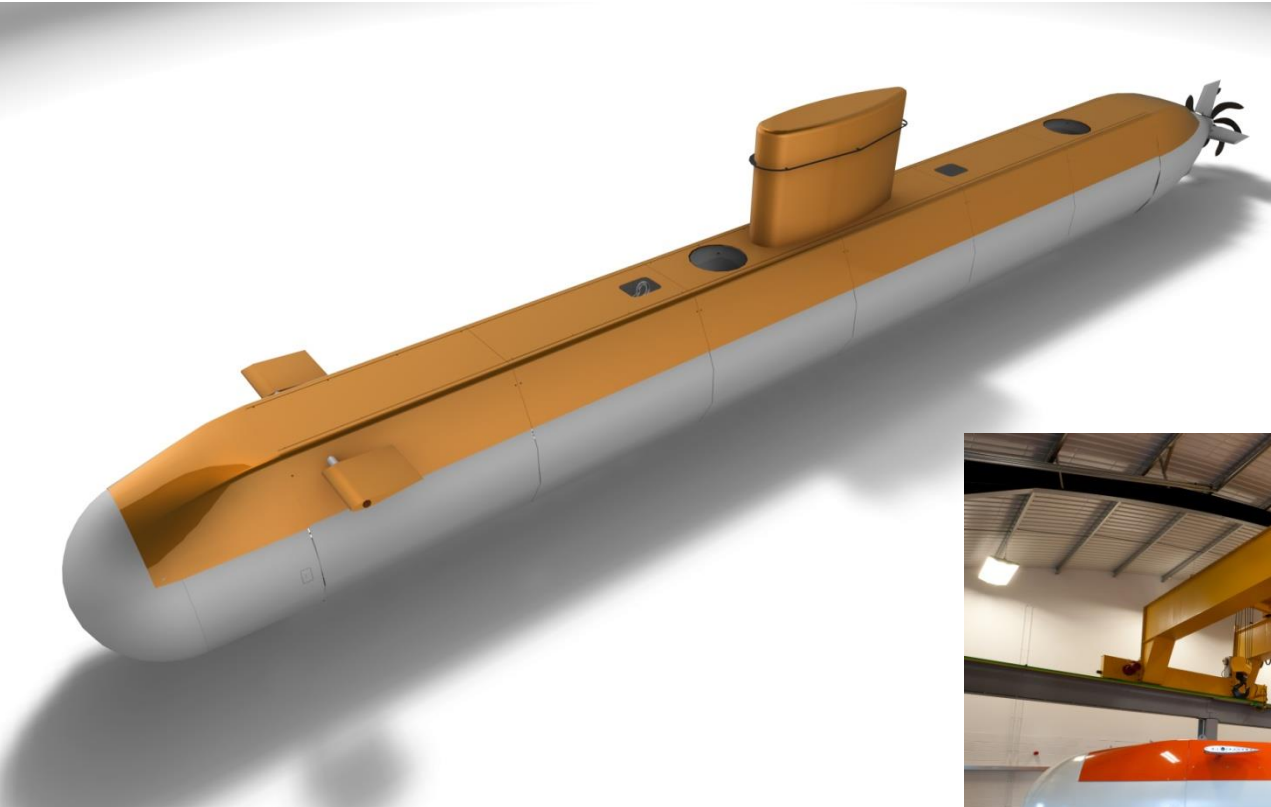


Low Cost Underwater Autonomous Vehicles For Military Applications



Paddy Dowsett
MSubs Ltd



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- Mobile Anti-Submarine Target Trainer (MASTT)
- Mobile Under Sea Test UUV (MUST)
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 - S351 Conversion Programme
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MSubs Ltd – Who Are We?

