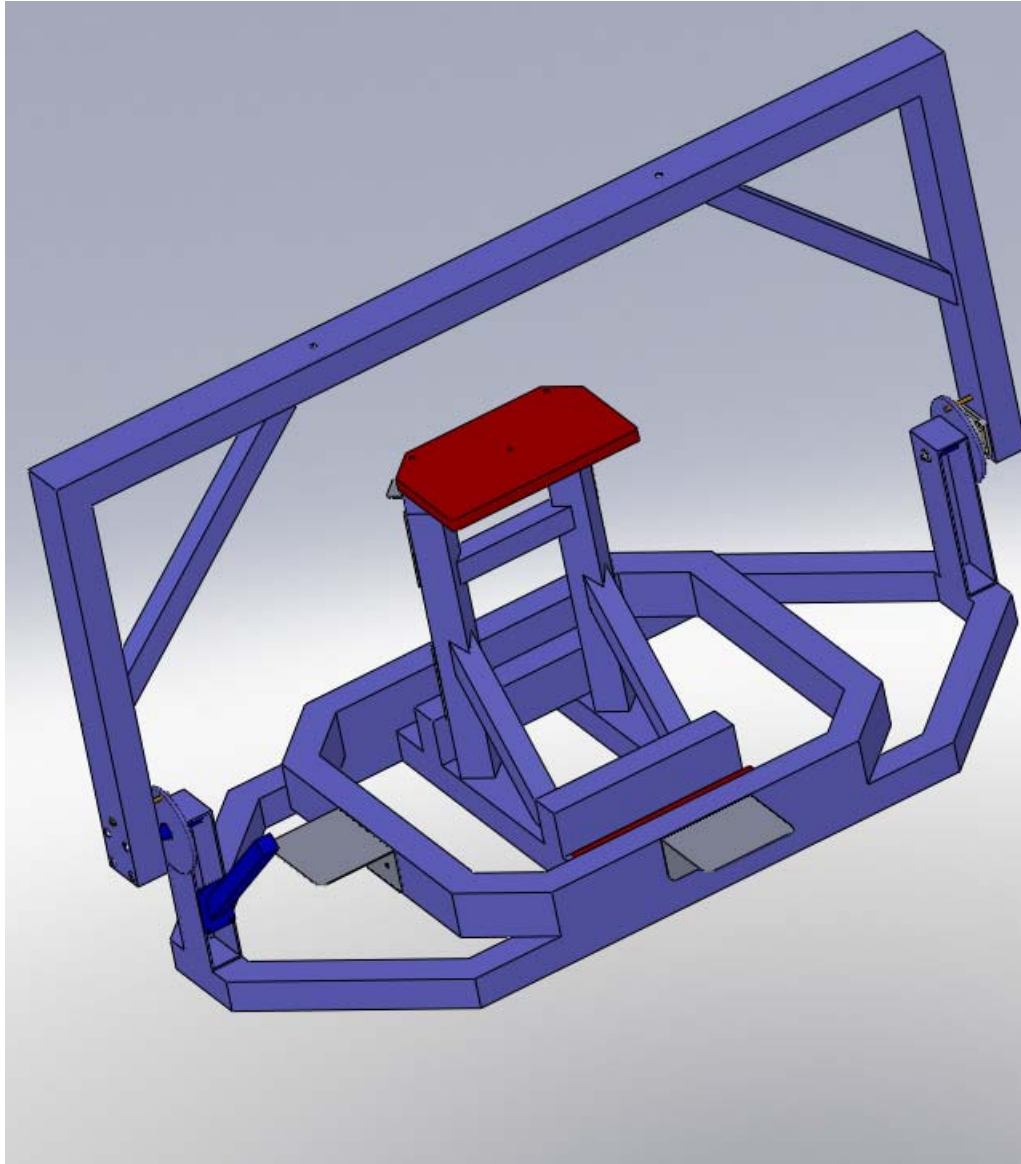


Figure 1



Figure 2: Manifold/cryopump Baffle Assembly and Transport Apparatus

Place center cylinder (D1001348) onto the assembly/lift fixture (D1101192) as shown Figure 3 and Figure 5

