



**WORKING PAPER**

**DANGEROUS GOODS PANEL (DGP)  
MEETING OF THE WORKING GROUP OF THE WHOLE**

**Abu Dhabi, United Arab Emirates, 7 to 11 November 2010**

- Agenda Item 5: Resolution, where possible, of the non-recurrent work items identified by the Air Navigation Commission or the panel**  
**5.4: Review of provisions for information to the pilot-in-command**

**NOTOC REVIEW**

(Presented by G. A. Leach)

**SUMMARY**

The working group is invited to determine the approach for reviewing the current requirement of the Technical Instructions for the provision of information to the captain.

Action by the DGP-WG is in paragraph 2.

**1. INTRODUCTION**

1.1 At DGP/22 it was decided that in the following biennium a review would be conducted of the requirements in the Technical Instructions for the provision of information to the pilot-in-command (Part 7;4.1). Clearly, before work can begin in earnest it is important to determine the scope of the review, and it is suggested that this should be the first task for the NOTOC Working Group. As a thought starter, the following aspects are suggested, in no particular order of importance:

**1.2 Use of the NOTOC**

1.2.1 Although it has come to be known as the Notification to Captain, the form is used for other purposes e.g. it is retained on the ground for the use of emergency services. Consequently, should the review look to tailoring the NOTOC to meet the needs of the captain only, with alternatives developed for other parties?

**1.3 Participants in the review**

1.3.1 Who should be involved in the review? In addition to interested panel members, it is suggested representation from those involved in aerodromes, fire and rescue and air traffic services should be invited.

#### 1.4 The currently required elements

1.4.1 What value does each of the specifically required elements bring? Are all of the elements of value to all users of the NOTOC?

#### 1.5 When and where should future meetings be held?

1.5.1 Since it has been suggested that representatives from the areas of aerodromes, fire and rescue and air traffic services should be involved, ICAO Headquarters would seem to be the most logical location for a further meeting. However, if DGP-WG/11 is not held in Montreal, unless an ad hoc working group is arranged, the first opportunity to hold such a meeting would be in the days prior to DGP/23. This would be far from ideal as there would be no time for panel members to seek comment from their respective industries before having to decide on new text almost immediately after the meeting.

#### 1.6 What preparatory work can be done by panel members?

1.6.1 In the United Kingdom some preparatory work has already been done and is continuing. This work includes:

- a) **Meeting with National Air Traffic Services (NATS).** At this meeting NATS expressed their concern over the current requirement in the Technical Instructions because the passing of a large amount of text could be such a distraction that a controller's ability to carry out his primary function i.e. maintaining separation between aircraft would be affected. For this reason NATS felt very strongly that if air traffic services were to continue as a link in the communication chain — the only reason air traffic control (ATC) are involved is because they can act as a conduit between the aircraft and the emergency services at the intended point of destination — ICAO should work towards a far simpler system, perhaps placing greater emphasis on either the use of a summary or a telephone number from where the emergency services could obtain full details of the dangerous goods on board. Consequently, an Air Traffic Services Information Notice (ATSIN) has been drafted; this is appended to this working paper which reflects the requirements of air traffic controllers.

Subsequent to the meeting with NATS a suggestion was made from a fire officer that the telephone number from where information could be obtained should be included in the flight plan; this possibility could be explored with our air traffic colleagues.

- b) **Pilot's questionnaire.** Also appended to this working paper are two questionnaires for pilots of passenger and cargo aircraft. The questionnaires detail the current requirements and ask for pilots' views on the importance of each of these. Examples are also shown of possible alternatives to what is currently required. In conjunction with this exercise the author of this working paper travelled on a B747-400 freighter on a flight from the United Kingdom to the United States. During the various sectors the actual NOTOCs produced on the day were each converted into the alternatives in the cargo questionnaire; all of the pilots met believed there was merit in considering one of the alternatives either in part or in total. Questionnaires have been provided to the three biggest United Kingdom passenger operators carrying dangerous goods and the two biggest cargo operators. It has also been produced in the magazine of the

British Airline Pilot's Association. It is hoped that the results of the questionnaires, with an analysis, will be available for the next meeting of the NOTOC review group.

