

INTERNATIONAL AIRCRAFT MATERIALS FIRE TEST WORKING GROUP MEETING MINUTES

Hosted by Transport Canada Civil Aviation, Ottawa, Ontario, Canada

February 13-14, 2001

TUESDAY, FEBRUARY 13, 2001

Opening/Introduction – R. Hill

Website Update – R. Hill

Aircraft Materials Fire Test Handbook Discussion – R. Hill

The Aircraft Materials Fire Test Handbook is available electronically on the FAA Fire Safety Section website (www.fire.tc.faa.gov) under the section entitled “Reports”. Jeff Gardlin (FAA-Northwest Mountain Region) explained the Notice of Policy that was written on the Handbook and what it means. This Notice of Policy will be published in the Federal Register in the near future.

Radiant Heat Panel Testing – P. Cahill

Pat reviewed the “Comments on Radiant Panel Test Method for Thermal Acoustical Insulation” in general. Many of these points will be discussed in detail in the Task Group meeting on Wednesday, February 14, 2001.

Hanns-Joerg Betz gave a presentation on the fuselage insulation blankets produced with rigid foam tests he and Pat conducted recently at the FAATC. He presented and explained the results of these tests. He described the comparison between tests conducted using the gas radiant panel and using the electric radiant panel. Hanns reviewed the issues to be resolved that will be discussed in detail in the Task Group meeting on Wednesday, February 14, 2001.

Some discussion took place on testing of components of the insulation system and interpretation of the NPRM.

Burnthrough Standard Update – T. Marker

Round Robin III: Tim described the burner configuration and set-up parameters established for this round robin. The Calibration Heat Flux Comparison for this round robin was presented. The Initial through Final Calibration Temperature Profiles were presented. Six materials were tested during this round robin (known as Materials A-F). Tim presented the results of these round robin tests for each material.

Burnthrough Fastening Systems Update – D. Dodd (Darchem Flare)

Darren reviewed this program from its initiation, the stylized panel designed at Darchem, the actual aircraft panel acquired by Darchem for testing, the development of this test program, the types of fastening pins/systems and other materials (thermal acoustic liners and corrosion inhibitors) tested throughout this program, and the burnthrough criteria. He reviewed the findings of the fixing pins and the capping strip testing.

Inaccessible Area Flammability Requirements – R. Hill

Dick explained the size of the ignition source being investigated for fires in materials in hidden (inaccessible) areas of the aircraft. All components (wires, etc.) in inaccessible areas are being investigated. We would like to raise the level of safety for materials in inaccessible areas to the equivalent of that of thermal acoustic insulation. S. Campbell: Have you defined completely what 'inaccessible' means? R. Hill: It has not been completely determined, however, it will probably include any material not accessible from the cabin. The tests used for these materials may be different than those used for thermal acoustic insulation, however, the tests will be aimed at that same level of safety. We are still seeking samples of materials used/found in inaccessible areas for testing. There were a few aircraft incidents in the past year involving fires of materials or ignition sources in inaccessible areas. The Potential Fire Threats Task Group will be studying inaccessible area fire tests and materials.

Aircraft Electrical Wiring Test Development – P. Cahill

Pat presented the test results of the wire tests she recently conducted at the FAATC. She is continuing to test other types of wire. Pat showed a video of the wire tests conducted to date at the FAATC. R. Hill: We would like to run a few full-scale tests with this wiring to see how the wires perform in full-scale conditions. We would like industry to work with us on this to be sure that we are testing all wiring materials that are used in aircraft. Let us know all of your comments and thoughts on these materials. B. Honore: Are you going to test the zip ties or cable ties used to bundle aircraft wires as part of the wire systems you are testing? These zip ties create a friction point over time. P. Cahill: I used zip ties in the tests I conducted.

Cable Fire Tests (in the NEC) – M. Hirschler (GBH International)

Marcelo described the National Electrical Code tests that are currently conducted on electrical wiring. A copy of his Powerpoint presentation is available on the Fire Safety Section website.

Alternative Cleaning Technologies – S. Hasselbrack (Boeing)

Sally presented results of most recent test program she conducted using four different cleaning technologies.

Vertical Bunsen Burner Test for Child Car Seat Materials – R. Hill

Dick presented results of the vertical bunsen burner tests conducted on child car seat materials at the FAATC September 18-22, 2000.

October 2001 Conference Update – A. Horner

April addressed Working Group member questions related to the upcoming International Aircraft Fire and Cabin Safety Research Conference.

WEDNESDAY, FEBRUARY 14, 2001

Task Group Reports

Q/A Round Robin Report – M. O’Bryant (Boeing)

Mike reviewed the results from the most recent industry OSU and NBS standard panel round robin conducted. These results are available on the Fire Safety Section website.

Potential Fire Threats Task Group Report – R. Hill

Electrical wiring was discussed during this Task Group’s meeting. Dick proposed a full-scale set-up for wiring similar to the full-scale panel test that was done for thermal acoustic insulation. He will put together a test plan for this full-scale test. Airframe manufacturers, suppliers, and airlines will compile a list of the types of wires, cables, insulation used in these areas and materials put into electronic components as well. This information should be provided within the next couple of months. The test plan will be posted to the Fire Safety Section website prior to the next Materials Working Group meeting so that comments can be made on it. The group discussed ducting and small parts as well. The Task Group members will be considering the following to be discussed further at the next meeting: How are the various small parts attached, and how should ducting be tested?

Burnthrough Task Group Report – T. Marker

This Task Group discussed their most recent round robin (RR III). The low heat flux was discussed. Mexmil has offered to analyze the data to see if barometric pressure and relative humidity have an impact on the results. Tim will create a diagram to illustrate the layout of the burner so that all participating labs are reporting their data the same way.

Radiant Panel Task Group Report – P. Cahill

Initial plans for round robin testing were discussed. The list of round robin materials has been compiled. The part number for the correct thermocouple will be distributed to all round robin participants by sometime next week. The new thermocouple should take care of the problem we have had with the electric panel.

Quality Assurance Task Group Report – C. Lewis

The Task Group has reached an agreement on the direction to take in their further investigation into this topic. A fault tree process has been developed to identify issues in quality assurance. We have agreed on the content for guidance material: fault tree concept and identification of specific problems and solutions. Our goal in the end is to make the guidance material a web-based document. This will be part of our further discussions.

Next Meeting

The next meeting will be hosted by Darchem Flare in the United Kingdom, on June 27-28, 2001. The main meeting will begin at 1:00 PM on June 27, and run all day on June 28. Darchem will offer a tour of their facilities on June 27, from 10:00 AM – 12:00 Noon. All meeting details are available on the Fire Safety Section website.