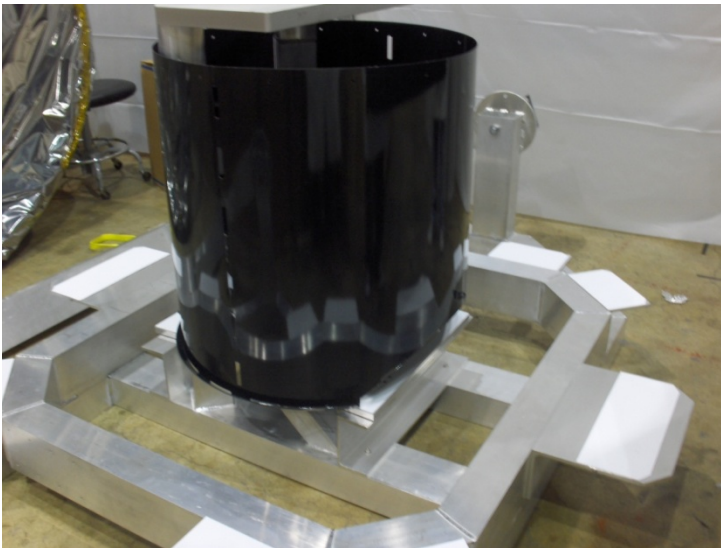


Figure 3

- Next place bottom weldment (D0902655) on assembly/lift fixture and bolt the two together loosely with #10 nut and washer with a 10-32 x 3/8 lg. socket head cap screw as shown in Figure 4 and Figure 5, qty 5.

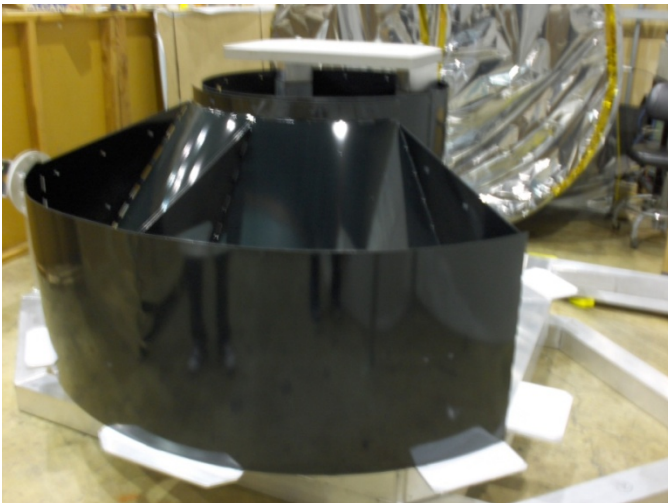


Figure 4

The apparatus is pivoted to the horizontal position for the baffle assembly, as shown in Figure 3.

