



فريق خبراء البضائع الخطرة

الاجتماع الثامن والعشرون

اجتماع افتراضي، من ١٥ إلى ١٩/١١/٢٠٢١

البند رقم ٤ من جدول الأعمال: إدارة المخاطر المرتبطة بالسلامة والناجمة عن نقل بطاريات الليثيوم عن طريق الجو
(المرجع: بطاقة المهام لفريق خبراء البضائع، رقم 003.03)

حذف القسم الثاني من "تعليمات التعبئة" رقم ٩٦٥ و ٩٦٨

(ورقة مقدّمة من د. برينان)

الموجز

تقترح ورقة العمل هذه حذف القسم الثاني من "تعليمات التعبئة" رقم ٩٦٥ و ٩٦٨ وشحن جميع خلايا وبطاريات أيونات الليثيوم أو الليثيوم المعدنية "الصغيرة" بموجب أحكام القسم IB من "تعليمات التعبئة" المعمول بها.

الإجراء المعروض على فريق خبراء البضائع الخطرة: يُدعى فريق الخبراء إلى القيام بما يلي:

(أ) دعم حذف القسم الثاني من "تعليمات التعبئة" رقم ٩٦٥ و ٩٦٨ والتعديلات اللاحقة على الأجزاء الثالث والخامس والسابع بالشكل المبين في المرفق بورقة العمل هذه؛

(ب) النظر فيما إذا كان ينبغي توفير بعض التخفيف لشركات شحن بطاريات الليثيوم المعبأة وفقاً للقسم IB من "تعليمات التعبئة" ٩٦٥ و ٩٦٨ بما يسمح بالقيام بما يلي:

(١) وضع شارة خاصة بالمخاطر من الفئة ٩ لبطارية الليثيوم صغيرة الحجم وشارة خاصة بطائرات الشحن فقط؛

(٢) تطبيق شارة "طائرات الشحن فقط" في أي مكان آخر بخلاف نفس ظهر العبوة بالقرب من الشارة الخاصة بالمخاطر.

1. INTRODUCTION

1.1 The recent adoption of Amendment 44 to Annex 6 — *Operation of Aircraft, Part I — International Commercial Air Transport — Aeroplanes*, which included *inter alia* a new Chapter 15 — Cargo Compartment Safety has focussed the attention of operators on the performance of a safety risk assessment, and adoption of associated risk mitigations, on the carriage of lithium cells and batteries offered for transport in accordance with Section II of Packing instructions 965 and 968.

1.2 Section II of the lithium battery packing instructions was designed to facilitate the transport of “small” lithium cells and batteries by excepting them from most of the provisions of the Technical Instructions. The provisions from which these are excepted include requirements for the operator to perform an acceptance check and from provision of information to the pilot-in-command. However, unlike packages prepared in accordance with Section II for lithium batteries packed with equipment or contained in equipment, those in Section II of Packing Instruction 965 and Packing Instruction 968 are restricted to carriage on a cargo aircraft and the packages must bear a Cargo Aircraft Only label.

1.3 As a result of the requirement to manage packages prepared in accordance with Section II of Packing Instruction 965 and Packing Instruction 968 to ensure that they are not inadvertently loaded on a passenger aircraft, many operators had filed operator variations indicating that they will not accept these packages and instead will only accept “small” lithium cells and batteries when prepared in accordance with Section IB of Packing Instruction 965 and Packing Instruction 968.

1.4 At the 118th meeting of the IATA Dangerous Goods Board (DGB) in May of this year there was consensus by the Board to delete Section II of Packing Instruction 965 and Packing Instruction 968 from the IATA Dangerous Goods Regulations with effect 1 January 2022. The view of the Board members and the observers from IATA member airlines was that retention of Section II was inconsistent with the ability of the operator to meet the requirements of the specific safety risk assessment provisions set out in Annex 6, Chapter 15.

