



DANGEROUS GOODS PANEL (DGP)

TWENTY-FIFTH MEETING

Montréal, 19 to 30 October 2015

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 2017-2018 Edition

REFORMATTING OF TABLE 8-1

(Presented by M. Paquette)

SUMMARY

This paper proposes revisions to the provisions of Part 8 intended for incorporation in the 2019-2020 Edition of the Technical Instructions. The purpose is to simplify the provisions.

Action by the DGP: The DGP is invited to comment on a proposal to modify Table 8-1 as shown in Appendix A to this working paper. A future working paper will be presented during the next biennium.

1. INTRODUCTION

1.1 At DGP-WG/15, proposals were brought forth to include additional items to the existing provisions of Table 8-1. At that time, there was concern that too many specific items were being added to Table 8-1 making it difficult to navigate through the provisions. There was general agreement that an overall review of the structure of Table 8-1 needed to be revisited with the intent of developing a simplified list that would limit the need to for additional entries.

1.2 The principle behind Part 8 is that dangerous goods not covered in Table 8-1 are forbidden to be carried by passengers and crew either as or in carry-on baggage or checked baggage or on their person.

1.3 Table 8-1 presents constant challenges as more items containing dangerous goods enter the market and, unless they meet the provisions in the existing entries, they cannot be carried in baggage. For this reason the Dangerous Goods Panel has frequently amended Table 8-1 to introduce these new items. In addition, some entries are long and repetitious (e.g. the reference to the 38.3 tests for lithium batteries is repeated seven times in Table 8-1).

1.4 We propose to simplify Table 8-1 to introduce generic groupings by danger/hazard/function rather than listing each type of item that contains dangerous goods. These include:

- a) batteries;
- b) battery powered mobility aids;
- c) fire/flame/fuel sources/extreme heat generation;
- d) gases in cylinders and cartridges;
- e) radioactive;
- f) mercury; and
- g) miscellaneous.

1.5 Some provisions of Table 8-1 do not impose limits on the quantities of items of dangerous goods that can be carried. Salespersons/retailers have been observed bringing in their baggage large quantities of items such as lithium batteries contained in equipment. We propose to modify Part 8;1.1.2 to specify that the dangerous goods permitted in Table 8-1 are to be carried by passengers or crew for personal use only. In Appendix B, we have captured what items or articles are carried by passengers or crew for their own personal use and whether this is specifically stated or implied.

1.6 The column “on the person” was removed from Table 8-1. The only time “on the person” was considered was in the case of lighters and matches. The restrictions for lighters and matches specify that the lighter or small packet of safety matches must be carried on the person.

1.7 We have also introduced a new table. We have removed instruments that are not meant to be carried by the average passenger in Table 8-1 and captured them in Table 8-2.

2. ACTION BY THE DGP

2.1 The DGP is invited to discuss the proposed amendments shown in Appendix A to this paper and provide comments. A working paper will be presented at DGP-WG/16.

APPENDIX A

PROPOSED AMENDMENTS TO PART 8 OF THE TECHNICAL INSTRUCTIONS

Part 8

PROVISIONS CONCERNING PASSENGERS AND CREW

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Chapter 1

PROVISIONS FOR DANGEROUS GOODS CARRIED BY PASSENGERS OR CREW

Parts of this Chapter are affected by State Variations US 15; see Table A-1

1.1 DANGEROUS GOODS CARRIED BY PASSENGERS OR CREW

1.1.1 Except as otherwise provided in 1.1.2, dangerous goods, including excepted packages of radioactive material, must not be carried by passengers or crew members, either as or in carry-on baggage or checked baggage ~~or on their person~~. Except as provided for in Table 8-1, ~~34 24~~, security type equipment such as attaché cases, cash boxes, cash bags, etc., incorporating dangerous goods, for example lithium batteries or pyrotechnic material, are totally forbidden; see entry in Table 3-1. ~~Personal medical oxygen devices that utilize liquid oxygen are forbidden either as or in carry-on baggage or checked baggage or on the person. Electroshock weapons (e.g. tasers) containing dangerous goods such as explosives, compressed gases, lithium batteries, etc., are forbidden in carry-on baggage or checked baggage or on the person. The following dangerous goods may be commonly carried by passengers on other modes of transport; however, they are prohibited either as or in carry-on baggage or checked baggage:~~

