



WORKING PAPER

ASSEMBLY — 40TH SESSION

TECHNICAL COMMISSION

Agenda Item 30: Other issues to be considered by the Technical Commission

**CARRIAGE OF UNDECLARED/MISDECLARED HIGH-HAZARD
DANGEROUS GOODS BY AIRCRAFT**

(Presented by the United Kingdom, New Zealand, France and Netherlands)

EXECUTIVE SUMMARY

In 2016 the ICAO Council concluded that the risks associated with the carriage of lithium batteries as cargo on aircraft were not adequately controlled, and ICAO has introduced various measures to reduce the risks. The UK acknowledges the significant effort and accomplishment by ICAO. Despite this, an aircraft fire due to the carriage of undeclared or misdeclared lithium batteries remains a significant risk due to the expected trend towards increased lithium battery production and use, the growth of e-commerce, and deliberate or unknowing violation of current rules. This paper presents an overview of the United Kingdom's work to address the risk of the carriage of un/misdeclared lithium batteries by air, and urges ICAO and States to continue to prioritise the mitigation of the risk.

Action: The Assembly is invited to:

- a) request ICAO to continue to prioritise the work programme aimed at reducing the risks associated with shipment of lithium batteries by air, and to adopt a cross-domain approach involving relevant stakeholders, including aviation security experts, those involved in the manufacture of lithium batteries, the air transport supply chain and other relevant global bodies, seeking to draw efforts together and ensure that actions are aligned;
- b) request ICAO to consider all possible mitigations in addition to the development of standards, including proactive measures to increase awareness of the relevant requirements;
- c) urge States to fulfil obligations under Annex 18 — *Safe Transport of Dangerous Goods by Air*; and
- d) invite States to support ICAO by sharing data and intelligence on undeclared or misdeclared shipments of high hazard dangerous goods, including lithium batteries, and to cooperate on enforcement of illegal shipments.

<i>Strategic Objectives:</i>	This working paper relates to the Safety and Air Navigation Capacity and Efficiency Strategic Objectives .
<i>Financial implications:</i>	Not Applicable

<i>References:</i>	Annex 6 – <i>Operation of Aircraft</i> Annex 18 - <i>Safe Transport of Dangerous Goods by Air</i> Annex 19 – <i>Safety Management</i>
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1. INTRODUCTION

1.1 The United Kingdom is committed to fulfilling its ICAO Member State obligations in respect of the management of aviation safety standards. Through its State Safety Programme (SSP), supported by the UK Civil Aviation Authority’s Safety Plan, the UK has adopted the Global Aviation Safety Plan (GASP) whilst remaining entirely consistent with the European Plan for Aviation Safety (EPAS).

1.2 The UK CAA regulatory management system has identified the risk of undeclared or misdeclared high hazard dangerous goods, including lithium batteries, transported by aircraft carrying UK passengers and crew as one of its highest risks. In response, as indicated in section 3 below, the UK’s safety and security teams have been united in their determination to improve national and international mitigation of this risk.

1.3 The ICAO Secretariat’s Air Navigation Bureau (ANB) and Air Transport Bureau (ATB) staff have been working on the issue through the Dangerous Goods Panel, the Flight Operations Panel and related working groups. This includes emerging Annex 6 — *Operation of Aircraft* requirements for the operator to conduct a safety risk assessment on the carriage of all items in cargo compartments, and collaboration with the Society of Automotive Engineers SAE G-27 to develop a test method to demonstrate that hazards which might arise from a failure of an individual lithium cell can be safely contained within the package. The UK is committed to supporting ICAO in its efforts.

2. ISSUES

2.1 Lithium batteries can catch fire or explode if poorly manufactured, not subjected to mandatory safety testing, damaged or abused. The shipment of lithium batteries on their own (i.e. not contained in or packed with equipment) is prohibited in the mail and is restricted to carriage on-board cargo aircraft. International standards govern the testing, declaration, packaging, labelling and handling of lithium battery consignments.

2.2 The demand for lithium batteries has increased exponentially and with it inevitably the manufacture and supply of cheaper, poorly manufactured and untested batteries. The increase in e-commerce with customer expectation of fast delivery has led to increased shipment of lithium batteries by air across the globe.