1.5 While deleting Section II of Packing Instruction 965 and Packing Instruction 968 from the IATA Dangerous Goods Regulations was seen as addressing the issue for IATA member airlines, the DGB recognized that it did not address the legal aspects for shippers and non-IATA member airlines and recommended that a proposal to remove Section II of Packing Instruction 965 and Packing Instruction 968 from the Technical Instructions be submitted to the DGP for their consideration.

1.6 In the discussion of the impact on shippers of lithium cells and batteries should Section II be deleted there have been comments provided that a shipper may be forced to use a package that is substantially larger to meet the requirements of Section IB than is currently required for to meet the requirements for Section II.

1.7 Section IB packages must bear the lithium battery Class 9 hazard label as well as the lithium battery mark and the Cargo Aircraft Only label. The Cargo Aircraft Only label must be applied on the same surface of the package near the hazard label. These requirements mean that the package for Section IB must have two sides that are at least 220 mm wide x 110 mm high, whereas a package for Section II need only be 120 mm wide x 110 mm high which is adequate to have the Cargo Aircraft Only label on one side and the lithium battery mark on the opposite side.

2. ACTION BY THE DGP

2.1 The DGP is invited to support the deletion of Section II of Packing Instructions 965 and 968 as shown in the appendix to this working paper. Included in the appendix are the consequential amendments to the Technical Instructions should it be agreed to delete Section II of the two packing instructions.

2.2 In considering the deletion of Section II of Packing Instruction 965 and Packing Instruction 968, the DGP is invited to consider if there should be some relief provided to shippers of Section IB to allow for a reduced size lithium battery Class 9 hazard label and Cargo Aircraft Only label and/or permitting the Cargo Aircraft Only label to be applied other than on the same surface of the package near the hazard label.

APPENDIX

PROPOSED AMENDMENT TO PART 4 OF THE TECHNICAL INSTRUCTIONS

Part 4

PACKING INSTRUCTIONS

...

Chapter 11

CLASS 9 — MISCELLANEOUS DANGEROUS GOODS

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Packing Instruction 965

Cargo aircraft only for UN 3480

1. Introduction

This entry applies to lithium ion or lithium polymer batteries. This packing instruction is structured as follows:

- Section IA applies to lithium ion cells with a Watt-hour rating in excess of 20 Wh and lithium ion batteries with a Watt-hour rating in excess of 100 Wh, which must be assigned to Class 9 and are subject to all of the applicable requirements of these Instructions; and
- Section IB applies to lithium ion cells with a Watt-hour rating not exceeding 20 Wh and lithium ion batteries with a Watt-hour rating not exceeding 100 Wh ~~packed in quantities that exceed the allowance permitted in Section II, Table 965-II; and~~
- ~~— Section II applies to lithium ion cells with a Watt-hour rating not exceeding 20 Wh and lithium ion batteries with a Watt-hour rating not exceeding 100 Wh packed in quantities not exceeding the allowance permitted in Section II, Table 965-II.~~

A single cell battery as defined in Part III, sub-section 38.3.2.3 of the UN *Manual of Tests and Criteria* is considered a “cell” and must be transported according to the requirements for “cells” for the purpose of this packing instruction.

2. Lithium batteries forbidden from transport

The following applies to all lithium ion cells and batteries in this packing instruction:

Cells or batteries identified as being damaged or defective in accordance with Special Provision A154 are forbidden for transport.

Waste lithium batteries and lithium batteries being shipped for recycling or disposal are forbidden from air transport unless approved by the appropriate national authority of the State of Origin and the State of the Operator.

IA. SECTION IA

Each cell or battery must meet the provisions of 2;9.3.

IA.1 General requirements

- Part 4;1 requirements must be met.
- Lithium ion cells and batteries must be offered for transport at a state of charge not exceeding 30 per cent of their rated capacity. Cells and/or batteries at a state of charge greater than 30 per cent of their rated capacity may only be shipped with the approval of the State of Origin and the State of the Operator under the written conditions established by those authorities.