- a) personal medical oxygen devices that utilize liquid oxygen;
- b) electroshock weapons (e.g. tasers) containing dangerous goods such as explosives, compressed gases, lithium batteries, etc.;
- c) "strike anywhere" matches;
- d) lighter fuel and lighter refills; and
- e) premixing burner lighter (see the Glossary of Terms in Attachment 2) without a means of protection against unintentional activation.

1.1.2 Notwithstanding any additional restrictions which may be implemented by States in the interests of aviation security, except for the incident reporting provisions of 7;4.4 or 7;4.5, as applicable, the provisions of these Instructions do not apply to the dangerous goods listed in Table 8-1 when carried by passengers or crew members for personal use only or in baggage that has been separated from its owner during transit (e.g. lost baggage or improperly routed baggage) or in excess baggage carried as cargo as permitted by 1;1.1.5.1 g):

Note.— Exceptions found in these Instructions are not reproduced in Table 8-1. The following dangerous goods are not subject to these Instructions:

- a) radio-pharmaceuticals contained within the body of a person must be as the result of medical treatment; and
- b) energy efficient lamps when in retail packaging and intended for personal or home use. (see 1;2.6).

1.1.3 Carry-on baggage includes any dangerous goods listed in Table 8-1 carried "on the person". Carry-on baggage must be carried inside the cabin. Any baggage/item that is not carried inside the cabin must follow the provisions/restrictions for checked baggage that is taken at the gate and placed into the cargo hold for transport.

1.1.4 The entry in Table 8-1 which most appropriately describes the item or article must be selected. For instance, electronic cigarettes must meet the requirements of the entry for "Battery powered portable electronic smoking devices" not the entries for lithium batteries or non-spillable batteries.

~~4.1.3~~ 1.1.5 Any organization or enterprise other than an operator (such as a travel agent), involved in the air transport of passengers, should provide passengers with information about the types of dangerous goods which they are forbidden to transport aboard an aircraft. This information should consist of, as a minimum, notices at those locations where there is an interface with the passengers.

~~4.1.4~~ 1.1.6 Where provision is made for the purchase of tickets via the Internet, information on the types of dangerous goods which a passenger is forbidden to transport aboard an aircraft should be provided in either text or pictorial form and should be such that ticket purchase cannot be completed until the passenger, or a person acting on their behalf, has indicated that they have understood the restrictions on dangerous goods in baggage.

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

Replace Table 8-1 with the following:

BATTERIES

The lithium battery entry includes any equipment (portable electronic devices, medical equipment, toys, power tools, etc.) that contains lithium batteries. All lithium batteries are carried in the cabin. This restricts the size of the equipment and/or requires the removal of batteries from its equipment into the cabin.

