



WORKING PAPER

**DANGEROUS GOODS PANEL (DGP)
WORKING GROUP MEETING (DGP-WG/16)**

Montreal, 17 to 21 October 2016

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 2019-2020 Edition

2.7: Part 7 — Operator's Responsibilities

2.8: Part 8 — Provisions Concerning Passengers and Crew

BATTERY-POWERED MOBILITY AIDS

(Presented by M. Paquette)

SUMMARY

This working paper proposes revisions to the provisions for battery-powered mobility aids. The purpose is to simplify the provisions.

Action by the DGP-WG: The DGP-WG is invited to revise Part 7;2 and consider the options for revising Part 8 as shown in the appendix to this working paper.

1. INTRODUCTION

1.1 A working paper presented at the 25th meeting of the Dangerous Goods Panel (DGP/25, see DGP/25-WP/41 and paragraph 2.8.3 of the DGP/25 report) proposed to revise the passenger provisions for battery-powered mobility aids. It proposed to merge the three entries currently included in Table 8-1 for mobility aids powered by non-spillable wet batteries, mobility aids powered by spillable batteries, and mobility aids powered by lithium ion batteries. The proposal would also incorporate all operator responsibilities relating to mobility aids in the storage and loading chapter of Part 7.

1.2 The current entries for mobility aids in Table 8-1 include requirements that can only be applied by the operator and which are out of the passenger's control (e.g. loading, stowing, securing and unloading the mobility aid). The proposed single entry limits the provisions to those that are within the passenger's control. Provisions that are the responsibility of the operator are moved to the storage and loading chapter of Part 7.

1.3 There was strong support for the principles applied in developing the amendment. A number of suggestions for improvement were discussed. The majority of these suggestions are incorporated in this proposal.

1.4 At DGP/25, it was mentioned that the intent of the existing passenger provisions was to allow the removal of the batteries from lightweight collapsible mobility aids when these do not afford any protection to the batteries. The existing provisions have proven problematic and confusing based on feedback from panel members. A mobility aid might be called collapsible if the seat can be removed/folded down or if the handle bars can be lowered — this does not necessarily mean that the batteries must be removed in order to collapse it. Ideally, batteries should remain installed in the mobility aid. However, there are circumstances when that is not possible or safe to do so and the batteries must be removed, such as in the case of:

- a) when batteries are not afforded adequate protection when installed in mobility aid; or
- b) when a mobility aid is designed to be collapsible (and in order to do so, the batteries must be removed).

1.5 Three options are provided for Part 7;2:

- a) Option 1 contains one (1) section for all provisions relating to the loading of battery-powered mobility aids;
- b) Option 2 contains three (3) sections each one addressing the loading of a specific type of battery-powered mobility aids; and
- c) Option 3 also contains three (3) sections each one addressing the loading of a specific type of battery-powered mobility aids but is formatted differently than Option 2.

2. ACTION BY THE DGP-WG

2.1 The DGP is invited to revise Part 7;2 and consider the options for revising Part 8 as shown in the appendix to this working paper.

APPENDIX A

PROPOSED AMENDMENT TO PART 7 OF THE TECHNICAL INSTRUCTIONS

Part 7

OPERATOR'S RESPONSIBILITIES

Chapter 2

STORAGE AND LOADING

OPTION 1

...

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

2.13.1 An operator must secure a battery-powered mobility aid to prevent movement and protect it from being damaged by the movement of baggage, mail, stores or other cargo.

2.13.2 An operator must verify that:

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

b) the battery is either:

i) securely attached to the mobility aid and the electrical circuits are isolated in accordance with the manufacturer's instructions; or

ii) removed from the mobility aid in accordance with the manufacturer's instructions when required by 2.13.3, 2.13.4 or 2.13.5.

2.13.3 An operator must remove non-spillable batteries [from the mobility aid] when:

a) the batteries are not afforded adequate protection when installed in the mobility aid; or

b) the mobility aid [designed to be collapsible] requires the batteries to be removed in order to be collapsed for carriage.

2.13.3.1 An operator must ensure that the non-spillable batteries removed from the mobility aid are carried in strong, rigid packagings and are protected from short circuit.

2.13.4 An operator must remove lithium ion batteries [from the mobility aid] when:

a) the batteries are not afforded adequate protection when installed in the mobility aid; or

b) the mobility aid [designed to be collapsible] requires the batteries to be removed in order to be collapsed for carriage.

