INTERNATIONAL AIRCRAFT SYSTEMS FIRE PROTECTION WORKING GROUP MEETING

Hosted by United Kingdom Civil Aviation Authority (CAA), London, UK

April 2-3, 2008

WEDNESDAY, APRIL 2, 2008

FAA Laptop Lithium Ion Battery Fire Fighting Tests and Video – D. Blake

The FAA is still determining how this information will be distributed. Footage of an actual laptop fire involving laptop lithium ion at LAX gate waiting area was shown. Extinguishing methods available onboard aircraft are included in the video. Laptops fires are Class B fires. Harry Webster at the FAATC was the engineer who coordinated this test program.

Fuel Cell Fire Test Plan – D. Blake (for Harry Webster)

Background: fuel cells are an alternate power source used in lieu of or in conjunction with batteries to power electronic equipment. Fuel cells use a hydrocarbon fuel source to generate electrical power with water as the byproduct. Fuel sources range from highly flammable to relatively inert.

Definition of a fuel cell and potential aircraft hazards were provided.

Micro Fuel Cell Fuels – a number of fuel sources for these types of cells were described.

Test Plan:

FAA Fire Safety engineers are currently supporting FAA HAZMAT and PHMSA in developing rule making regarding fuel cell use in flight, packed in checked and carry-on baggage and bulk shipping. An analysis is being conducted to determine the relative hazards of the various fuel sources and storage mechanisms.

Flammability tests will be conducted on the different technologies as production unites become available: individual unites, bulk shipments, fuel cells in use powering electronic equipment, and fuel cells charging batteries that power electronic equipment.

As the test progress, the test information will be available on the FAA Fire Safety website (http://www.fire.tc.faa.gov). This test program is ongoing. At this time there is no end date. Dave asked if anyone had any experience with fuel cell testing, etc. Question: will any tests be done with fuel cell failure? Dave: Yes, that is a part of the test program.

Transport of Lithium Batteries in Carry-On and Checked Baggage – D. Blake (for Harry Webster)

Hazardous Materials: Transport of Lithium Batteries: Final Rule:

Pipeline and Hazardous Materials Safety Administration (PHMSA)

49 CFR Parts 171, 172, 173, and 175

This presentation will be available on FAA Fire Safety website.

This rule went into effect January 1, 2008.

Checked Baggage: loose lithium batteries will no longer be allowed in checked baggage. Lithium batteries that are installed in electronic devices will be allowed providing: secure the device from activation by locking the activation switch in the “off” position, and placing the device in a protective case.

Carry-On Luggage: most consumer electronics containing lithium batteries including cell phones, cameras and notebook computers are allowed. Unlimited spare batteries, if under 100 watt-hours, are permitted providing: pack in original retail packaging, or insulate contacts of loose batteries with tape,

and place each battery in a separate zip-lock plastic bag or container. Large lithium batteries, over 100 watt-hours, but under 300 watt-hour capacities: limit two per passenger, insulate terminals with tape, pack in original retail packaging, or place in zip-lock plastic bag. Large lithium batteries over 300 watt-hour capacities are prohibited in either checked luggage or carry-on luggage.

Is the FAA coordinating with EASA and other international aviation authorities on this issue? Dave: Dick Hill will be updating the international Cabin Safety Research Technical Group on the information I have presented on this information during its meeting April 7-9, 2008.

www.SafeTravel.dot.gov website for Traveling public produced by U.S. Department of Transportation including tips, definitions, and how to's for traveling public in the United States.

Is anything being done to address the non-rechargeable lithium batteries being done? Dave: I am not aware of any regulations on that type of battery.

Aircraft Lithium=Ion Battery Testing – D. Blake (for Steve Summer)

The FAA has performed research investing the flammability characteristics extinguishing system effectiveness and battery failure mode of both primary and rechargeable lithium-ion batteries used in laptops and other portable electronic devices. Reports: DOT/FAA/AR-04/26 and DOT/FAA/AR-06/38.