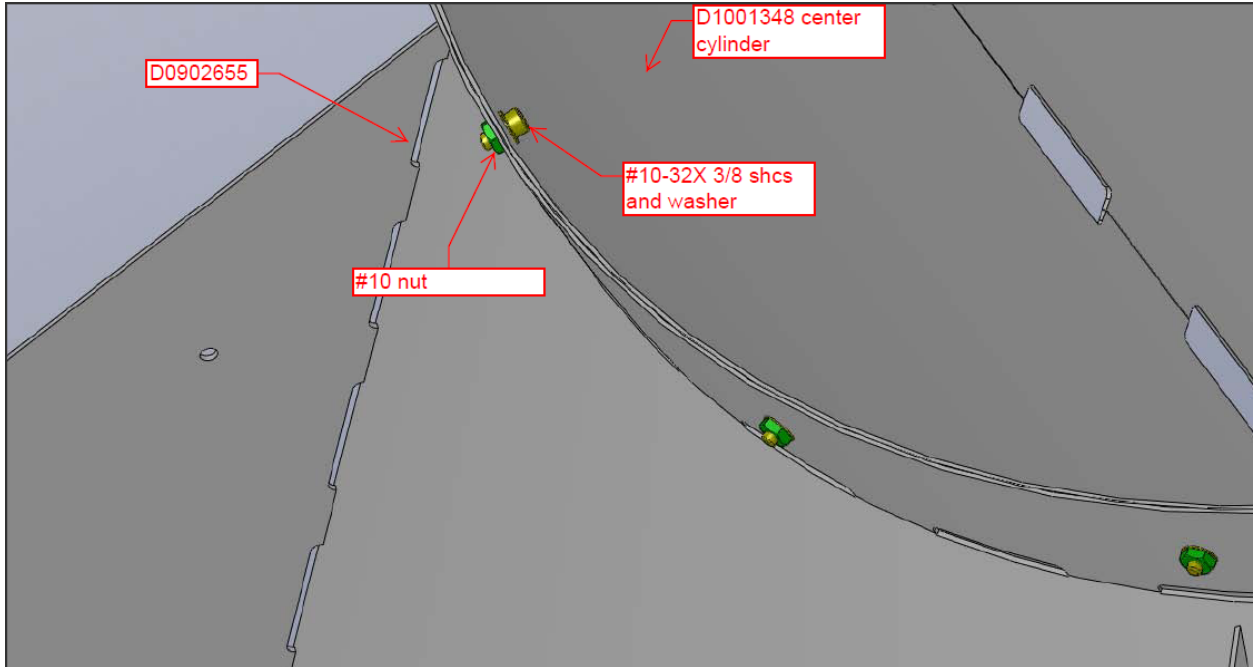


Figure 5

- Install threaded adapters (Male to Male Ref. McMaster 95316A400 or equivalent , with one #10 washer and nut, to one of baffle brackets on the bottom weldment, D0902655. This will be repeated to assemble to all 3 sides as shown in Figure 6 and Figure 7. qty 7 each side

