

# ICAO Lithium Battery Shipping Update

Changes to the 2015-2016 ICAO Technical  
Instructions as Published in Addendums 3 & 4

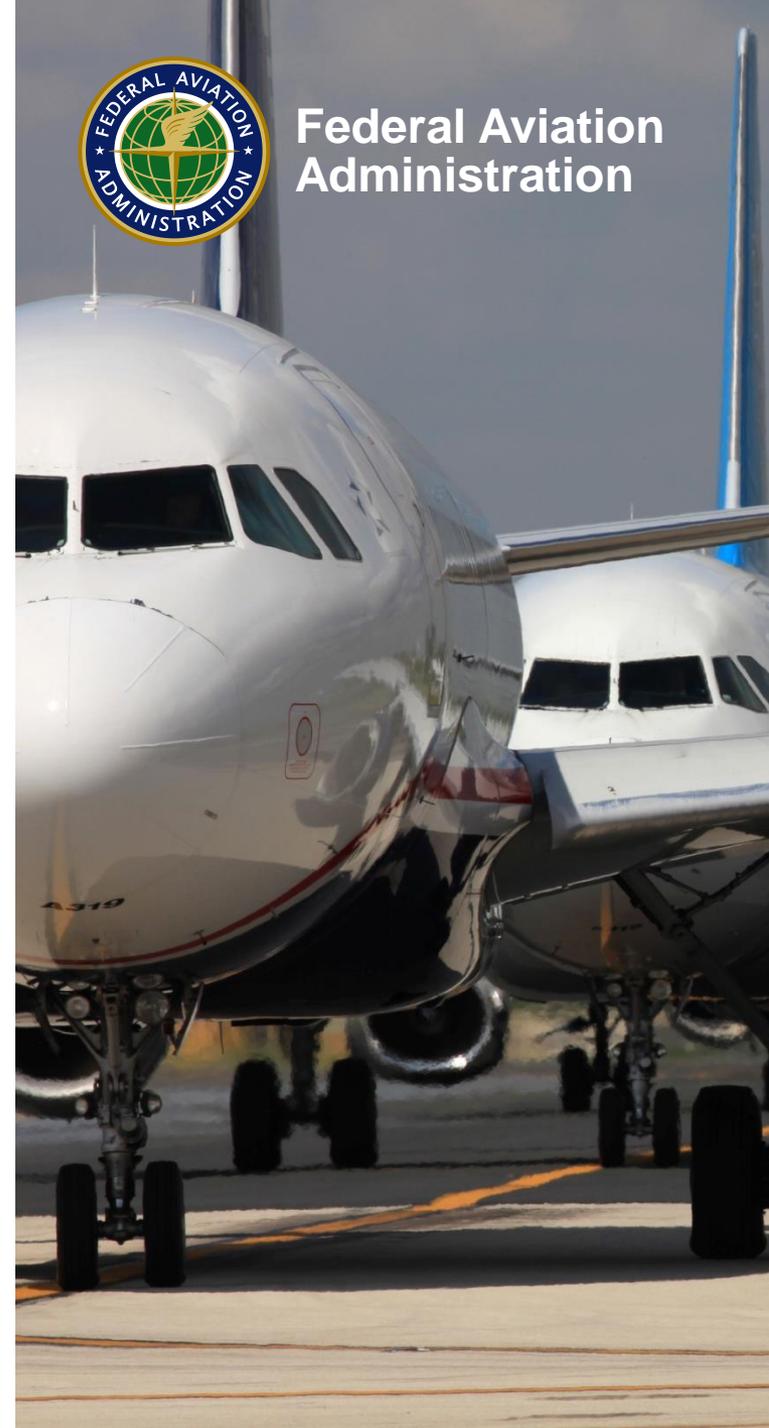
Presented to: Int'l Aircraft Systems Working Grp

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Date: May 25-26, 2016



Federal Aviation  
Administration



# ICAO Dangerous Goods Panel

- **The DGP met in Montreal on October 19-30 2015**
- **The Panel was addressed by the Secretary of Flight Operations Panel**
  - “The Flight Operations Panel is of the opinion that lithium batteries and cells should be transported in aircraft engaged in commercial air transport operations as cargo only if acceptable criteria can be identified to carry out appropriate safety risk management activities in order to ensure the safe carriage of lithium batteries and cells.



# ICAO Dangerous Goods Panel

- **The panel was presented with the report of the Third International Multidisciplinary Lithium Battery Transport Coordination Meeting which was held in Montréal from 28 to 30 July 2015.**
- **Recognizing that the ultimate goal was to permit their transport by air, the multidisciplinary meeting agreed that performance-based standards, including packaging standards, needed to be developed as part of a comprehensive strategy to mitigate risks posed by lithium batteries.**



# ICAO Dangerous Goods Panel

- **The multidisciplinary meeting recommended that an external group develop the detailed performance standards. The Secretary reported to DGP that SAE International was being requested to address the issue.**
- **The multidisciplinary meeting made interim recommendations:**
  - operators to perform safety risk assessments
  - transporting lithium ion batteries at a reduced state of charge
  - Instituting cargo loading controls such as limiting the number of batteries loaded in one place and segregating them from other dangerous goods.