Note.— Guidance and methodology for determining the rated capacity can be found in sub-section

38.3.2.3 of the UN Manual of Tests and Criteria.

Table 965-IA

UN number and proper shipping name	Net quantity per package	
	Passenger	Cargo
UN 3480 Lithium ion batteries	Forbidden	35 kg

IA.2 Additional requirements

- Lithium ion cells and batteries must be protected against short circuits.
- Lithium ion cells and 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.
- Lithium ion cells and batteries must not be packed in the same outer packaging with substances and articles of Class 1 (explosives) other than Division 1.4S, Division 2.1 (flammable gases), Class 3 (flammable liquids), Division 4.1 (flammable solids) or Division 5.1 (oxidizers).
- Lithium ion batteries with a mass of 12 kg or greater and having a strong, impact-resistant outer casing, or assemblies of such batteries, may be transported when packed in strong outer packagings or protective enclosures (e.g. in fully enclosed or wooden slatted crates) not subject to the requirements of Part 6 of these Instructions, if approved by the appropriate authority of the State of Origin. A copy of the document of approval must accompany the consignment.
- Batteries manufactured after 31 December 2011 must be marked with the Watt-hour rating on the outside case.

IA.3 Outer packagings

<i>Boxes</i>	<i>Drums</i>	<i>Jerricans</i>
Aluminium (4B)	Aluminium (1B2)	Aluminium (3B2)
Fibreboard (4G)	Fibre (1G)	Plastics (3H2)
Natural wood (4C1, 4C2)	Other metal (1N2)	Steel (3A2)
Other metal (4N)	Plastics (1H2)	
Plastics (4H1, 4H2)	Plywood (1D)	
Plywood (4D)	Steel (1A2)	
Reconstituted wood (4F)		
Steel (4A)		

IB. SECTION IB

[Quantities of lithium ion cells or batteries that exceed the allowance permitted in Section II, Table 965-II prepared in accordance with this section](#) are subject to all of the applicable provisions of these Instructions (including the requirements in paragraph 2 of this packing instruction and of this section) except for the provisions of Part 6.

Lithium ion cells or batteries shipped in accordance with the provisions of Section IB must be described on a dangerous goods transport document as set in Part 5;4. The packing instruction number "965" required by 5;4.1.5.8.1 a) must be supplemented with "IB". All other applicable provisions of Part 5;4 apply.

Lithium ion cells and batteries may be offered for transport provided that each cell and battery meets the provisions of 2;9.3 a), e) and g) and the following:

- 1) for lithium ion cells, the Watt-hour rating (see the Glossary of Terms in Attachment 2) is not more than 20 Wh;
- 2) for lithium ion batteries, the Watt-hour rating is not more than 100 Wh;
 - the Watt-hour rating must be marked on the outside of the battery case except for those batteries manufactured before 1 January 2009;

IB.1 General requirements

- Cells and batteries must be packed in strong outer packagings that conform to Part 4;1.1.1, 1.1.3.1 and 1.1.10 (except 1.1.10.1).
- Lithium ion cells and batteries must be offered for transport at a state of charge not exceeding 30 per cent of their rated capacity. Cells and/or batteries at a state of charge greater than 30 per cent of their rated capacity may only be shipped with the approval of the State of Origin and the State of the Operator under the written conditions established by those authorities.

Note.— Guidance and methodology for determining the rated capacity can be found in sub-section 38.3.2.3 of the UN Manual of Tests and Criteria.

Table 965-IB

Contents	Net quantity per package	
	Passenger	Cargo
Lithium ion cells and batteries	Forbidden	10 kg

IB.2 Additional requirements

- Cells and batteries must be packed in inner packagings that completely enclose the cell or battery then placed in a strong rigid outer packaging.
- Cells and batteries must not be packed in the same outer packaging with substances and articles of Class 1 (explosives) other than Division 1.4S, Division 2.1 (flammable gases), Class 3 (flammable liquids), Division 4.1 (flammable solids) or Division 5.1 (oxidizers).
- Cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with electrically conductive material within the same packaging that could lead to a short circuit.
- Each package must be capable of withstanding a 1.2 m drop test in any orientation without:
 - damage to cells or batteries contained therein;
 - shifting of the contents so as to allow battery to battery (or cell to cell) contact;
 - release of contents.
- Each package must be marked with the appropriate lithium battery mark (Figure 5-3) in addition to the appropriate Class 9 hazard label (Figure 5-26) and the cargo aircraft only label (Figure 5-28).

