To: Dr. David Trevas, Ulises Fuentes

From: Jered Deal, Ilenn Johnson, Cullen Matillano, John Selee, Jacob Vedder

Date: February 7, 2020

Subject: Hardware Review

The current design is a two-piece design with both a cap piece and a body piece. The assembly of the design can be seen below in figure 1, with the cap piece in blue and the body in gray.

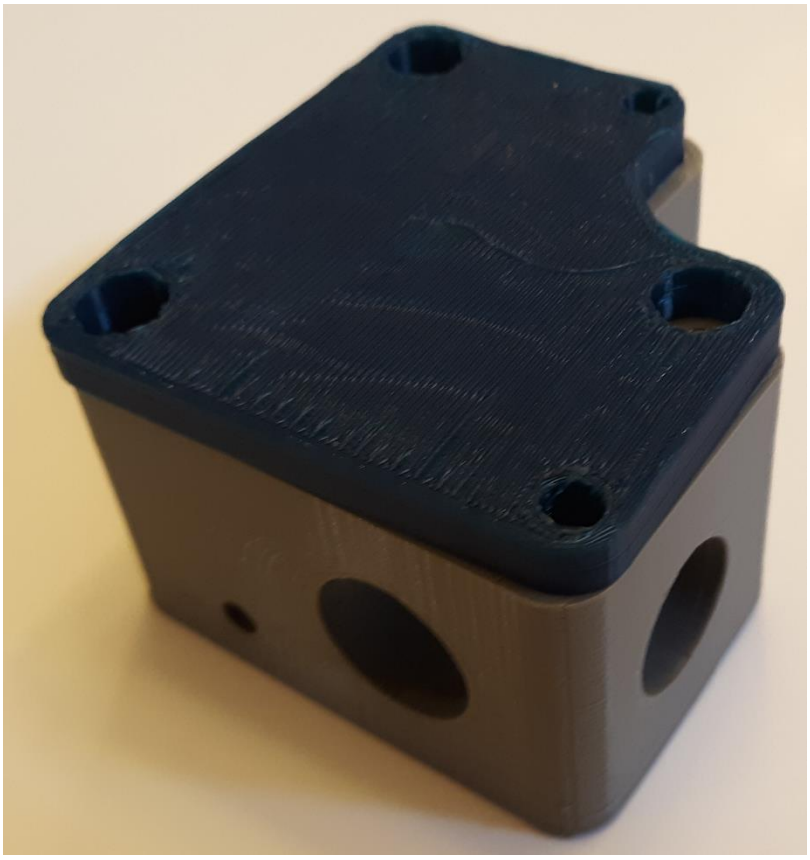

Figure 1: Isometric View of Final Design Assembly

Figure 2 shows the top view of the cap piece, which shows the indented design of the cap piece as well as the mounting hole locations.

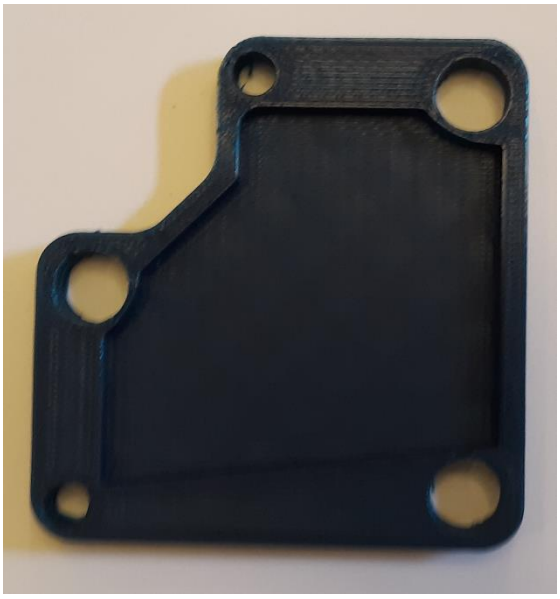

Figure 2: Top View of Cap Piece

Figures 3 and 4 show the top view and an angled view of the body piece to show mounting hole locations and the holes for the oil chip detector and oil lines respectively.

