

Medical Center Seeks Marine Corps Command's Help to Manufacture Ventilator Splitter



U.S. Navy Petty Officer 1st Class Ricler Magsayo calibrates a ventilator at Camp Kinser in Okinawa, Japan, on March 23. The University of California San Diego Medical Center has asked for Marine Corps Systems Command's help in making a ventilator splitter part via 3-D printing. U.S. Marine Corps/Lance Cpl. Terry Wong

MARINE CORPS BASE QUANTICO, Va. – The University of California San Diego Medical Center has requested Marine Corps Systems Command's (MCSC) assistance to help medical professionals as they deal with the evolving crisis of COVID-19, the command said in a release.

On March 16, Dr. Sidney Merritt, an anesthesiologist at UCSD Medical Center, contacted MCSC's Advanced Manufacturing Operations Cell and requested help in coordinating 3-D printer assets to design parts to enable the simultaneous ventilation of multiple patients.

AMOC sought collaboration with the Naval Information Warfare Center Pacific Reverse Engineering, Science and Technology for Obsolescence, Restoration and Evaluation Lab to rapidly design, print, test and evaluate prototype ventilator splitters using various materials.

The AMOC team also worked with the Navy's Bureau of Medicine and Surgery for support in evaluating, certifying and approving the parts prior to delivery to the medical center.

On March 18, Merritt provided design files for the ventilator

splitter based on a successful test print conducted by the UCSD engineering team. UCSD requested assistance in printing ventilator splitters in higher resolution and with diverse materials that could meet specific design requirements.

After receiving the design files, AMOC and the NIWC Pacific RESTORE lab printed several prototypes using different materials. In less than a day, AMOC used its industrial printer in Quantico, Virginia, and the RESTORE Lab employed its organic printers to produce initial prototypes.

The 3-D-printed ventilator splitters were scanned to ensure accuracy with the design files and then brought to UCSD Medical Center for fit testing and further design analysis.

AMOC's reputation in advanced manufacturing has grown since its establishment in 2019. The cell has demonstrated the ability to produce 3-D-printed parts and provide other sustainment and manufacturing solutions. When called upon, the AMOC can produce parts in a fraction of the time it takes traditional manufacturers.

"AMOC's response to this situation demonstrates how additive manufacturing can respond quickly to supply chain disruptions and rapidly prototype, evaluate and test new solutions to meet emerging urgent requirements," said Scott Adams, AMOC lead at Marine Corps Systems Command.

The rapid response by AMOC and the NIWC Pacific RESTORE lab to UCSD Medical Center's request for support indicates how the Department of the Navy is prepared to respond to the medical community during the COVID-19 crisis.

"I couldn't be prouder of the Marine Corps and NIWC Pacific team," said Carly Jackson, the chief technology officer at Naval Information Warfare Systems Command. "We are demonstrating the power, agility and speed of response that our Naval research and development centers bring to bear in times of national need."