



DGP-WG/10-IP/3  
5/11/10

**DANGEROUS GOODS PANEL (DGP)  
MEETING OF THE WORKING GROUP OF THE WHOLE**

**Abu Dhabi, United Arab Emirates, 7 to 11 November 2010**

- Agenda Item 5: Resolution, where possible, of the non-recurrent work items identified by the Air Navigation Commission or the panel**  
**5.2: Review of provisions for dangerous goods relating to batteries**

**UNITED KINGDOM CIVIL AVIATION AUTHORITY FLIGHT OPERATIONS  
COMMUNICATION RELATED TO THE CARRIAGE OF LITHIUM BATTERIES**

(Presented by G.A. Leach)

SAFETY REGULATION GROUP

**FLIGHT OPERATIONS COMMUNICATION****30/2010**

**Applicability:** All Holders of an Approval to Carry Dangerous Goods as Cargo

**THE CARRIAGE OF LITHIUM BATTERIES AS CARGO****1 Introduction**

- 1.1 Operators may be aware that the European Aviation Safety Agency (EASA) recently published **Safety Information Bulletin (SIB) 2010-30** which in turn refers to a Federal Aviation Administration (FAA) **Safety Alert For Operators (SAFO) 10017** concerning the transport of lithium batteries by air as cargo.
- 1.2 The purpose of this FODCOM is to clarify the view of the CAA in respect of this matter.

**2 Background**

- 2.1 Lithium ion and lithium metal batteries have become everyday household articles, being used to power laptop computers, mobile phones, watches, etc. They are shipped in their millions around the world using air transport. Because of the energy stored within these batteries, improper preparation for transport or inappropriate handling can result in such batteries failing. The effects of such a failure can be quite dramatic and there have been a number of fires reported as a result.
- 2.2 On 7 February 2006, a UPS DC-8 aircraft suffered an in-flight fire and subsequently burned out after landing at Philadelphia Airport. The cause of the incident was not established, but suspicion centred on consignments of lithium batteries, which were being carried as cargo.
- 2.3 Following the 2006 incident, even though the cause was not determined, the International Civil Aviation Organization (ICAO) Dangerous Goods Panel conducted a comprehensive review of the provisions contained in the Technical Instructions for the Safe Transport of Dangerous Goods by Air (the 'Technical Instructions') for the transport of lithium batteries in cargo. This included both when batteries are contained in equipment and when batteries are packed with equipment. Because lithium ion batteries are so common, the review resulted in a number of enhancements to the provisions, particularly to those lithium ion batteries which, because of their small size, are exempted from the full requirements of the Technical Instructions. These enhancements, which were adopted in the 2009-2010 edition of the Technical Instructions, included:
- a) adoption of new proper shipping names to distinguish between lithium ion and lithium metal batteries, as the hazards they present are different;
  - b) adoption of a 100 watt-hour threshold between batteries which are fully regulated as opposed to those which are excepted from the full requirements;
  - c) a reduction in the maximum gross mass of each package from 30 kg to 10 kg; and
  - d) introduction of a 1.2 m drop test, a new warning label, accompanying document and provision of information to staff preparing the batteries for air transport for all consignments, irrespective of the number of batteries contained therein.
- 2.4 These enhancements have not been adopted by the United States. The US has instead produced a Notice of Proposed Rulemaking proposing the introduction of requirements that would in some respects go further than ICAO, whilst in others be less restrictive. Consequently, the current US requirements do not align with those of ICAO.
- 2.5 On 3 September 2010 another UPS aircraft, a B747-400F, crashed in Dubai following an in-flight fire. Both crew members were killed. This aircraft is known to have been carrying large quantities of lithium batteries but, at the time of publishing this FODCOM, the cause of the accident is not known. Following this accident, the FAA produced SAFO 10017 recommending certain actions be taken by operators. Two of these (1 and 2 below) are additional requirements to those of ICAO:

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'1) Request customers to identify bulk shipments of currently excepted lithium batteries by information on air waybills and other documents provided by shippers offering shipments of lithium batteries.'

**Note:** Providing such information on air waybills etc. will be a **mandatory** requirement of the ICAO Technical Instructions from 1 January 2011. Furthermore, the ICAO requirement will apply to **all** lithium battery shipments, not just those in 'bulk'.

'2) Where feasible and appropriate, stow bulk shipments of lithium batteries in Class C cargo compartments or in locations where alternative fire suppression is available.'

**Note:** There is no definition in the SAFO of what is meant by 'bulk'.

2.6 On 20 October 2010, EASA issued SIB 2010-30, which supported the recommended actions in the FAA SAFO. It should be noted that the CAA is not aware of the consultation of any dangerous goods specialists from the various European Aviation Authorities by the EASA Certification Directorate prior to its publication.

### 3 The CAA Position

3.1 Adoption of the Standards and Recommended Practices of ICAO ensures harmonisation of safety standards across the world. The unilateral introduction of additional requirements can lead to uncertainty and a lack of understanding of what is required.

3.2 The CAA is concerned by the incidents that have occurred involving lithium batteries. However, there are no documented cases of incidents having been caused by lithium batteries when carried as cargo, which were prepared in full compliance with the ICAO Technical Instructions. Incidents that have occurred were caused, for example, by inadequate packaging or failure to protect against short circuit.

3.3 It is also a fact that in some parts of the world counterfeit batteries are produced that will not have the inherent safety features of legitimate batteries. It is for these reasons that the CAA believes that the additional regulatory requirements would be unlikely to stop further incidents and consequently sees no reason to introduce requirements over and above those of the Technical Instructions. Indeed, it is considered that the extra costs associated with additional requirements may encourage some currently compliant shippers to not follow the existing rules, effectively driving the carriage of lithium batteries 'underground' and thus having a negative effect on safety.

### 4 Recommendation

4.1 **To help assure that lithium batteries are carried safely on aircraft, operators should ensure that all applicable requirements of the current edition of the ICAO Technical Instructions are implemented and complied with.**

### 5 Queries

5.1 Any queries as a result of this Flight Operations Communication should be addressed to the operator's Flight Operations Inspector (FOI), or for those who do not have an assigned FOI to the Head of Flight Operations Policy at the following e-mail address: [FOP.Admin@caa.co.uk](mailto:FOP.Admin@caa.co.uk).

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