



ICAO

UNITING AVIATION

ICAO Training on Lithium Batteries

Lima, Peru



ICAO

UNITING AVIATION

OVERVIEW

Air Transport Lithium Battery Incident Guide



Overview

- Introduction to the Guide
- Chapter 1: General Information
- Chapter 2: Notification & Evaluation of a Lithium Battery Incident
- Chapter 3: Determination of Responsible Entities Involved in the Lithium Battery Incident



Overview

- Chapter 4: Lithium Battery Incident Investigation
- Chapter 5: Pre-Inspection Activities
- Chapter 6: Investigation of Entities Performing a Dangerous Goods (DG) Shipper Function



Overview

- Chapter 7: Investigation of Entities Performing a DG Operator Function
- Chapter 8: DG Compliance



Overview

- Appendices:

APPENDIX 1. DG Incident Support Guides

APPENDIX 2. 2015-2016 Technical Instructions, Lithium Battery Packing Instructions 965-970

APPENDIX 3. Additional Inspection Activities for Lithium Batteries – Shipper

APPENDIX 4. The Supplement to the Technical Instructions: DG Audit Form – Shipper (Part S-5)

APPENDIX 5. UN Manual of Test & Criteria, Part III, Subsection 38.3 (5th Revised Edition, Amend. 2)

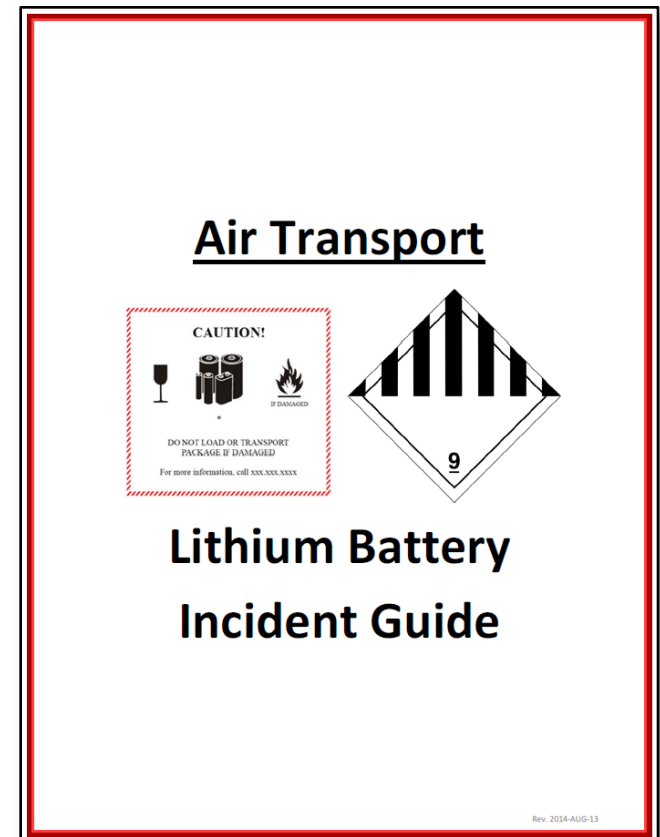
APPENDIX 6. The Supplement to the Technical Instructions: DG Audit Form – Operator (Part S-7)

APPENDIX 7. How to Calculate Lithium Battery Watt-hours & Estimated Lithium Metal Content

APPENDIX 8. Lithium Cell or Battery: UN Manual of Tests & Criteria Inspection Tool