- c) **Fire and rescues services.** No formal discussions have been held at this time. However, production of a questionnaire similar to that designed for pilots is being considered.

## 2. ACTION BY THE DGP-WG

2.1 Given the limited amount of time available to the NOTOC review group at DGP-WG/10, it is suggested the group concentrate their efforts on developing a strategy for the following twelve months, with a view to producing final report to DGP/23.

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APPENDIX A

**ATSIN** Air Traffic Services Information Notice  
Safety Regulation Group  
Air Traffic Standards Division



*ALL ATS*

Number xxx

Issued xx Month 20xx

**TRANSPORT OF DANGEROUS GOODS – GUIDELINES FOR AIR  
TRAFFIC SERVICE UNITS**

**1. Introduction**

- 1.1 “Dangerous goods” are routinely carried in cargo on both passenger and cargo aircraft and must comply with a set of requirements produced by ICAO called the Technical Instructions for the Safe Transport of Dangerous Goods by Air (known as the “Technical Instructions”). Such goods may range from one or two aerosols to large quantities of explosives, radioactive material etc. These Technical Instructions address how dangerous goods must be prepared and handled. There are also requirements that in the event of an in-flight emergency the pilot in command must provide air traffic services (ATS), as soon as the situation permits with details of any dangerous goods carried as cargo. Such details are contained on a “Notification to Captain” (NOTOC) form. This information is then be passed by the air traffic services unit (ATSU) to the destination aerodrome. They in turn provide it to the Rescue and Fire Fighting Services, to assist them in planning their response to the aircraft emergency. It is a popular misconception that notification of dangerous goods is always to be found on the flight plan; whilst this may be so on some occasions many aircraft will be carrying dangerous goods in cargo of some sort and the absence of an annotation on the flight plan should not be taken as an indication that no dangerous goods are being carried.
- 1.2 The Technical Instructions provides for details of the dangerous goods onboard to be provided to the ATSU in one of three forms:
- a.) a summary of the quantities and classes or divisions of dangerous goods (dangerous goods fall under 1 of 9 classes, some of which are sub-divided) in each cargo compartment;
  - b.) a telephone number of a location from where detailed information of the dangerous goods can be obtained; or

c.) very detailed information on all of the dangerous goods, namely:

- Proper shipping name (generally the name of a chemical)
- UN number (a 4 digit number prefixed with the letters "UN")
- Class or division
- For explosives the compatibility group (a letter after the division which denotes how the explosive will react when detonated)
- Subsidiary risks (if any – some dangerous goods have more than one hazard)
- Quantity and location on board the aircraft

**When a Pilot in command intends to provide an ATSU with information, except when only one or two different types of dangerous goods are being carried, he or she should be encouraged to provide either a summary or a telephone number; many aircraft will be carrying dangerous goods of such varieties and quantities that receipt and transcription of detailed information would be impracticable.**

## **2. Purpose**

2.1 This ATSN is issued to highlight the requirements of ICAO Annex 18 and the associated Technical Instructions regarding communication of dangerous goods information by the Pilot in Command to Air Traffic Service Units.

## **3. Scope**

3.1 This ATSN is addressed to managers of ATSUs, ATCOSs and FISOs.

## **4. Recommended actions**

4.1 Managers of ATSUs should ensure that unit procedures include guidance on strategies for communicating details of dangerous goods carried on an aircraft. This information may be notified to them by the pilot in command or from another point of contact provided by the aircrew.

