

Evacuation Slide Test

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(for Dung Do)**

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**Federal Aviation
Administration**



Overseas National Airways DC-30

JFK Airport, New York; November 12, 1975



Slide Evacuation Test Method



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Overseas National Airways DC-30

JFK Airport, New York; November 12, 1975

Rejected Take-off after striking flock of birds, engine #3 catches fire

129 Passengers, 10 Crew

Successful evacuation attributed to passengers being employed by airline



Continental DC-10

Los Angeles, California; March 1, 1978



Slide Evacuation Test Method



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Continental DC-10

Los Angeles, California; March 1, 1978

Rejected Take-off after 2 tires failed, airplane goes off end of runway

Left main landing gear collapses, a fire begins in this area

186 Passengers, 14 Crew

2 Fatalities



Heat Resistant Evacuation Slides

Problem: Fuel Fire Radiant Heat May Damage Deployed Slides, Causing a Loss in Pressurization, and Reducing the Evacuation Rate

FAA Full-Scale Fire Tests Determined How Slides Fail and the Time to Failure:

- High Heat Flux: Slide Bursts (Sudden Failure)
- Low Heat Flux: Seam Weakens (Slower Failure)

Aluminized Reflective Coatings Significantly Improved Air Holding Quantities (Can Double Inflation Time)

FAA Developed a Small-Scale Test

- Radiant Heat Exposure
- Pressurized Slide Fabric Sample
- Measures Pressure

Technical Service Order (TSO)-C69a Incorporated New Test Method (12/3/1984)



Slide Evacuation Test Method



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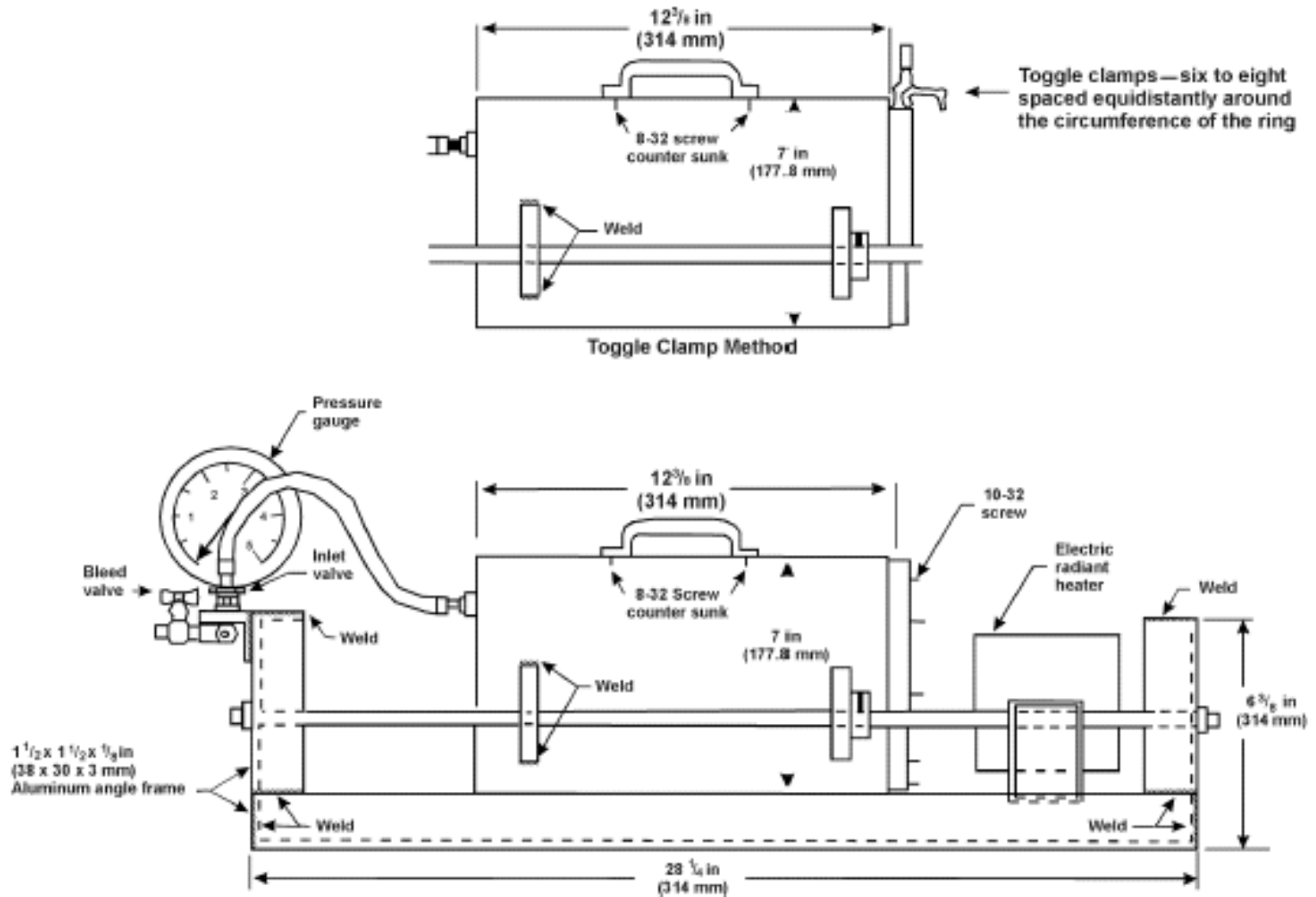


