



WORKING PAPER

DANGEROUS GOODS PANEL (DGP)

TWENTY-EIGHTH MEETING

Virtual, 15 to 19 November 2021

Agenda Item 2: Managing air-specific safety risks and identifying anomalies (*Ref: REC A DGS 2023*)

2.2: Develop proposals, if necessary, for amendments to the Technical Instructions for the *Safe Transport of Dangerous Goods by Air* (Doc 9284) for incorporation in the 2023-2024 Edition

BATTERY-POWERED MOBILITY AIDS

(Presented by D. Brennan)

SUMMARY

This working paper proposes to add clarity in the provisions that multiple batteries are permitted to be removed from battery-powered mobility aids, unless if specified.

Action by the DGP: The DGP is invited to consider updating the provisions for battery-powered mobility aids carried by passengers and crew in Parts 7 and 8 of the Technical Instructions as shown in the appendix to this working paper.

1. INTRODUCTION

1.1 At DGP-WG/21 (24 to 28 May 2021), a working paper was submitted to clarify the intent of the provisions for lithium battery-powered mobility aids, on the number of batteries permitted to be removed from a mobility aid should the batteries need to be removed (see paragraph 3.2.2.20 of the DGP-WG/21 Report).

1.2 The working group agreed that there was never any intent to only allow the removal of one battery from the mobility but to ensure batteries that could not be protected when attached to the mobility aid were removed (see paragraph 3.2.2.20 of the DGP-WG/21 report), and there was support to refine the provisions so as to add clarity.

2. **ACTION BY THE DGP**

2.1 The DGP is invited to consider updating the provisions for battery-powered mobility aids concerning the batteries in Part 7 and Part 8 of the Technical Instructions as shown in the appendix to this working paper.

APPENDIX

PROPOSED AMENDMENTS TO PARTS 7 AND 8 OF THE TECHNICAL INSTRUCTIONS

Part 7

OPERATOR'S RESPONSIBILITIES

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Chapter 2

STORAGE AND LOADING

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The amendments proposed to Part 7 are based on the provisions in Part 7;2.13 with amendments agreed at DGP-WG/21 incorporated (see paragraph 3.2.2.21 of the DGP-WG/21 Report).

2.13 LOADING OF BATTERY-POWERED MOBILITY AIDS CARRIED UNDER THE PROVISIONS OF PART 8

2.13.1 Loading of mobility aids powered by non-spillable wet batteries or batteries which comply with Special Provision A123 or A199

2.13.1.1 An operator must secure, by use of straps, tie-downs or other restraint devices, a battery-powered mobility aid with installed ~~batteries~~ battery(ies). The mobility aid, the ~~batteries~~ battery(ies), electrical cabling and controls must be protected from damage including by the movement of baggage, mail or cargo.

2.13.1.2 An operator must verify that:

- a) the passenger has confirmed that the ~~battery~~ battery(ies) is:
 - 1) a non-spillable wet battery that complies with Special Provision A67;
 - 2) a dry battery that complies with Special Provision A123; or
 - 3) a nickel-metal hydride battery that complies with Special Provision A199.
- b) the battery terminals are protected from short circuits (e.g. by being enclosed within a battery container);
- c) the battery(ies) is either:

Amendments agreed at DGP-WG/21 are incorporated in sub-paragraphs 1) and 2):

- 1) adequately protected against damage by the design of the mobility aid and securely attached to the mobility aid. The electrical circuits must be isolated following the manufacturer's instructions; or
- 2) removed from the mobility aid, following the manufacturer's instructions; and
- d) a maximum of one non-spillable wet spare battery is carried per passenger.

2.13.1.3 An operator must ensure that any battery(ies) removed from the mobility aid and any spare battery are carried in strong, rigid packagings, protected from short circuit and stowed in the cargo compartment.

2.13.1.4 The operator must inform the pilot-in-command of the location of any mobility aids with installed ~~batteries~~ battery(ies), removed ~~batteries~~ battery(ies) and spare ~~batteries~~ battery(ies).

2.13.2 Loading of mobility aids powered by spillable batteries

2.13.2.1 An operator must secure, by use of straps, tie-downs or other restraint devices, a battery-powered mobility aid with installed ~~batteries~~ battery(ies). The mobility aid, the ~~batteries~~ battery(ies), electrical cabling and controls must be protected from damage including by the movement of baggage, mail or cargo.

2.13.2.2 An operator must verify that:

- a) the battery terminals are protected from short circuits (e.g. by being enclosed within a battery container);
- b) the battery(ies) is fitted, where feasible, with spill resistant-vent caps; and
- c) the battery(ies) is either:

Amendments agreed at DGP-WG/21 are incorporated in sub-paragraphs 1) and 2):

- 1) adequately protected against damage by the design of the mobility aid and securely attached to the mobility aid. The electrical circuits must be isolated following the manufacturer's instructions; or
- 2) removed from the mobility aid, following the manufacturer's instructions when required by 2.13.2.3.