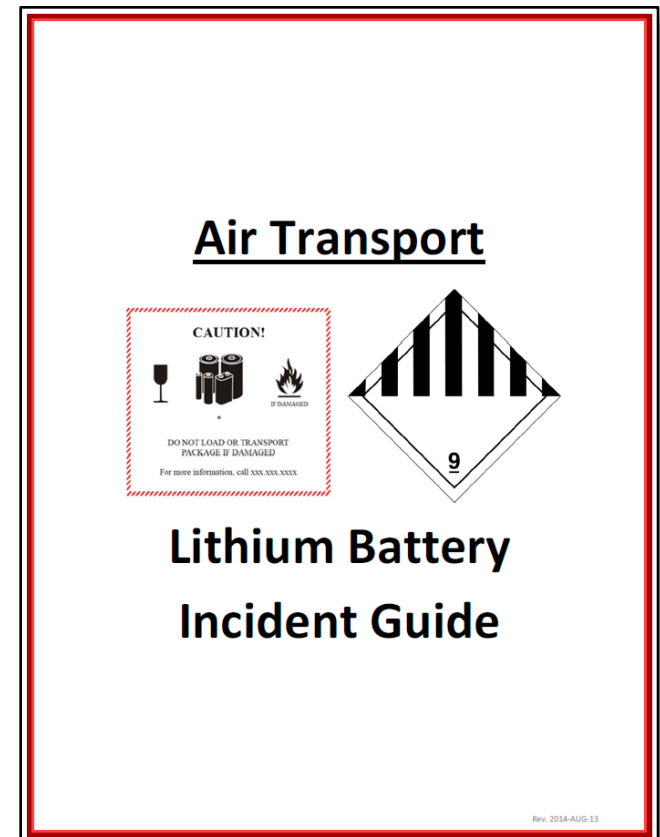
Introduction to the Guide

- Investigating and sharing the information and potential root cause of a fire, smoke, heat, or fume event involving lithium batteries in air transport is a critical component in moving forward to help mitigate this risk.



Introduction to the Guide

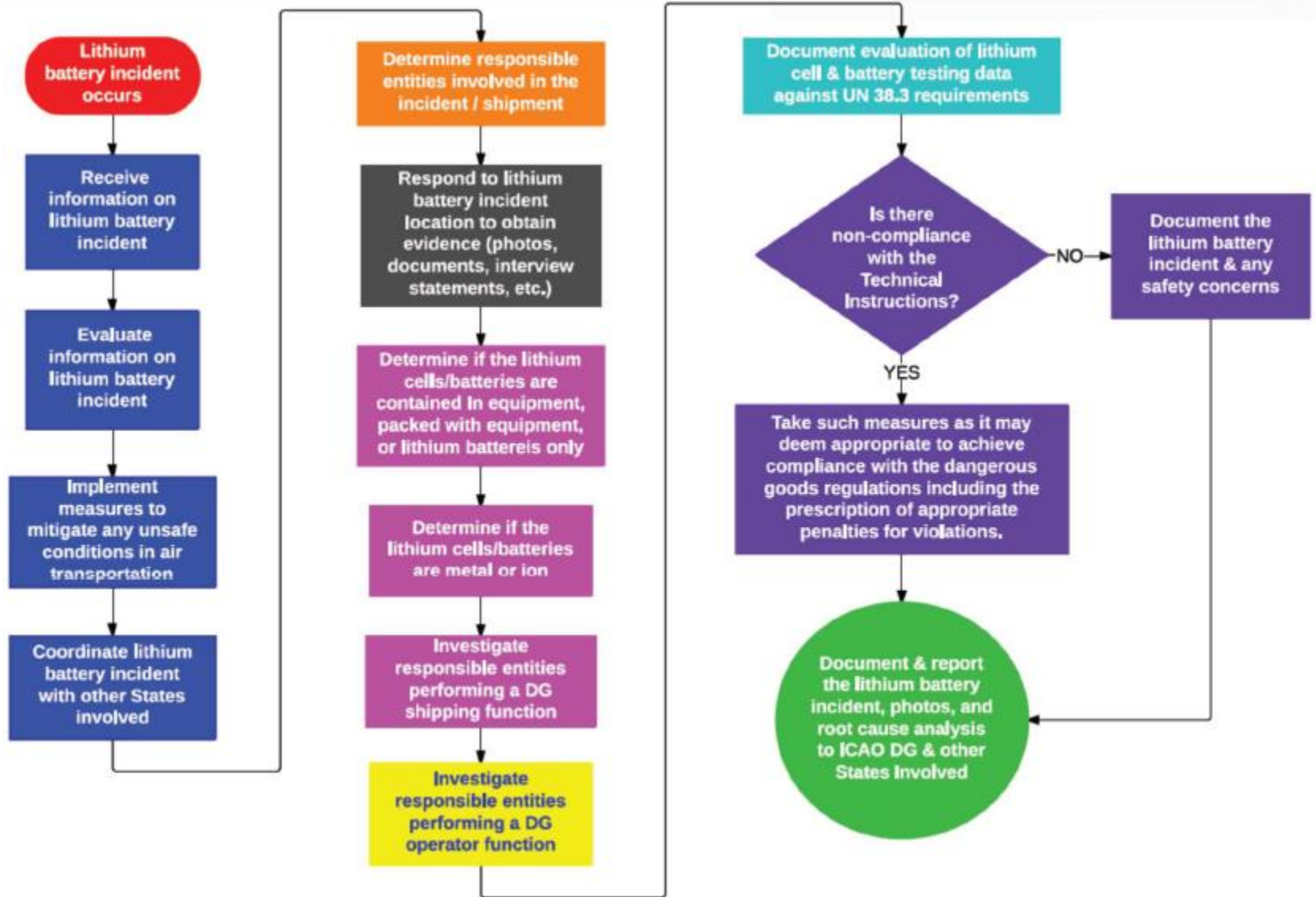
- This guide is meant to support and prepare a CAA inspector in the investigation of a lithium battery air cargo shipment event.