- Origins as a rapid prototyping R&D company specialising in manned and unmanned underwater vehicles, mainly but not exclusively for military applications
- SME based in Plymouth with a small parent company in the US, Submergence Group, that covers DoD Business Development and through life contract support of UK designed & manufactured systems
- List X and Progeny partner
- Built the largest 'autonomous' submarine in the world at 24 metres for the USN
- Building 3 Dry Swimmer Delivery Systems for a NATO member





SUB **MERGENCE**
GROUP

Submergence Group and Lockheed Martin Proprietary Information

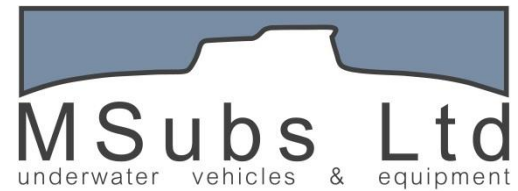
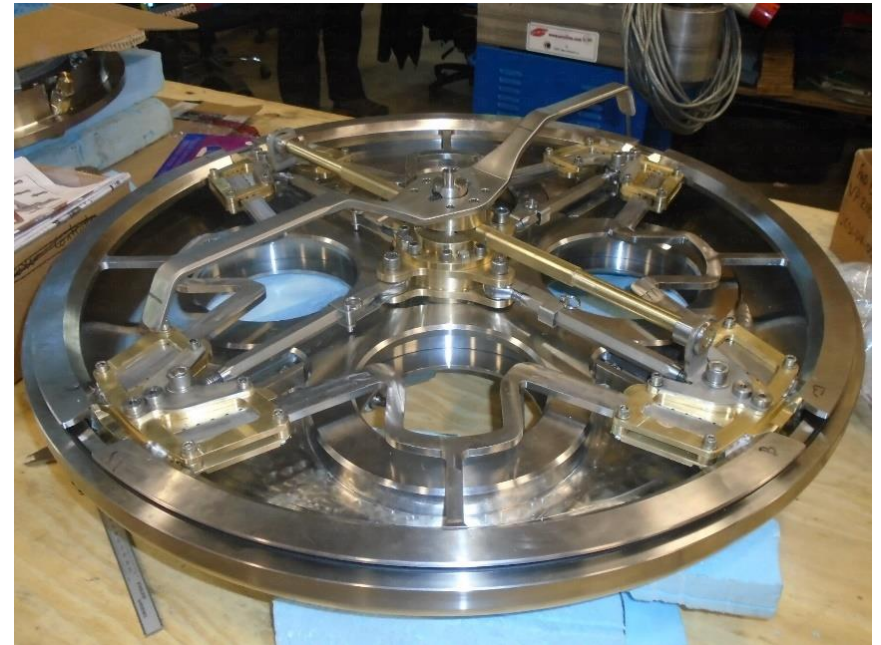
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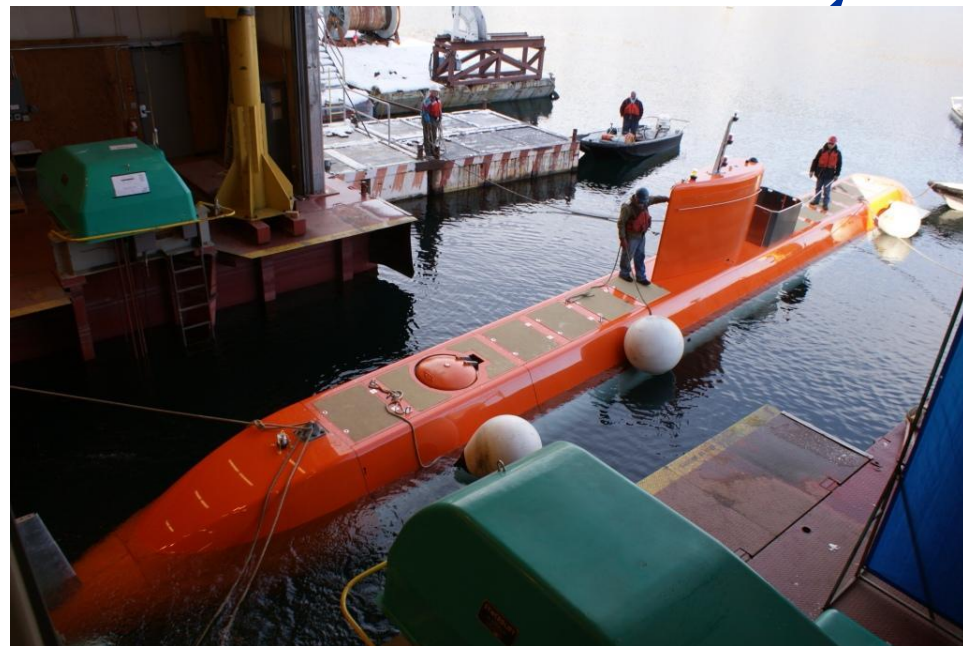
Submergence Group and Lockheed Martin Proprietary Information