BATTERIES

<i>Items or articles</i>	<i>Location</i>		Approval of the operator(s) is required	The pilot-in-command must be informed	<i>Restrictions</i>
	Checked baggage	Carry-on baggage			
1) Lithium batteries	No	Yes	(see d) and e)	No	a) carried by passengers or crew for personal use; b) batteries must be of a type which meets the requirements of each test in the UN <i>Manual of Tests and Criteria</i> , Part III, subsection 38.3. c) each battery must not exceed the following: — for lithium metal batteries, a lithium content of 2 grams; or — for lithium ion batteries, a Watt-hour rating of 100 Wh d) batteries may exceed 100 Wh but not exceed 160 Wh watt-hour rating for lithium ion with the approval of the operator; e) batteries may exceed 2 grams but not exceed 8 grams lithium content for lithium metal for portable medical electronic devices with the approval of the operator; f) spares must be individually protected so as to prevent short circuits (by placement in original retail packaging or by otherwise insulating terminals, e.g. by taping over exposed terminals or placing each battery in a separate plastic bag or protective pouch); g) no more than two spare batteries exceeding 2 grams lithium content for lithium metal or a watt-hour rating exceeding 100 Wh for lithium ion may be carried per person.
2) Non-spillable batteries	Yes	Yes	No	No	a) must meet the requirements of Special Provision A67; b) the battery must not exceed a voltage of 12 volts and a Watt-hour rating of 100 Wh; c) the battery must be protected from short circuit by the effective insulation of exposed terminals; d) no more than two spare batteries per person; and e) if contained in equipment, the equipment must be either protected from inadvertent activation, or the battery must be disconnected and its exposed terminals insulated.

BATTERIES

<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>			
3) Battery powered portable electronic smoking devices (e.g. e-cigarettes, e-cigs, ecigars, e-pipes, personal vaporizers, electronic nicotine delivery systems)	No	Yes	No	No	a) if powered by lithium batteries, must comply with restrictions of 1)a), b), c), f), and b) recharging of the devices and/or batteries on board the aircraft is not permitted.
4) Battery-powered equipment capable of generating extreme heat, which could cause a fire if activated (e.g. underwater high intensity lamps)	(see b))	Yes	Yes	No	a) the battery(ies) must be removed from the equipment and be protected against short circuit (by placement in original retail packaging or by otherwise insulating terminals, e.g. by taping over exposed terminals or placing each battery in a separate plastic bag or protective pouch); and b) if powered by lithium batteries, the batteries must comply with restrictions of 1)a), b) and c) and be carried in the cabin.
5) Battery powered mobility aids (e.g. wheelchairs)	(see c)ii))	(see c)ii))	Yes	Yes	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); b) the passenger should make advance arrangements with each operator and provide information on the type of battery installed and on the operation of the mobility aid (including instructions on how to disconnect the battery); and, c) in the case of lithium batteries that have been removed from the mobility aid: i) one spare not exceeding 300 Wh is permitted or two spares not exceeding 160 Wh each are permitted; and ii) both removed and spare battery(ies) must be carried in the cabin and be protected from damage (e.g., by placing each battery in a protective pouch).

FIRE/FLAME/FUEL SOURCES/EXTREME HEAT GENERATION

Items or articles	Location		Approval of the operator(s) is required	The pilot-in-command must be informed	Restrictions
	Checked baggage	Carry-on baggage			
6) Small cigarette lighter Small packet of safety matches Premixing burner lighter (see the Glossary of Terms in Attachment 2) with a means of protection against unintentional activation	No	Yes	No	No	a) no more than one per person; b) must be carried on the person; c) intended for use by an individual; and d) does not contain unabsorbed liquid fuel (other than liquefied gas).
7) Alcoholic beverages containing more than 24 per cent but not more than 70 per cent alcohol by volume	Yes	Yes	No	No	a) must be in retail packagings; b) no more than 5 L per individual receptacle; and c) no more than 5 L total net quantity per person for such beverages. <i>Note.— Alcoholic beverages containing not more than 24 per cent alcohol by volume are not subject to any restrictions.</i>
8) Internal combustion engines or fuel cell engines	Yes	No	No	No	Must comply with Special Provision A70.
9) Fuel cells used to power portable electronic devices (for example, cameras, cellular phones, laptop computers and camcorders)	No	Yes	No	No	a) fuel cell cartridges may only contain flammable liquids, corrosive substances, liquefied flammable gas, water reactive substances or hydrogen in metal hydride; b) refuelling of fuel cells on board an aircraft is not permitted except that the installation of a spare cartridge is allowed;
----- Spare fuel cell cartridges	Yes	Yes	No	No	c) the maximum quantity of fuel in any fuel cell or fuel cell cartridge must not exceed: — for liquids 200 mL; — for solids 200 grams; — for liquefied gases, 120 mL for non-metallic fuel cell cartridges or 200 mL for metal fuel cell or fuel cell cartridges; and — for hydrogen in metal hydride, the fuel cell or fuel cell cartridges must have a water capacity of 120 mL or less; d) each fuel cell and each fuel cell cartridge must conform to IEC 62282-6-100 Ed. 1, including Amendment 1, and must be marked with a manufacturer's certification that it conforms to the specification. In addition, each fuel cell cartridge must be marked with the maximum quantity and type of fuel in the cartridge;