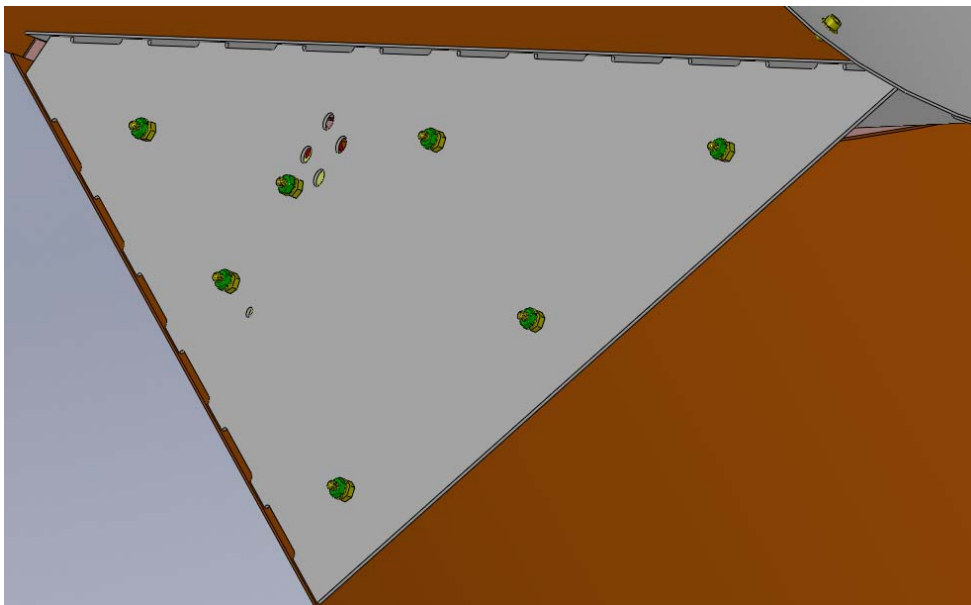


Figure 6

