CRYOGENIC TANK TECHNOLOGY PROGRAM (CTTP)

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CRYOGENIC TANK TECHNOLOGY PROGRAM (CTTP)

OBJECTIVES

• DETERMINE FEASIBILITY AND COST EFFECTIVENESS OF NEAR NET SHAPE HARDWARE
• DEMONSTRATE NEAR NET SHAPE PROCESSES BY FABRICATING LARGE SCALE-FLIGHT QUALITY HARDWARE
• ADVANCE STATE OF CURRENT WELD PROCESSING TECHNOLOGIES FOR ALUMINUM LITHIUM ALLOYS
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NEAR NET SHAPE TECHNOLOGIES
- EXTRUDED BARREL PANELS
- ROLL FORGED Y-RING ADAPTERS
- ONE PIECE SPIN FORMED DOMES

OTHER TECHNOLOGIES
- LOW PROFILE, NON-TANGENT NET SHAPE SPIN FORMED BULKHEADS
- FRICTION STIR WELDING
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PROGRAM STATUS

- Adapters, barrel panels, and domes have been completed.
- Friction stir weld tooling in place on circumferential tool.
- Barrel panel welds completed.
- Excessive porosity in barrel to adapter weldments placed tank fabrication on hold status.
CONCLUSIONS

- Near net shape hardware can be cost effective for higher production rate cryotank hardware.
- Large scale-flight quality hardware can be manufactured using near net shape processes.
- Friction stir welding successfully demonstrated.