IB.3 Outer packagings*Boxes*

Aluminium
Fibreboard
Natural wood
Other metal
Plastics
Plywood
Reconstituted wood
Steel

Drums

Aluminium
Fibre
Other metal
Plastics
Plywood
Steel

Jerricans

Aluminium
Plastics
Steel

~~II. SECTION II~~

~~Lithium ion cells and batteries, when complying with Section II of this packing instruction, are only subject to the following additional provisions of these Instructions:~~

- ~~Part 1;2.3 (General — Transport of dangerous goods by post);~~
- ~~Part 5;1.1 g) and j) (Shipper's responsibilities — General requirements);~~
- ~~Part 5;2.4.16 (Shipper's responsibilities — Special marking requirements for lithium batteries);~~
- ~~Part 7;2.1 (Operator's responsibilities — Loading restrictions on the flight deck and for passenger aircraft);~~
- ~~Part 7;2.4.1 (Operator's responsibilities — Loading of cargo aircraft);~~
- ~~Part 7;4.4 (Operator's responsibilities — Reporting of dangerous goods accidents and incidents);~~
- ~~Part 7;4.5 (Operator's responsibilities — Reporting of undeclared and misdeclared dangerous goods);~~
- ~~Part 8;1.1 (Provisions concerning passengers and crew — Dangerous goods carried by passengers or crew);~~
and
- ~~Paragraphs 1 and 2 of this packing instruction.~~

~~Lithium ion cells and batteries may be offered for transport provided that each cell and battery meets the provisions of 2;9.3 a), c) and g) and the following:~~

- ~~1) for lithium ion cells, the Watt-hour rating (see the Glossary of Terms in Attachment 2) is not more than 20 Wh;~~
- ~~2) for lithium ion batteries, the Watt-hour rating is not more than 100 Wh;~~
- ~~the Watt-hour rating must be marked on the outside of the battery case except for those batteries manufactured before 1 January 2009.~~

II.1 General requirements

- Cells and batteries must be packed in strong outer packagings that conform to Part 4;1.1.1, 1.1.3.1 and 1.1.10 (except 1.1.10.1).
 - Lithium ion cells and batteries must be offered for transport at a state of charge not exceeding 30 per cent of their rated capacity.
- Note. — Guidance and methodology for determining the rated capacity can be found in sub-section 38.3.2.3 of the UN Manual of Tests and Criteria.*

Table 965-II

<i>Contents</i>	<i>Lithium ion cells and/or batteries with a Watt-hour rating not more than 2.7 Wh</i>	<i>Lithium ion cells with a Watt-hour rating more than 2.7 Wh, but not more than 20 Wh</i>	<i>Lithium ion batteries with a Watt-hour rating more than 2.7 Wh, but not more than 100 Wh</i>
1	2	3	4
Maximum number of cells / batteries per package	No limit	8 cells	2 batteries
Maximum net quantity (mass) per package	2.5 kg	n/a	n/a

— The limits specified in columns 2, 3 and 4 of Table 965-II must not be combined in the same package.

