



SPACE FLIGHT COMPONENT PROCESSING CAPABILITIES (ISS)

SUMMARY

White Sands Test Facility (WSTF) can provide a variety of repair, refurbishment, and decontamination processes for flight and ground components. This includes handling of oxygen system components that are part of life support systems. WSTF has existing facilities, procedures, and expertise that are adaptable to individual customer requirements.

EXPERIENCE

WSTF experience in component processing has been developed for more than 30 years. WSTF is currently certified to perform depot repair for the following components:

- Respiratory Support Pack (RSP)
- Oxygen Recharge Compressor Assembly (ORCA)
- Portable Breathing Apparatus (PBA)
- Pre-Breathe Hose Assembly (PHA)

These components require a variety of evaluation and repair work, such as:

- Oxygen component disassembly, cleaning, and re-assembly
- Life support system component functional evaluation
- Flight component function check, evaluation, removal, disassembly, refurbishment, and installation
- Hydraulic limiter (relief valve) setup
- Hydraulic system vacuum backfill
- Flight-certified crimping, safety wiring, and potting
- Adhesive bonding applications
- Dynatube polishing
- Lapping and honing
- Flight part machining and welding
- Flight hardware piece part fabrication

Following the repair process, acceptance testing is performed, which includes:

- Oxygen compatibility acceptance testing
- Life support system component functional/performance verification
- Vibration acceptance testing
- Thermal acceptance testing with temperatures ranging from -25 to 140 °F
- Component leakage and proof testing
- Oxygen quality sampling (looking for hydrocarbon and other contaminants) through components

EQUIPMENT

- Class 100 laminar flow benches
- Class 100 clean room (ESD rated), 24 by 20 by 8 ft, with soldering station and fume extraction system



National Aeronautics and Space Administration

LYNDON B. JOHNSON SPACE CENTER
WHITE SANDS TEST FACILITY



- Class 10,000 clean rooms ranging in size from 10 by 8 by 8 ft to 20 by 20 by 15 ft
- Inspection optics
 - Borescopes from 0.020 in. to 0.340 in. outside diameter (flexible and rigid); super VHS video and other recording media
- Controls
 - Power Supply, 0 to 150 Vdc, variable with over-voltage/current protection
 - Electronic PID control using user input on PC-based data acquisition and control system
 - Remotely operated valve control console, 0 to 28 Vdc, variable with over-voltage/current protection
- Data Acquisition and Recording
 - PC-based data acquisition and control system using National Instruments data acquisition and control boards and 5B Industry Standard signal conditioners

FACILITIES

- Gas systems
 - Oxygen up to 6000 psig
 - Nitrogen up to 6000 psig
 - Helium up to 3000 psig
- Deionized water
- Eleven 5000-gal tankers rated for 30 psig
- Vacuum capability to 1×10^{-3} torr range
- Bonded storage and logistics areas for controlled storage of critical hardware

MISCELLANEOUS SUPPORT SERVICES

- Precision cleaning to level 50A with pickling and passivation capabilities
- Chemistry laboratory
- Metallurgical laboratory
- Environmental chamber laboratory
- Large Thermal Vacuum Conditioning Chambers
- Machine shop with wire EDM, 3-axis digital and CNC mills, and manual and CNC lathes
- Calibration laboratory traceable to National Institute of Standards and Technology (NIST)
- Nondestructive testing, inspection, and analysis including: radiological, dye penetrant, ultrasonic, Acoustic Emissions, Neutron Activation, Holographic interferometer, Infrared Thermographic, Eddy current, microwave image scanners, product quality assurance with and visual inspection with 0.020 to 0.340 in. outside diameter boroscopes
- Video and photographic laboratory
- Starrett[®] comparitor and Zeiss[®] CMM
- On-site NASA quality inspectors

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