## **5. Queries**

5.1 Any queries or further guidance required on the content of this ATSN should be addressed to:

ATS Enquiries  
Air Traffic Standards Division  
CAA Safety Regulation Group  
2W Aviation House  
Gatwick Airport South  
West Sussex  
RH6 0YR  
E-mail: ats.enquiries@caa.co.uk

5.2 Any queries relating to the availability of this AT SIN should be addressed to:

ATS Documents  
Air Traffic Standards Division  
CAA Safety Regulation Group  
2W Aviation House  
Gatwick Airport South  
West Sussex  
RH6 0YR  
E-mail: ats.documents@caa.co.uk

**6. CANCELLATION**

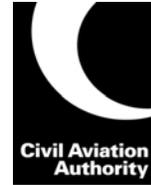
6.1 *This AT SIN shall remain in force until*

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**APPENDIX B**

**QUESTIONNAIRE FOR PILOTS OF PASSENGER AIRCRAFT**



Dear Sir/Madam

The ICAO Dangerous Goods Panel is responsible for producing the international requirements for the transport of dangerous goods by air, which are then reflected in the International Air Transport Association's Dangerous Goods Regulations. Over the next 2 years the Panel will review the current requirements for the provision of written information to the Captain about any dangerous goods loaded on board their aircraft (usually referred to as the "NOTOC"). Concerns have been expressed by some that too much information is currently required, whilst others have suggested that the status quo should be maintained.

To assist me in my participation in the review, I am keen to hear from pilots as to what information is really of benefit to them and to this end I would be extremely grateful if you would take a few minutes to answer the questions below and then consider the following example NOTOCs. The first is written in accordance with the current requirements. This is followed by 4 alternatives which provide information on the dangerous goods listed in the currently required NOTOC for **passenger aircraft**, but in different ways. These alternatives are purely illustrative and are not being proposed as replacements for the existing requirement. If you have any other alternatives please send them to me at [dgo@caa.co.uk](mailto:dgo@caa.co.uk)

I am very grateful for your assistance.

Regards

Geoff Leach  
Manager, Dangerous Goods Office  
Civil Aviation Authority



4. What other purposes do you find the NOTOC information useful for:

Other comments:

**Option 1. The current requirement**

STATION OF LOADING London Gatwick		FLIGHT NO. IC 811		AIRCRAFT REGN. G-PIGN		DATE 15 June 2010		PREPARED BY: Signed.....			
Station of unloading	Air waybill no.	No. of packages	UN no.	Proper shipping name	Class or division	Subsidiary risk	Net quantity or TI & category of each package	Packing group	CAO (X)	Carried under State exemption (X)	Loading position
MME	010-1845 5841	3	UN 1263	Paint	3		5L	III			31R
MME	010-1845 5841	20	UN 1718	Butyl acid phosphate	8		5L	III			32L
MME	010-1845 1231	3	UN 1263	Paint	3		5L	III			31R
MME	010-1845 6089	3	UN 1263	Paint	3		5L	III			22L
MME	010-1845 6089	3	UN 1263	Paint	3		10L	III			22L
MME	010-1845 6089	3	UN 1263	Paint	3		20L	III			22L
MME	010-1845 9998	3	UN 2515	Bromoform	6.1		5L	III			51
MME	010-1845 9998	1	UN 1848	Propionic acid	8		5L	III			32L
MME	010-1845 5841	1	UN 1221	Isopropylamine	3	8	10L	III			31R
MME	010-1845 5841	10	UN 1993	Flammable liquid n.o.s (Acetone and 1,2,3,6-tetrahydrobenzaldehyde solution)	3		20L	III			31R
MME	010-1845 3256	50	UN 1203	Motor spirit	3		4L	II			22R
MME	010-1845 3256	10	UN 1203	Motor spirit	3		5L	II			22R
MME	010-1845 3256	300	UN 1203	Motor spirit	3		2L	II			22R