The proposed use of lithium-ion batteries onboard aircraft as power sources for engine or APU starting and other operations requires these battery systems utilize a larger number of cells, perhaps of various chemistries and a higher energy density.

The potential hazards requiring examination:
How will they react in fire situation?
What type of potential fire hazard do they pose themselves?
Are the protection circuits adequate?
Are the battery encasements adequate?
Is there a variation in safety performance among the numerous chemistry types?

Three different manufacturers have submitted cells to Steve for the FAATC test program. The photos of these three cells were shown.

A diagram of the test set-up was shown and described as well as a description of the Fire Exposure Test.

Why was 1-propanal used instead of heptane? Dave: another source can be used to replicate a heat source. This is a bit safer than having a pan of heptane in a closed box with the fumes building up until test is conducted. The 1-propanal is an easy source of heat.

Have you investigated or looked at the battery itself being the origin of the fire as a result of a short at the terminal end? Dave: We haven't looked at all the sources of battery fire partially because it is extremely difficult to consistently recreate the various failure modes and what they might be. We know there are a number of ways that the battery fires can start (shorts, failures, exposure to an outside heat source, etc.). Our approach was a generic way of covering the ignition of the batteries.

Video of example venting reactions during single cell fire exposure test was shown. Several types of single cell batteries were tested in this scenario. Different types of these batteries have different types of electrolytes and different quantities of these electrolytes. The second set of videos were examples of venting reactions during multiple cell (8 cells packaged tightly together) fire exposure tests.

The Fire Exposure Test Results for the single cell and 8-cell packs tested in the video that was shown.

External Short Circuit Tests were conducted. A description of this test plan was provided. This description will be available in the presentation on the FAATC Fire Safety website.

Results of these tests were provided for Battery cell type 1, 2, and 3.

Pressure Pulse Tests were conducted. A description of the test plan was provided. The results of these tests were presented. Results are available in the copy of this presentation available on the FAATC Fire Safety website.

Auto-ignition Tests will be conducted. A description of this test plan was provided. The purpose of these tests is to determine the risk of a cell reaching thermal run away due to a smoldering suppressed fire.

Is this testing addressing the potential hazards of aircraft installed equipment or transported? Dave: The initial test program is designed to address potential hazards of aircraft installed lithium-ion batteries.

Halon 1211 Handheld Suppression Tests will be conducted. The description of this tests plan was provided.

Planned Activities:

Halon 1211 and auto-ignition tests will be conducted within the next few weeks. Following this a report detailing the results will be composed and published.

Steve is seeking industry support and participation in this endeavor. Parties interested in taking part in this next phase of testing should contact: Steve Summer at steven.summer@faa.gov or at 609-485-4138.

If there is a reason that Halon 1211 has a reaction with the chemicals in the batteries tested, and it is not found to be the best extinguishing agent for these types of fires, the FAATC will investigate this and seek industry input on what other types of extinguishing agent to use.

Handheld Extinguisher Draft Advisory Circular Updates – D. Blake (for Louise Speitel)

Major Changes since last update:
Lithium Battery Guidance
Cold Operation
New Reference
New Schedule for AC
Lithium Primary Cells (non-rechargeable): lithium primary cells are constructed with metallic lithium. Metallic lithium is extremely flammable and cannot be extinguished with the typical handheld extinguishers found on board transport aircraft.

However, the amount of metallic lithium in each cell is very small and will consume itself in less than one minute.

The New Test on Lithium Primary Cells included in the revised AC was displayed and discussed. “Water, though it may react with the tiny amount of lithium metal, is more effective in cooling remaining cells, stopping thermal runaway and preventing additional flare-ups.”

“Do not use water for fires where larger bulk of lithium primary cells are involved.”

Lithium-ion cells (rechargeable) cells are not constructed with metallic lithium and do not have the same fire hazard as primary cells. The cells are constructed with a flammable electrolyte.

Extinguishing of Battery Pack (Multiple Larger) Lithium Ion Cell (rechargeable) Fires are addressed in the revised AC.

