



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

**Memphis, 30 April to 4 May 2007**

### **Agenda Item 6: Discussion of miscellaneous dangerous goods issues**

#### **POSSIBLE FUTURE WORK PROGRAMME ITEM FOR THE AIRWORTHINESS PANEL IN CO-ORDINATION WITH THE DANGEROUS GOODS PANEL**

(Presented by G.A. Leach)

### **Reference**

Notes of the ad hoc working group on cargo aircraft provisions, Beijing, 27 October 2006

ICAO Dangerous Goods Panel Working Paper DGP-WG/06-AH/CAO-WP/1 dated 22/9/06

ICAO Dangerous Goods Panel Working Paper DGP-WG/06-AH/CAO-WP/2 dated 22/9/06

### **Introduction**

In the referenced Papers, the ICAO Dangerous Goods Panel seeks advice of the Airworthiness Panel regarding options for developing ICAO Standards concerning Dangerous Goods. This paper should be read along side the referenced DGP Papers.

Some of the questions raised would require future work concerning airworthiness related issues. This paper seeks the Airworthiness Panel's view as to whether such items should be developed in the future work plan.

### **Discussion**

The DGP reports that to date there have not been any incidents involving fire where dangerous goods have been controlled in accordance with the applicable SARPS. Fires that have occurred are related to dangerous goods that have not been declared.

In reviewing the above papers, the following questions arise;

- Does accessibility of dangerous goods add safety?
- Should there be a limit on quantity of dangerous goods that may be carried, would this reduce risk?
- Should Dangerous goods be required to be stowed in a Class C Cargo compartment?
- Should fire protection of cargo that is not declared as dangerous goods be increased in order to protect the aircraft from hazards arising from dangerous goods that are not declared?
- Should potentially explosive dangerous goods be located where they will do least damage to the aircraft in the event that they ignite?

Whilst not seeking resolution of these questions in this paper, some views are included below in order to provide an understanding of the scope of work that would be required.

### **Accessibility**

For single pilot operation, access to dangerous goods is not practicable so should not be permitted if the accessibility requirement remains in place.

It could be argued that there should be no reliance on the need for a member of a 2 pilot crew leaving the flight deck to satisfy applicable airworthiness or operational requirements.

If the goods are in a ULD, access would only be practicable if it is located in the front face of the most forward ULD with access space equivalent to leaving out one ULD. In practice the access space along the side of ULDs would be very restrictive and potentially dangerous for fire fighting or moving cargo around.

The purpose for access to dangerous goods is not clear but might include;

To check correct loading before flight. In this case access would not be necessary in flight, and could be achieved from cargo doors.

To enable dangerous goods to be moved in flight in case of a fire. In practice it would be difficult to move dangerous goods in flight given that there is not a requirement to provide space through which to move the goods, and environment might be a smoke filled cabin.

To enable fire fighting by the crew. The duration of a standard CPBE (15 minutes minimum, but perhaps 20-25 minutes) is unlikely to be sufficient to move the length of a large transport aircraft, locate and fight the fire, identify and move dangerous goods, and return. In practice it is unlikely that there would be sufficient access to carry out this task in any case.

### **Amount of Dangerous Goods**

It is not clear how the limit to quantity of dangerous goods would reduce risk.

### **Use of Class C Compartments**

There are no requirements for Class C compartments in cargo aircraft. Some cargo conversions have removed under floor extinguishing systems thus rendering Class E compartments, Class C. If they were required for the carriage of dangerous goods, it might be a better location for dangerous goods. They would at least be subject to a reliable detection and extinguishing system and be remote from occupied areas. If they are on the main deck, they are subject to uncertain fire fighting by crew, they crewmember is put in danger, and are close to occupied areas such as the flight deck.

### **Increased Fire protection for normal cargo to protect against undeclared dangerous goods**

In general it is not a practical proposition for flight crewmembers, or anyone else, to fight a fire in a main deck Class E compartment with the limited equipment required, (standard CPBE, fire extinguisher etc.). The only obvious example of an exception is for combi aircraft main deck cargo compartments which have very specific requirements such as fire containment covers, increased duration, breathing equipment, enhanced fire extinguishing, and expectation that a minimum number of personnel are there for a passenger aircraft. This could be the minimum necessary to ensure that a fire in such a compartment can successfully be tackled.

### **Location**

It could be argued that potentially explosive items should be placed where they can do least damage. This perhaps would not be in a location near the front of the aircraft, or easily accessible in flight.

### **Conclusion**

The Airworthiness Panel are asked to discuss the merits of establishing a task to address the issues raised in this paper through consideration of risk and the impact of changing the airworthiness related standards. If so which issues discussed, or other issues, should be included.

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