2.13.4.1 An operator must ensure that the lithium ion batteries removed from the mobility aid are carried in the cabin and are protected from damage (e.g. by placing each battery in a protective pouch).

2.13.5 An operator must load, stow, secure, and unload a spillable battery-powered mobility aid in an upright position, where possible. If the mobility aid cannot be loaded, stowed, secured and unloaded always in an upright position, the operator must remove the batteries and carry them in strong, rigid packagings, as follows:

- a) 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;
- b) 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
- 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.

2.13.6 The operator must inform the pilot-in-command of the location of any mobility aids with installed spillable or lithium ion batteries or any removed batteries.

Note.— Passengers wishing to carry spare non-spillable batteries must offer them for transport as cargo.

...

OPTION 2

...

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

2.13.1 An operator must secure a battery-powered mobility aid to prevent movement and protect it from being damaged by the movement of baggage, mail, stores or other cargo.

2.13.2 An operator must verify that:

- a) the battery terminals are protected from short circuits (e.g. by being enclosed within a battery container); and
- b) the battery is either:
 - i) securely attached to the mobility aid and the electrical circuits are isolated in accordance with the manufacturer's instructions; or
 - ii) removed from the mobility aid in accordance with the manufacturer's instructions when required by 2.13.3.

2.13.3 An operator must remove the batteries [from the mobility aid] when:

- a) the batteries are not afforded adequate protection when installed in the mobility aid; or
- b) the mobility aid [designed to be collapsible] requires the batteries to be removed in order to be collapsed for carriage.

2.13.4 An operator must ensure that the batteries removed from the mobility aid are carried in strong, rigid packagings and are protected from short circuit.

2.13.5 The operator must inform the pilot-in-command of the location of any removed batteries.

Note.— Passengers wishing to carry spare non-spillable batteries must offer them for transport as cargo.

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

2.14.1 An operator must secure a battery-powered mobility aid to prevent movement and protect it from being damaged by the movement of baggage, mail, stores or other cargo.

2.14.2 An operator must verify that:

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

b) the battery is either:

- i) securely attached to the mobility aid and the electrical circuits are isolated in accordance with the manufacturer's instructions; or
- ii) removed from the mobility aid in accordance with the manufacturer's instructions when required by 2.14.3.

2.14.3 An operator must load, stow, secure, and unload a spillable battery-powered mobility aid in an upright position, where possible. If the mobility aid cannot be loaded, stowed, secured and unloaded always in an upright position, the operator must remove the batteries and carry them in strong, rigid packagings, as follows:

- a) 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;
- b) 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
- 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.

2.14.4 The operator must inform the pilot-in-command of the location of any mobility aids with installed spillable batteries or any removed batteries.

2.15 LOADING OF LITHIUM ION BATTERY-POWERED MOBILITY AIDS CARRIED UNDER THE PROVISIONS OF PART 8

2.15.1 An operator must secure a battery-powered mobility aid to prevent movement and protect it from being damaged by the movement of baggage, mail, stores or other cargo.

2.15.2 An operator must verify that:

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

- i) securely attached to the mobility aid and the electrical circuits are isolated in accordance with the manufacturer's instructions; or
- ii) removed from the mobility aid in accordance with the manufacturer's instructions when required by 2.15.3.

2.15.3 An operator must remove the batteries [from the mobility aid] when:

- a) the batteries are not afforded adequate protection when installed in the mobility aid; or
- b) the mobility aid [designed to be collapsible] requires the batteries to be removed in order to be collapsed for carriage.

2.15.4 An operator must ensure that the batteries removed from the mobility aid are carried in the cabin and are protected from damage (e.g. by placing each battery in a protective pouch).

2.15.5 The operator must inform the pilot-in-command of the location of any mobility aids with installed lithium ion batteries or any removed batteries.

...

OPTION 3

...

