

## PROPELLING FORWARD WITH 3D SCANNING

**ABOUT RENEGADE MARINE JET DRIVE.** Renegade Marine Jet Drive, located in Boise, Idaho, manufactures jet boat accessories. Jeff Schlagel, a lifelong avid boating enthusiast, founded the company. Their key product is jet pumps, which improve upon a dated 50-year design. The updated design improves jet pump performance by up to 40%, leading to improved fuel economy. This family-owned company primarily sells its products on its website.

**THE CHALLENGE.** Renegade Marine Jet Drives originally had their high-thrust impellers hand-made in New Zealand. However, the artisan who made the impellers retired, requiring Renegade Marine Jet Drive to try sourcing new impellers. This problem was two-fold as Jeff Schlagel, the owner, needed both a computer-aided design (CAD) model and a new way of manufacturing the impellers.

**MEP CENTER'S ROLE.** The New Product Development (NPD) Lab at TechHelp, part of the MEP National Network™, was able to solve the first problem through the process of scanning the impeller and using the scan to reverse engineer the model in Solidworks, a 3D CAD software. Several prototypes were printed on resin-based 3D printers to provide the client with impellers to handle and feel for accuracy. After confirmation that the prints and model were correct, the client requested six more CAD model variations of the impeller.

The second problem was solved through a series of investment casting and supplier scouting. The NPD Lab was able to do initial runs of the impeller by creating silicone molds for wax casting. After wax casting, the NPD Lab found a few foundries to cast the impellers. However, wax casting proved to be inaccurate due to non-uniform shrink rates. Because of this, the NPD Lab began reaching out to other manufacturers using the aforementioned reverse-engineered CAD models and is in the process of vetting those manufacturers.

**"The New Product Development Lab has been a key contributor to the success and competitiveness of my product!"**

-Jeff Schlagel, Owner

## RESULTS



1 job created or retained



\$5,000 in new investment

## CONTACT US



Boise State University  
1910 University Drive  
Boise, ID 83725-1656



(208)426-3767



[www.techhelp.org](http://www.techhelp.org)

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Idaho Manufacturing Specialists