Chapter 1: General Information

- This Chapter lays the foundation for the incident guide with Annex 18 references and definitions.
- It also includes a very helpful Flowchart that covers the entire incident guide process.





Chapter 2: Notification & Evaluation of a Lithium Battery Incident

- This Chapter covers consideration of receiving and evaluating an initial lithium battery incident report (written or verbal).
- It covers determining if there are any unsafe conditions to be concerned about.



Chapter 2: Notification & Evaluation of a Lithium Battery Incident

- Coordination of incidents between States as outlined in Annex 18 is discussed along with information in the Supplement to the Technical Instructions (Part S-7;4)



Chapter 3: Determination of Responsible Entities Involved in the Lithium Battery Incident

- This Chapter covers the difficulties in determining who was responsible for offering the DG package(s) for international air transport.
- It covers the need to make sure all entities involved with the transport are confirmed (shippers, freight forwarders, handling companies, air carriers, etc.).



Chapter 4: Lithium Battery Incident Investigation

- This Chapter covers preparing for and conducting the on-site investigation of the actual package and personnel with knowledge of the incident.



Chapter 5: Inspection Activities

- This Chapter covers conducting background research, research on the actual lithium battery in the incident, and research on the actual packaging utilized in the incident.



Chapter 6: Investigation of Entities Performing a DG Shipper Function

- This Chapter covers investigation of entities that performed a DG shipper function previously determined in the investigation.
- It gives guidance on how to handle this process and references several of the Appendices as supporting documentation.



Chapter 6: Investigation of Entities Performing a DG Shipper Function

- It covers information on determining what type of lithium battery was involved in the incident.
- Now that the lithium battery type has been determined, it covers a discussion on the evaluating if it was packaged bulk, with equipment, and in equipment.



Chapter 7: Investigation of Entities Performing a DG Operator Function

- This Chapter covers some areas to look at for the Operator (air carrier) in the acceptance of this package involved in the incident.
- It is critical to determine if the Operator is aware and any abuse, damage, or mishandling of the package prior to the incident.



Chapter 8: DG Compliance

- This Chapter covers the evaluation of the compliance of the entities involved with the lithium battery packaging instructions and the *UN Manual of Tests and Criteria*.
- The Chapter covers achieving compliance (Annex 18) and compliance assurance (Part S-7;4).



Chapter 8: DG Compliance

- One of the critical last steps once the investigation is complete, is the sharing of the results of the root cause or suspected root cause of the incident with ICAO and the other States involved in the transport of the package.



APPENDICES

- Take note of Appendices 1, 3, 7, & 8 as they were specifically created as support tools for this guide.
- Appendices 2, 4, 5, & 6 are references to existing documentation.



APPENDICES

APPENDIX 1. DG Incident Support Guides

APPENDIX 2. 2015-2016 Technical Instructions, Lithium Battery Packing Instructions 965-970

APPENDIX 3. Additional Inspection Activities for Lithium Batteries – Shipper

APPENDIX 4. The Supplement to the Technical Instructions: DG Audit Form – Shipper (Part S-5)

APPENDIX 5. UN Manual of Test & Criteria, Part III, Subsection 38.3 (5th Revised Edition, Amend. 2)

APPENDIX 6. The Supplement to the Technical Instructions: DG Audit Form – Operator (Part S-7)

APPENDIX 7. How to Calculate Lithium Battery Watt-hours & Estimated Lithium Metal Content

APPENDIX 8. Lithium Cell or Battery: UN Manual of Tests & Criteria Inspection Tool



Summary

- Proper lithium battery transportation is critical to air transportation safety. The goal of preventing future incidents can depend on conducting a thorough and complete investigation. This guide can help in the proper planning and preparation of a CAA inspector in meeting this goal.



ICAO

UNITING AVIATION

QUESTIONS?