FIRE/FLAME/FUEL SOURCES/EXTREME HEAT GENERATION

<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>			
					e) fuel cell cartridges containing hydrogen in metal hydride must comply with the requirements in Special Provision A162; f) no more than two spare fuel cell cartridges may be carried by a passenger; g) fuel cells containing fuel are permitted in carryon baggage only; h) interaction between fuel cells and integrated batteries in a device must conform to IEC 62282-6-100 Ed. 1, including Amendment 1. Fuel cells whose sole function is to charge a battery in the device are not permitted; i) fuel cells must be of a type that will not charge batteries when the portable electronic device is not in use and must be durably marked by the manufacturer: "APPROVED FOR CARRIAGE IN AIRCRAFT CABIN ONLY" to so indicate; and j) in addition to the languages which may be required by the State of Origin for the markings specified above, English should be used.

GASES IN CYLINDERS AND CARTRIDGES

Items or articles	Location		Approval of the operator(s) is required	The pilot-in-command must be informed	Restrictions
	Checked baggage	Carry-on baggage			
10) Oxygen or air cylinders required for medical use	Yes	Yes	Yes	Yes	<ul style="list-style-type: none"> a) no more than 5 kg gross mass per cylinder; b) cylinders, valves and regulators, where fitted, must be protected from damage which could cause inadvertent release of the contents; c) advance arrangements recommended; and d) the pilot-in-command must be informed of the number of oxygen or air cylinders loaded on board the aircraft and their loading location(s).
11) Division 2.2 cartridges worn for the operation of mechanical limbs	Yes	Yes	No	No	Spare cartridges of a similar size are also allowed, if required, to ensure an adequate supply for the duration of the journey.
12) Hydrocarbon gas cartridge contained in hair styling equipment	Yes	Yes	No	No	<ul style="list-style-type: none"> a) no more than one per person; b) the safety cover must be securely fitted over the heating element; and c) spare cartridges must not be carried.
13) Small cartridges of Division 2.2 with no subsidiary risk fitted into a self inflating personal safety device such as a life-jacket or vest	Yes	Yes	Yes	No	<ul style="list-style-type: none"> a) no more than one personal safety device per person; b) the personal safety device must be packed in such a manner that it cannot be accidentally activated; c) must be for inflation purposes; d) the device must be fitted with no more than two small cartridges; and e) no more than two spare cartridges.
14) Small cartridges of Division 2.2 with no subsidiary risk not fitted into a self inflating personal safety device	Yes	Yes	Yes	No	<ul style="list-style-type: none"> a) no more than four small cartridges per person; and b) the water capacity of each cartridge must not exceed 50 mL. <p><i>Note.— For carbon dioxide, a gas cartridge with a water capacity of 50 mL is equivalent to a 28 g cartridge.</i></p>
15) Cylinder of Division 2.2 without subsidiary risk contained in an avalanche rescue backpack	Yes	Yes	Yes	No	<ul style="list-style-type: none"> a) no more than one per person; b) may contain a pyrotechnic trigger mechanism which must not contain more than 200 mg net of Division 1.4S; c) the backpack must be packed in such a manner that it cannot be accidentally activated; and d) the airbags within the backpack must be fitted with pressure relief valves.

