

**NATIONAL TRANSPORTATION SAFETY BOARD
OFFICE OF AVIATION SAFETY
WASHINGTON, D.C. 20594**

**JAPAN AIRLINES, JA829J
BOEING 787-8 BATTERY FIRE
BOSTON MASSACHUSETTS
JANUARY 7, 2013**

**INVESTIGATIVE HEARING
WITNESS LIST**

All witnesses will be asked to state their full name, title, and organization after they are sworn in.

Panel 1: B787 Battery System – Selection and Certification Requirements

WITNESSES #1, #2, #3, #4:

**Dorenda Baker, Director Aircraft
Certification Service
Federal Aviation Administration
Washington, DC**

**Ali Bahrami, Manager, Transport
Airplane Directorate
Federal Aviation Administration
Seattle, WA**

**Steve Boyd, Manager, Airplane and
Flight Crew Interface Branch
Federal Aviation Administration
Seattle, WA**

**Mike Sinnett, Vice President and 787
Chief Project Engineer
Boeing Company
Seattle, WA**

Issues:

- *Reasons for selecting Li-Ion battery technology and its classification as novel design*
- *Process for evaluating battery/battery system as novel design and developing certification requirements (Issue Paper)*
- *Resulting Special Conditions and their interpretation*
- *Applicability of Airworthiness Standards for Equipment, Systems, and Installations (14 Code of Federal Regulations 25.1309)*
- *Industry safety standards used in development of certification requirements*
- *Certification program timeline and high level compliance plans*

Exhibits: 18A, 18E, 18F, 18H – 18K, 19A

Questioned by: Ms. Dana Schulze, Mr. Michael Hauf

Panel 2: B787 Battery System Design and Development

WITNESSES #5, thru #13:

**Jerry Hulm, Systems Engineer, Associate
Tech Fellow, Regulatory Administration
Boeing Company
Seattle, WA**

**Mehdy Barekatein, Systems Engineer and
Authorized Representative
Boeing Company
Seattle, WA**

**Kamiar Karimi, Senior Technical Fellow,
Electrical Power Systems
Boeing Company
Seattle, WA**

**Sandra Voglino, B787 In Service Program
Manager
Thales Avionics Electrical Systems
Seattle, WA**

**Thierry Queste, Project Design Authority
for B787 program
Thales Avionics Electrical Systems
Chatou, France**

**Arezki Bouzourene, Battery Product
Technical Engineer
Thales Avionics Electrical Systems
Chatou, France**

**Takahiro Shizuki, Manager, Large-scale
Lithium-ion Battery Technical
Department
GS-Yuasa Corporation
Kyoto, Japan**

**Hiroaki Yoshida, General Manager,
Large-scale Lithium-ion Battery
Technical Department
GS-Yuasa Corporation
Kyoto, Japan**

**Daisuke Konishi, General Manager of the
Lithium-ion Battery Business Unit
Development Division
GS-Yuasa Corporation
Kyoto, Japan**

Issues:

- *Prime and subcontractors battery expertise and experience*
- *Role of prime and subcontractors in the development and design approval of the battery system*
- *Cell and battery design and specifications*
- *Charging system design and specifications*
- *Design development testing and evaluation:*
 - *Battery, cell, and integrated system testing*
 - *Test failures / investigations*
 - *Engineering analysis and evaluation of design during development phase*
 - *Resulting design modifications*

Exhibits: 15A – 15I, 17A, 17B, 17D – 17H, 17J, 18A, 18E-18K, 19A

Questioned by: Mr. Joseph Panagiotou, Mr. Robert Swaim, Mr. Michael Bauer

Panel 3: B787 Battery System Design Verification and Validation

WITNESSES #14, thru #21: **Jerry Hulm, Systems Engineer, Associate
Tech Fellow, Regulatory Administration
Boeing Company
Seattle, WA**

**Martin Robinett, Manager of Regulatory
Administration, Authorized
Representative Administration System
Integration
Boeing Company
Seattle, WA**

**Sandra Voglino, B787 In Service Program
Manager
Thales Avionics Electrical Systems
Seattle, WA**

**Thierry Queste, Project Design Authority
for B787 program
Thales Avionics Electrical Systems
Chatou, France**

**Arezki Bouzourene, Battery Product
Technical Engineer
Thales Avionics Electrical Systems
Chatou, France**

**Takahiro Shizuki, Manager, Large-scale
Lithium-ion Battery Technical
Department
GS-Yuasa Corporation
Kyoto, Japan**

**Yoshiaki Namikawa, General Manager,
Large-scale Lithium-ion Battery
Technical Department
GS-Yuasa Corporation**

Kyoto, Japan

**Daisuke Konishi, General Manager of the
Lithium-ion Battery Business Unit
Development Division
GS-Yuasa Corporation
Kyoto, Japan**

Issues:

- *Battery, cell, and integrated system testing pertinent to certification (qualification, development, other)*
- *Safety Assessments*
 - *Purpose with respect to certification*
 - *Analyses performed to evaluate battery safety risks (Boeing, Thales, GS-Yuasa roles)*
 - *Data sources for analyses*

Exhibits: 15A – 15I, 17A, 17D – 17H, 17J, 18A-18E, 18I-18K, 19A

Questioned by: Mr. Robert Swaim, Mr. Joseph Panagiotou, Mr. Michael Bauer,
Mr. Michael Hauf

Panel 4: B787 Battery System Certification / FAA Finding of Compliance

WITNESS #22, thru #25:

**Dorenda Baker, Director Aircraft
Certification Service
Federal Aviation Administration
Washington, DC**

**Ali Bahrami, Manager, Transport
Airplane Directorate
Federal Aviation Administration
Seattle, WA**

**Steve Boyd, Manager, Airplane and
Flight Crew Interface Branch
Federal Aviation Administration
Seattle, WA**

**Doug Lane, Director, Boeing Commercial
Airplane Regulatory Administration
Boeing Company
Seattle, WA**

Issues:

- *Certification process structure and comparison to prior certification programs*
- *Retained and delegated approval authority*
- *Oversight of delegation organization / authorized representatives*
- *Oversight of validation testing for B787 Li-Ion battery*
- *Findings of compliance and review of safety assessments for B787 Li-Ion battery*

Exhibits: 18A-18K, 19A

Questioned by: Mr. Michael Hauf, Ms. Dana Schulze