



**WORKING PAPER**

**DANGEROUS GOODS PANEL (DGP)**

**TWENTY-THIRD MEETING**

**Montréal, 11 to 21 October 2011**

**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 2013-2014 Edition**

**WHEELCHAIRS AND OTHER MOBILITY AIDS POWERED BY BATTERIES**

(Presented by G. A. Leach)

**SUMMARY**

This working paper proposes additional safety measures for the carriage of wheelchairs and other mobility aids powered by batteries when carried by passengers and crew. It also proposes amendment of the provisions for dangerous goods carried by passengers and crew to reflect the requirements of Special Provision A123 concerning mobility aids powered by nickel-metal hydride batteries and also devices designed to enable the removal of batteries for carriage as baggage within the cabin.

**Action by the DGP:** The DGP is invited to amend 8;1.1.2 of the Technical Instructions as presented in the appendix to this working paper.

**1. INTRODUCTION**

1.1 Part 8;1.1.2 e), f) and g) of the Technical Instructions specify that operator(s) must ensure that wheelchairs or other battery-powered mobility aids are carried in such a manner so as to prevent unintentional activation and that they are protected from being damaged by the movement of baggage, mail, stores or other cargo.

1.2 On 7 September 2008 at Manchester Airport, ground staff unloading baggage from the forward hold of a Boeing 757 noticed blue sparks coming from a wheelchair with non-spillable batteries. The wheelchair was removed from the aircraft and placed on a baggage belt vehicle, where it immediately burst into flames and was destroyed. From subsequent investigations, it appeared during flight, baggage moved the joystick on the wheelchair causing the motor to be engaged thus causing friction or an electrical load that ignited the aid. Based upon this and subsequent occurrence reports received by the United Kingdom CAA, incident concerning wheelchairs found activated after flight, it would appear

difficult to prevent unintentional activation unless device are carried within a ULD or compartment loaded with no other baggage or cargo. Many operators would find it difficult to apply such a policy to all flights.

1.3 Wheelchairs and other mobility aids powered by nickel-metal hydride batteries are carried by passengers whose mobility is restricted either by a disability, their health or age, or a temporary mobility problem (e.g. broken leg). Special Provision A123 refers to nickel-metal hydride batteries and specifies that any electrical battery-powered device, equipment or vehicle having the potential of a dangerous evolution of heat must be prepared for transport so as to prevent a short circuit or unintentional activation. Accordingly, whilst Special Provision A123 addresses the requirements for transporting wheelchairs and other mobility aids powered by nickel-metal hydride batteries as checked baggage, no reference is made to such devices within Part 8 of the Technical Instructions.

1.4 A number of wheelchairs and other mobility aids are specifically designed to allow batteries to be removed and carried within a bag. It is suggested that such batteries (particularly lithium batteries) would be safest if carried within the passenger cabin as this would allow intervention by crew in the event of short-circuit or fire.

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APPENDIX

AMENDMENTS TO 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

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1.1 DANGEROUS GOODS CARRIED BY PASSENGERS OR CREW

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1.1.2 Notwithstanding any additional restrictions which may be implemented by States in the interests of aviation security, except for the incident reporting provisions of 7;4.4 or 7;4.5, as applicable, the provisions of these Instructions do not apply to the following when carried by passengers or crew members or in baggage that has been separated from its owner during transit (e.g. lost baggage or improperly routed baggage) or in excess baggage carried as cargo as permitted by 1;1.1.4.1 g):

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e) with the approval of the operator(s), battery-powered wheelchairs or other similar mobility aids with:

~~1) batteries which comply with Special Provision A123; or~~

~~2) non-spillable batteries, which comply with Special Provision A67 or the vibration and pressure differential tests of Packing Instruction 872,~~

for use by passengers whose mobility is restricted by either a disability, their health or age, or a temporary mobility problem (e.g. broken leg), as checked baggage provided the operator has verified:

~~1) the battery terminals are protected from short circuits (e.g. by being enclosed within a battery container) and;~~

