



WORKING PAPER

DANGEROUS GOODS PANEL (DGP)

TWENTY-FIFTH MEETING

Montréal, 19 to 30 October 2015

Agenda Item 2: Development of recommendations for amendments to the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284) for incorporation in the 2017-2018 Edition

EMERGENCY LOCATING BEACONS WHEN CARRIED BY PASSENGERS

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SUMMARY

This paper provides information on emergency locating beacons, their role as life-saving appliances, the lithium metal batteries used to power them, the restrictions around their carriage by passengers or crew, and a proposal to expand the carriage of these devices by passengers and crew with additional conditions to maintain aviation safety.

Action by the DGP: The DGP is invited to comment upon, and consider accepting, the proposed amendment as shown in the appendix to this working paper.

1. INTRODUCTION

1.1 Personal locator beacons (PLBs), emergency location transmitters (ELTs) and emergency position indicating radio beacons (EPIRBs) are emergency locating beacons which are used by people in distress to request emergency assistance, and aid in the subsequent detection and location of themselves, boats and aircraft and people in distress. Generally, EPIRBs are registered to vessels such as ships and ELTs to aircraft, although it is commonplace to treat ELTs as being synonymous with EPIRBs. PLBs are “registered” to individuals. When activated, both EPIRBs and PLBs emit a coded message via the 406 MHz distress frequency, which is relayed via the COSPAS/SARSAT satellite network, to a ground-based Rescue Coordination Centre.

1.2 Statistics indicate that these devices have assisted in over 28,000 rescues since 1982. With advances in technology and affordability these devices are increasing in popularity and passengers are carrying them as part of their personal baggage on adventure holidays. As the device may not be activated for many years; but is still required to function when needed, they are usually fitted with a

lithium metal battery as these have a long electrical storage life. They also tend to be manufactured to survive in a harsh operating environment e.g. robust and durable.

1.3 A growing number of EPIRBs and PLBs are powered by lithium metal batteries that exceed the current 2 g limit, and therefore cannot be legally carried as part of the passenger provisions in Part 8 of the ICAO Technical Instructions. The methods for passengers to legally carry these devices in a personal capacity, are either to consign them as cargo (UN 3091) which is a cumbersome and bureaucratic process and may not be practical or available; or they travel without the battery (if it can be removed) and buy them at destination – which could be difficult in some of the remote locations of the world that attract these adventure-bound travellers.

1.4 Discussions with a number of manufacturers, retailers and aircraft operators have revealed that even though passengers are being advised that non-medical devices powered by lithium metal batteries with a lithium metal content between 2 g – 8 g are not permitted by airlines, they are still being carried.

1.5 A number of retailers provide safety data sheets (SDS) which detail the chemistry of the lithium metal battery and content of lithium metal, and those which fall within the current provisions for portable electronic devices will often be declared as permitted for carriage by passengers on aircraft; whilst those that do not meet the passenger provisions are usually silent. Following up with manufacturers and retailers has shown that they are aware of the restrictions, and if asked will provide an honest response to their customers, yet they are still reluctant to label their product or provide comment in the SDS that the batteries used in their device exceed the 2 g limitation and are therefore not permitted under the normal provisions for carriage by passengers.

2. EXISTING PROVISIONS

2.1 Part 8; Table 8-1; item 8 of the Technical Instructions, deals specifically with portable medical electronic devices, and permits the carriage of portable medical electronic devices and larger lithium metal batteries.

"8) Portable medical electronic devices (automated external defibrillators (AED), nebulizer, continuous positive airway pressure (CPAP), etc.) containing lithium metal or lithium ion cells or batteries"

Where the fourth entry is

"Portable medical electronic devices containing lithium metal batteries exceeding 2 grams but not exceeding 8 grams or lithium ion batteries exceeding 100 Wh but not exceeding 160 Wh"

2.2 This is not an appropriate entry to consider for EPIRBs and PLBs.

2.3 Part 8; Table 8-1; item 19 deals with more general portable electronic devices containing batteries:

"19) Portable electronic devices (such as watches, calculating machines, cameras, cellular phones, laptop computers, camcorders)"

"Portable electronic devices (including medical devices) containing lithium metal or lithium ion cells or batteries..."

With the condition that:

- 'c) each battery must not exceed the following:
 - for lithium metal batteries, a lithium content of not more than 2 grams"

2.4 There is no provision in Part 8 of the Technical Instructions for general PEDs, powered by lithium metal batteries, which exceed 2 g but not 8 g of lithium metal.

3. **PASSENGER PROVISIONS: LIFE SAVING AND MEDICAL PURPOSES**

3.1 Part 8 permits the carriage of battery powered 'portable medical electronic devices' and cites examples of Automated External Defibrillators (AED) and Continuous Positive Airways Pressure (CPAP) devices.