RADIOACTIVE MATERIAL

<i>Items or articles</i>	<i>Location</i>		Approval of the operator(s) is required	The pilot-in-command must be informed	<i>Restrictions</i>
	Checked baggage	Carry-on baggage			
16) Radioisotopic cardiac pacemakers or other medical devices	n/a	Yes	No	No	Must be implanted into a person or fitted externally as the result of medical treatment.

MERCURY

<i>Items or articles</i>	<i>Location</i>		Approval of the operator(s) is required	The pilot-in-command must be informed	<i>Restrictions</i>
	Checked baggage	Carry-on baggage			
17) Small medical or clinical thermometer which contains mercury	Yes	Yes	No	No	a) no more than one per person; and b) must be in its protective case.

MISCELLANEOUS DANGEROUS GOODS

“Non-radioactive medicinal articles (including aerosols)”, “toiletry articles (including aerosols)” and “aerosols in Division 2.2, with no subsidiary risk, for sporting or home use” were grouped together as all conditions are identical and their total net quantity is limited. Condition 18) c) was added as a Division 2.2 aerosol for home and sporting use could be animal deterrent spray. As a result, aerosols in 2.2 are allowed in cabin.

MISCELLANEOUS DANGEROUS GOODS

<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>			
18) Non radioactive medicinal articles, toiletry articles and aerosols	Yes	Yes	No	No	a) no more than 0.5 kg or 0.5 L total net quantity per single article; b) release valves on aerosols must be protected by a cap or other suitable means to prevent inadvertent release of the contents; c) the release of gas must not cause extreme annoyance or discomfort to crew members so as to prevent the correct performance of assigned duties; and d) no more than 2 kg or 2 L total net quantity of all articles (e.g. four aerosol cans of 500 mL each) per person.
19) Dry ice	Yes	Yes	Yes	No	a) no more than 2.5 kg per person; b) used to pack perishables that are not subject to these Instructions; c) the package must permit the release of carbon dioxide gas; and d) when carried in checked baggage, each package must be marked: <ul style="list-style-type: none"> — “DRY ICE” or “CARBON DIOXIDE, SOLID”; and — the net weight of dry ice or an indication that the net weight is 2.5 kg or less.
20) Securely packaged cartridges in Division 1.4S (UN 0012 or UN 0014 only)	Yes	No	Yes	No	a) no more than 5 kg gross mass per person; b) must not include ammunition with explosive or incendiary projectiles; and c) allowances for more than one person must not be combined into one or more packages.
21) Permeation devices for calibrating air quality monitoring equipment	Yes	No	No	No	Must comply with Special Provision A41
22) Non-infectious specimens	Yes	Yes	No	No	Must comply with Special Provision A180

MISCELLANEOUS DANGEROUS GOODS

<i>Items or articles</i>	<i>Location</i>		Approval of the operator(s) is required	The pilot-in-command must be informed	<i>Restrictions</i>
	Checked baggage	Carry-on baggage			
23) Insulated packagings containing refrigerated liquid nitrogen	Yes	Yes	No	No	Must comply with Special Provision A152
24) Security-type equipment, such as attaché cases, cash boxes, cash bags, etc., incorporating dangerous goods as part of this equipment, for example, lithium batteries or pyrotechnic material	Yes	No	Yes	No	Must comply with Special Provision A178

Add the following new Table 8-2:

Table 8-2. Instruments that are not meant to be carried by the average passenger

<i>Items or articles</i>	<i>Location</i>		Approval of the operator(s) is required	The pilot-in-command must be informed	<i>Restrictions</i>
	Checked baggage	Carry-on baggage			
1) Instruments containing radioactive material (i.e. chemical agent monitor (CAM) and/or rapid alarm and identification device monitor (RAID-M))	Yes	Yes	Yes	No	a) the instruments must not exceed the activity limits specified in Table 2-14 of these Instructions; b) must be securely packed and without lithium batteries; and c) must be carried by staff members of the Organization for the Prohibition of Chemical Weapons (OPCW) on official travel.
2) A mercurial barometer or mercurial thermometer	No	Yes	Yes	Yes	a) must be carried by a representative of a government weather bureau or similar official agency; and b) must be packed in a strong outer packaging, having a sealed inner liner or a bag of strong leakproof and puncture-resistant material impervious to mercury, which will prevent the escape of mercury from the package irrespective of its position.

