



ALVIN



UNOLS Council
May 24, 2021

DSV Alvin Systems Upgrades



The Woods Hole Oceanographic Institution

Alvin Systems Review

DSV Alvin Specifications 2021

Crew:

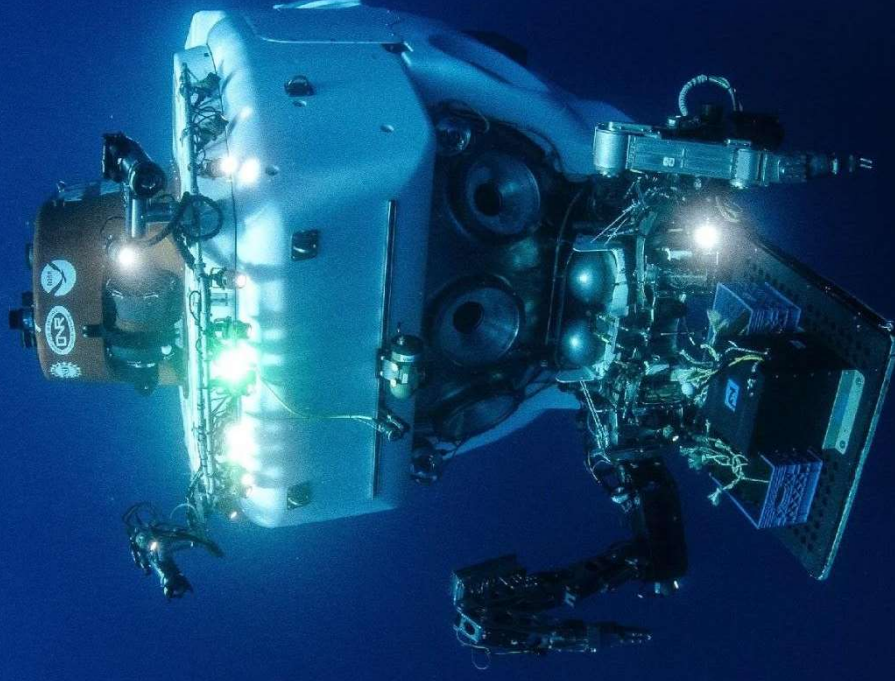
1 Pilot, 2 Scientific Observers

Depth:

6,500 meters (4.1 miles)

Time submerged:

9 to 12 hours



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Alvin Systems Review

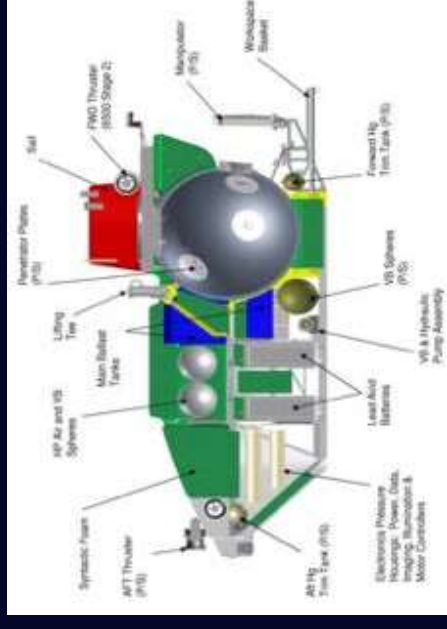
Alvin Overhaul 2012-2013

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Alvin Systems Review

Stage I Upgrade (4500 meter ops) - completed in 2013

- New personnel sphere (rated to 6500 meters)
- New electrical/optical penetrators
- New syntactic foam
- New command and control system
- Upgraded frame to support new sphere
- Upgraded life support system