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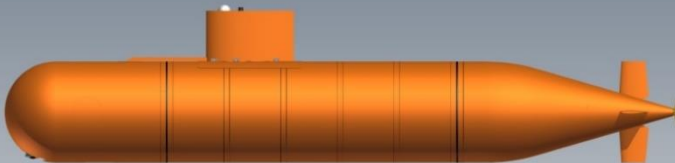
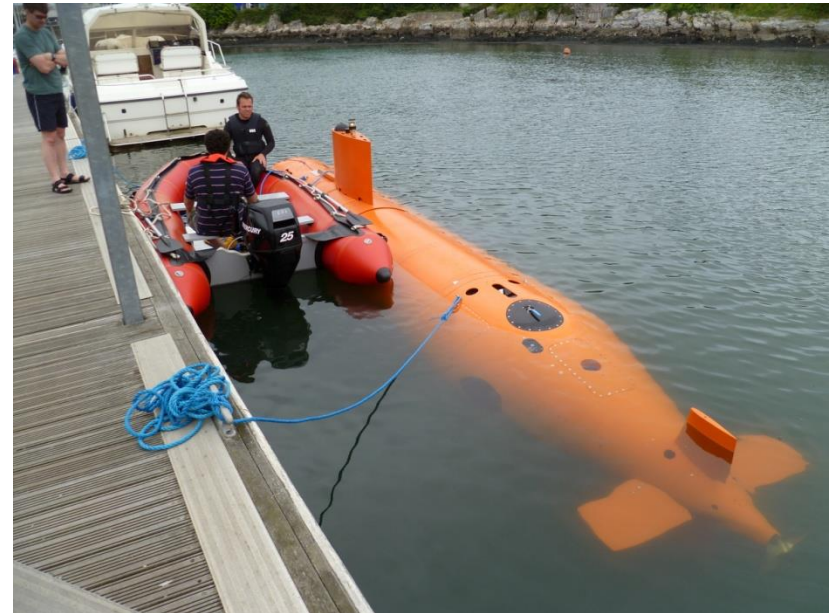
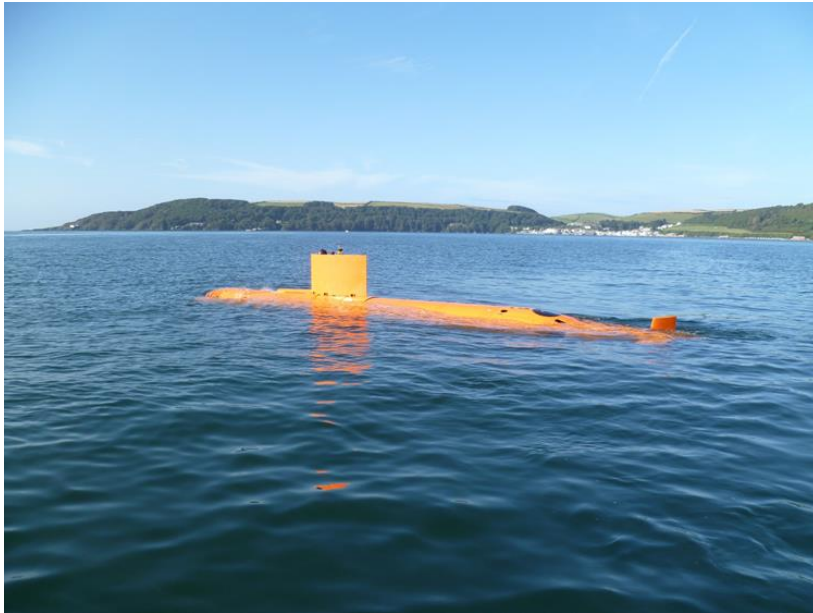
Mobile Anti-Submarine Training Target (MASTT)