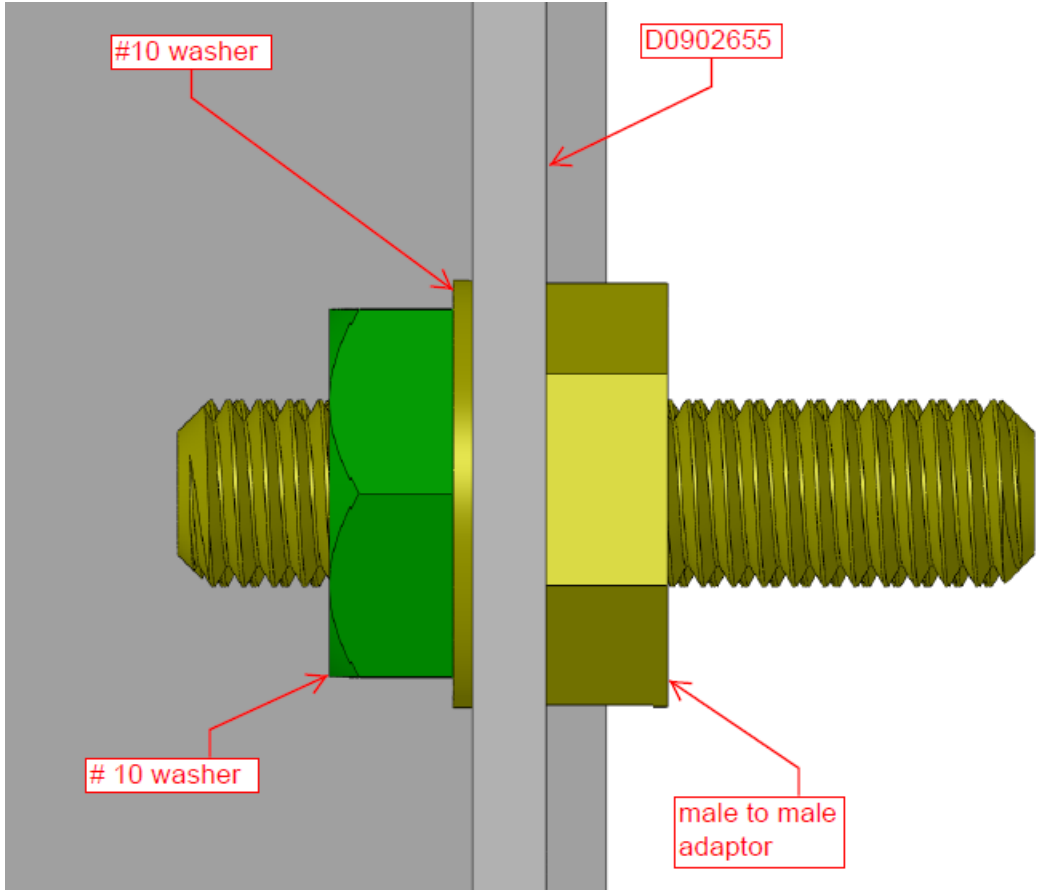
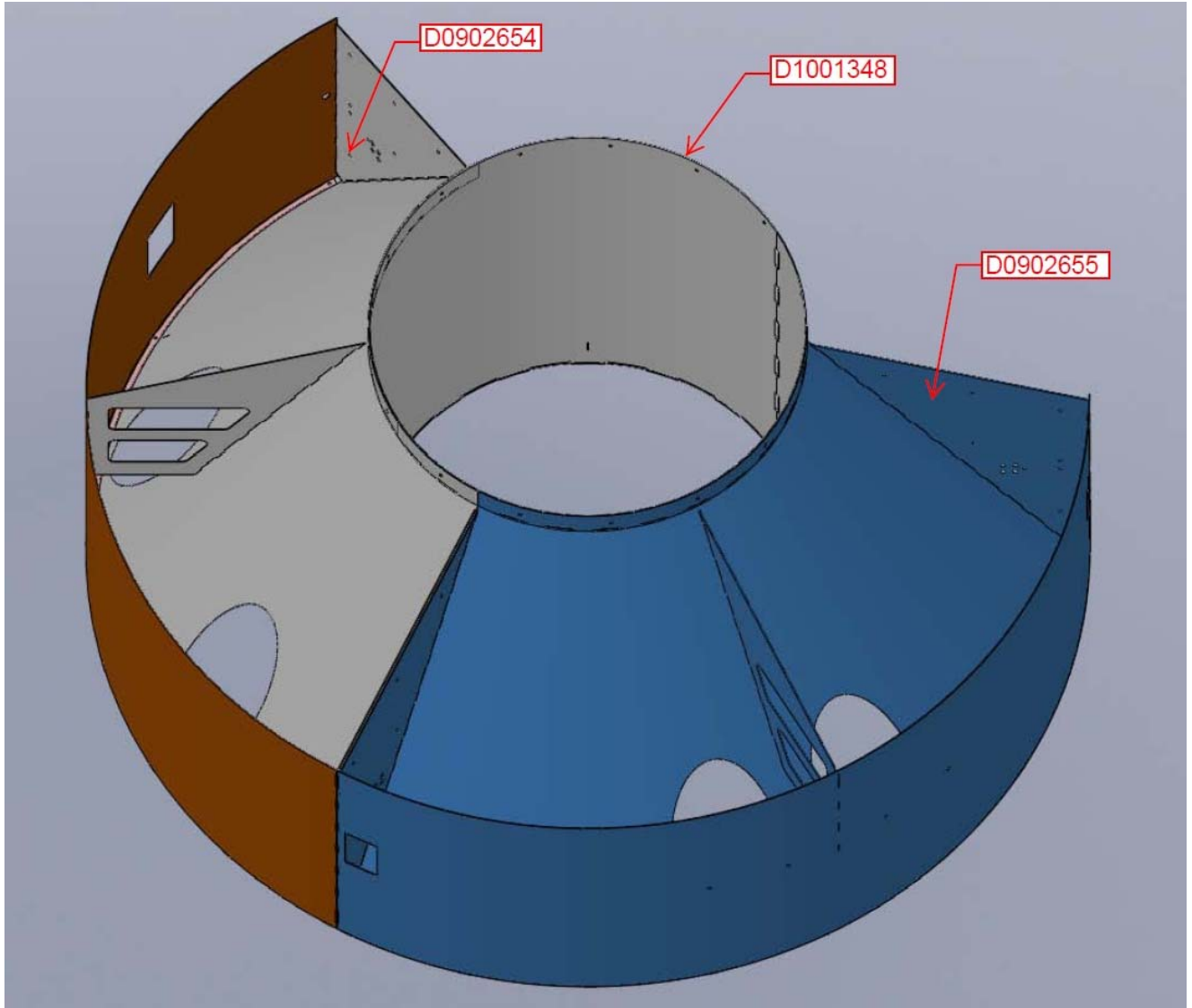


