PAYLOAD INTEGRATION AND OPERATIONS SUPPORT SERVICES
Established in 1953 to support the engineering and manufacturing needs of the Wernher von Braun rocket team, Teledyne Brown Engineering, Inc. (TBE) has supported essentially every U.S. space initiative. With over three decades of experience in supporting NASA's orbiting laboratory efforts, TBE stands ready to help investigators, scientists, and payload developers meet their microgravity or space-based objectives, from the most simple to the most complex.

One of Teledyne Brown's core competencies is the full-life-cycle development of specialized hardware items. Our diverse engineering staff and comprehensive portfolio of manufacturing capabilities, including access to composite materials manufacturing, allow us to fabricate complex, high-tolerance hardware from components to flight units.

In addition to developing payloads, ground support equipment, and integration support hardware, our staff is experienced in developing specifications, interface control documents, verification plans, and test procedures. "Space Flight Hardware"

TBE's expertise covers the full spectrum of space flight hardware, from concept through application support. We are especially qualified in developing and manufacturing both pressurized and unpressurized hardware for microgravity experiments. Examples are:

- Biotechnology Equipment
- Thermal Enclosures
- Gloveboxes
- Material Science Sample Processing
- Crystal Growth Furnaces
- Data Handling and Power Conditioning Devices
- Earth Science Experiments.

Payload Operations and Integration

TBE has unsurpassed expertise in the entire payload operations and integration process, from concept development to hardware fabrication, software development, and on-orbit science operations. We have provided well over 140,000 continuous hours of real-time science operations support to NASA and the International Space Station (ISS) community since the Payload Operations Integration Center became operational in February 2001.

Key areas of support include:

- Requirements Definition
- Mission Planning and Integration
- Safety and Requirements Verification
- Command and Data Handling
- Payload Support Systems
- Payload Integration and Interface Testing
- Crew and Ground System Personnel Training
- Flight Operations Products and CoFR
- Flight Operation Execution.

Payload/Cargo Integration

TBE personnel have been involved with the planning, designing, analyzing, and managing of cargo and payload preparations for transport to the ISS and support to the on-board astronauts and cosmonauts. Our team carried out stowage planning and process analyses for both pressurized and unpressurized cargo.

Manufacturing

Covering over 175,000 square feet, the Huntsville fabrication and assembly facilities of TBE provide a wide array of capabilities for hardware manufacturing. Our facilities include a fully equipped machine shop, electrical and electronics assembly areas, sheet metal and welding shops, laser cutters, a paint booth, NDE inspection equipment, clean rooms, and controlled storage. We also have a state-of-the-art composite manufacturing facility.

TBE offers a full range of manufacturing services, from one-of-a-kind articles to full-rate production. We fabricate high-tolerance, precision, and complex components that have stringent Quality Assurance requirements, including nuclear and space flight items. We also have in-house design and engineering capabilities to support system development.

Microgravity Science Glovebox (MSG)