Cold Operation: Cold operation may require additional consideration in the selection of extinguishers that can extinguish hidden fires: more agent, lower boiling point, extinguisher design change, and testing may be needed to select an appropriate extinguisher.

Where are the cold areas and how cold are they, and why is there a concern of cold operation? Dave asked if any of the members of this Task Group were present to provide information on this concern. This AC is across the board for all aircraft – it covers a broad range of aircraft applications (applies to handheld extinguishers however they are used not effectiveness of specific applications). Contact Louise

with specific questions related to this new information. She may be reached at Louis.Speitel@faa.gov or at 609-485-4528.

New Reference: A video for flight crew training is available from the FAA. The title of the video is "Aircraft In-Flight Fire Fighting". Tape: MST 730, DVD: MST 730.01 – these are reference numbers used by the FAATC Video Lab. We plan to make it convenient to access this video via the FAATC Fire Safety website (http://www.fire.tc.faa.gov).

The AC is entering the second cycle of FAA Review. Louise expects that after this second FAA review cycle, the AC will be available for approximately a 6-week comment period.

Engine Halon 1301 MPS Future Work Status – D. Blake (for Doug Ingerson)

MPSe, Revision 3:

The Task Group is attempting to remove the reliance on using Halon 1301 from MPSe by possibly using a surrogate for Halon 1301. Fire testing required for Halon 1301 and replacement candidate. Successful quantity of replacement candidate: is established by fire test, demonstrates parity with Halon 1301 fire test results, and is likely found by iterative process.

Equivalent concentration established from the distribution of the successful replacement candidate.

MPSe, Revision 4: Preliminary Thoughts

Suspected equivalent concentration: must be known by representative prior to MPSe testing, and must be distributed in the test fixture prior to MPSe testing.

Successful quantity of replacement candidate is addressed. A Preliminary Schematic Flow was displayed. Doug can provide more detailed information on these revisions.

Status of Research & Testing to Replace Halon Extinguishing Agents in Civil Aviation – D. Blake (contributors: D. Ingerson, L. Speitel, C. Sarkos)

4 Main Usages of Halon
Montreal Protocol banned Halon Production (not use) on January 1, 1994.
International Halon Replacement Working Group (now International Aircraft Systems Fire Protection Working Group was established in October 1993 to develop Minimum Performance Standards (MPS) for Each Application.

Many replacement/alternative agents have been tested.

Lavatory Trash Receptacle Summary: FM-200 and FE-36 passed MPS Test
Airbus and Boeing offer lavatory extinguishers
MPS Report: DOT/FAA/AR-96/122

Handheld Extinguishers Summary:

Two fire tests required in MPS
Hidden Fire Test Standard (effectiveness): developed by IASFPWG, U.L. offers test approval
Seat Fire Extinguishing Test (Toxicity): full-scale tests at FAATC
Measure agent decomposition products

Draft AC 20-42D: "Handheld Fire Extinguishers for Use in Aircraft":
Safe agent discharge for Wide Range Aircraft/Compartment Volumes

Know Agents Listed by U.L. (Hidden Fire Test):
HCFC Blend B (Halotron 1)
HFC-227ea (FM-200)
HFC-236fa (FE-36)

MPS Report: DOT/FAA/AR-01/37

Claude: Do you (to Bradford Colton) know if any installation has been approved for use on a Part 25 airplane? One of the big issues is training and procedures once the installation has been approved. There is a difference and flight crews should be made aware of it and trained accordingly.

Photo of Hidden Fire Test Apparatus was displayed and described.

FAA Advisory Circular AC 20-42D:

Guidance for new installations of required handheld extinguishers
Lists FAA-approved replacement agents
Will replace AC 20-42C
Will be published in Federal Register for comments (in the near future)

Engine Nacelle/APU Summary:

Full-scale engine nacelle fire simulator only exists at FAATC
Spray and residual (pan) fires/jet fuel, hydraulic fluid, engine oil
Two mass flow rates/two temperatures
Equivalency determinations (Halon 1301 = 6%): HFC-125 = 17.6%, CF3I = 7.1%, FK-5-1-12 = 6.1%

FAA/Airbus Tests in ENFS:
Proprietary agent equivalency/certification criteria determined
Agent/System will be made available for production airplanes

MPS Report: Draft (available)

Photo of engine nacelle simulator at FAATC was displayed and described.

