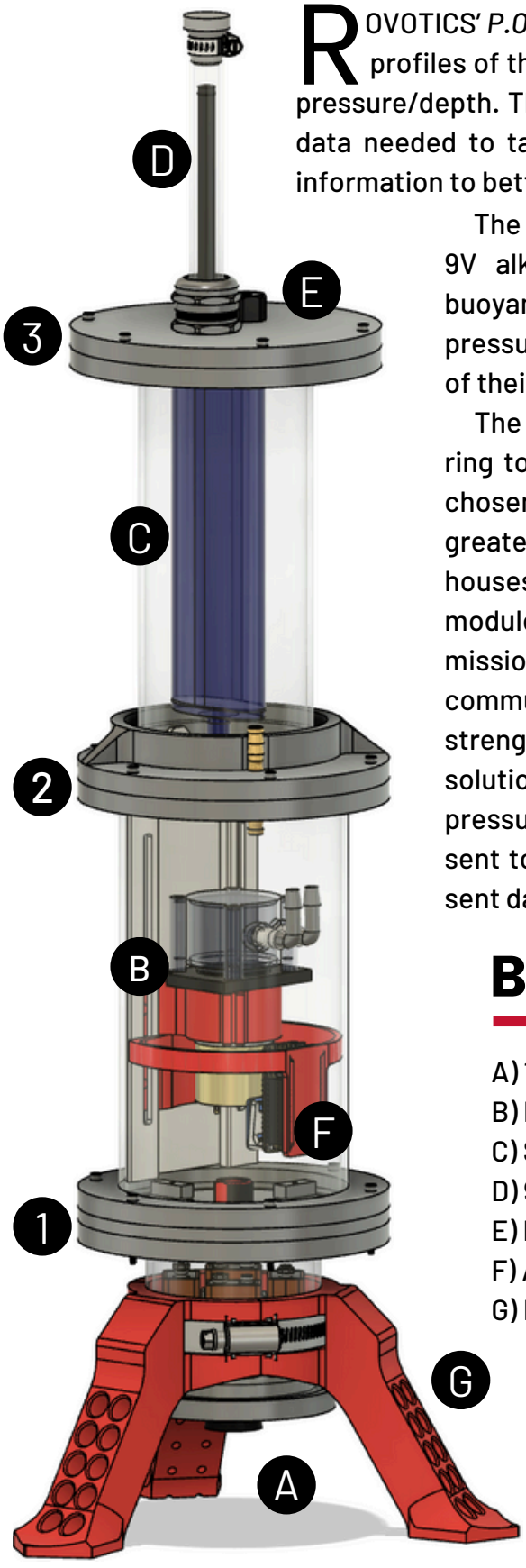
P.O.D Non-ROV Device



ROVOTICS' *P.O.D* (Peristaltic Ocean Device) independently performs vertical profiles of the underwater environment, while collecting ocean data such as pressure/depth. The purpose of *P.O.D* is to contribute to the overall repository of data needed to tackle issues such as climate change, while providing valuable information to better understand major ocean processes and ecosystems.

The bottom compartment, located below the first ring, contains four 9V alkaline batteries for powering the peristaltic pump (P.O.D's buoyancy engine) and an Adafruit Feather RP2040. Furthermore, a 1 in. pressure-release cork (Figure A) and 5A fuse, positioned within 5 cm of their positive terminals, are located in this compartment.

The top compartment houses two sections. The section from the 1st ring to the 2nd ring houses a peristaltic pump (Figure B), which was chosen for this year's buoyancy engine due to its smaller form factor, greater simplicity, and much improved battery life. This section also houses an Adafruit Feather RP2040, which utilizes a built-in radio module to communicate with an identical microcontroller at the mission station via LoRa (Long Range). LoRa, an industry-used communication protocol, was utilized this year to improve signal strength and resistance to interference, making it an effective solution for the transmission of data. This data consists of pressure/depth readings from a Blue Robotics depth sensor, and is sent to the mission station microcontroller once P.O.D surfaces. This sent data is then graphed on a computer.

BREAKDOWN

A) 1 in. pressure release cork
B) Peristaltic pump buoyancy engine
C) Soft water bottle for holding displaced fluid
D) 915 Mhz antenna for LoRa
E) Blue Robotics depth sensor
F) Adafruit Feather RP2040 w/ custom hat
G) Landing feet with weight holders

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