2.13.2.3 An operator must load, stow, secure, and unload a spillable battery-powered mobility aid in an upright position. If the mobility aid cannot be loaded, stowed, secured and unloaded always in an upright position or if the mobility aid does not adequately protect the battery(ies), the operator must remove the ~~batteries~~ battery(ies) and carry them in strong, rigid packagings, as follows:

- a) packagings must be leak-tight, impervious to battery fluid and be protected against being overturned by securing them to pallets or by securing them in cargo compartments using appropriate means of securement;
- b) ~~batteries~~ battery(ies) 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
- c) these packagings must be marked "Battery, wet, with wheelchair" or "Battery, wet, with mobility aid" and be labelled with a Corrosive" label (Figure 5-24) and with package orientation labels (Figure 5-29) as required by 5;3.

2.13.2.4 The operator must inform the pilot-in-command of the location of any mobility aids with installed spillable ~~batteries~~ battery(ies) and removed ~~batteries~~ battery(ies).

2.13.3 Loading of mobility aids powered by lithium ion batteries

2.13.3.1 An operator must secure, by use of straps, tie-downs or other restraint devices, a battery-powered mobility aid with installed ~~batteries~~ battery(ies). The mobility aid, the ~~batteries~~ battery(ies), electrical cabling and controls must be protected from damage including by the movement of baggage, mail or cargo.

2.13.3.2 An operator must verify that:

- a) the battery terminals are protected from short circuits (e.g. by being enclosed within a battery container);
- b) the battery(ies) is either:

Amendments agreed at DGP-WG/21 are incorporated in sub-paragraphs 1) and 2):

- 1) adequately protected against damage by the design of the mobility aid and securely attached to the mobility aid. The electrical circuits must be isolated following the manufacturer's instructions; or
- 2) removed from the mobility aid, following the manufacturer's instructions; and
- c) the removed battery(ies) does not exceed 300 Wh ~~and that its spare battery does not exceed 300 Wh or its two spare batteries do not exceed 160 Wh each. A maximum of one spare battery not exceeding 300 Wh or two spare batteries with each not exceeding 160 Wh may be carried.~~

2.13.3.3 An operator must ensure that any battery(ies) removed from the mobility aid and any spare ~~batteries~~ battery(ies) ~~are~~ is carried in the cabin and protected from damage (e.g., by placing each battery in a protective pouch) and the battery terminals protected from short circuit (by insulating the terminals, e.g. by taping over exposed terminals).

2.13.3.4 The operator must inform the pilot-in-command of the location of any mobility aids with installed lithium ion ~~batteries~~ battery(ies), removed ~~batteries~~ battery(ies) and spare ~~batteries~~ battery(ies).

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The amendments proposed to Part 8 are based on the provisions in Table 8-1 with amendments agreed at DGP-WG/21 incorporated (see paragraph 3.2.2.21 of the DGP-WG/21 Report).

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

<i>Dangerous Goods</i>	<i>Location</i>		<i>Approval of the operator(s) is required</i>	<i>Restrictions</i>
	<i>Checked baggage</i>	<i>Carry-on baggage</i>		
Batteries				

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Amendments agreed at DGP-WG/21 are incorporated in sub-paragraphs c) through i), along with a consequential amendment to the reference in “carry-on baggage” column below:

4)	Mobility aids (e.g. wheelchairs) powered by: – spillable batteries; – non-spillable wet batteries; – dry batteries; – nickel-metal hydride batteries; or – lithium ion batteries	Yes	(see i))	Yes	a) 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); b) the passenger should make advance arrangements with each operator and provide information on the type of battery installed and on the handling of the mobility aid (including instructions on how to isolate the battery); c) the battery(ies) is either: i) adequately protected against damage by the design of the mobility aid and securely attached to the mobility aid. The electrical circuits must be isolated following the manufacturer's instructions; or ii) removed from the mobility aid, following the manufacturer's instructions; d) the battery terminals must be protected from short circuits (e.g. by being enclosed in a battery container); e) all removed and spare batteries battery(ies) must be protected from damage (e.g. by placing each battery in a strong, rigid packaging); f) in the case of a spillable battery, if the mobility aid cannot be loaded, stowed, secured and unloaded always in an upright
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<i>Dangerous Goods</i>	<i>Location</i>		<i>Approval of the operator(s) is required</i>	<i>Restrictions</i>
	<i>Checked baggage</i>	<i>Carry-on baggage</i>		
				<p>position, the battery must be removed and carried in a strong, rigid packaging;</p> <p>g) in the case of a dry battery or nickel-metal hydride battery, each battery must comply with Special Provision A123 or A199, respectively;</p> <p>h) in the case of a non-spillable wet battery:</p> <p>i) each battery must comply with Special Provision A67; and</p> <p>ii) a maximum of one spare battery may be carried per passenger;</p> <p>i) in the case of a lithium ion battery:</p> <p>i) each battery must be of a type which meets the requirements of each test in the <i>UN Manual of Tests and Criteria</i>, Part III, subsection 38.3;</p> <p>ii) if the battery(ies) is removed:</p> <ul style="list-style-type: none"> — the battery must not exceed 300 Wh; and — the battery must be carried in the cabin; <p>iii) a maximum of one spare battery not exceeding 300 Wh or two spare batteries not exceeding 160 Wh each may be carried. Spare batteries battery(ies) must be carried in the cabin.</p>

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