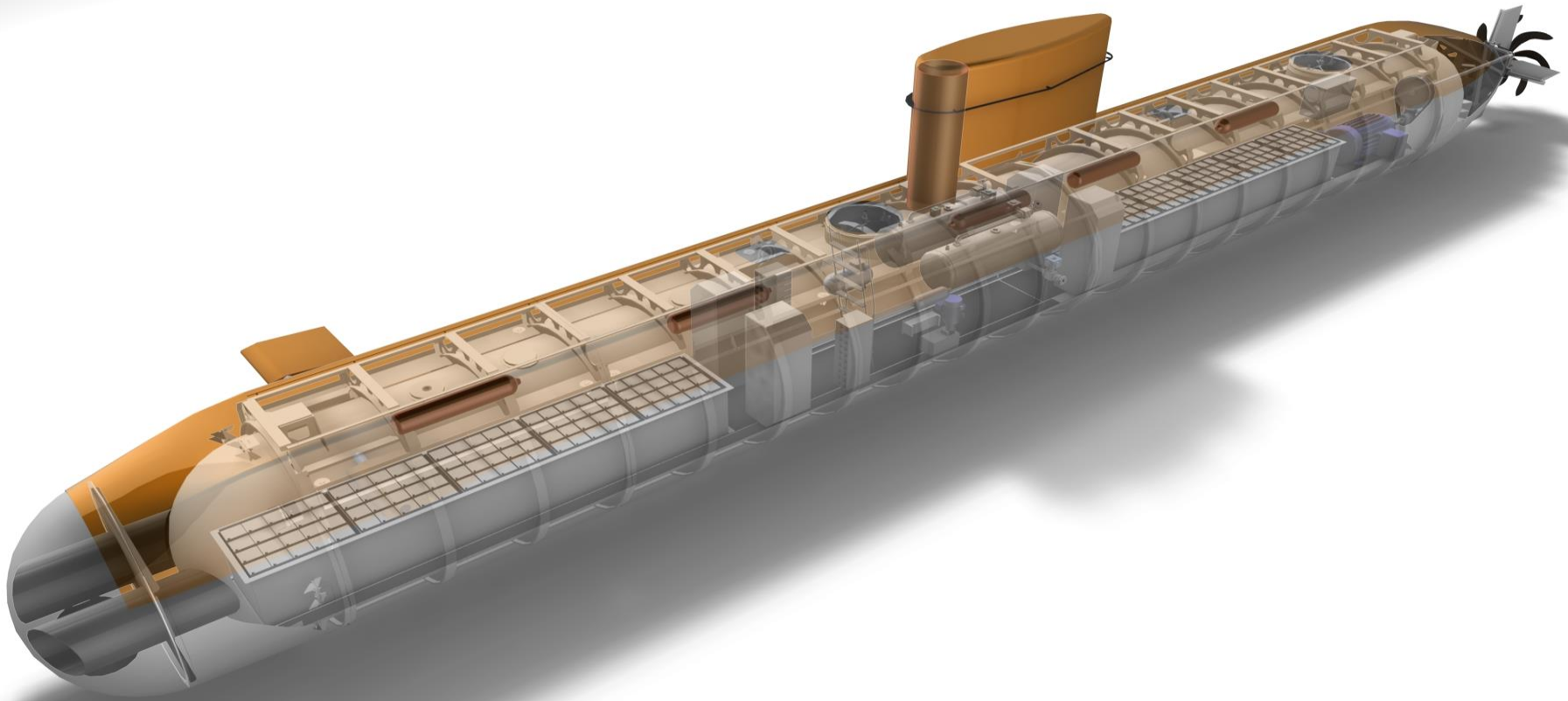


Mobile Under- Sea Test UUV (MUST)

- **Length: 8.5m / 28ft**
- **Diameter: 1.4m / 4.75ft**
- **Surfaced Speed: 3.25kts**
- **Submerged Speed: 5.5kts**
- **Range Submerged:**
 - **50nm @ 5.5kts***
 - **135nm @ 3kts***
- **Weight: 7,000kg / 15,500lbs**
- **Payload: 1,400kg / 3,080lbs**