2.3 The air transport supply chain encompasses multiple entities, including manufacturers, shippers, including e-commerce providers and individuals, freight forwarders, postal operators, ground handling providers and airlines.

2.4 The UK CAA has experienced an increase in the number of reports concerning bulk shipments of lithium batteries which were either undeclared or misdeclared as equipment containing batteries. Nine fire events involving lithium battery fires in cargo or air mail were reported to the UK CAA since 2012; fortunately, these fires all occurred on the ground before or after carriage. Aircraft halon

fire suppression systems are not able to suppress a fire involving bulk quantities of lithium metal batteries and does not stop cell-to-cell thermal runaway propagation of lithium ion batteries due to the intense heat produced¹.

2.5 Due to the trans-modal nature of the issue involving multiple stakeholders, the aviation industry cannot address this risk alone and needs the support of the battery manufacturing, testing laboratories and logistics industries, other regulators and standard setting bodies².

2.6 The risk can only be mitigated through international action and collaboration.

2.7 As with all other Standards and Recommended Practices (SARPs), current measures are reliant on relevant stakeholders' awareness of and compliance with the requirements. However, evidence indicates that awareness of the requirements in the supply chain is inconsistent, and that deliberate circumventing of the rules remains a problem.

3. **OVERVIEW OF UK STRATEGY TO MITIGATE THE CARRIAGE OF UNDECLARED/MISDECLARED HIGH-HAZARD DANGEROUS GOODS BY AIRCRAFT**

3.1 *Strengthening Enforcement.* The UK, through its risk-based oversight programme, is continuing to work with operators on identifying and mitigating the risk, including encouraging operators to periodically review their risk assessments. In addition, inspections on inbound cargo conducted by the UK Border Force have identified multi-tonne shipments of un/misdeclared dangerous goods arriving by air into the UK. Intelligence from these inspections is shared with relevant States for follow up and enforcement. The UK CAA and UK Border Force are working to formalise arrangements for sharing intelligence on these discoveries and for cross-training of customs agents in dangerous goods awareness. It is hoped that this activity will assist in identifying and subsequently deterring offenders, but it is reactive by nature.

3.2 *Lithium Battery workshop.* To build awareness and cooperation with other stakeholders and to adopt a proactive approach to reducing the risk, the UK CAA organised a two-day Lithium Battery Workshop on 13-14 June 2019, bringing together over 70 stakeholders from manufacturing, testing, logistics, airlines, International Air Transport Association (IATA), aviation regulators and government agencies, including ICAO. The group discussed and evaluated practical solutions to reduce non-compliant shipments of lithium batteries via air transport.

3.3 The workshop was very successful and agreed recommendations on:

- a) how product designers, manufacturers and distributors can be made aware of the applicable UN testing and shipping requirements;
- b) how data can be used to identify suspected shipments of undeclared lithium batteries before flight;
- c) how counterfeit poorly-manufactured or untested batteries can be prevented from entering the supply chain, or be intercepted at the earliest opportunity, and

¹ [ICAO International Multidisciplinary Lithium Battery Transport Co-ordination Meeting 4-6 February 2014](#)

² Examples could include UL, TUV SUD, RECHARGE, PRBA.

d) how stakeholders can collaborate more effectively on investigation and enforcement.

3.4 The detailed recommendations will be shared widely, including with ICAO, and will further inform the UK's strategy on mitigating the risk.

3.5 The workshop also noted that new technology has been developed that can help automatically to detect the carriage of undeclared dangerous goods – whether in cargo or passengers' baggage – during the security screening process, and that this has the potential to provide a significant mitigation of the safety risk.

3.6 Additional protection against undeclared or misdeclared shipments is not likely to be achieved solely by additional rules or requirements. Consideration should be given to how awareness of current rules can be strengthened, and compliance reinforced through multi-stakeholder collaboration.

4. **CONCLUSION**

4.1 Despite the various measures introduced by ICAO, which the UK fully supports, an aircraft fire due to the carriage of undeclared/misdeclared lithium batteries by aircraft remains a significant risk.

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