II.2 Additional requirements

- Cells and batteries must be packed in inner packagings that completely enclose the cell or battery then placed in a strong rigid outer packaging.
- Cells and batteries must not be packed in the same outer packaging with other dangerous goods.
- Cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with electrically conductive material within the same packaging that could lead to a short circuit.
- Each package must be capable of withstanding a 1.2 m drop test in any orientation without:
 - damage to cells or batteries contained therein;
 - shifting of the contents so as to allow battery to battery (or cell to cell) contact;
 - release of contents.
- Each package must be marked with the appropriate lithium battery mark (Figure 5-3) and the cargo aircraft only label (Figure 5-28).
 - the package must be of such size that there is adequate space to affix the mark on one side without the mark being folded.
 - the cargo aircraft only label must be located on the same surface of the package near the lithium battery mark, if the package dimensions are adequate.
 - A shipper is not permitted to offer for transport more than one package prepared according to this section in any single consignment.
- The words “lithium ion batteries, in compliance with Section II of PI965 — cargo aircraft only” or “lithium ion batteries, in compliance with Section II of PI965 — CAO” must be placed on the air waybill, when an air waybill is used. Where packages of Section II lithium batteries from multiple packing instructions are included on one air waybill, the compliance statement for the different lithium battery types and/or packing instructions may be combined into a single statement provided that the statement identifies the applicable lithium battery type(s), packing instruction numbers and “CAO”.
- Packages and overpacks of lithium ion batteries prepared in accordance with the provisions of Section II must be offered to the operator separately from cargo which is not subject to these Instructions and must not be loaded into a unit load device before being offered to the operator.
- Any person preparing or offering cells or batteries for transport must receive adequate instruction on these requirements commensurate with the functions for which they are responsible.

Packing Instruction 965

II.3 Outer packagings

<i>Boxes</i>	<i>Drums</i>	<i>Jerricans</i>
Aluminium	Aluminium	Aluminium
Fibreboard	Fibre	Plastics
Natural wood	Other metal	Steel
Other metal	Plastics	
Plastics	Plywood	
Plywood	Steel	
Reconstituted wood		
Steel		

II.4 Overpacks

~~Not more than one package prepared in accordance with this section may be placed into an overpack.~~

~~Packages prepared in accordance with this section must not be placed into an overpack with packages containing substances and articles of Class 1 (explosives) other than Division 1.4S, Division 2.1 (flammable gases), Class 3 (flammable liquids), Division 4.1 (flammable solids) or Division 5.1 (oxidizers).~~

~~When the package is placed in an overpack, the lithium battery mark (Figure 5-3) and the cargo aircraft only label (Figure 5-28) required by this packing instruction must either be clearly visible or the mark and label must be reproduced on the outside of the overpack and the overpack must be marked with the word "Overpack" in lettering of at least 12 mm high.~~

~~Note. For the purpose of Section II, an overpack is an enclosure used by a single shipper that contains no more than one package prepared in accordance with this section. For shipments prepared in accordance with Section IA and/or IB, this limit of one package of Section II batteries per overpack still applies.~~

Packing Instruction 968

Cargo aircraft only for UN 3090

1. Introduction

This entry applies to lithium metal or lithium alloy batteries. This packing instruction is structured as follows:

- Section IA applies to lithium metal cells with a lithium metal content in excess of 1 g and lithium metal batteries with a lithium metal content in excess of 2 g, which must be assigned to Class 9 and are subject to all of the applicable requirements of these Instructions; and
- Section IB applies to lithium metal cells with a lithium metal content not exceeding 1 g and lithium metal batteries with a lithium metal content not exceeding 2 g ~~packed in quantities that exceed the allowance permitted in Section II, Table 968-II; and~~
- ~~Section II applies to lithium metal cells with a lithium metal content not exceeding 1 g and lithium metal batteries with a lithium metal content not exceeding 2 g packed in quantities not exceeding the allowance permitted in Section II, Table 968-II.~~

A single cell battery as defined in Part III, sub-section 38.3.2.3 of the UN *Manual of Tests and Criteria* is considered a “cell” and must be transported according to the requirements for “cells” for the purpose of this packing instruction.

2. Lithium batteries forbidden from transport

The following applies to all lithium metal cells and batteries in this packing instruction:

Cells or batteries identified as being damaged or defective in accordance with Special Provision A154 are forbidden for transport.