Graph: Effect of Mass of HFC-125 on Re-ignition Time Delay.

A Three Year Variation of Ignition Time Delays Graph was shown.

An Equivalent Concentration of HFC-125, CF3I, and FK-5-1-12 at Different Fire Scenarios Graph for both High Ventilation Flow and Low Ventilation Flow was shown.

A Comparison of Maximum Equivalent Concentrations of CF3I, HFC-125, and FK-5-1-12 with NFPA 2001 Inerting and Cup Burner Data graph was shown.

Cargo Compartment Summary:

Full-scale 2000 cubic foot test article specified in MPS
Four fire scenarios: bulk-loaded cargo, containerized cargo, surface burning fire, and exploding aerosol can
Much Activity but each approach has shortcomings:
HFC-125/FM-200: high weight penalty, high HF concentrations, Ignition smoke layer
CF3I: Toxicity concerns
2-BTP/Novec 1230: overpressures at below inerting concentrations during aerosol can scenario

Water Mist/Nitrogen System Concept:
Promising but requires significant development and acceptance

MPS Report: DOT/FAA/AR-TN05/20

Diagram of Cargo Compartment MPS Bulk-Load Configuration. This is a fire that Halon could suppress, and the FAA wanted to replicate this.

Halon Replacement in Civil Aviation Summary: status of replacement agents for each of these areas of the aircraft.

<u>Hidden Fire Testing</u> – D. Blake

NEA System in 727 Test Article: Diagram of NEA System set-up in 727 Test Article. 727 Interior cabin ceiling mockup with this system installed photo was shown. The 727 instrumentation in area of cabin ceiling mockup diagram was shown. To date, preliminary proof of concept tests were conducted at FAATC.

Summary: Inert atmosphere can be produced in a 13 foot section above the cabin ceiling of this fuselage using 2 NEA insertion points in times between 1.8 to 3.1 minutes (plus system lag time)*.

*Ground tests without aircraft ventilation system operating.

Future Plans: Project has been suspended due to higher priority testing requested. Testing will resume when resources are available.

Is there a plan to conduct hidden fire testing in the cheek area and the E&E bay in the future? Dave: Yes, tests in these other areas will be conducted in the future.

Integrated Fire Protection Systems – R. Cherry

Transport Canada has commissioned a research study with support from the U.K. CAA and the U.S. FAA

Explanation of integrated system concept.

Cabin Water Mist System: originally looked into for post-crash survivability and will be investigated for in-flight cabin fire fighting.

Cabin water mist systems – project achievements to date include:

Development of a specification for a cabin water mist system
Proposed system architecture
System weight assessment
System reliability requirements
Project system activation means
Water mist systems issues

Probability of Occurrence of Fuselage Breaks Graph was shown and explained.

Cabin Water Mist System Architecture using dedicated water supplies – diagram of system installed in aircraft including.

Some issues requiring resolution:

Development of an MPS for cabin water mist system
Reduction of system weight
Effects on aircraft systems of inadvertent operation

Equipment bay inerting:

A model has been developed for electrical equipment bays
E/E bay measurements for some aircraft types have been taken.

Is it feasible to inert equipment bay?
For current build aircraft it may be cost prohibitive. Possibly consider on a case-by-case basis.
Yes, for future aircraft.

Hidden Areas Inerting:

Distributing NEA from OBIGGS to extinguish fire in hidden areas by inerting
Main Issue: containing the inert condition in the fire area with a high airflow condition
FAATC will conduct additional work in this area.

Cumulative Probability Distribution of Time to Become Non-Survivable graph was displayed and explained.

Table showing Hidden Areas Inerting – Calculated percentage of Free Space inerted in 8 minutes.

