

1.1.3 Wet Test Three

Date: October 5, 2019

Items tested: Buoyancy, Ergonomics, and Blade Cadence

Number of Divers: 4

The submarine was lowered into the water in the deep end of the pool. The submarine's trolley was positioned at the bottom of the pool and weight was added to the submarine to lower it onto the trolley. The submarine remained stationary for all of the system tests.

Buoyancy: The dive team familiarized themselves with the dive signals and practiced moving weight around the submarine to achieve neutral buoyancy. The goal of achieving neutral buoyancy in the submarine is to provide stable operation. Most of the weight was positioned in the front of the hull just in front of the steering system. Currently, the weight is stored in bags and are easily repositioned around the submarine. However, the issue with this is that if the submarine changes orientation, ie pitches up or down, the weights are free to shift and the submarine will no longer be trim.

Ergonomics: The submarine's hull is very large in volume and the cross-section provides ample room for the pilot to move around. As the pilot sometimes has trouble "clipping in" to the pedals it was noticed that the pilot was able to reach the pedals and easily align their feet to be clipped in.

Blade Cadence: The blade cadence was measured by the dive team holding the submarine still and the pilot attempting to pedal at a reasonably comfortable rate as an additional diver counted the rotations over the course of a minute. It was recorded that the blade cadence was 60rpm.

The pilot noted that his feet came "unclipped" from the pedals three times over the course of that minute. Additionally, during this static pedal test after each half period for the pedal rotation as the pedals were aligned, there was a stall moment. This occurred as the pilot could no longer push or pull the pedals in this position but had to let the momentum of the pedals overcome this position.