



DANGEROUS GOODS PANEL (DGP)

THIRTIETH MEETING

Montréal, 6 to 10 October 2025

Agenda Item 4: Managing safety risks posed by the carriage of energy storage devices by air (Ref: Job Card DGP.003.05)

ICAO DANGEROUS GOODS PANEL TASK FORCE ON MOBILITY AIDS - POLICY OPTIONS PAPER

(Presented by DGP Task Force on Mobility Aids)

SUMMARY

This working paper presents policy options developed and used by the Dangerous Goods Panel (DGP) Task Force on Mobility Aids (DGP-TF/MA) to consider potential measures that could be implemented to mitigate risks associated with the carriage of battery-powered mobility aids by passengers on aircraft.

1. PURPOSE

1.1 The purpose of this paper is to present a set of policy options, ranging from amendments to the Technical Instructions to associated guidance material, that could mitigate safety risks and improve the flow of information related to the carriage of battery-powered mobility aids on aircraft.

1.2 The options were developed for the use of the consideration of the Dangerous Goods Panel (DGP) Task Force on Mobility Aids (DGP-TF/MA). They are based on the outcomes of previous DGP meetings, safety risk assessments and discussions on the task force. Starting with the 2024 DGP Working Group Meeting (DGP-WG/24, Montréal, 21 to 25 October 2024), which recognized that installed lithium-ion batteries in mobility aids present a distinct safety profile, often with higher watt-hour (Wh) ratings than those permitted for spare batteries, and without any limits in the Technical Instructions (see paragraph 4.4.2 of the DGP-WG/24 report). The policy options also reflect the work plan agreed at 2025 DGP Working Group Meeting (DGP-WG/25, Delhi, India, 21 to 25 April 2025), which set out the task force's objectives to conduct a safety risk assessment, identify possible mitigations, and develop a policy options paper to be presented to DGP/30 in October 2025 (see paragraph 4.4.1 of the DGP-WG/25 report). In addition, the options are driven by the results of the safety risk assessment undertaken by the

task force, including a BowTie analysis identifying threats, barriers, and escalation factors (see DGP/30-IP/1), and a Systems-Theoretic Process Analysis (STPA) mapping unsafe control actions and scenarios (see DGP/30-IP/2).

2. **PROBLEM STATEMENT**

It is noted that the aviation industry faces growing safety concerns associated with the air transport of battery-powered mobility aids used by passengers with reduced mobility (PRMs). The current provisions in Part 8 of the Technical Instructions permit the carriage of mobility aids with installed batteries under specified conditions, but are formulated in the absence of strict limitations on factors such as watt-hour (Wh) rating, state-of-charge, and battery condition, relying instead on general statements regarding safe carriage.

2.1 **Bowtie & STPA**

The BowTie analysis identified high-energy content, inadequate isolation, poor device condition, and operator unpreparedness as critical pathways leading to onboard fires or other hazardous events. The STPA highlighted unsafe control actions such as accepting a damaged device without proper inspection or stowing a mobility aid without isolation near heat sources.

2.2 **Risk factors**

Risk factors include large energy content that increases the potential fire load, unknown state of charge influencing thermal runaway likelihood and severity, uncontrolled modifications such as non-OEM battery replacements, damage or poor maintenance not easily detected without clear inspection criteria, and a lack of prior notification leading to unplanned acceptance and handling at the airport. These factors, create operational safety challenges, increase the likelihood of last-minute refusals, and complicate safe stowage and firefighting preparations.

3. **STRUCTURE**

3.1 This appendix to this information paper presents eleven policy options, each identifying the mitigation type and primary purpose. The mitigation type is either [TI], indicating a proposed amendment to the Technical Instructions, or [G], indicating development of associated guidance material. The primary purpose is either [Risk], to reduce operational or technical safety risk, or [Info], to improve the flow of accurate and timely information between passengers and operators.

3.2 The options fall into two categories of mitigating measures. The first category is regulatory controls via the Technical Instructions, addressing technical and operational safety requirements such as Wh limits, state of charge limits, condition criteria, and chemistry restrictions. The second category is operational guidance measures, promoting harmonized procedures, better communication, and consistent handling practices without imposing new limitations in the Technical Instructions.

APPENDIX

POLICY OPTIONS

Legend:

[TI] – Requires amendment to Technical Instructions.

[G] – Could be addressed via guidance material.

[Risk] – Safety-risk mitigation.