Waste lithium batteries and lithium batteries being shipped for recycling or disposal are forbidden from air transport unless approved by the appropriate national authority of the State of Origin and the State of the Operator.

IA. SECTION IA

Each cell or battery must meet the provisions of 2.9.3.

IA.1 General requirements

Part 4;1 requirements must be met.

Table 968-IA

<i>UN number and proper shipping name</i>	<i>Net quantity per package</i>	
	<i>Passenger</i>	<i>Cargo</i>
UN 3090 Lithium metal batteries	Forbidden	35 kg

IA.2 Additional requirements

- Lithium metal cells and batteries must be protected against short circuits.
- Lithium metal cells and batteries must be placed in inner packaging 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.
- Lithium metal cells and batteries must not be packed in the same outer packaging with substances and articles of Class 1 (explosives) other than Division 1.4S, Division 2.1 (flammable gases), Class 3 (flammable liquids), Division 4.1 (flammable solids) or Division 5.1 (oxidizers).
- Lithium metal batteries with a mass of 12 kg or greater and having a strong, impact-resistant outer casing, or assemblies of such batteries, may be transported when packed in strong outer packaging or protective enclosures (e.g. in fully enclosed or wooden slatted crates) not subject to the requirements of Part 6 of these Instructions, if approved by the appropriate authority of the State of Origin. A copy of the document of approval must accompany the consignment.

Packing Instruction 968

IA.3 Outer packagings

Boxes

Aluminium (4B)
Fibreboard (4G)
Natural wood (4C1, 4C2)
Other metal (4N)
Plastics (4H1, 4H2)
Plywood (4D)
Reconstituted wood (4F)
Steel (4A)

Drums

Aluminium (1B2)
Fibre (1G)
Other metal (1N2)
Plastics (1H2)
Plywood (1D)
Steel (1A2)

Jerricans

Aluminium (3B2)
Plastics (3H2)
Steel (3A2)

IB. SECTION IB

~~Quantities of Lithium metal cells or batteries prepared in accordance with this section that exceed the allowance permitted in Section II, Table 968-II,~~ are subject to all of the applicable provisions of these Instructions (including the requirements in paragraph 2 of this packing instruction and of this section) except for the provisions of Part 6.

Lithium metal cells or batteries shipped in accordance with the provisions of Section IB must be described on a dangerous goods transport document as set in Part 5;4. The packing instruction number "968" required by 5;4.1.5.8.1 a) must be supplemented with "IB". All other applicable provisions of Part 5;4 apply.

Lithium metal or lithium alloy cells and batteries may be offered for transport provided that each cell and battery meets the provisions of 2;9.3 a), e), f) (if applicable) and g) and the following:

- 1) for lithium metal cells, the lithium content is not more than 1 g;
- 2) for lithium metal or lithium alloy batteries, the aggregate lithium content is not more than 2 g.

IB.1 General requirements

Cells and batteries must be packed in strong outer packagings that conform to Part 4;1.1.1, 1.1.3.1 and 1.1.10 (except 1.1.10.1).

Table 968-IB

<i>Contents</i>	<i>Net quantity per package</i>	
	<i>Passenger</i>	<i>Cargo</i>
Lithium metal cells and batteries	Forbidden	2.5 kg

IB.2 Additional requirements

- Cells and batteries must be packed in inner packagings that completely enclose the cell or battery then placed in a strong rigid outer packaging.
- Cells and batteries must not be packed in the same outer packaging with substances and articles of Class 1 (explosives) other than Division 1.4S, Division 2.1 (flammable gases), Class 3 (flammable liquids), Division 4.1 (flammable solids) or Division 5.1 (oxidizers).
- Cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with electrically conductive material within the same packaging that could lead to a short circuit.
- Each package must be capable of withstanding a 1.2 m drop test in any orientation without:
 - damage to cells or batteries contained therein;
 - shifting of the contents so as to allow battery to battery (or cell to cell) contact;
 - release of contents.
- Each package must be marked with the appropriate lithium battery mark (Figure 5-3) in addition to the appropriate Class 9 hazard label (Figure 5-26) and the cargo aircraft only label (Figure 5-28).