Figure 7

- Arrange the left and right weldments (D0902655 & D0902654) loosely on the lift fixture around the center cylinder. Install threaded adapters, washer and nut to baffle bracket as previously mentioned. Repeat this process for adding the additional section (D0902656) see Figure 8.



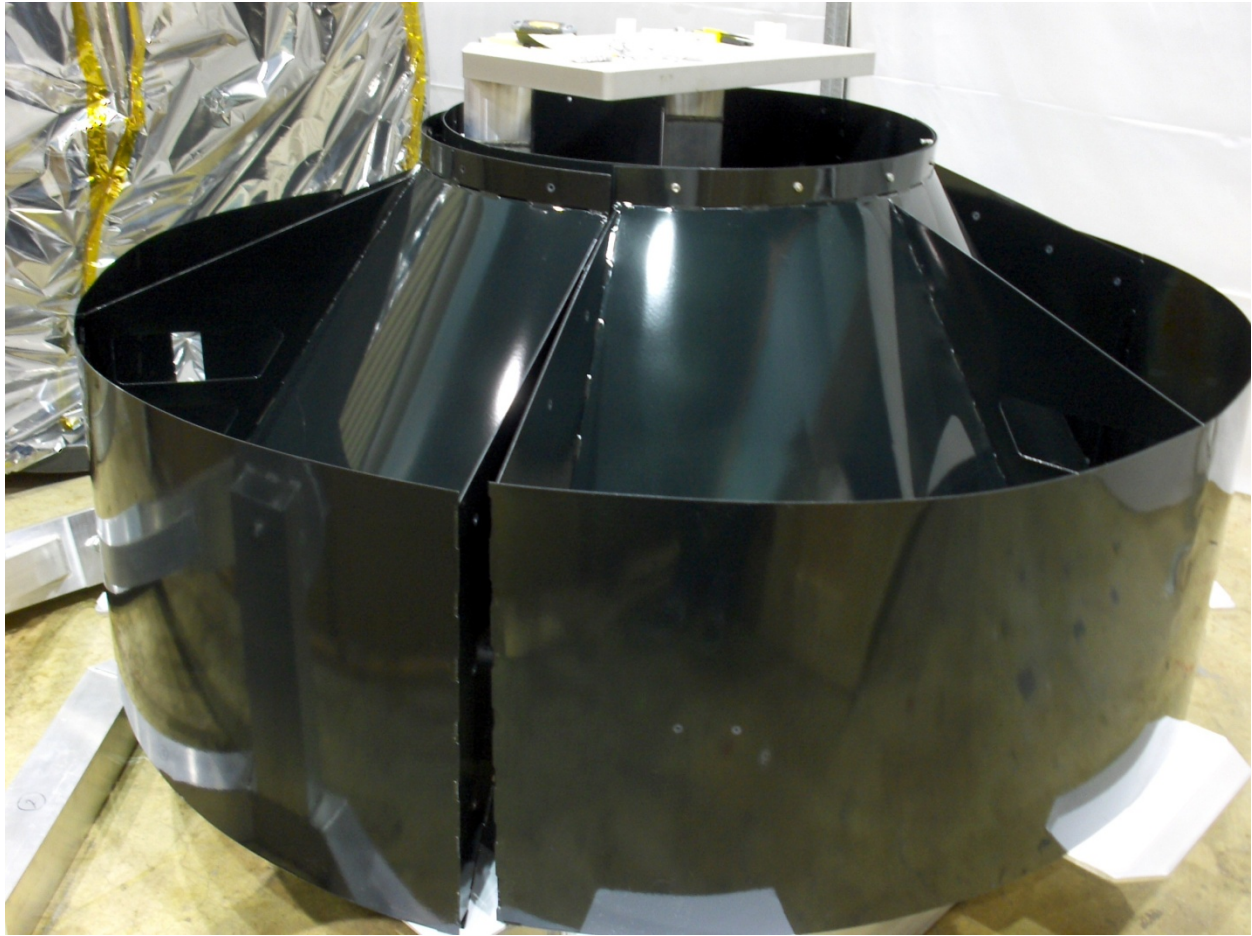


Figure 8: Baffle in Horizontal Orientation during Assembly

Gently assemble the 3 baffle weldments D0902654, D0902656 and D0902655 together as shown which will also assemble the weldments to the center cylinder. The threaded adapters should thread through mating holes on the mating

The assembly fixture is rotated to orient the baffle in the tube-axis direction, and is transported in the assembly fixture with an overhead crane to the balancing fixture, where the baffle is attached to the blade springs and balanced.

- Once the three weldments are loosely fastened together, begin to attach all 3 weldments to the center cylinder adding one additional #10 nut and washer to the original male to male adaptor mentioned in Figure 7 and 10 (Bottom weldment was attached to the center cylinder in the beginning of assembly.)
- Tighten all fasteners around the baffle.
- Attach L-brackets (D1000111) Figure 9 to both lifting arms so that the baffle does not slide on the teflon pads.

