International Civil Aviation Organization

DGP-WG/LB/1-WP/4
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WORKING PAPER

DANGEROUS GOODS PANEL (DGP)
WORKING GROUP OF THE WHOLE ON LITHIUM BATTERIES

FIRST MEETING

Montréal, 6 to 10 February 2012

Agenda Item 1: Carry-over work from DGP/23

LITHIUM BATTERIES

(Presented by G A Leach)

SUMMARY

This working paper offers alternatives to fully regulating many lithium batteries to enable information to be provided to the pilot in command. It also suggests further enhancements for both Section I and II batteries.

Action by the DGP-WG/LB is in paragraph 1.1.

1. INTRODUCTION

1.1 DGP/23-WP/72 and the associated Flimsy 9 sought to radically amend the provisions for the carriage of small quantities of lithium batteries which can currently be shipped under the Section II provisions of Packing Instructions 965 and 968. Essentially it was proposed to fully regulate many such batteries to enable details of them to be provided to the pilot in command. Whilst neither the working paper nor flimsy were accepted at that time, there was general support for the idea that when such batteries were shipped in bulk (a term which would need to be defined), details of them should be advised to the pilot in command.

1.2 This working paper supports the idea that details of large quantities of Section II lithium batteries should be provided to the pilot in command, not only for their benefit but also that of the emergency services, should the aircraft or its cargo be involved in an incident or accident. However, it is suggested that the differences in the packing requirements for Section I and II are relatively small and much of what is desired can be achieved under the existing provisions of the Technical Instructions, or those amendments adopted at DGP/23, without requiring the majority of lithium batteries to be fully regulated. (Attached as appendix A to this working paper is a comparison of the requirements.) Indeed, it is suggested there is no safety basis for the imposition of additional requirements when there has been no evidence that existing provisions of the Technical Instructions are deficient; incidents have invariably

been caused by shippers not following the existing rules and the introduction of yet more requirements will not solve this problem, nor will it improve oversight, enforcement and outreach which are essential factors in improving the situation. It is also important to reiterate that new requirements may have the undesired effect of some existing shippers deciding that the cost of compliance is too high and so will continue to ship their batteries without adhering to the provisions. That said, it is suggested there are some areas of both Section I and II which could be enhanced in the name of safety and these are discussed later in this paper.

1.3 Proponents of Flimsy 9 suggest that an essential element of notifying the pilot in command is that dangerous goods are "declared" by the shipper to the operator, and by fully regulating lithium batteries this would be achieved by completion of a Dangerous Goods Transport Document. However, in discussion of DGP/23-WP/24, WP/46 and WP/50 the DGP affirmed that a transport document was not the only way dangerous goods can be declared; dangerous goods in packages bearing marking and/or labels are also deemed to have been "declared". Thus, it can be argued that lithium batteries contained in packages bearing the lithium battery handling label are "declared" to the operator and that no further documentary requirements should apply.

1.4 Discussion of DGP/23-WP/67 resulted in a new requirement (5;1.1 k) for dangerous goods and non-dangerous goods to be offered to the operator separately. The existing wording of Section II is such that this provision does not apply, but Section II lithium batteries are dangerous goods and so it would seem logical to subject them to a similar provision, i.e. packages bearing lithium battery handling labels must be offered to the operator separately from cargo which is not subject to the Technical Instructions.

1.5 It is suggested that the provisions outlined in 1.3 and 1.4 should be sufficient to enable an operator to provide information to the pilot in command. This may or may not be by way of the NOTOC and it is suggested that a summary of the quantities of lithium batteries onboard, and where they are loaded, as opposed to line by line entries, would be sufficient and indeed, more beneficial to the crew. It would also enable inspections to be carried out prior to loading and after unloading although given the potential number of packages being offered at one time, a requirement for an inspection for obvious signs of damage to a consignment, or pallet load, may be more realistic.

1.6 Shippers of batteries under Section II are not required to be trained, instead "adequate instructions" on the requirements must be provided. This terminology was developed in the belief that private individuals or small companies would be the main users of the Section II provisions and consequently training would be inappropriate. However, experience has shown that large quantities of lithium batteries are being shipped and in such cases it is suggested that training would be appropriate. The Section II provisions could require this for lithium batteries above a certain quantity.

1.7 Further consideration should also be given to clarifying the need for training of operator's staff who handling Section II batteries. Part 1 Chapter 4 of the Technical Instructions requires training for staff of all operators carrying cargo, irrespective of whether or not they carry dangerous goods. However, it could be interpreted that such staff handling Section II batteries do not require training because, according to Packing Instructions 965 and 968, no "other additional requirements" of the Technical Instructions apply. It is suggested it was not the intent of this text to exclude operator's staff from training and the Technical Instructions should be clarified to this effect.