I CONFIRM THAT THE PACKAGES LISTED ABOVE WERE LOADED AS SHOWN AND THERE WAS NO EVIDENCE OF ANY DAMAGED OR LEAKING PACKAGES.  Signed:..... Status:.....	CAPTAINS SIGNATURE:  .....
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<b>STATION OF LOADING</b> London Gatwick	<b>FLIGHT NO.</b> IC 811	<b>AIRCRAFT REGN.</b> G-PIGN	<b>DATE</b> 15 June 2010	<b>PREPARED BY:</b> Signed.....
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	CLASS/ DIVISION														
	<b>1</b>	<b>2.1</b>	<b>2.2</b>	<b>2.3</b>	<b>3</b>	<b>4.1</b>	<b>4.2</b>	<b>4.3</b>	<b>5.1</b>	<b>5.2</b>	<b>6.1</b>	<b>6.2</b>	<b>7</b>	<b>8</b>	<b>9</b>
	Explosive	Flammable gas	Non-flammable non-toxic gas	Toxic gas	Flammable liquid	Flammable solid	Spontaneously combustible	Dangerous when wet	Oxidizer	Organic peroxide	Toxic	Infectious substance	Radio-active material	Corrosive	Misc
<b>Forward hold</b>					955 L										
<b>Rear hold</b>					240 L						15L			105 L	

<p>I CONFIRM THAT THE PACKAGES LISTED ABOVE WERE LOADED AS SHOWN AND THERE WAS NO EVIDENCE OF ANY DAMAGED OR LEAKING PACKAGES.</p> <p>Signed:..... Status:.....</p>	<p>CAPTAINS SIGNATURE:</p> <p>.....</p>
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Points of note:

- Sum of quantities per class/division per hold

**Option 4.**

<b>STATION OF LOADING</b> London Gatwick	<b>FLIGHT NO.</b> IC 811	<b>AIRCRAFT REGN.</b> G-PIGN	<b>DATE</b> 15 June 2010	<b>PREPARED BY:</b> Signed.....
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		CLASS/ DIVISION														
		1	2.1	2.2	2.3	3	4.1	4.2	4.3	5.1	5.2	6.1	6.2	7	8	9
		Explosive	Flammable gas	Non-flammable non-toxic gas	Toxic gas	Flammable liquid	Flammable solid	Spontaneously combustible	Dangerous when wet	Oxidizer	Organic peroxide	Toxic	Infectious substance	Radio-active material	Corrosive	Misc
<b>Forward hold</b>	<b>UN numbers</b>					1263 1203										
	<b>Total quantity</b>					955L										
<b>Rear hold</b>	<b>UN numbers</b>					1263 1221 1993						2515			1718 1848	
	<b>Total quantity</b>					240L						15L			105L	

<p>I CONFIRM THAT THE PACKAGES LISTED ABOVE WERE LOADED AS SHOWN AND THERE WAS NO EVIDENCE OF ANY DAMAGED OR LEAKING PACKAGES.</p> <p>Signed:..... Status:.....</p>	<p>CAPTAINS SIGNATURE:</p> <p>.....</p>
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Points of note:

- Sum of quantities per class/division per hold;
- All UN numbers listed.

<b>STATION OF LOADING</b> London Gatwick	<b>FLIGHT NO.</b> IC 811	<b>AIRCRAFT REGN.</b> G-PIGN	<b>DATE</b> 15 June 2010	<b>PREPARED BY:</b> Signed.....
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<b>Bulk</b>	<b>Aft</b>				<b>Forward</b>			
<b>5</b>	<b>4</b>		<b>3</b>		<b>2</b>		<b>1</b>	
	<b>42</b>	<b>41</b>	<b>32</b>	<b>31</b>	<b>22</b>	<b>21</b>	<b>12</b>	<b>11</b>
UN2515 15 L			UN1718 100 L UN1848 5 L	UN1263 30 L UN1221 10 L UN1993 200 L	UN1263 105 L UN1203 850 L			

I CONFIRM THAT THE PACKAGES LISTED ABOVE WERE LOADED AS SHOWN AND THERE WAS NO EVIDENCE OF ANY DAMAGED OR LEAKING PACKAGES.  Signed:.....                      Status:.....	<b>CAPTAINS SIGNATURE:</b>  .....
	.....

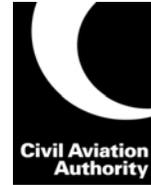
Points of note:

- Quantity per UN number per class per cargo compartment

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APPENDIX C

QUESTIONNAIRE FOR PILOTS OF CARGO AIRCRAFT



Dear Sir/Madam

The ICAO Dangerous Goods Panel is responsible for producing the international requirements for the transport of dangerous goods by air, which are then reflected in the International Air Transport Association's Dangerous Goods Regulations. Over the next 2 years the Panel will review the current requirements for the provision of written information to the Captain about any dangerous goods loaded on board their aircraft (usually referred to as the "NOTOC"). Concerns have been expressed by some that too much information is currently required, whilst others have suggested that the status quo should be maintained.