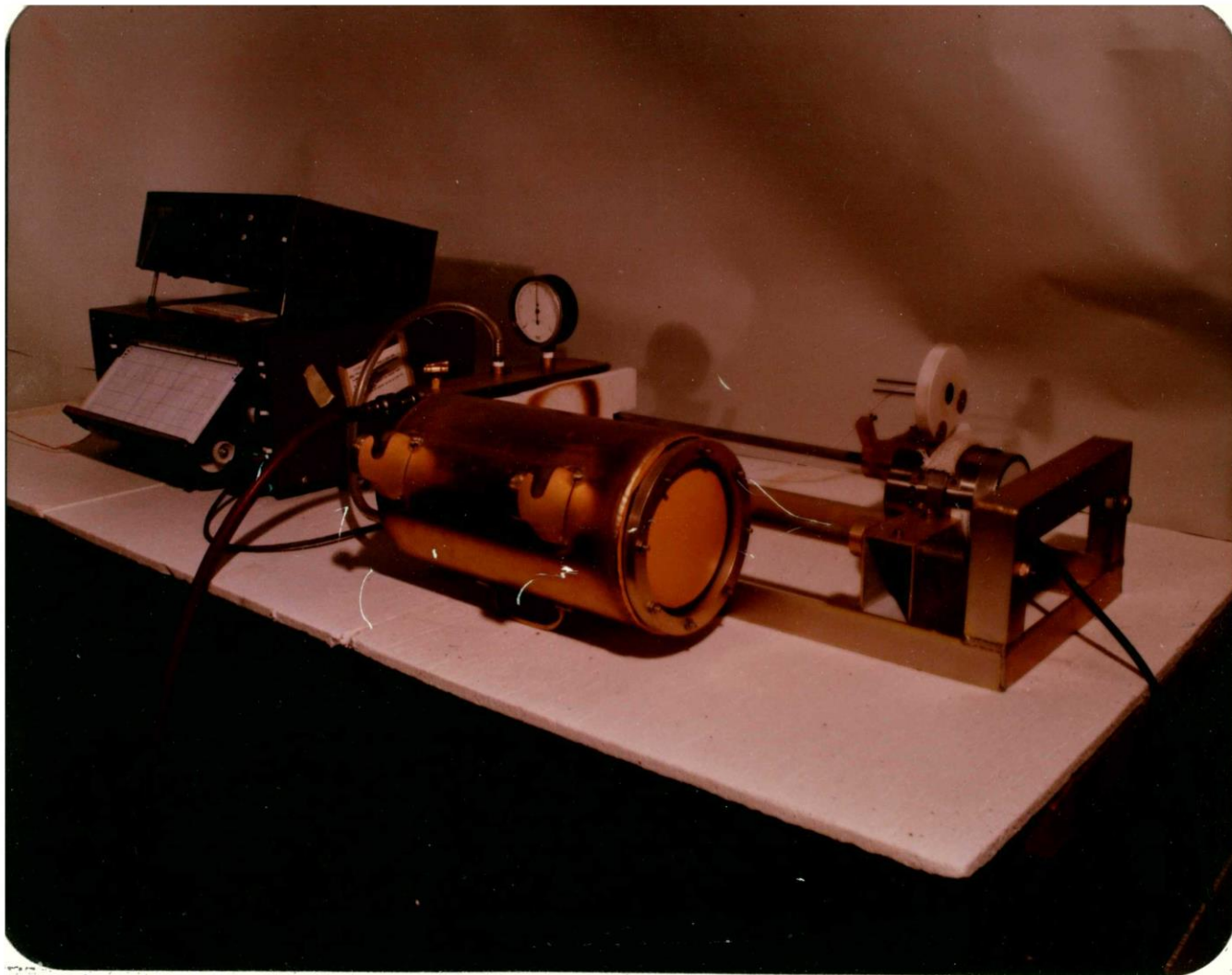
Slide Evacuation Test Method



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Evacuation Slide Material Test Apparatus





80-2060



FEDERAL AVIATION ADMIN.
TECHNICAL CENTER

Mount hinged overlay foils on this side

Slide Evacuation Test Method



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Evacuation Slide Material Test Parameters

Test Specimens: 7 inches diameter, with eight 0.250-inch holes

Pressurize test vessel to normal operating pressure

Exposure Heat Flux: 1.5 Btu/ft² sec

Record Time to first observed pressure loss

Average Time to Failure (3 Specimens): > 90 seconds

Recent Activities

- A meeting was held at the FAA Technical Center on Wednesday, February 27th with Zodiac-Air Cruisers and Urettek
- Results from Round Robin testing were discussed
- Extensive conversation as to why a Lab failed all samples.
 - Consensus ... incorrect test setup (i.e., measurements or instrumentation)

Recent Activities (continued)

- Started a review of new slide evacuation test method
 - New test method (working) could replace the existing TSO-C69c (TSO will remain)
 - Use of new tools to make the test more repeatable
 - Questions concerning the new 180 second per sample pass requirement as stated in the new test method
 - Sliding Bar: rigid with ball bearings versus hinged to make sliding the cylinder easier.
 - Frequency of calibration: Is it necessary to recalibrate before each test?
 - Coil degradation: Possible need to increase the voltage to the control unit in order to achieve required heat flux calibration
 - Electric Coils can be replaced rather than replacing the entire furnace.

Recent Activities (continued)

- The lab that failed all of the Round Robin 2 samples will be retesting the samples to achieve the correct results.
- One new company will be participating in the next Round Robin.
- Round Robin 3 will begin in the Fall of 2013.