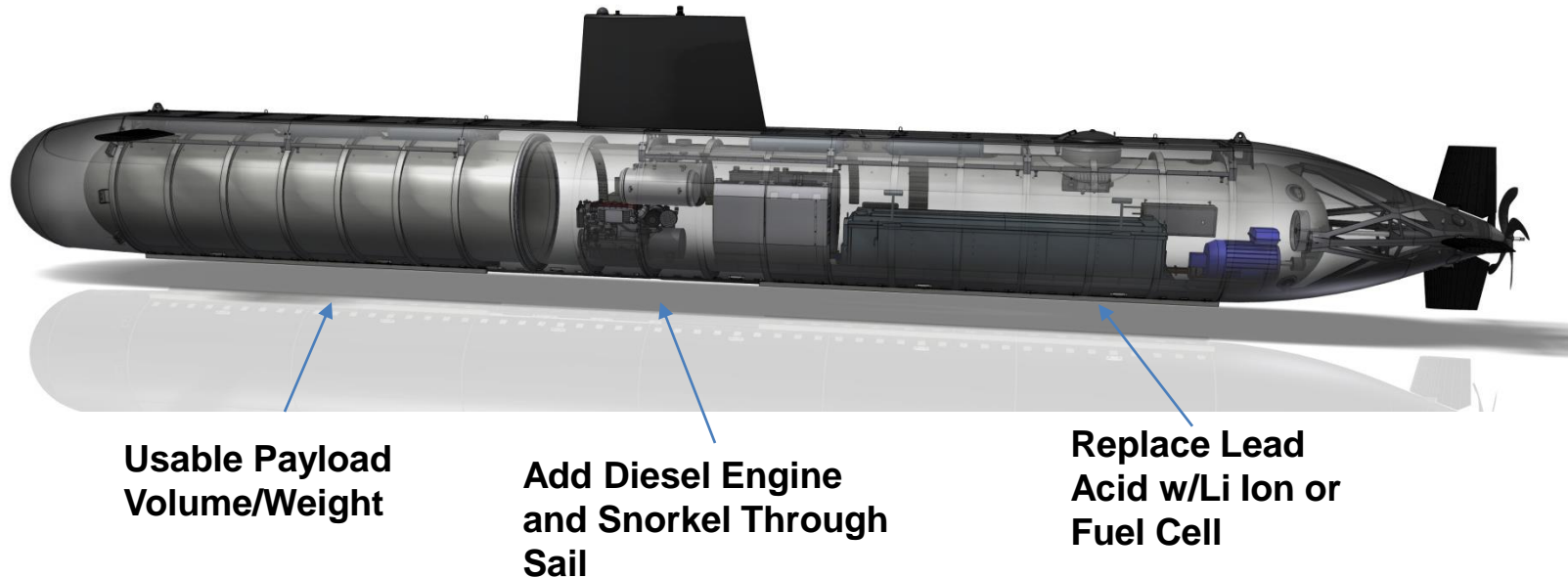
Mobile Anti-Submarine Training Target (MASTT)



MORAY XL UUV – Based on In Service MASTT Design



MORAY XL UUV Roles



Potential Roles include ASW, ASuW, MCM and ISR by employing a range of on-board and off board sensors that could include UUVs and UAVs