Wheel Well Inerting with NEA:

Main Issues: airflows in the wheel well
Are there more effective ways of achieving the same level of safety?

Passenger Oxygen: there are systems that have been proposed

Cargo Compartments Water Mist/NEA Systems:

Development of a comprehensive cargo compartment inerting model which assesses inerting capability and system weight.

Aircraft specific data (cargo comp volumes and leakage rates, number of ASMs required for center fuel tank inerting, etc.)

"Design Concepts" evaluated:
additional ASMs
supplementing inerting with pure nitrogen
using compressors to enhance ASM performance

Chart for Cargo Compartment Water Mist/NEA System weights of various concept systems investigated.

Future Work:
Reassessment of system weight based on FAA testing of cargo bay target inerting level
Development of a specification for a Water Mist/NEA System
New water mist technology?

Primary Issues:
System weight
Power demand for compressor system

Fuel Cells:
Diagram of scenario and several questions were presented to group.

Fuel Cell Feasibility:
Highly efficient fuel cells produce less by-products for same power output
Based on single 440kW fuel cell:

90% efficient APU produces: approx. 15% required water, approx 25% required inert gas

To provide 100% by-products from one APU, efficiency must drop to 11%

Flight Attendant Survey – R. Cherry

Training Needs analysis of cabin crew training practices and standards with respect to the management of in-flight fire incidents – A study carried out on behalf of the U.K. CAA

To evaluate current and possible future issues, and identify potential improvements in existing fire training in order to ensure that cabin crews have the most appropriate training and procedures to match current and likely future issues. Review was based on the requirements of JAR-OPS 1, Subpart 0 – Cabin Crew.

8 UK and 2 European Operators/Training Organizations were visited to benchmark current training procedures.

Online Survey and Analysis of Responses:
The survey was available on a dedicated web page to invite cabin crew, flight crew, instructors and any other interested parties to comment on any perceived deficiencies in fire training and make suggestions as to their improvement.

Questions asked:
Background information and experience with in-flight fire incidents.
Attitude/perception towards statements related to the adequacy and content of fire training.
Attitude/perception towards 5 statements related to the realism of the practical fire training.
Problems encountered in fighting those fires.
October 19, 2007 through January 13, 2008 – there were 2164 respondents from 66 countries in Europe, Asia Pacific, Africa, North and South America.
A database was constructed from the online survey.

Comparison with current fire protection training in non-aviation situations:
Three organizations investigated: Royal Air Force, Royal Navy (submarine crew training), and Tunnel Train Operator (Onboard crew training)

Identification of Cabin Fire Threats:

Current Threat:
Identification of current threats was made using the following data sources – MORs, AAIB Bulletins, Accident Reports, NTSB Database, FAA SDR Database

The incident/accident data were analyzed to:
Identify the threats
Assess the severity of the threats
Assess the relative frequency of occurrence
Identify difficulties encountered by cabin crew

Future Threats:
The development of JAR-OPS/EU-OPS needs to be appropriate to the future U.K. fleet and this is likely to change significantly over forthcoming years.

In carrying out this review the following factors were considered:
Aircraft design changes (larger aircraft, new designs, etc.)
Other changes not resulting from aircraft design and operational development (the proliferation of the use of Lithium Batteries, Fuel Cells)

The identification of future threats was determined by:
An analysis of trends in existing data
Consultation and brainstorming with specialists that may be involved in fire and cabin safety research, aircraft certification, aircraft design, etc.
Literature/Internet research

Findings:
Although the different tasks of the project were conducted separately, there are several common issues that have been identified.