~~2) the battery is securely attached to the wheelchair or mobility aid; and~~

~~3) electrical circuits have been isolated. The operator(s) must ensure that wheelchairs or other battery-powered mobility aids are carried in such a manner so as to prevent unintentional activation and that they are protected from being damaged by the movement of baggage, mail, stores or other cargo;~~

~~Devices must be carried in a manner such that they are protected from being damaged by the movement of baggage, mail, stores or other cargo.~~

~~Where a battery-powered wheelchair or other similar mobility aid is specifically designed to allow its batteries to be removed and carried within a bag, the batteries may be carried in the passenger cabin providing they are protected from short circuit.~~

It is recommended that passengers make advance arrangements with each operator;

- f) with the approval of the operator(s), battery-powered wheelchairs or other similar mobility aids with spillable batteries, for use by passengers whose mobility is restricted by either a disability, their health or age, or a temporary mobility problem (e.g. broken leg), as checked baggage, provided that the wheelchair or mobility aid can be loaded, stowed, secured and unloaded always in an upright position and that the operator has verified:

1) battery terminals are protected from short circuits (e.g. by being enclosed within a battery container) ~~and~~;

2) the battery is securely attached to the wheelchair or mobility aid. ~~The operator(s); and~~

3) electrical circuits have been isolated.

Devices must ~~ensure that wheelchairs or other battery-powered mobility aids are~~ be carried in ~~such a manner so as to prevent unintentional activation and~~ such that they are protected from being damaged by the movement of baggage, mail, stores or other cargo.

If the wheelchair or mobility aid cannot be loaded, stowed, secured and unloaded always in an upright position, the battery must be removed and the wheelchair or mobility aid may then be carried as checked baggage without restriction. The removed battery must be carried in strong, rigid packagings as follows:

- 1) these packagings must be leak-tight, impervious to battery fluid and be protected against upset by securing them to pallets or by securing them in cargo compartments using appropriate means of securement (other than by bracing with freight or baggage) such as by the use of restraining straps, brackets or holders;
- 2) batteries must be protected against short circuits, secured upright in these packagings and surrounded by compatible absorbent material sufficient to absorb their total liquid contents; and
- 3) these packagings must be marked "Battery, wet, with wheelchair" or "Battery, wet, with mobility aid" and be labelled with a "Corrosive" label (Figure 5-22) and with a package orientation label (Figure 5-26).

The pilot-in-command must be informed of the location of a wheelchair or mobility aid with an installed battery or the location of a packed battery.

It is recommended that passengers make advance arrangements with each operator; also, unless batteries are non-spillable they should be fitted, where feasible, with spill-resistant vent caps;

- g) with the approval of the operator(s), lithium-ion battery-powered wheelchairs or other similar mobility aids for use by passengers whose mobility is restricted by either a disability, their health or age, or a temporary mobility problem (e.g. broken leg), ~~subject to the following conditions providing batteries are of a type which meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, section 38.3, and the operator has verified:~~

~~1) the batteries must be of a type which meets the requirements of each test in the UN Manual of Tests and Criteria, Part III, section 38.3;~~

~~2) battery terminals must be are protected from short circuits (e.g. by being enclosed within a battery container) ~~and~~;~~

2) the battery is securely attached to the wheelchair or mobility aid; and

~~3) ~~the operator(s)~~ electrical circuits have been isolated.~~

Devices must ~~ensure that such mobility aids are~~ be carried in a manner ~~so as to prevent unintentional activation and~~ such that they are protected from being damaged by the movement of baggage, mail, stores or other cargo; ~~and~~

~~4) —~~ the pilot-in-command must be informed of the location of the mobility aid.

Where a battery-powered wheelchair or other similar mobility aid is specifically designed to allow its batteries to be removed and carried within a bag, the batteries may be carried in the passenger cabin providing they are protected from short circuit.

It is recommended that passengers make advance arrangements with each operator.

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