[Info] – Improves information/prior-notification/feedback.

1. Introduce watt-Hour (Wh) limits for installed batteries

Tag: [TI][Risk]

Current TI: Part 8, Table 8-1, mobility aid provisions (no Wh limit for installed batteries).

Description: Impose a maximum Wh rating (e.g., 300) for installed batteries. Above this limit: Removal or special approval.

Pros: Aligns installed battery risk with spare battery carriage limits. Limits energy load on aircraft.

Cons: Existing devices might exceed limit, could restrict PRM travel. Difficulty to verify without clear, consistent labelling.

2. State-of-charge (SOC) requirement

Tag: [TI][Risk]

Current TI reference: No SoC requirement for mobility aids carried by passengers.

Description: Require $\text{SoC} \leq 30\%$ (or equivalent safety through BMS).

Pros: Reduces thermal runaway severity. Aligns with cargo battery carriage safety.

Cons: Verification is challenging. Discharge process may inconvenience passengers.

3. Mandatory proof of UN 38.3 Testing

Tag: [TI][Risk]

Current TI reference: UN 38.3 compliance required, but not explicit for installed batteries or passenger-provided proof.

Description: Require passenger/operator to provide proof of UN 38.3 compliance (digital acceptable).

Pros: Filters out unsafe/counterfeit batteries. Clear acceptance basis for operators.

Cons: Passengers may not possess documentation, potential for fraudulent documents.

4. Explicit refuse-carriage criteria

Tag : [TI][Risk] + [G]

Description: List specific refusal triggers (swelling, leakage, missing covers, non-OEM battery, burn/smoke history).

Pros: Clear grounds for refusal. Enhances ramp/counter decision-making.

Cons: Require staff training (communication passenger). Passenger escalation path may be needed.

5. Mandatory prior-notification (48 hours)

Tag: [TI][nfo]

Current TI reference: Part 8 recommends advance arrangements; no mandatory timeframe.

Description: Require notification at least 48 hours before departure from the passengers about its battery type, Wh, isolation method and device details.

Pros: Enables planning and mitigations. Reduces day-of-travel refusals.

Cons: May limit last-minute travel for PRMs. Challenges in enforcement.

6. Common Label near Battery

Tag: [G][Info]+[Risk]

Description: Encourage manufacturers to attach label with Wh rating, isolation switch location, removal steps, terminal cover.

Pros: Fast verification on airport. Improves passenger/operator communication.

Cons: Manufacturer cooperation essential. Long transition for existing devices.

7. Maintain status quo + enhanced operator guidance

Tag: [G][Info] + [Risk]

Description: **Keep TI text unchanged but issue new ICAO guidance (acceptance checklists, handling/stowage procedures).**

Pros: Quick to implement, avoids regulatory burden industry.

Cons: Risk exposures remain. Relies in voluntary uptake.

8. Guidance on pre-travel passenger-operator contact

Tag: [G][Info]

Description: Develop guidance for proactive engagement between operators and passengers before travel (scripts, accessible forms, timelines).

Pros: Improves accuracy of information received.

Cons: Requires operator investment in communications infrastructure.

9. Guidance for safety risk assessment by operators**Tag:** [G][Risk] + [Info]**Description:** Publish ICAO guidance on conducting safety risk assessments for battery-powered mobility aids (device-specific risk factors, aggregate load, aircraft type constraints).**Pros:** Harmonizes SRA approach across States/operators. Promotes data-driven decisions.**Cons:** Requires regular updates.**10. Guidance on Handling, Acceptance and Stowage****Tag:** [G]Risk**Description:** Develop standard ICAO guidance covering the full process from acceptance at check-in to final stowage in the aircraft.**Pros:** Improves consistency of acceptance and handling across operators and States.

Reduced in-flight risk through harmonized stowage protocols.

Cons: May need aircraft-specific adaptations that reduce stowage flexibility. Still dependent on staff judgement and operational context.**11. Formal request to ICAO Annex 9 Facilitation Panel to define “mobility aid”****Description:** Submit a formal letter from the Dangerous Goods Panel to the ICAO Facilitation Panel requesting the development of a harmonized definition for “mobility aid” in Annex 9.**Pros:** Provides a single, authoritative definition applicable across ICAO domains.

Reduces ambiguity for States, operators, and passengers.

Cons: Dependent on acceptance and prioritization by the Facilitation Panel.

May require negotiation to reconcile perspectives.

— END —