1.8 It is ironic that the Section II provisions actually provide for greater hazard communication than those of Section I. Section II requires that packages bear the lithium battery handling label, which provides a clear indication of the contents (which can be seen from a distance) with

a warning that the package must not be loaded or transported if damaged. There is also a requirement for packages to be accompanied by a document indicating the package contains lithium batteries, that the package must be handled with care and that a flammability hazard exists if the packaging is damaged and a telephone number for additional information. (The word “accompanied” has caused some confusion as it is not clear whether this document can be stuck to the package or even inside it.) If an air waybill is used this must also detail the fact that it accompanies a consignment of lithium batteries. Section I does not require any of these safeguards, with a Class 9 hazard warning label being the only hazard communication; it is true that the UN number and the type of lithium batteries must be stated but these will not be visible from a distance. It is suggested that the hazard communication requirements for Section I batteries should be reviewed.

1.9 Section II appears not to provide for Electronic Data Processing and it is suggested this was an inadvertent omission.

1.10 Enforcement is seen as an important tool in encouraging compliance and States must ensure that the necessary procedures are in place to ensure robust enforcement is possible. Experience has shown that enforcement is lacking in some areas and it is suggested that if the enforcement actions of a State were made public, that State may feel more inclined to take positive action. It is therefore suggested consideration be given to a specific provision in the Supplement for States to report all significant lithium battery incidents (e.g. those involving short circuit or fire) to ICAO. Details of such incidents could then be placed on the ICAO website with a record of actions (e.g. any investigations carried out or enforcement actions taken).

1.11 Despite any changes agreed by the DGP, aircraft incidents and accidents are still likely to occur and consequently it is suggested the Panel recommend that ICAO needs to review the fire suppression abilities of Class E cargo compartments such as those found on the main deck of the B747F. With the exception of specific novel modifications introduced by one operator, conditions have changed little since the loss of the Pan Am B707 freighter at Boston in 1973, due to non-compliant nitric acid. It is also suggested that the Panel recommend to the Operations Panel that they review whether a crew complement of 2 (both of whom will need to stay their post during an emergency) is adequate for cargo aircraft above a certain size. Some operators carry supernumerary crew such as loadmasters on some flights, but they are not legally required. Much is made of the ability of lithium batteries to communicate their effect to adjacent batteries and start a fire which cannot be suppressed. But fires will generally be small to start with (and the crew will be alerted as soon as smoke is detected) and with intervention an unrecoverable situation may be prevented.

1.12 As an aside to this issue it is of concern that there appears to be an over reliance on information provided on a NOTOC. There are pilots who believe that the NOTOC will detail all dangerous goods on board the aircraft and if no dangerous goods were stated then there are none on the aircraft. This is a dangerous mis-conception, a NOTOC will only detail the dangerous goods which are known to be onboard as cargo and a “nil” NOTOC does not mean that (undeclared) dangerous goods are not onboard. Indeed it can be argued that a NOTOC will detail those dangerous goods which are extremely unlikely to be the cause of an incident, as they have been declared to the operator, although they may become involved in an incident should one develop. It is suggested flight crew training should reflect this.

2. ACTION BY THE DGP-WG/LB

2.1 No formal proposals are made at this time, but a discussion is invited on the issues raised above, with a view to developing appropriate text for inclusion in the Technical Instructions during the working group meeting. In summary:

1. Lithium batteries in large quantities (exact size to be determined) should be notified to the pilot-in-command;

2. If the Section II provisions were amended to require lithium batteries to be offered to an operator separately from other non-dangerous cargo, as was agreed at DGP/23 for all other types of dangerous goods, adequate provisions to enable notification to the pilot-in-command without requiring full regulation of Section II batteries may exist;

3. Shippers of large quantities of lithium batteries should receive training commensurate with their responsibilities;

4. Packing Instructions 965 and 968 should be clarified in respect of training required for operator's staff;

5. Large quantities of lithium batteries should be inspected prior to loading and after unloading;

6. Section II should provide for Electronic Data Processing;

7. Hazard communication for Section I batteries should be reviewed;

8. Incidents involving lithium batteries should be reported to ICAO for publishing on a publicly accessible web site;

9. DGP should recommend that ICAO should review the fire suppression abilities of Class E cargo compartments;

10. DGP should recommend to the Operations Panel that they review whether a crew complement of 2 is adequate for cargo aircraft above a certain size.

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