



CASE STUDY

Deployable Hybrid Manufacturing Center Solves Parts Supply Chain Challenges at Sea

SNOWBIRD TECHNOLOGIES ADDITIVE MOBILE MANUFACTURING TECHNOLOGY | SAMM TECH



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Point-of-Need Manufacturing for Defense and Industrial Applications

The **Snowbird Additive Mobile Manufacturing Technology platform - SAMM Tech** - was installed on a U.S. Navy amphibious transport dock, the USS Somerset, during the experimentation sector of Exercise Rim of the Pacific 2024.

Within hours of being loaded onto the ship, the team manning SAMM Tech were asked to help resolve a real-world engineering casualty as the reverse osmosis pump for the ship endured a catastrophic part failure.

Operators scanned the damaged part using the **Creaform MetraSCAN 3D Optical Scanner** and sent the code to SAMM Tech where it was additively printed using stainless steel weld wire and finished using the CNC capabilities in the same system. The replacement part was scanned, printed, and finished before a replacement part order could even be completed.

The repair part, which was equally as strong if not stronger than the original part, was installed on the reverse osmosis pump and was successful in restoring equipment operations, ensuring continuous fresh water supply for the entire ship and crew while at sea.

SNAP SHOT

WHAT: A mission-critical component of a U.S. Navy ship's freshwater system faced a catastrophic part failure within hours of setting sail.

WHERE: Onboard an amphibious transport dock afloat in the Pacific Ocean.

HOW: The Snowbird Additive Mobile Manufacturing Technology - SAMM Tech - scanned, printed, and finished a replacement part faster than a new part order could be completed. SAMM Tech features directed energy deposition technology, powered by **Meltio**, to melt and precisely layer weld wire to build components. This technology reduces material waste and ensures a strong, durable printed product. SAMM Tech is integrated with CNC capabilities in the same system, allowing operators to mill, cut, and finish the part in one process.

RESULTS: The reverse osmosis pump was repaired with the printed part and ensured freshwater supply to the entire ship and crew for the duration of the mission.

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REVERSE OSMOSIS PUMP BUSHING

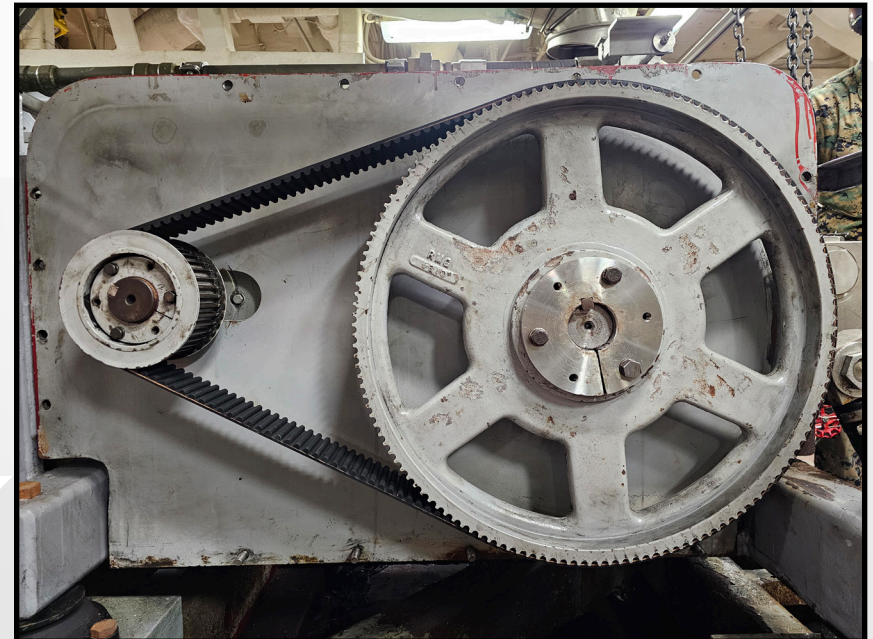
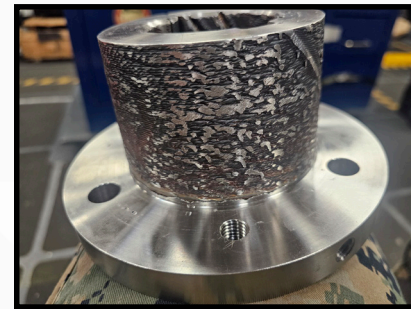
MATERIAL: Original part was cast iron. Replacement part was printed in stainless steel 316L

PRINT TIME: 28 hours

MACHINE TIME: 6 hours

APPROXIMATE COST: ~\$230

APPLICATION: Tapered bushing to attach drive gear to the reverse osmosis pump shaft. The reverse osmosis pump generates clean water for the crew - a necessity for ships spending long periods at sea.



VALUE IN CONTESTED ENVIRONMENTS

SAVES TIME

SAVES MONEY

SAVES SPACE

INCREASES OVERALL WARFIGHTING READINESS