End of new text

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APPENDIX B

ITEMS OR ARTICLES CARRIED BY PASSENGERS OR CREW FOR PERSONAL USE AND WHETHER THIS IS SPECIFICALLY STATED OR IMPLIED

Dangerous Goods	Carried by passengers or crew for own personal use?	If yes, is it specifically stated or is it implied?
Small gaseous oxygen or air cylinders required for medical use	Yes	Implied
Cylinders of a gas of Division 2.2 worn for the operation of mechanical limbs	Yes	Implied
Non-radioactive medicinal articles (including aerosols)	Yes Could be work-related	
Radioisotopic cardiac pacemakers or other medical devices...	Yes	Implied
Radio-pharmaceuticals contained within the body of a person	Yes	Implied
Mobility aids (e.g. wheelchairs) powered by batteries or batteries ...	Yes	Stated
Portable medical electronic devices (automated external defibrillators (AED), nebulizer...	Yes	Implied
Small medical or clinical thermometer which contains mercury	Yes	Stated
Toiletry articles (including aerosols)	Yes	Implied
Hair curlers containing hydrocarbon gas	Yes	Implied
Alcoholic beverages containing more than 24% but not more than 70 % alcohol by volume	Yes	Implied

Dangerous Goods	Carried by passengers or crew for own personal use?	If yes, is it specifically stated or is it implied?
Aerosols in Division 2.2, with no subsidiary risk, for sporting or home use	Yes	Implied
Securely packaged cartridges in Division 1.4S (UN 0012 or UN 0014 only);	Yes	Stated
Small packet of safety matches	Yes	Implied
Small cigarette lighter	Yes	Implied
Premixing burner lighter with a means of protection against unintentional activation	Yes	Implied
Battery-powered equipment capable of generating extreme heat...	Yes	Implied
Avalanche rescue backpack containing a cylinder of compressed gas of Division 2.2...	Yes	Implied
Small cartridges fitted into a self inflating personal safety device...	Yes	Implied
Small cartridges for other devices	Yes	Implied
e-cigarette	Yes	Stated
Portable electronic devices ... (containing lithium batteries)	Yes	Stated
Fuel cells used to power portable electronic devices ...	Yes	Implied
Dry ice	Yes Could be work-related	Implied
A mercurial barometer or thermometer	Could be work-related	

Dangerous Goods	Carried by passengers or crew for own personal use?	If yes, is it specifically stated or is it implied?
Instruments containing radioactive material ...	Could be work-related	
Energy efficient lamps	Yes	Stated
Permeation devices for calibrating air quality monitoring equipment*	Could be work-related	
Portable electronic equipment containing a non-spillable battery meeting the requirements of Special Provision A67*	Yes Could be work-related	Implied
Spare non-spillable batteries meeting the requirements of Special Provision A67*	Yes	Implied
Internal combustion engines or fuel cell engines*	Yes Could be work-related	Implied
Non-infectious specimens*	If they are museum pieces, they are not for personal use.	
Insulated packagings containing refrigerated liquid nitrogen*	Do the embryos/sperm (human or animal) have to be your own?	
Security-type equipment, such as attaché cases, cash boxes, cash bags, etc., incorporating dangerous goods as part of this equipment, for example, lithium batteries or pyrotechnic material	Yes Could be work-related	

* Would not be regulated if shipped as cargo.

— END —