• Minor modifications to remaining SOC systems

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6500 Meter Conversion 2021

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2020-2021 Overhaul

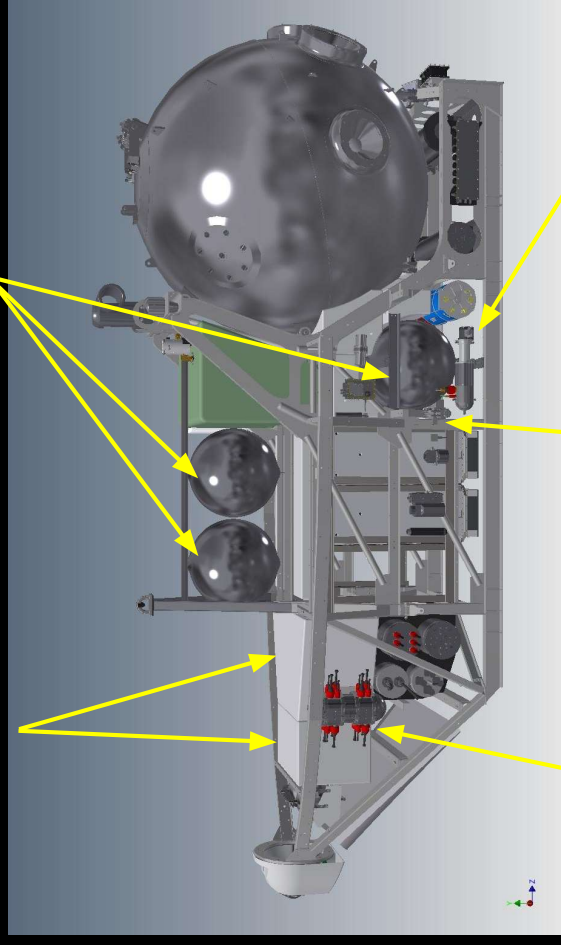
Routine system
maintenance



6500m systems integration

Aft bay foam
blocks

Ballast
spheres



P & S motor
control
housings

Salt
water
pump

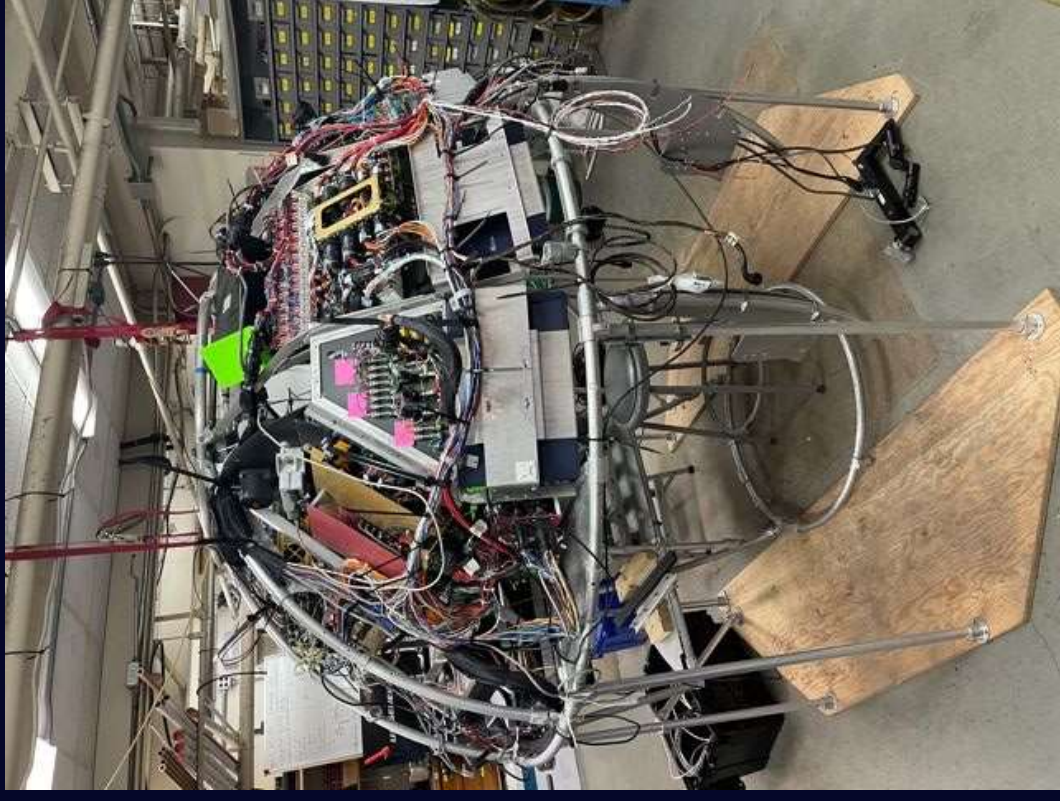
Hydraulic
plant

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2020-2021 Overhaul

Stage II Upgrade - Underway

- Complete 6,500 meter syntactic foam integration
- New MB & VB H.P. Air Spheres
- New VB system
- New VB seawater pump
- New thrusters & motor controllers from 5 HP to 10 HP
- New hydraulic plant
- Install second schilling Titan manipulator



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Alvin Update

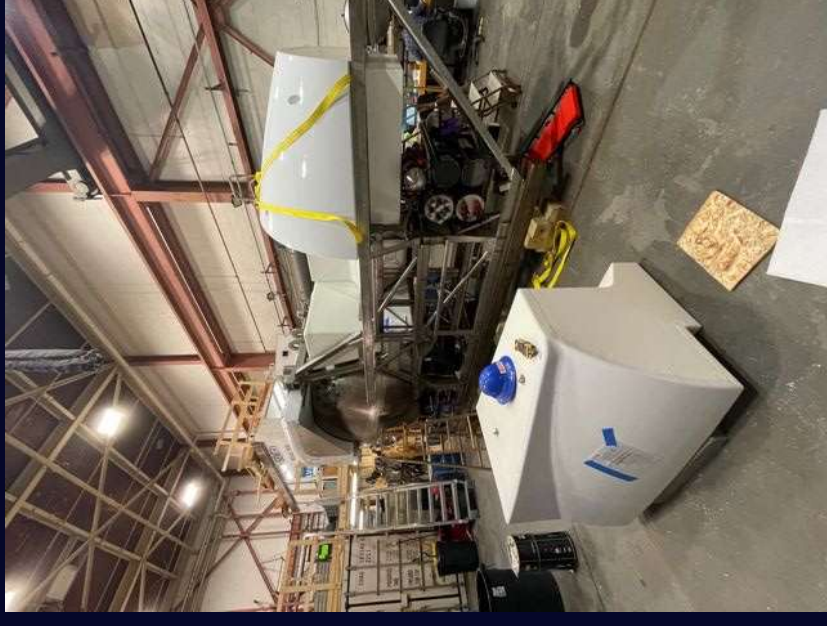
ALVIN ASSEMBLY UNDERWAY



personnel-sphere
installation



syntactic foam
fit-up



new system
installation

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Imaging system upgrades

- New DSPL Optim 4K cameras on new P/T
- Wide angle DSPL Flex-link cameras
- Improved positioning of cameras
- Improved lighting positioning/separation
- Improved still cameras imaging
- Proxy videos created real-time in-hull
- Improved observer monitors
- Improved camera controllers



Data system upgrades

- Upgrade to Navigation (NAV-G 3.0)
- Replace 'Frame Grabber' with 'SEALOG' event logger
- Improved lighting positioning/separation
- Improved meta data display (tablets)
- Acoustic data transfer to surface (metadata, images)

- Apr 20 – May 20 Disassembly
- Jun 20 – Jun 21 Maintenance and modifications
- Feb 21 – Jun 21 Reassembly
- Jun 21 – Aug 21 Dockside Testing

• Sep 21 – Oct 21 Sea Trials, 6500m certification

• Oct 21 – Nov 21 Science Verification Expedition

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Alvin Update



Thank you!