Conversion Of S201 Into an XL UUV In Cooperation With Thales UK

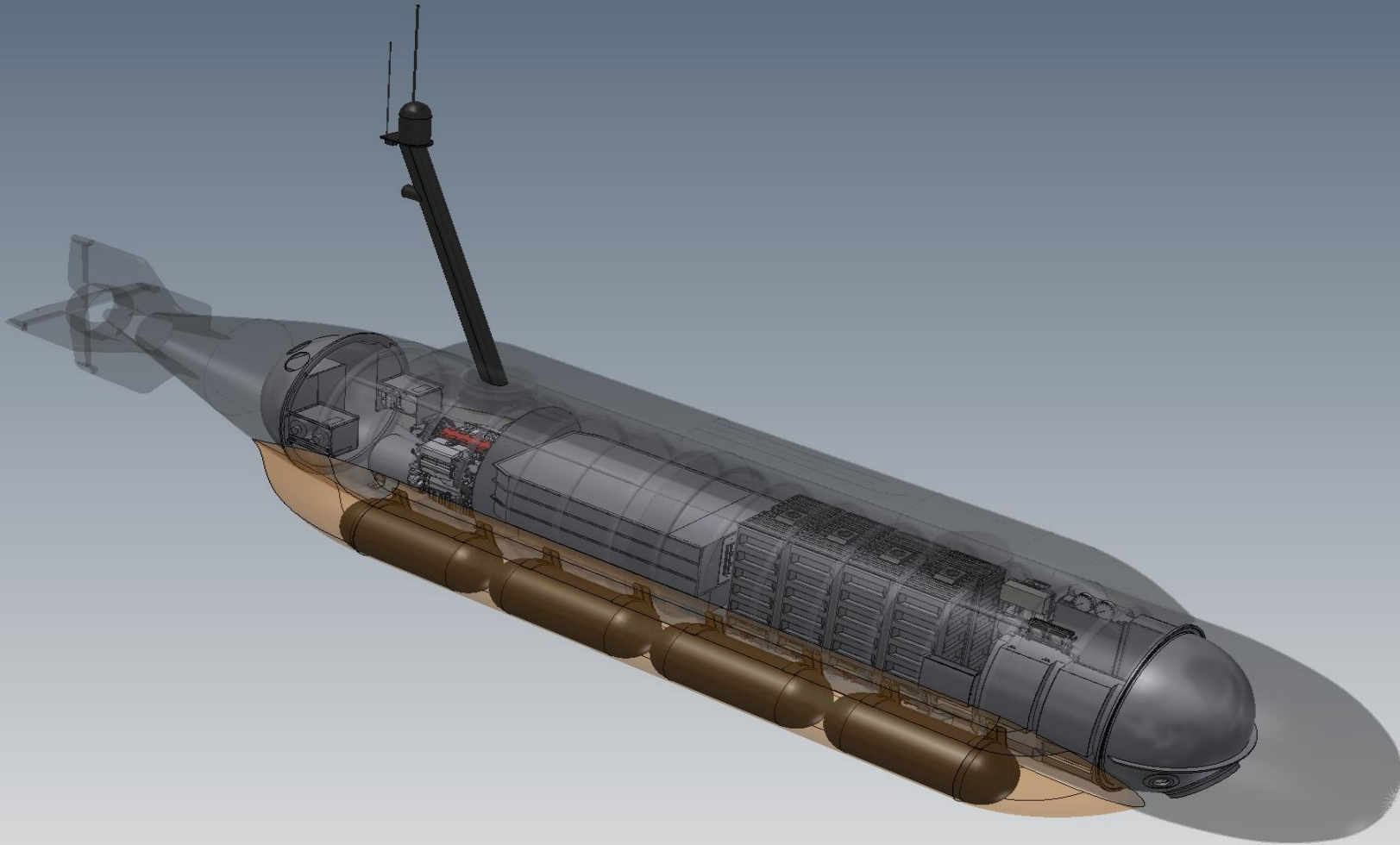


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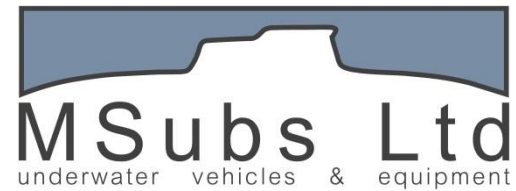
Submergence Group and Lockheed Martin Proprietary Information

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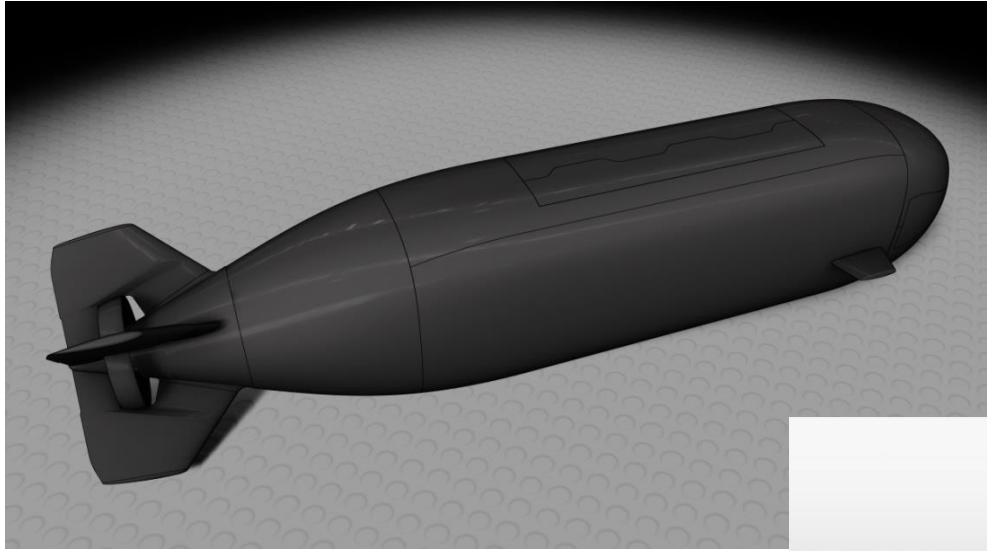
S201 XI UUV Post Conversion