To assist me in my participation in the review, I am keen to hear from pilots as to what information is really of benefit to them and to this end I would be extremely grateful if you would take a few minutes to answer the questions below and then consider the following example NOTOCs. The first is written in accordance with the current requirements. This is followed by 4 alternatives which provide information on the dangerous goods listed in the currently required NOTOC for **cargo aircraft**, but in different ways. These alternatives are purely illustrative and are not being proposed as replacements for the existing requirement. If you have any other alternatives please send them to me at [dgo@caa.co.uk](mailto:dgo@caa.co.uk)

I am very grateful for your assistance.

Regards

Geoff Leach  
Manager, Dangerous Goods Office  
Civil Aviation Authority



4. What other purposes do you find the NOTOC information useful for:

Other comments:

**Option 1. The current requirement**

STATION OF LOADING London Gatwick		FLIGHT NO. IC 811	AIRCRAFT REGN. G-PIGN	DATE 15 June 2010	PREPARED BY: Signed.....						
Station of unloading	Air waybill no.	No. of packages	UN no.	Proper shipping name	Class or division	Subsidiary risk	Net quantity or TI & category of each package	Packing group	CAO (X)	Carried under State exemption (X)	Loading position
MME	010-1845 5841	10	UN 1993	Flammable liquid n.o.s (Acetone and 1,2,3,6-tetrahydrobenzaldehyde solution)	3		220L	III	X		B1
MME	010-1845 3256	50	UN 1203	Motor spirit	3		4L	II			B1
MME	010-1845 3256	10	UN 1203	Motor spirit	3		5L	II			B1
MME	010-1845 3256	300	UN 1203	Motor spirit	3		20L	II	X		B1
MME	010-1845 5841	3	UN 1263	Paint	3		5L	III			CL
MME	010-1845 1231	10	UN 1263	Paint	3		5L	III			CL
MME	010-1845 6089	50	UN 1263	Paint	3		5L	III			CL
MME	010-1845 6089	20	UN 1263	Paint	3		10L	III			CL
MME	010-1845 6089	10	UN 1263	Paint	3		60L	III			CL
MME	010-1845 9998	10	UN 1848	Propionic acid	8		5L	III			CR
MME	010-1845 5841	20	UN 1221	Isopropylamine	3	8	10L	III			CR
MME	010-1845 5841	20	UN 1718	Butyl acid phosphate	8		5L	III			DL
MME	010-1845 9998	3	UN 2515	Bromoform	6.1		5L	III			DL

I CONFIRM THAT THE PACKAGES LISTED ABOVE WERE LOADED AS SHOWN AND THERE WAS NO EVIDENCE OF ANY DAMAGED OR LEAKING PACKAGES.

Signed:..... Status:.....

CAPTAINS SIGNATURE:  
.....

## Option 2.

<b>LOADING STATION</b> LGW	<b>FLIGHT NO.</b> IC811	<b>AIRCRAFT REGN.</b> G-PIGN	<b>DATE</b> 15 June 2010	<b>PREPARED BY:</b> Signed.....
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Main deck comp	No. of packages	UN no.	Proper shipping name	Class or division	Subs Risk(s)	Total quantity	Max PG
B1	10	UN1993	Flammable liquid n.o.s.	3		2200L	III
B1	360	UN1203	Motor spirit	3		6250L	II
CL	93	UN1263	Paint	3		1115L	III
CR	10	UN1848	Propionic acid	8		50L	III
CR	20	UN1221	Isopropylamine	3		200L	III
DL	20	UN1718	Butyl acid phosphate	8		100L	III
DL	3	UN2515	Bromoform	6.1		15L	III

