747 Aircraft Environment Research Facility 747AERF



- Historical information
- Modifications
- Capabilities
- Completed and current projects
- Planned simulation special effects



Artist's Concept 1998



747AERF AS IT APPEARS TODAY



Manufactured Oct 29, 1973



- Manufactured
 Oct 29, 1973
- Operated by PAN AM



- Manufactured
 Oct 29, 1973
- Operated by PAN AM
- Aircraft purchased in 1997 by the FAA



Removed Flight Hardware



Removed flight hardware

Permanently mounted airframe



- Removed flight hardware
- Permanently mounted airframe
- Installed generator power

 Installed exhaust ventilators to remove smoke from interior



Installed air
 handling
 equipment to
 produce normal
 aircraft airflow
 patterns





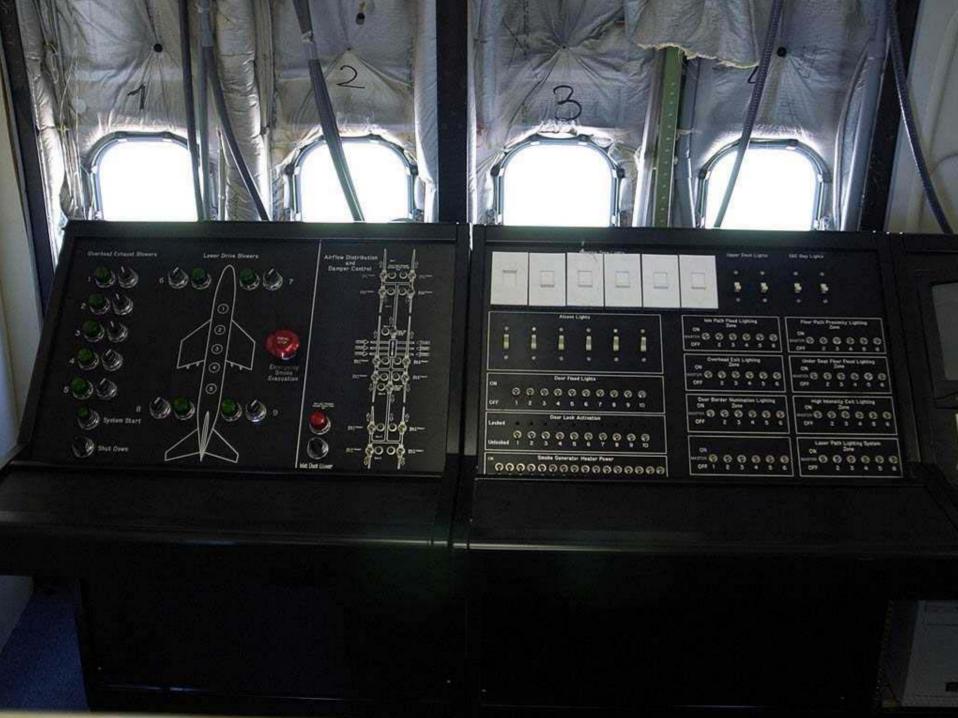
- Installed bulkheads
- Creates five discrete zones
- Each zone can operate independently

747AERF Master Control Center



Installed control consoles

 Operate and monitor all systems from one location



747AERF Galleys and Lavatories



 Fabricated and installed galley and lavatory monuments



747AERF Capabilities

• Configured to simulate multiple widebody aircraft

• Floor strengthened to support multiple high energy activities for many years





747AERF Capabilities

- Operate at the normal sill height of 16 feet
- Smoke system is capable of providing a completely smoke filled environment in 30-45 seconds and clearing the smoke in 60-70 seconds

Smoke system is zone controlled





Completed and Current Projects

- Boeing/USAF, Electromagnetism study
- FAA, Runway visual ranging study
- FAA security, cabin air quality research
- NASA/ Airlines, Turbulence detection and clear cabin secure study

Completed and Current Projects

- Transportation safety institute, transport category aircraft cabin, accident investigators training classroom
- Airport fire-rescue training area
- Airport triennial emergency response exercise, OKC Mar 2002

Planned Simulation Special Effects

- Simulated interior and exterior non-heat fire
- Electrical arcing simulation
- Simulated "Boom" sound
- All aircraft communication tones and sounds
- Airframe vibration maker
- Removable upper deck stairwell

Potential 747AERF Projects

- Evacuation studies (single or multiple doors)
- Escape slide studies
- Cabin procedures studies
- Cabin lighting research
- Studies into stairwell issues
- Digital human modeling research

Non-research activities

• Fire department training with actual size aircraft

- Law enforcement training
 - 1. Local
 - 2. State
 - 3. Federal