Packing Instruction 968

IB.3 Outer packagings

<i>Boxes</i>	<i>Drums</i>	<i>Jerricans</i>
Aluminium	Aluminium	Aluminium
Fibreboard	Fibre	Plastics
Natural wood	Other metal	Steel
Other metal	Plastics	
Plastics	Plywood	
Plywood	Steel	
Reconstituted wood		
Steel		

II. SECTION II

~~Lithium metal or lithium alloy cells and batteries, when complying with Section II of this packing instruction, are only subject to the following additional provisions of these Instructions:~~

- ~~Part 1;2.3 (General — Transport of dangerous goods by post);~~
- ~~Part 5;1.1 g) and j) (Shipper's responsibilities — General requirements);~~
- ~~Part 5;2.4.16 (Shipper's responsibilities — Special marking requirements for lithium batteries);~~
- ~~Part 7;2.1 (Operator's responsibilities — Loading restrictions on the flight deck and for passenger aircraft);~~
- ~~Part 7;2.4.1 (Operator's responsibilities — Loading of cargo aircraft);~~
- ~~Part 7;4.4 (Operator's responsibilities — Reporting of dangerous goods accidents and incidents);~~
- ~~Part 7;4.5 (Operator's responsibilities — Reporting of undeclared and misdeclared dangerous goods);~~
- ~~Part 8;1.1 (Provisions concerning passengers and crew — Dangerous goods carried by passengers or crew); and~~
- ~~Paragraphs 1 and 2 of this packing instruction.~~

~~Lithium metal or lithium alloy cells and batteries may be offered for transport provided that each cell and battery meets the provisions of 2;9.3 a), c), f) (if applicable) and g) and the following:~~

- ~~1) for a lithium metal cell, the lithium content is not more than 1 g;~~
- ~~2) for a lithium metal or lithium alloy battery, the aggregate lithium content is not more than 2 g.~~

II.1 General requirements

~~Cells and batteries must be packed in strong outer packagings that conform to Part 4;1.1.1, 1.1.3.1 and 1.1.10 (except 1.1.10.1).~~

Table 968-II

<i>Contents</i>	<i>Lithium metal cells and/or batteries with a lithium content not more than 0.3 g</i>	<i>Lithium metal cells with a lithium content more than 0.3 g but not more than 1 g</i>	<i>Lithium metal batteries with a lithium content more than 0.3 g but not more than 2 g</i>
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
Maximum number of cells / batteries per package	No limit	8 cells	2 batteries
Maximum net quantity (mass) per package	2.5 kg	n/a	n/a

~~— The limits specified in columns 2, 3 and 4 of Table 968-II must not be combined in the same package.~~

Packing Instruction 968

II.2 Additional requirements

- Cells and batteries must be packed in inner packagings that completely enclose the cell or battery, then placed in a strong rigid outer packaging.
- Cells and batteries must not be packed in the same outer packaging with other dangerous goods.
- Cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with electrically conductive material within the same packaging that could lead to a short circuit.
- Each package must be capable of withstanding a 1.2 m drop test in any orientation without:
 - damage to cells or batteries contained therein;
 - shifting of the contents so as to allow battery to battery (or cell to cell) contact;
 - release of contents.
- Each package must be marked with the appropriate lithium battery mark (Figure 5-3) and the cargo aircraft only label (Figure 5-28).
 - the package must be of such size that there is adequate space to affix the mark on one side without the mark being folded.
 - the cargo aircraft only label must be located on the same surface of the package near the lithium battery mark, if the package dimensions are adequate.
- A shipper is not permitted to offer for transport more than one package prepared according to this section in any single consignment.
 - The words "lithium metal batteries, in compliance with Section II of PI968 — cargo aircraft only" or "lithium metal batteries, in compliance with Section II of PI968 — CAO" must be placed on the air waybill, when an air waybill is used. Where packages of Section II lithium batteries from multiple packing instructions are included on one air waybill, the compliance statement for the different lithium battery types and/or packing instructions may be combined into a single statement provided that the statement identifies the applicable lithium battery type(s), packing instruction numbers and "CAO".
- Packages and overpacks of lithium metal batteries prepared in accordance with the provisions of Section II must be offered to the operator separately from cargo which is not subject to these Instructions and must not be loaded into a unit load device before being offered to the operator.
 - Any person preparing or offering cells or batteries for transport must receive adequate instruction on these requirements commensurate with the functions for which they are responsible.