Issues Identified in Phase I of the project (these are currently being evaluated):

Issues on the adequacy and realism of fire extinguishers used in training
Issues on the adequacy of Protective Breathing Equipment used in training
Some of the findings relating to in-flight fire procedures: issues on in-flight fire procedures for Single Cabin Crew Operations
Issues on the relationship between training practice and crew operating procedures
Some of the findings relating to Adequacy and Realism of Training: Issues on the realism of fire conditions during training
Issues on the realism of smoke conditions during training
Issues on the adequacy of fire and smoke training facilities – are these representative of the aircraft the cabin crew members work on?
Issues on training for fire behind panels and locating source of fire/smoke
Issues on training for management of passengers
Issues on training for Crew Communication/ Coordination
Issues on training for IFE fires and lithium battery fires

Consideration is being given as to whether Standardization/Requirements may be required for:
Proficiency Evaluation
Duration and frequency of training
Conduct of practical fire/smoke training and training program
Training provided by 'third-party' training organizations
Instructor capabilities

Ongoing Tasks:

Identification of potential improvements to cabin crew fire training based on the findings from previous tasks.
Cost/benefit assessment of selected training methods.
Suggestions for JAR-OPS/EU OPS requirement modifications

The 3 remaining tasks of this project were provided: Consideration of Task 5-Current Training Practice Against the Threats (Identification of Potential Improvements to Cabin Crew Training), Task 6-Assessment of Potential Costs vs. Benefits of Identified Training Methods, and Task 7-Recommendatiopns for Clarification of JAR-OPS/EU OPS.

The CAA will publish a report on the results of this study when it is completed.

In-flight Firefighting Training Video and Status – D. Blake

Input received during International Aircraft Fire and Cabin Safety Research Conference in November 2007 will be integrated in the near future. The FAA and CAA are estimating a late summer/early fall 2008 availability. The draft video was shown to the IASFPWG attendees.

Next Generation Oil Burner – Fire Testing of Oil Tanks and Fuel Lines and Firewalls in Engines – D. Blake

Need for new test apparatus

Remove dependence upon electric motor:
Utilize compressed air from laboratory compressor
Construct a pressurized fuel tank
Two variables have been eliminated by these changes
A diagram of the NexGen burner design was shown
Details of fuel pressurization system
This new burner is much more precisely adjustable than the previous burner
A heat exchange system was added

Proof of Concept:

Several of these have been built and distributed to a number of labs around the world with much more repeatability than the equipment it is replacing

This is not being enforced by regulation at this time for burnthrough tests. It can be considered an equivalent to the Park Oil Burner.

Composite and Aluminum Wing Tank Flammability Comparison Testing – D. Blake (for S. Summer and B. Cavage)

Overview: Next generation aircraft scheduled to enter service in the coming years have composite skin that could change baseline fleet wing tank flammability
-Logic assumes composite wings will be more flammable in some situations

Report DOT/FAA/AR-08/8 presents observations

Photo of Test Apparatus – Wing Tank Test Article at FAATC

Diagram of instrumentation in the test article and explanation

Previous Wind Tunnel Test Results:

Even low speed aerodynamics at ambient pressures will cause a rapid decrease in flammability
Similar decreases in flammability whether heat was applied to top or bottom of the tank
Fuel temperature in bottom heated test decreased much more rapidly than in top heated tests
Little change in results seen when wing was pitched at 15 degrees

Planned Testing of Wing Tank Test Article:

Tank is currently being mounted in high-speed section of wind tunnel (more realistic)
Tests: various fuel loads, fuel temps, and wind speeds
Tank heating will be varied

Preliminary Results – Scale Tank in Altitude Chamber:

Large increases in flammability with composite wing fuel tank skin not seen with aluminum skin when heated from top during ground conditions
When bringing the fuel tank to altitude and dropping the temp, spike inflammability occurred for both
Prelim data suggest center-wing flammability would not be affected significantly

Graph of Altitude Chamber Testing – Flammability Comparison

Planned Work:

Fuel tank is currently begin mounted into wind tunnel
Start testing with composite skin
Testing should begin within the next 2-3 weeks and take approximately 6-8 weeks

Fuel Tank Rule Status – R. Hill

The rule is currently at the U.S. Office of Management and Budget for review. The OMB will post the status of the rule after its review. The rule has been signed off by the Secretary of the Dept. of Transportation and the FAA Administrator. The rule deals with heated center tanks on FAA regulated transport category airplanes and involves reducing the flammability to show that it is equivalent to the flammability of wing tanks (this is a very brief description of the rule, go to OMB website for the NPRM). It deals with in-service aircraft over a period of time and new design aircraft.