<p>I CONFIRM THAT THE PACKAGES LISTED ABOVE WERE LOADED AS SHOWN AND THERE WAS NO EVIDENCE OF ANY DAMAGED OR LEAKING PACKAGES.</p> <p>Signed:.....</p> <p>Status:.....</p>	<p>CAPTAINS SIGNATURE:</p> <p>.....</p>
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Option 3

STATION OF LOADING		FLIGHT NO.		AIRCRAFT REGN.			DATE			PREPARED BY:					
LGW		IC 811		G-PIGN			15 June 2010			Signed.....					
Main deck comp	CLASS/ DIVISION														
	1	2.1	2.2	2.3	3	4.1	4.2	4.3	5.1	5.2	6.1	6.2	7	8	9
	Explosive	Flammable gas	Non-flammable non-toxic gas	Toxic gas	Flammable liquid	Flammable solid	Spontaneously combustible	Dangerous when wet	Oxidizer	Organic peroxide	Toxic	Infectious substance	Radio-active material	Corrosive	Misc
A1															
A2															
B1					8450L										
C	L				1115L										
	R				200L									50L	
D	L										15L			100L	
	R														
E	L														
	R														
F	L														
	R														
I CONFIRM THAT THE PACKAGES LISTED ABOVE WERE LOADED AS SHOWN AND THERE WAS NO EVIDENCE OF ANY DAMAGED OR LEAKING PACKAGES.									CAPTAINS SIGNATURE:						
Signed:..... Status:.....									.....						

Option 4.

<b>STATION OF LOADING</b> LGW		<b>FLIGHT NO.</b> IC811		<b>AIRCRAFT REGN.</b> G-PIGN			<b>DATE</b> 20 June 2010			<b>PREPARED BY:</b> Signed.....						
<b>Main deck compartment</b>		<b>CLASS/ DIVISION</b>														
		<b>1</b> Explosive	<b>2.1</b> Flammable gas	<b>2.2</b> Non-flammable non-toxic gas	<b>2.3</b> Toxic gas	<b>3</b> Flammable liquid	<b>4.1</b> Flammable solid	<b>4.2</b> Spontaneously combustible	<b>4.3</b> Dangerous when wet	<b>5.1</b> Oxidizer	<b>5.2</b> Organic peroxide	<b>6.1</b> Toxic	<b>6.2</b> Infectious substance	<b>7</b> Radioactive material	<b>8</b> Corrosive	<b>9</b> Misc
<b>B1</b>	<b>UN numbers</b>					UN1993 UN1203										
	<b>Total quantity</b>					8450L										
<b>CL</b>	<b>UN numbers</b>					UN1263										
	<b>Total quantity</b>					1115L										
<b>CR</b>	<b>UN numbers</b>					UN1221									UN1848	
	<b>Total quantity</b>					200L									50L	
<b>DL</b>	<b>UN numbers</b>										UN2515				UN1718	
	<b>Total quantity</b>										15L				100L	
I CONFIRM THAT THE PACKAGES LISTED ABOVE WERE LOADED AS SHOWN AND THERE WAS NO EVIDENCE OF ANY DAMAGED OR LEAKING PACKAGES.  Signed:..... Status:.....										CAPTAINS SIGNATURE:  .....						

**Option 5.**

<b>STATION OF LOADING</b> LGW	<b>FLIGHT NO.</b> IC811	<b>AIRCRAFT REGN.</b> G-PIGN	<b>DATE</b> 20 June 2010	<b>PREPARED BY:</b> Signed.....
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A1	A2	B1	C	D	E	F	G	H	J	K	L	M	P	Q	R	S	T
		UN1993 2200L	UN1263 1115L	UN1718 100L													
		UN1203 6250L	UN1848 50L	UN2515 15L													
			UN1221 200L														

<p>I CONFIRM THAT THE PACKAGES LISTED ABOVE WERE LOADED AS SHOWN AND THERE WAS NO EVIDENCE OF ANY DAMAGED OR LEAKING PACKAGES.</p> <p>Signed:..... Status:.....</p>	<p><b>CAPTAINS SIGNATURE:</b></p> <p>.....</p>
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