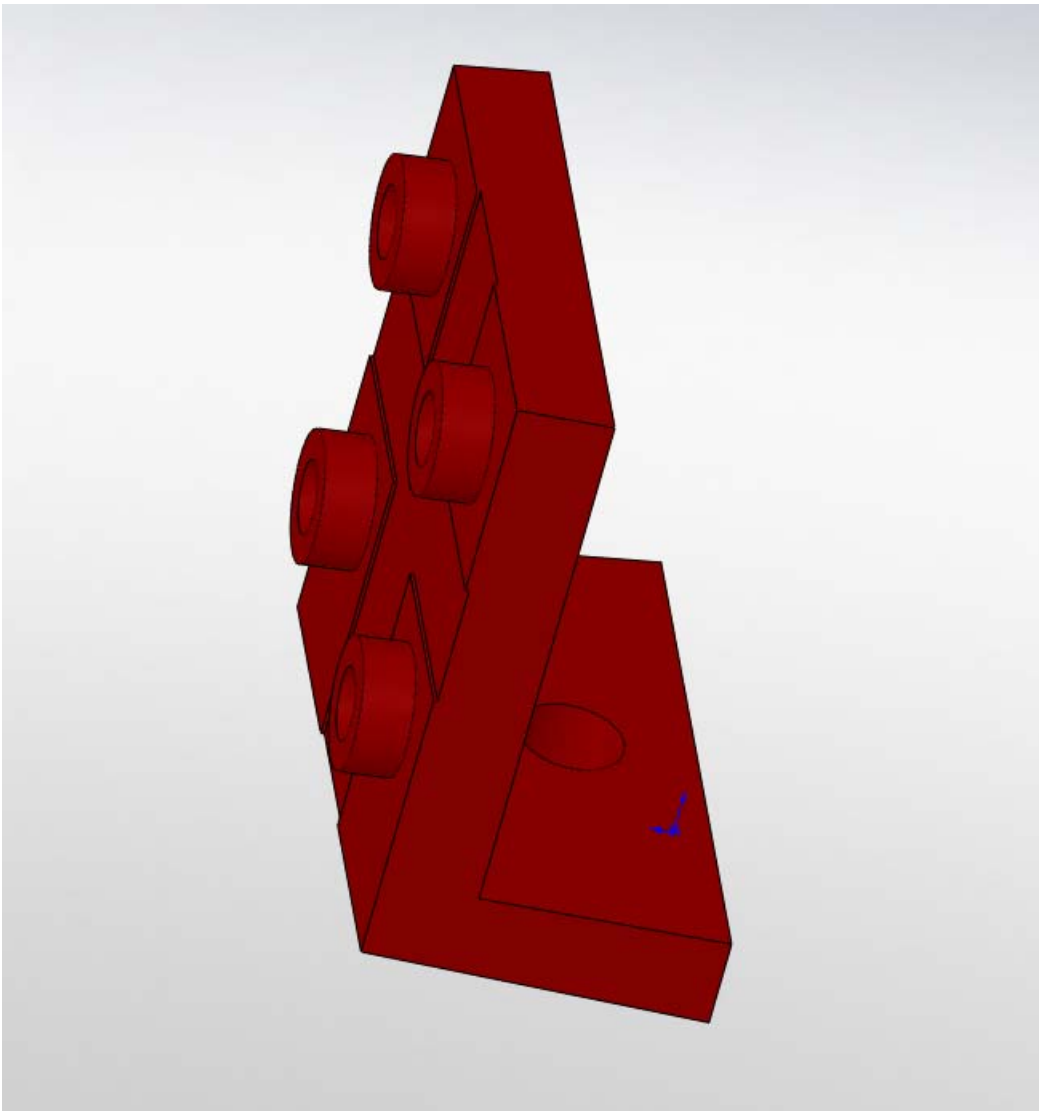


Figure 9

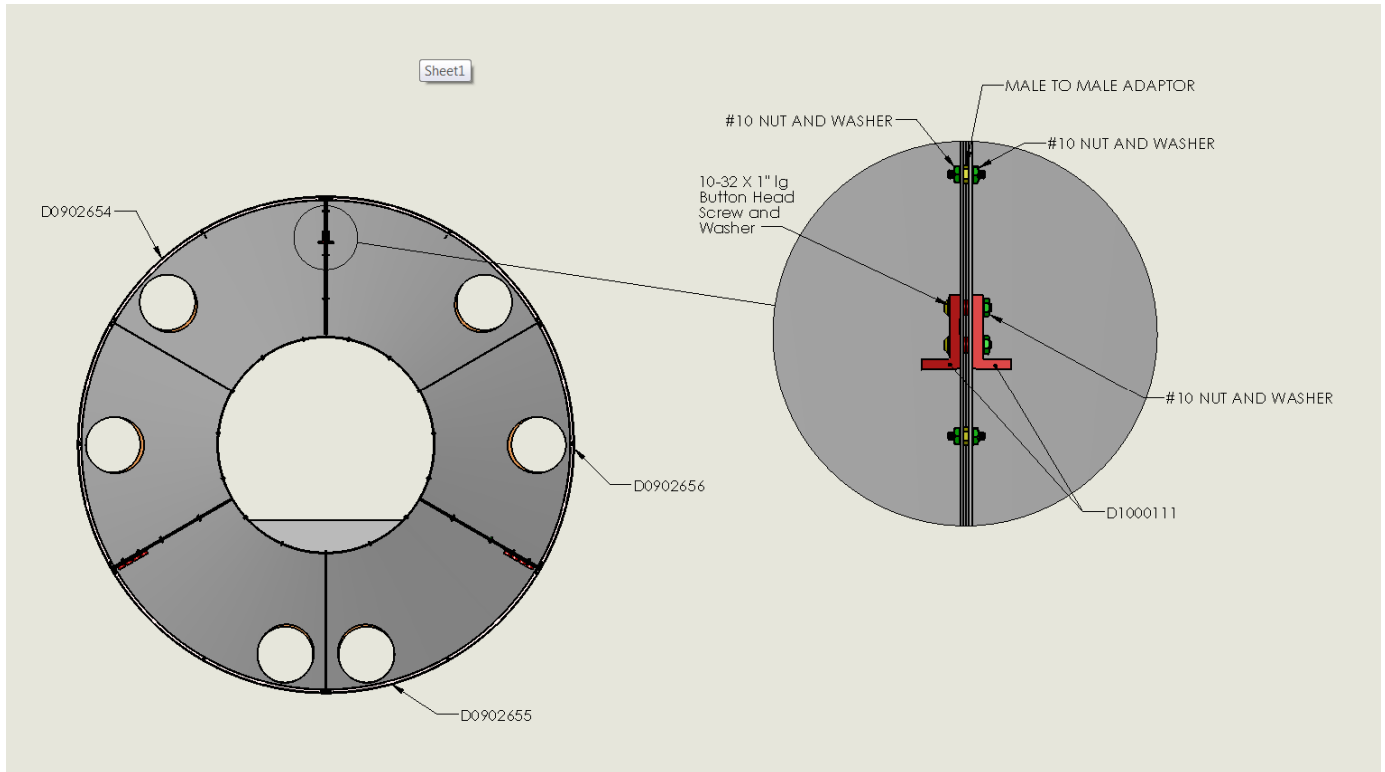
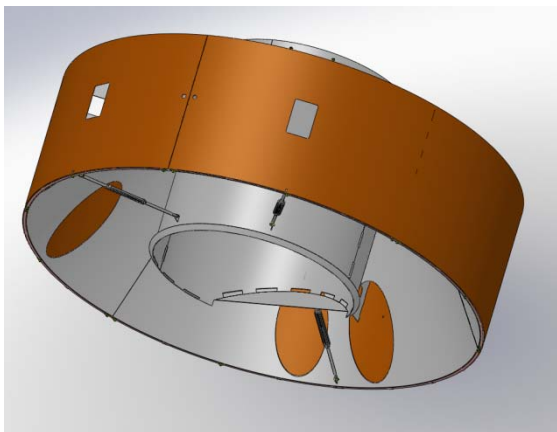
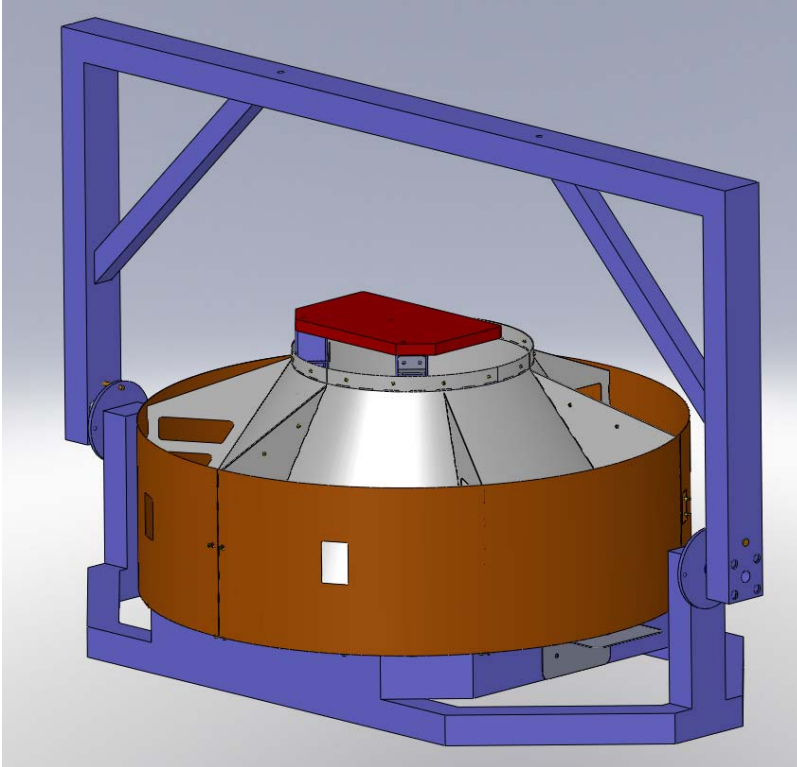


Figure 10

- Reach from below the baffle and install turn buckles D1100865 qty 3 **add print to page**, on the underside of the baffle , to the brace bracket tabs that are welded to the cone and center cylinder. Hand tighten



add turnbuckles



- Lift baffle assembly (baffle on lift/assembly fixture) (p/n) high enough to place 4 saw horses beneath the fixture. Slowly lower the assembly until some, but not all, of the weight is on the saw horses.