Class E Cargo Compartment Smoke Detection – D. Blake

This request is the result of UPS DC-8 fire February 7, 2006, Philadelphia, PA, USA. The aircraft landed about 11:59PM. It took several hours to get the front cargo door open. This means there was no access to the interior of the aircraft for several hours. Around 2:16AM the fire penetrated the roof. A portion of the Cockpit Voice Recorder Transcript from the NTSB report was displayed. NTSB Recommendation A-07-98 to the FAA initiated this research and testing program. FAATC Fire Safety Team will use its 727-freighter aircraft test article. FAATC Fire Safety Team's 747SP test article Below Floor Compartment section will also be used in this test program. Smoke detection tests will be completed in both test articles. Smoke test will be conducted with the compartment empty, fully loaded with containers, and loaded with a mix of containers and pallets. Smoke detection times will be competed to determine which configuration produces the slowest detection times. The Sandia smoke transport CFD code will be used to simulate all the actual smoke test scenarios. Smoke test results will be compared to simulation results. The results of these tests will dictate future activities.
Are you going to take into consideration the new designs in these types of aircraft? Dave: I would like input from industry on this. We realize there have been a number of design changes in smoke detector locations, etc. If anyone is interested in participating in a Task Group to provide this type of information prior to this testing, please contact me. Dan Lewinski: We have 4-5 Class E fires in our database prior to 1990, I will check our database. We have provided this information to Steve Happenny at the FAA Transport Directorate in Seattle.

Lithium Battery Testing Update – R. Hill

PHMSA regulates the transportation of hazardous materials within the United States. PHMSA is holding a public meeting next Friday in Washington, D.C., to discuss the transport of lithium batteries by passengers and freight. The FAA will present their plan on the carriage of lithium batteries. An Aircraft Rulemaking Committee (ARC) will be started to look at the carriage of lithium and lithium ion batteries in freighters.

Class E Fire Suppression – R. Hill

NTSB Recommendation to look into installing fire suppression systems in all Class E cargo compartments has initiated a research project by the FAA Fire Safety department. Ray Cherry and Associates will be conducting a cost/benefit analysis on this. Manufacturers, if possible, please supply data on past freighter accidents/fires to Ray Cherry and Associates to use for this cost/benefit analysis study. We also want to look at questions that have come up on the effectiveness of the depressurization. What are the effects of depressurization on the crew and on fire control at different altitudes between 18,000 to 25,000 feet. We will be looking into what the procedure should be in an aircraft where you have suppression systems in some compartments? We will be conducting some tests in the FAATC explosion chamber as part of this research. We will be creating various types of fires within the explosion chamber as part of this test program.

Working Group Member Presentations

UNEP – HTOC Update – J. O'Sullivan

John has been tasked with writing a report by July 2008. He is requesting information on the following areas to include in this report:
Aviation Requirements
Supplies (Halon): for new build, service current need, production new build, availability, banks, timeframe
A lot of emphasis has been placed on the Minimum Performance Standards and Specifications worldwide.
Systems Certified: regulatory authority approval, design, manufacturer, approved, listed
ICAO A36-WP/359 – Halon Replacement: climate change, dwindling supplies, published MPS, stringent aircraft specific requirements, so progress has been made, no progress on cargo compartment, alternatives unacceptable environmental or health risks when compared with halons.

The Assembly Agrees: Urgency to develop and implement replacements, urges states – manufacturers of airframes, airlines, chemical suppliers, fire extinguishing companies move faster in the implementation process for engines, APUs, handheld extinguishers and lavatories

John reviewed some significant dates in calendar for progress

John is asking for related data for the report before July 1, 2008, via email. John's contact information is:
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Next Meeting:

Fall 2008 in Atlantic City, New Jersey, USA. Dates TBA.