# ICAO Dangerous Goods Panel

- **Several formal proposals were put forward to mitigate the risk of shipping lithium-ion cells not packed with or installed in equipment**
- **The proposals included reducing state of charge, modifying or eliminating section II, and an outright ban on shipping on passenger aircraft**



# ICAO Dangerous Goods Panel

- **Much debate ensued...**
- **The proposal to forbid the shipment of lithium-ion cells on passenger aircraft was not approved by a majority of the voting DG panel members**
- **The proposal to restrict the state of charge of lithium to 30% was approved, for both passenger and freighter aircraft**
- **Restrictions to section II shipments were approved.**
- **Changes to take effect on April 1, 2016**



# TECHNICAL INSTRUCTIONS FOR THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR

- **Addendum No. 3**

- Packing Instruction 965, Section IA.1

- Lithium ion cells and batteries must be offered for transport at a state of charge not exceeding 30 per cent of their rated capacity. Cells and/or batteries at a state of charge greater than 30 per cent of their rated capacity may only be shipped with the approval of the State of Origin and the State of the Operator under the written conditions established by those authorities.
- Note.— Guidance and methodology for determining the rated capacity can be found in sub-section 38.3.2.3 of the UN Manual of Tests and Criteria.



# TECHNICAL INSTRUCTIONS FOR THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR

- Packing Instruction 965, Section IB.1
  - Lithium ion cells and batteries must be offered for transport at a state of charge not exceeding 30 per cent of their rated capacity. Cells and/or batteries at a state of charge greater than 30 per cent of their rated capacity may only be shipped with the approval of the State of Origin and the State of the Operator under the written conditions established by those authorities.
  - Note.— Guidance and methodology for determining the rated capacity can be found in sub-section 38.3.2.3 of the UN Manual of Tests and Criteria.



# TECHNICAL INSTRUCTIONS FOR THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR

- **Packing Instruction 965, Section II**

- Lithium ion cells and batteries must be offered for transport at a state of charge not exceeding 30 per cent of their rated capacity.
- Note.— Guidance and methodology for determining the rated capacity can be found in sub-section 38.3.2.3 of the UN Manual of Tests and Criteria.
- A shipper is not permitted to offer for transport more than one package prepared according to this section in any single consignment.



# TECHNICAL INSTRUCTIONS FOR THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR

- **Packing Instruction 965, Section II (cont'd)**
  - Packages and overpacks of lithium ion batteries prepared in accordance with the provisions of Section II must be offered to the operator separately from cargo which is not subject to these Instructions and must not be loaded into a unit load device before being offered to the operator.
  - Not more than one package prepared in accordance with this section may be placed into an overpack.



# TECHNICAL INSTRUCTIONS FOR THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR

- **Packing Instruction 965, Section II (cont'd)**
  - Note.— For the purpose of Section II, an overpack is an enclosure used by a single shipper that contains no more than one package prepared in accordance with this section. For shipments prepared in accordance with Section IA and/or IB, this limit of one package of Section II batteries per overpack still applies.
  - A shipper is not permitted to offer for transport more than one package prepared according to this section in any single consignment.



# TECHNICAL INSTRUCTIONS FOR THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR

- **Packing Instruction 965, Section II (cont'd)**
  - Packages and overpacks of lithium metal batteries prepared in accordance with the provisions of Section II must be offered to the operator separately from cargo which is not subject to these Instructions and must not be loaded into a unit load device before being offered to the operator.
  - Not more than one package prepared in accordance with this section may be placed into an overpack.



# TECHNICAL INSTRUCTIONS FOR THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR

- **Packing Instruction 965, Section II (cont'd)**
  - Note.— For the purpose of Section II, an overpack is an enclosure used by a single shipper that contains no more than one package prepared in accordance with this section. For shipments prepared in accordance with Section IA and/or IB, this limit of one package of Section II batteries per overpack still applies



# Air Navigation Commission (ANC)

- **The ANC approved all of the changes to the Technical Instructions submitted by the DGP as previously outlined in Addendum 3.**
- **The ANC was then tasked by the ICAO Council to draft a paper to consider the ban of shipments of lithium-ion cells and batteries on passenger aircraft.**
- **Much debate ensued...**
- **The ANC voted to recommend to the ICAO Council that shipment of lithium-ion cells on passenger aircraft be forbidden**



# ICAO Council

- **On February 22, 2016, the ICAO Council voted to temporarily ban the shipment of lithium-ion batteries on passenger aircraft.**
- **The ban does not apply to lithium-ion batteries packed with or contained with equipment.**
- **The ban is to take effect on April 1, 2016, and remain in force until safer methods of shipment are developed.**



# TECHNICAL INSTRUCTIONS FOR THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR

- **The decision by the ICAO council to temporarily ban the shipment of lithium-ion cells and batteries not packed in or with equipment necessitated another addendum to the packing instructions**
- **Addendum No. 4**
  - Packing Instruction 965
    - Insert the word “FORBIDDEN” in any reference to shipment on passenger aircraft (many locations)
    - Cargo Aircraft Only labels



# Questions?

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