S351 (MANNED)

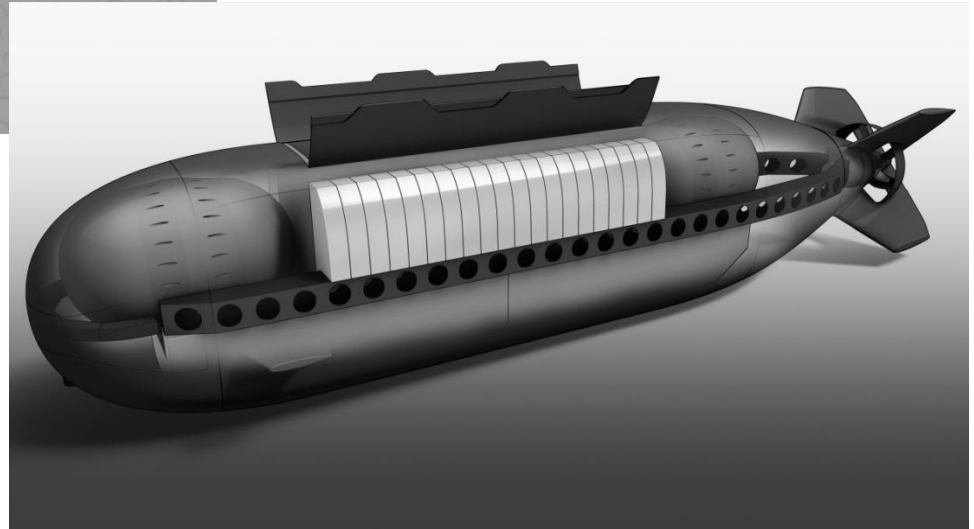


S351 – Unmanned Variant – Nemesis



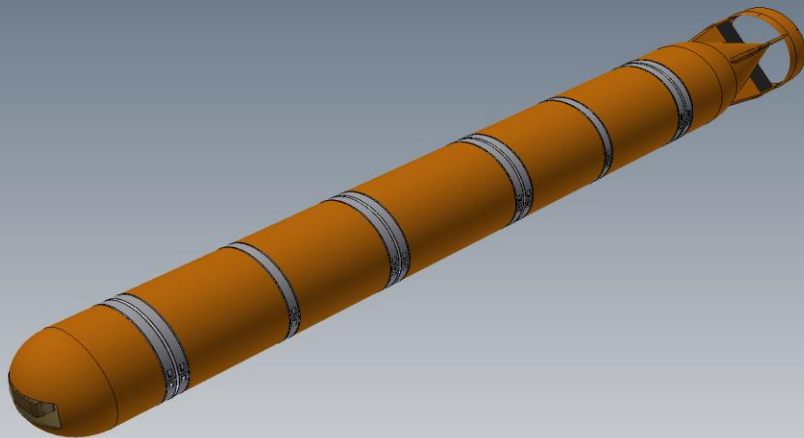
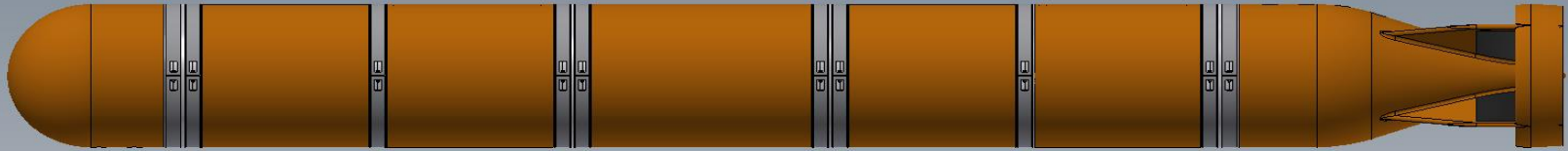
Based on S351 Manned Combat Submersible

- Same Hull Form/Energy/Propulsion
- New Pressure Hull/Payload Bay
- Modified Common Control System
- Payload bay opens from top and bottom





Proposed UK UUV – 533MM





Questions Please