3.2 Conceptually, an AED is generally a lithium metal battery powered, life-saving device; whilst a CPAP or oxygen concentrator is usually a lithium ion powered medical for preventive purposes.

3.3 That is, a CPAP is a medical device, which is used as a preventive measure, in reasonably foreseeable medical conditions; and to prevent the passenger having an in-flight medical emergency. An AED is a device, which is often unused and only operated after a person is suspected of having had a cardiac-related event.

3.4 Within the medically-related items that passengers may take as dangerous goods, there are other, non-battery operated preventive items such as portable oxygen cylinders and medicinal articles.

3.5 Part 8 also includes certain devices, containing dangerous goods, which are not battery powered and which have a life-saving purpose for the adventure-based traveller, such as avalanche rescue backpacks and inflatable life jackets.

4. **THE PROPSAL**

4.1 Passengers are carrying emergency personal location beacons, powered by lithium metal batteries exceeding 2g, on aircraft today; and will continue to do so as they consider them a potential lifesaving tool. Rather than continue to perpetuate an ineffectual prohibition, it is proposed that provision should be made to enable the lawful carriage of these devices, but in a way that enables the airline to manage and monitor the risk i.e. through requiring the approval of the Operator.

4.2 The provision should be constructed so to continue in the context of being "for the personal use of the passenger or crew member". The bulk transportation of EPIRBs/PLBs for an entire ship's crew or hiking party, should be via the normal cargo provisions; but there is a reluctance to limit them to one per passenger.

4.3 A number of enquiries received by the Civil Aviation Safety Authority of Australia have been in respect of requests to carry EPIRBs/ELTs for the ship/aircraft that the passenger has purchased or will command. Therefore the proposal in Appendix A has been constructed around facilitating the carriage of EPIRBs and ELTs, and not restricting it just PLBs.

4.4 As these emergency locating beacons are designed to have a long shelf life; it is not proposed to make any provision for the carriage of spare lithium metal batteries.

4.5 With this philosophy in mind and given that an EPIRB/PLB is used in life-saving situations it is a timely opportunity to amend Part 8 to catch up with these technological advances.

5. ACTION BY THE DGP

5.1 The DGP is invited to comment upon, and consider accepting, the proposed amendment as shown in the appendix to this working paper.

APPENDIX

PROPOSED AMENDMENT TO PART 8 OF THE TECHNICAL INSTRUCTIONS

Part 8

PROVISIONS CONCERNING
PASSENGERS AND CREW

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Chapter 1

PROVISIONS FOR DANGEROUS GOODS
CARRIED BY PASSENGERS OR CREW

Parts of this Chapter are affected by State Variations US 15; see Table A-1

1.1 DANGEROUS GOODS CARRIED BY PASSENGERS OR CREW

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Table 8-1. Provisions for dangerous goods carried by passengers or crew

| Items or articles | Location | | | Approval of the operator(s) is required | The pilot-in-command must be informed | Restrictions |
|--|-----------------|------------------|---------------|---|---------------------------------------|---|
| | Checked baggage | Carry-on baggage | On the person | | | |
| Medical necessities | | | | | | |
| ... | | | | | | |
| 19) Portable electronic devices (such as watches, calculating machines, cameras, cellular phones, laptop computers, camcorders) | | | | | | |
| Portable electronic devices (including medical devices) containing lithium metal or lithium ion cells or batteries (articles containing lithium metal or lithium ion cells or batteries the primary purpose of which is to provide power to another device must be carried as spare batteries in accordance with the item below) | Yes | Yes | Yes | No | No | a) carried by passengers or crew for personal use; b) should be carried as carry-on baggage; c) each battery must not exceed the following: <ul style="list-style-type: none"> — for lithium metal batteries, a lithium content of not more than 2 grams; or — for lithium ion batteries, a Watt-hour rating of not more than 100 Wh; |

| <i>Items or articles</i> | <i>Location</i> | | | <i>Approval of the operator(s) is required</i> | <i>The pilot-in-command must be informed</i> | <i>Restrictions</i> |
|---|------------------------|-------------------------|----------------------|--|--|--|
| | <i>Checked baggage</i> | <i>Carry-on baggage</i> | <i>On the person</i> | | | |
| <u>Personal portable emergency location devices containing lithium metal cells or batteries exceeding 2 grams but not exceeding 8 grams</u> | <u>No</u> | <u>Yes</u> | <u>Yes</u> | <u>Yes</u> | <u>No</u> | <u>a) carried by passengers or crew for their personal use;</u> <u>b) batteries and cells must be of a type which meets the requirements of each test in the UN <i>Manual of Tests and Criteria</i>, Part III, subsection 38.3.</u> |

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