



WORKING PAPER

**DANGEROUS GOODS PANEL (DGP)
WORKING GROUP MEETING (DGP-WG/21)**

Virtual Meeting, 24 to 28 May 2021

Agenda Item 2: Managing air-specific safety risks and identifying anomalies

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

**NUMBER OF BATTERIES PERMITTED FOR LITHIUM
BATTERY-POWERED MOBILITY AIDS**

(Presented by D. Brennan)

SUMMARY

Part 8; Table 8-1 states that the lithium battery can be removed from a lithium battery-powered mobility aid and this working paper seeks clarification on the number of lithium batteries that can be removed and carried by passengers.

Action by the DGP-WG is in paragraph 2.

1. INTRODUCTION

1.1 In the provisions for dangerous goods carried by passengers or crew (Table 8-1), passengers are permitted to carry mobility aids powered by lithium batteries. The lithium battery must be removed in accordance with the manufacturer's instructions when the mobility aid does not provide adequate protection to the battery.

1.2 At the Twenty-Third Meeting of the Dangerous Goods Panel (DGP/23, 11 to 21 October 2011), it was discussed and agreed that some new designs of mobility aids required the lithium ion battery to be removed from the device and the removed battery was permitted to have a maximum Watt-hour rating of 300 Wh (see paragraph 5.1.8 of the DGP/23 Report). In the same meeting, it was also agreed that a maximum of one spare battery with a Watt-hour rating not exceeding 300 Wh or two spares not exceeding 160 Wh each may be carried by the passenger (see paragraph 5.1.8 of the DGP/23 Report).

1.3 The agreed text was adopted in the 2013-2014 Technical Instructions, in which, Part 8; Table 8-1 7) d) stated "where the mobility aid is specifically designed to allow its battery(ies) to be removed by the user (e.g. collapsible)", it went on to 7) d) v) "the battery must not exceed 300 Wh" and

7) d) vi) “a maximum of one spare battery not exceeding 300 Wh or two spares not exceeding 160 Wh each may be carried”. Table 8-1 7) from the 2013–2014 Technical Instructions is captured below:

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						
7) Mobility aids (e.g. wheelchairs) powered by lithium ion 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)	Yes	(see 7 d))	No	Yes	Yes	<ul style="list-style-type: none"> a) the batteries must be of a type which meets the requirements of each test in the UN Manual of Tests and Criteria, Part III, subsection 38.3; b) the operator must verify that: <ul style="list-style-type: none"> i) the battery is securely attached to the mobility aid; ii) the battery terminals are protected from short circuits (e.g. by being enclosed within a battery container); and iii) electrical circuits have been isolated; c) mobility aids must be carried in a manner such that they are protected from being damaged by the movement of baggage, mail, stores or other cargo; d) where the mobility aid is specifically designed to allow its battery(ies) to be removed by the user (e.g. collapsible): <ul style="list-style-type: none"> i) the battery(ies) must be removed and carried in the passenger cabin; ii) the battery terminals must be protected from short circuit (by insulating the terminals, e.g. by taping over exposed terminals); iii) the battery must be protected from damage (e.g. by placing each battery in a protective pouch); iv) removal of the battery from the mobility aid must be performed by following the instructions of the manufacturer or device owner; v) the battery must not exceed 300 Wh; and vi) a maximum of one spare battery not exceeding 300 Wh or two spares not exceeding 160 Wh each may be carried; e) the pilot-in-command must be informed of the location of the lithium ion battery(ies); f) it is recommended that passengers make advance arrangements with each operator.

1.4 Plural of the word “battery”, “battery(ies)” was used in 7 d), which appears to suggest that more than one battery could be removed from the mobility aid.

1.5 When Part 8 was refined at the Twenty-Sixth Meeting of the Dangerous Goods Panel (DGP/26, 16 to 27 October 2017) and all operator responsibilities relating to mobility aids were incorporated in the storage and loading chapter of Part 7 (see paragraph 2.8.3 of the DGP/26 Report), the provisions in Part 7;2.13.3.2 b) and Table 8-1 4 d) ii) were changed to address the battery to be removed from the mobility aids in singular as follows:

Part 7, 2019-2020 Edition:

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 is either:
 - 1) securely attached to the mobility aid and the electrical circuits are isolated following the manufacturer’s instructions; or
 - 2) removed by the user, if the mobility aid is specifically designed to allow it to be, following the manufacturer’s instructions; and
- c) the removed battery 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.

Part 8, 2019-2020 Edition:

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

4) Battery-powered mobility aids (e.g. wheelchairs)	Yes	(see d))	Yes	<ul style="list-style-type: none"> 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) in the case of a non-spillable wet battery: <ul style="list-style-type: none"> i) each battery must comply with Special Provision A67; and ii) a maximum of one spare battery may be carried per passenger; d) in the case of a lithium ion battery: <ul style="list-style-type: none"> 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; ii) when the mobility aid does not provide adequate protection to the battery: <ul style="list-style-type: none"> — the battery must be removed in accordance with the manufacturer’s instructions; — the battery must not exceed 300 Wh; — the battery terminals must be protected from short circuit (by insulating the terminals, e.g. by taping over exposed terminals); — the battery must be protected from damage (e.g. by placing each battery in a protective pouch); and
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				<ul style="list-style-type: none"> — the battery must be carried in the cabin; 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 must be carried in the cabin.
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1.6 This change resulted in questions from the industry on whether more than one lithium ion battery can be removed from the mobility aids or not. Furthermore, there is an ambiguity of the Watt-hour rating limit applicable to the removed batteries if the mobility aid is powered by more than one lithium ion battery and the batteries need to be removed in accordance with the Technical Instructions.

2. ACTION BY THE DGP-WG

2.1 The DGP-WG is invited to discuss and clarify whether or not more than one lithium battery can be removed from a mobility aid, and the Watt-hour rating limit to be applied should the mobility aid be powered by more than one lithium battery.

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