



WORKING PAPER

**DANGEROUS GOODS PANEL (DGP)
WORKING GROUP MEETING (DGP-WG/17)**

Montreal, 24 to 28 April 2017

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

2.4: Part 4 — Packing Instructions

NUMBER OF SPARE LITHIUM BATTERIES PACKED WITH EQUIPMENT

(Presented by D. Brennan)

SUMMARY

This working paper proposes some revisions to Packing Instructions 966 and 969 to clarify the number of spare lithium batteries permitted in a package with equipment.

Action by the DGP-WG: The DGP-WG is invited to revise Packing Instructions 966 and 969 as shown in the appendix to this working paper.

1. INTRODUCTION

1.1 Packing Instructions 966 and 969 address lithium ion batteries packed with equipment and lithium metal batteries packed with equipment respectively. These packing instructions in both Section I and Section II have the following condition: “The number of cells or batteries in each package must not exceed the appropriate number for the equipment’s operation, plus two spares.”

1.2 The key words in this condition is “two spares”. The question here is, is this two spare cells or batteries or two spare sets of cells or batteries? There are many devices that require multiple cells or multiple batteries to be able to operate and therefore it would appear that the “two spares” in the packing instruction is two spare sets of cells or batteries. For example, if a device requires two batteries to operate then is it acceptable for the shipper to place a total of six batteries, being the two required to operate the equipment plus two spare sets of two batteries, for each device that is in the package?

1.3 To clarify the application of the text related to two spares it is proposed to make a small revision to Packing Instructions 966 and 969 to make the intent clear.

2. **ACTION BY THE DGP-WG**

2.1 The DGP-WG is invited to revise Packing Instruction 966 and Packing Instruction 969 as shown in the appendix to this working paper.

APPENDIX

PROPOSED AMENDMENT TO PART 4 OF THE TECHNICAL INSTRUCTIONS

Part 4

PACKING INSTRUCTIONS

Chapter 11

CLASS 9 — MISCELLANEOUS DANGEROUS GOODS

Packing Instruction 966

Passenger and cargo aircraft for UN 3481 (packed with equipment) only

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I. SECTION I

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I.2 Additional requirements

- Lithium ion cells and batteries must be protected against short circuits.
- Lithium ion cells or batteries must:
 - be placed in inner packagings that completely enclose the cell or battery then placed in an outer packaging. The completed package for the cells or batteries must meet the Packing Group II performance requirements; or
 - be placed in inner packagings that completely enclose the cell or battery, then placed with equipment in a packaging that meets the Packing Group II performance requirements.
- The equipment must be secured against movement within the outer packaging and must be equipped with an effective means of preventing accidental activation.
- The number of cells or batteries in each package must not exceed the appropriate number for the equipment's operation, plus two spares. For example, if a device requires two cells for its operation, then "two spares" is four cells.

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II. SECTION II

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II.2 Additional requirements

- Lithium ion cells and batteries must:
 - be placed in inner packagings that completely enclose the cell or battery, then placed in a strong rigid outer packaging; or
 - be placed in inner packagings that completely enclose the cell or battery, then placed with the equipment in a strong rigid outer packaging.
- Cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit.
- The equipment must be secured against movement within the outer packaging and must be equipped with an effective means of preventing accidental activation.
- The number of cells or batteries in each package must not exceed the appropriate number for the equipment's operation, plus two spares. For example, if a device requires two cells for its operation, then "two spares" is four cells.
- Each package of cells or batteries, or the completed package, must be capable of withstanding a 1.2 m drop test in any orientation without:

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Packing Instruction 969

Passenger and cargo aircraft for UN 3091 (packed with equipment) only

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I. SECTION I

I.2 Additional requirements

- Lithium metal cells and batteries must be protected against short circuits.
- Lithium metal cells or batteries must:
 - be placed in inner packagings that completely enclose the cell or battery, then placed in an outer packaging. The completed package for the cells or batteries must meet the Packing Group II performance requirements; or
 - be placed in inner packagings that completely enclose the cell or battery, then placed with equipment in a packaging that meets the Packing Group II performance requirements.
- The equipment must be secured against movement within the outer packaging and must be equipped with an effective means of preventing accidental activation.
- The number of cells or batteries in each package must not exceed the appropriate number for the equipment's operation, plus two spares. For example, if a device requires two cells for its operation, then "two spares" is four cells.

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II. SECTION II

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II.2 Additional requirements

- Lithium metal cells or batteries must:
 - be placed in inner packagings that completely enclose the cell or battery, then placed in a strong rigid outer packaging; or
 - be placed in inner packagings that completely enclose the cell or battery, then placed with the equipment in a strong rigid outer packaging.
- Cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit.
- The equipment must be secured against movement within the outer packaging and must be equipped with an effective means of preventing accidental activation.
- The number of cells or batteries in each package must not exceed the appropriate number for the equipment's operation, plus two spares. For example, if a device requires two cells for its operation, then "two spares" is four cells.
- Each package of cells or batteries, or the completed package, must be capable of withstanding a 1.2 m drop test in any orientation without:

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