

**Mission.** Provide superior quality full-service prototyping, quick response, and production support to research, development, acquisition, and test (RDAT) and in-service projects using comprehensive manufacturing technologies.

**Unique Features.** Highly trained technicians using high-end tools provide rapid prototype support and direct manufacturing to meet fleet needs. An extremely broad range of customer defined fabrication requirements are routinely met.

- 3,000+ individual customer requests are completed annually
- Largest hydro-form machine west of the Mississippi
- Only robotic manufacturing cells in NAVAIR

**Combat Support.** Since it first opened, Michelson Laboratory has supported our warfighters directly or indirectly in every major conflict. The Engineering Prototype Facility won a Warfighter award for outstanding contributions during Operation Iraqi Freedom. A few combat examples are described here.

- 2011: Sidewinder captive air training missile (CATM) motors, emergency response
- 2011: F/A-18 cockpit ECM controls, emergency response
- 2007- Present: H-60 crew / cargo door handles, Defense Logistics Agency (DLA) cost initiative
- 2006: AGM-114N thermobaric warheads, emergency response
- 2004: BLU-116A/B penetrator warheads, emergency response
- 2003: Jammer effectiveness devices, emergency response
- 2001 – Present: MDU-27 Sidewinder training rounds
  - Cost wise alternative source
- 1998 – Present: F-5 miscellaneous components
  - Integrated product team (IPT) emergency response
- 1998: WDU-40 SLAM-ER warheads, contractor default recovery
- 1950: Rolling Airframe Missile (RAM) / Antitank Aircraft Rocket (ATAR) warheads, emergency response source



### Cost / Time Savings (Examples)



**H-60 Crew / Cargo Door Handle.** As part of a DLA cost savings initiative, helicopter door handles were being procured from a single vendor for \$1,200 each. Weapons Prototype reverse engineered a substitute and produced a quantity to validate the design package. A total of 4,000 handles were produced at a cost of \$450 each to validate the design. Total savings was \$3M. With the technical data package prepared by Weapons Prototype, DLA could then commercially compete remaining acquisitions to realized future savings.

**WDU-40 SLAM-ER Warheads.** The commercial vendor for this item defaulted putting the initial operational capability (IOC) schedule at risk. Weapons Prototype completed the low-rate initial production (LRIP) quantity to meet schedule and avoid a 12-month slip in schedule.

**BLU-116A/B Warheads.** Commercial source committed to producing 250 items for a fixed \$25M budget. Weapons Prototype and energetic processing partners were able to deliver 500 items for the same cost. Budget adjustments allowed a total of 600 items to be delivered by end of project.

**Size / Description / Location / Scope.** Principal facility is located at Michelson Laboratory and represents 103,000 SF of full-service fabrication floor space that provides for machining, welding, heat treating, electronics, and assembly. In addition, limited capability shop space is located at Point Mugu (30,000 SF), Salt Wells (20,000 SF), and Randsburg Wash (2,000 SF).

**Plant Value:** \$100M+.



## Main Facilities

Conventional Machining Shop  
Conventional Welding Shop  
Electronics Assembly Shop  
High-Speed Machining Cell  
Heat Treat Shop  
Inspection Shop  
(temp and humidity control)  
Laser Welding Shop  
Numerical Control Machining Shop  
Polymer Shop (vacuum casting,  
injection molding)  
Rapid Prototype Shop  
Robotic Assembly Shop  
Robotic Machining Cell  
Systems Assembly Shop  
Water Jet Machining Shop  
Weapons Maintenance Shop  
Surface Mount Technology Line

## Specialized Equipment

High-Speed Mills (18K rpm)  
Laser Welder 1.5 kW  
Robotic Machining Cell  
(turning / milling)  
Surface Mount Technology Line  
Vacuum Casting Machine (dual  
chamber, polyurethane)

### Rapid Prototype machines

Stereo Lithography  
Three-Dimensional (3D) Printers  
Fused Deposition Modeler

### Instrumentation

Nondestructive Inspection  
X-ray cabinet  
Dye penetrant  
Magnetic particle



## Unique or Historic Tests

**Caleb, Notsnik, and Hi-Hoe.** In the late 1950s, a significant technical effort to develop and launch a vehicle into space was undertaken at China Lake. A series of designs was developed and included Caleb, Notsnik, and Hi-Hoe. These vehicles were fabricated in the Weapons Prototype facilities.

**Moray.** In the 1960s, Dr. William McLean developed an underwater "fighter" submarine intended to explore technical opportunities associated with this concept. A full-size operating submarine called "Moray" was fabricated in Michelson Laboratory.



**Interesting Facts.** The west end of the Michelson Laboratory shop space (Wing 8) originally had a spur railroad line into the shop itself. This line, and associated indoor loading dock, was used to bring all equipment into the laboratory as it was nearing completion. While the exterior line has been gone for decades, aerial views clearly showed the path of the tracks well into the 1980s. The indoor track remains and can be seen through access plates in the shop floor.

**Recognition / Awards.** Operations at Michelson Laboratory have been registered with ISO9001:2008 for six years. As a result, process control, product quality, metrics monitoring, customer communication, preventative / corrective action, material review board, and vendor review board are all features of the Weapons Prototype operation.

**Historical Significance.** The prototype facilities were a significant element of the original concept for NOTS as envisioned by then Captain Burroughs and Dr. L.T.E. Thompson. It has been in continuous operation as both an organizational and functional entity since 1945. The present facility was opened within Michelson Laboratory in 1948.

**Future Plans.** Current technical initiative involves expansion into robotic (unattended) machining, electronics, and systems assembly. Ongoing personnel development initiative involves trades / technician apprenticeship programs.