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

An operator must:

- a) secure a battery-powered mobility aid to prevent movement and protect it from being damaged by the movement of baggage, mail, stores or other cargo;

b) verify that:

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

ii) the battery is either:

— securely attached to the mobility aid and the electrical circuits are isolated in accordance with the manufacturer's instructions; or

— removed from the mobility aid in accordance with the manufacturer's instructions when required by c);

c) remove the batteries [from the mobility aid] when:

i) the batteries are not afforded adequate protection when installed in the mobility aid; or

ii) the mobility aid [designed to be collapsible] requires the batteries to be removed in order to be collapsed for carriage;

d) ensure that the batteries removed from the mobility aid are carried in strong, rigid packagings and are protected from short circuit; and

e) inform the pilot-in-command of the location of any removed batteries.

Note.— Passengers wishing to carry spare non-spillable batteries must offer them for transport as cargo.

**2.14 LOADING OF SPILLABLE BATTERY-POWERED MOBILITY AIDS
CARRIED UNDER THE PROVISIONS OF PART 8**

An operator must:

a) secure a battery-powered mobility aid to prevent movement and protect it from being damaged by the movement of baggage, mail, stores or other cargo;

b) verify that:

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

ii) the battery is either:

— securely attached to the mobility aid and the electrical circuits are isolated in accordance with the manufacturer's instructions; or

— removed from the mobility aid in accordance with the manufacturer's instructions when required by c);

c) load, stow, secure, and unload a spillable battery-powered mobility aid in an upright position, where possible. If the mobility aid cannot be loaded, stowed, secured and unloaded always in an upright position, the operator must remove the batteries and carry them in strong, rigid packagings, as follows:

i) 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;

ii) 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

iii) 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; and

d) inform the pilot-in-command of the location of any mobility aids with installed spillable batteries or any removed batteries.

**2.15 LOADING OF LITHIUM ION BATTERY-POWERED MOBILITY AIDS
CARRIED UNDER THE PROVISIONS OF PART 8**

An operator must:

a) secure a battery-powered mobility aid to prevent movement and protect it from being damaged by the movement of baggage, mail, stores or other cargo;

b) verify that:

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

ii) the battery is either:

— securely attached to the mobility aid and the electrical circuits are isolated in accordance with the manufacturer's instructions; or

— removed from the mobility aid in accordance with the manufacturer's instructions when required by c);

c) remove the batteries [from the mobility aid] when:

i) the batteries are not afforded adequate protection when installed in the mobility aid; or

ii) the mobility aid [designed to be collapsible] requires the batteries to be removed in order to be collapsed for carriage;

d) ensure that the batteries removed from the mobility aid are carried in strong, rigid packagings and are protected from short circuit; and

e) inform the pilot-in-command of the location of any mobility aids with installed lithium ion batteries or any removed batteries.

...

Renumber subsequent paragraphs.

APPENDIX B

PROPOSED AMENDMENT TO PART 8 OF THE TECHNICAL INSTRUCTIONS

Part 8

PROVISIONS CONCERNING
PASSENGERS AND CREW

Chapter 1

PROVISIONS FOR DANGEROUS GOODS
CARRIED BY PASSENGERS OR CREW

...

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						
...						
5) <u>Battery powered mobility aids (e.g. wheelchairs)</u>	<u>(see d) 3)</u>	<u>(see d) 3)</u>	<u>No</u>	<u>Yes</u>	<u>Yes (see 7:2)</u> <u>See foot-note¹</u>	<u>a) the mobility aid is 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);</u> <u>b) the passenger should make advance arrangements with each operator and provide information on the type of batteries installed and on the handling of the mobility aid (including instructions on how to isolate the batteries);</u> <u>c) lithium batteries must be of a type which meets the requirements of each test in the UN <i>Manual of Test and Criteria</i>, Part III, subsection 38.3;</u> <u>d) for mobility aids that are specifically designed to be collapsible and that do not provide adequate protection to the lithium battery, the batteries must:</u> <u>i) be removed;</u> <u>ii) not exceed a Watt-hour rating of 300 Wh,</u> <u>iii) be carried in the cabin; and</u> <u>iv) be protected from damage (e.g. by placing each battery in a protective pouch);</u>

¹ Actual section number(s) will be included once an option in Part 7:2 is selected.

<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>			
						e) <u>for mobility aids described in d), one spare battery not exceeding a Watt-hour rating of 300 Wh is permitted or two spare batteries not exceeding a Watt-hour rating of 160 Wh each are permitted and must be carried in the cabin and be protected from damage (e.g. by placing each battery in a protective pouch).</u>

Renumber subsequent paragraphs accordingly

...

— END —