II.3 Outer packagings

Boxes

- Aluminium
- Fibreboard
- Natural wood
- Other metal
- Plastics
- Plywood
- Reconstituted wood
- Steel

Drums

- Aluminium
- Fibre
- Other metal
- Plastics
- Plywood
- Steel

Jerricans

- Aluminium
- Plastics
- Steel

II.4 Overpacks

- Not more than one package prepared in accordance with this section may be placed into an overpack.
- Packages prepared in accordance with this section must not be placed into an overpack with packages containing substances and articles of Class 1 (explosives) other than Division 1.4S, Division 2.1 (flammable gases), Class 3 (flammable liquids), Division 4.1 (flammable solids) or Division 5.1 (oxidizers).
- When the package is placed in an overpack, the lithium battery mark (Figure 5-3) and the cargo aircraft only label (Figure 5-28) required by this packing instruction must either be clearly visible or the mark and label must be reproduced on the outside of the overpack and the overpack must be marked with the word "Overpack" in lettering of at least 12 mm high.

Note.— For the purpose of Section II, an overpack is an enclosure used by a single shipper that contains no more than one package prepared in accordance with this section. For shipments prepared in accordance with Section IA and/or IB, this limit of one package of Section II batteries per overpack still applies.

CONSEQUENTIAL AMENDMENTS TO THE TECHNICAL INSTRUCTIONS

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Part 3

**DANGEROUS GOODS LIST,
SPECIAL PROVISIONS AND
LIMITED AND EXCEPTED QUANTITIES**

...

Chapter 3

SPECIAL PROVISIONS

...

TIs UN

A213 (387) Lithium batteries in conformity with 2.9.3 f) containing both primary lithium metal cells and rechargeable lithium ion cells must be assigned to UN Nos. 3090 or 3091 as appropriate. When such batteries are transported in accordance with Section IB ~~or II~~ of Packing Instruction 968 or in accordance with Section II of Packing Instruction 969 or 970, the total lithium content of all lithium metal cells contained in the battery must not exceed 1.5 g, and the total capacity of all lithium ion cells contained in the battery must not exceed 10 Wh.

...

Part 5

SHIPPER'S RESPONSIBILITIES

...

Chapter 2

MARKING

...

2.4.16 Special marking requirements for lithium batteries

2.4.16.1 Packages containing lithium cells or batteries prepared in accordance with Section II of Packing Instructions ~~965, 966, 967, 969~~ ~~to~~ ~~or~~ 970 and Section IB of Packing Instructions 965 and 968 must be marked as shown in Figure 5-3.

...

Part 7**OPERATOR'S RESPONSIBILITIES**

...

Chapter 4**PROVISION OF INFORMATION**

...

4.1 INFORMATION TO THE PILOT-IN-COMMAND

...

4.1.11 The dangerous goods listed in Table 7-9 need not appear on the information provided to the pilot-in-command.

Table 7-9. Dangerous goods not required to appear in the information to the pilot-in-command

<i>UN Number</i>	<i>Item</i>	<i>Reference</i>
...		
UN 3090	Lithium metal batteries (including lithium alloy batteries) when meeting the requirements of Packing Instruction 968, Section II	Packing Instruction 968, Section II
...		
UN 3480	Lithium ion batteries (including lithium ion polymer batteries) when meeting the requirements of Packing Instruction 965, Section II	Packing Instruction 965, Section II

...

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