Palos Verdes High School, PVIT, NRD Overview, 2022

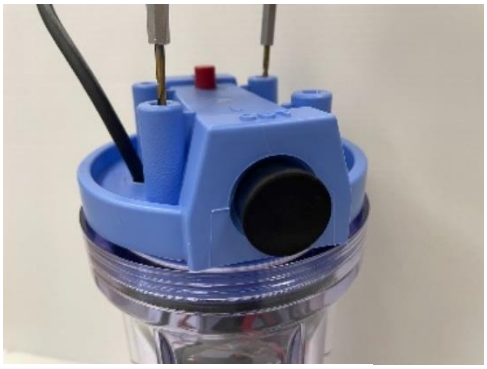
DOC-004 Ranger Class Non-ROV Device Safety Description

Float for the *Maui*

Our float fondly has been called the *Molokini* by our company. The *Molokini* is comprised of a thruster connected to an acrylic tube. The *Molokini* is slightly positively buoyant Inside the waterproof tube is an Arduino Mega and eight C-cell batteries. It starts up when a BlueRobotics switch is turned on by our deck crew. The Arduino Mega is coded to automate multiple timers, the first of which starts as soon as the switch is activated. This gives the ROV sufficient time to deploy the *Molokini* through the PVC frame. A new timer will start immediately after, causing the thruster to engage and begin its descent. The thruster will then reverse. The next timer will start, giving the *Molokini* time to surface. The last two timers will repeat, so as to complete two full cycles.

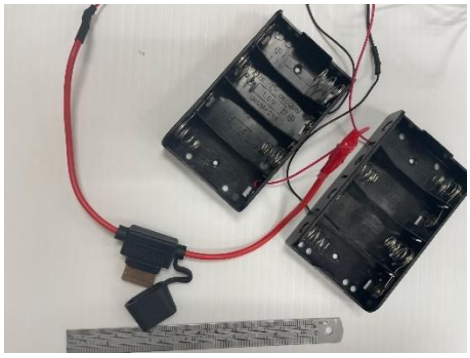
Custom Thruster and Shrouds.[1]

The *Molokini* showing the thruster mount, switch, wiring, and housing.[1]



Pressure relief system made with rubber stopper.[1]

According to MECH-006, the thruster is covered by a shroud to prevent injuries to crew members. This was taken into consideration when designing our custom mount for the thruster. The shroud is attached to the mount. The thruster's custom mount was 3D printed by our company's very own carbon fiber 3D printer. Our BlueRobotics T-200 thruster was generously donated by BlueRobotics. Our company reviewed all of the specifications of ELEC-NRD-004 and made sure to comply with all of them. In adherence with spec MECH-001, the housing for the *Molokini* is able to withstand pressure up to 100 pounds. In compliance with spec ELEC-008R the float has a 5-volt fuse within 30cm of the main point of connection. See SID for more details.



5-Amp Fuse.[1]

[1]All photos take by Azalea Lurie.