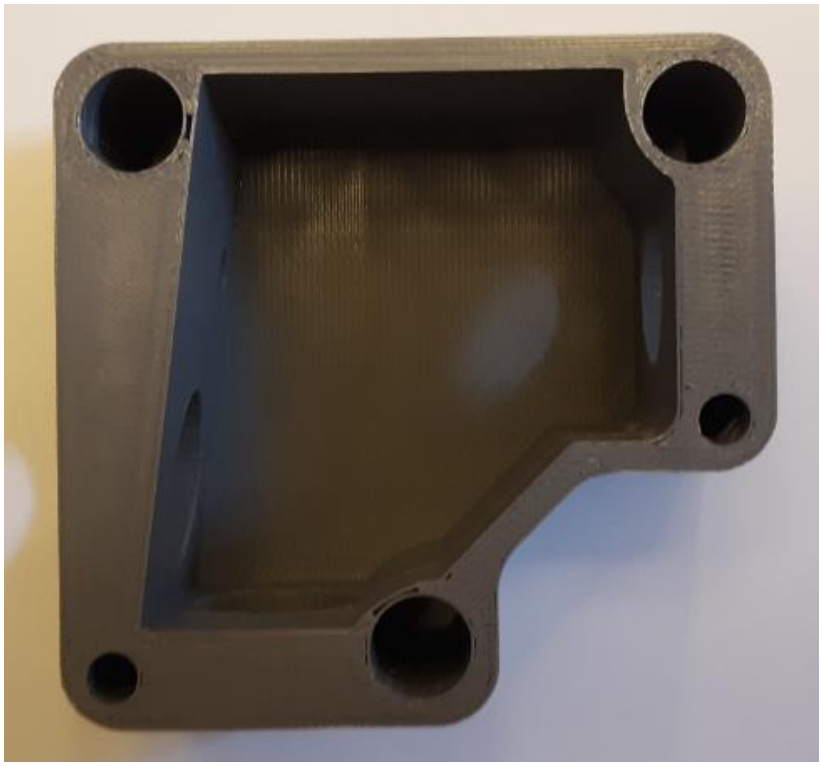

Figure 3: Top View of Housing Body

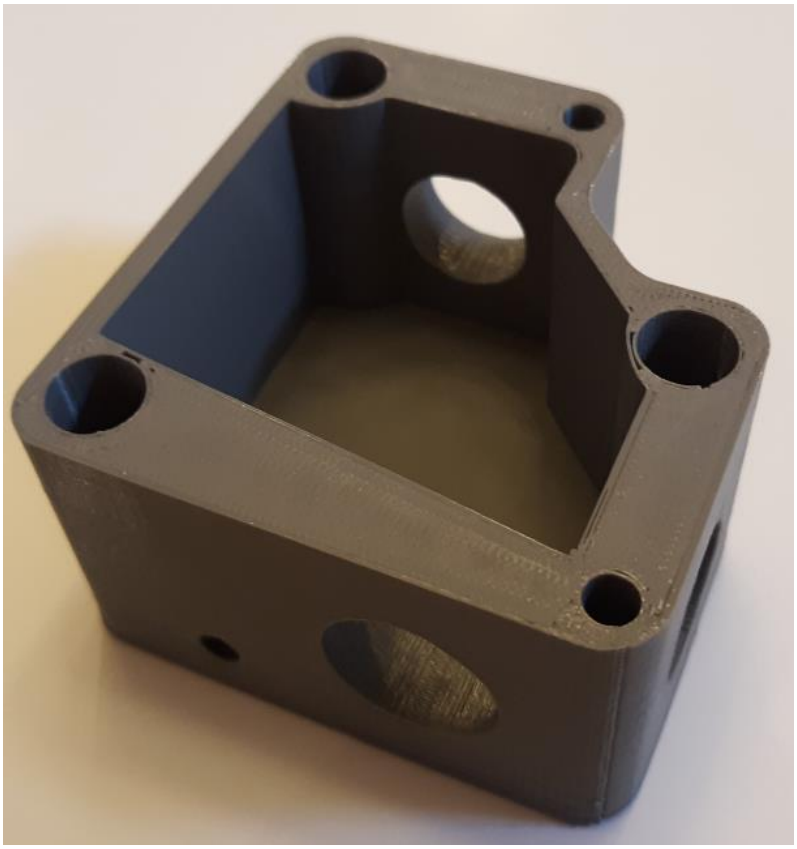

Figure 4: Angled View of Housing Body

The housing will be sealed by a gasket cut from a stock sheet of material. The team has decided to use a graphite and nitrile composite material, seen in Figure 5. Supplied through Grainger, the graphite-nitrile gasket offers high flexibility, flame resistance, and capability across a large temperature range. The team has contacted NAU MakerLab about their processing capabilities, specifically, the CNC die cutter. The team will schedule a consultation with the MakerLab when the gasket stock has been received. The gasket stock fits the processing limits of the SilverBullet. The team will assess the capabilities of the die cutter for producing high tolerance, reproducible gaskets at a large scale.

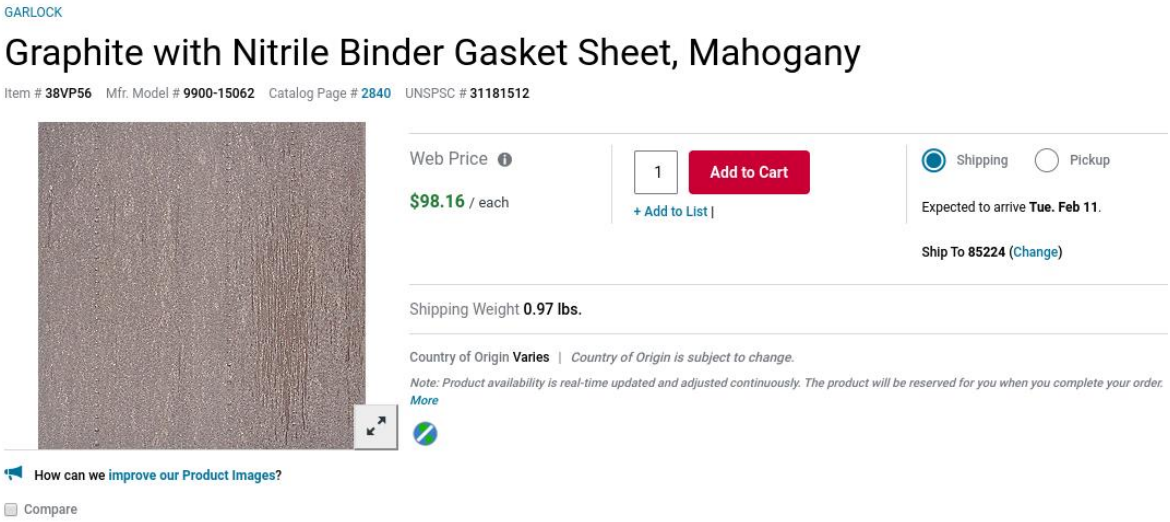

Figure 5

The team is currently awaiting client approval for the purchase order. A document delivery request for ASME standard B16 was submitted so the team could research industry standards applicable to gasketed mates.