CLASS C AND D CARGO OR BAGGAGE COMPARTMENT - FIRE CONTAINMENT CAPABILITY

1. Applicability

This Airworthiness Notice is applicable to all Malaysian registered aeroplanes over 5700 kg. MTWA for which a Type Certificate in the Transport Category (Passenger or Cargo) was first issued by any ICAO contracting states on or after 1 January 1958 and fitted with class C or D cargo or baggage compartment exceeding 200 cubic feet in volume.

2. Introduction

2.1 The Airworthiness Standards contained in FAR-25, JAR-25 and BCAR Chapter D4-3, include requirements for cargo or baggage compartments which are sub-divided into five classes, namely, A, B, C, D and E. The classification of compartments is based primarily on the ease of access and the capability of the compartment to contain a fire. Class B, C, D and E cargo and baggage compartments are required to have liners in order to protect the structural integrity of the aeroplane from the effects of fire. With regard to Class B and E cargo or baggage compartments, the position is being reviewed but they are not the subject of this Notice.

2.2 As a consequence of an in-flight fire on a public transport aeroplane, the FAA has conducted a series of tests at their Technical Centre to investigate the capability of three currently used non-metallic liner materials – glass fibre reinforced resin, kevlar and nomex (in monolithic form) - to resist flame penetration under conditions representative of actual cargo or baggage compartment fires. These tests were conducted in simulated Class C and D compartments with bulk-loaded baggage typical of that found in service.

2.3 As a result of these full-scale fire tests, the FAA determined that fire could rapidly burn through monolithic nomex or kevlar while the glass fibre reinforced resin panels proved to be satisfactory. The FAA, therefore, concluded that improved standards are warranted, since the kevlar and nomex liners had not fully met the current fire penetration requirements of FAR 25.855, i.e. the 45 degrees bunsen burner test.

2.4 The FAA has amended FAR Part 25 to require this new fire test standard on all newly designed aeroplanes for which an application for a Type Certificate is made after the 16 June, 1986. Equivalent standards were also introduced by JAR-25 at Change 12.

2.5 The improved standard of fire containment testing of cargo or baggage hold liners is contained in Part III of Appendix F to FAR Part 25 at Amendment 25-60, and consists of a 5 minute resistance to fire test on a representative specimen of the cargo liner panels and attachments, using a 2 gallon (US)/hour Kerosene burner (identical to that as used to show compliance with Airworthiness Notice No. 39) as the test standard.

2.6 For those aeroplanes defined in paragraph 1 already in service, or to be introduced into service, the DCA intends, by this Notice to adopt the new fire test standard to require, for those aeroplanes which are not fitted with glass fibre reinforced resin or aluminium alloy liners, that such aeroplanes shall be equipped with cargo or baggage compartment liners which comply with JAR 25.853(b), 25.855(a-1), or in a similar manner to that defined in FAR Part 25.853(b), 25.855(a-1) and the new paragraph 25.857(d)(6) together with a new Part III to Appendix F (at amendment 25-60).

2.7 Although testing has shown that aluminium alloy panels in thicknesses typical of the then current installations are not capable of fully meeting the new fire containment standards, the DCA consider their capability to be acceptable for aeroplanes certificated prior to 1 September 1988.

3. Compliance

3.1 With effect from 1 January, 1990, all Class C and D cargo or baggage compartments exceeding 200 cubic feet in volume of aeroplanes defined in paragraph 1 of this Notice, shall comply with the requirements of this Notice.

4. Requirements

4.1 In addition to meeting the existing flammability requirements the following paragraphs 4.1.1,4.1.2,4.1.3 and 4.1.4 shall apply.

4.1.1 Class C and D cargo and baggage compartment sidewall or ceiling liner panels shall be constructed of glass fibre reinforced resin, or materials which satisfy the requirements of FAR-25 Amendment 25-60, JAR-25 Orange Paper Amendment 86/2 or an equivalent fire test criteria agreed with the DCA.
4.1.2 For aeroplanes certificated prior to September 1988 which are fitted with aluminium alloy side walls and ceiling panels will continue to be acceptable (see paragraph 2.7 of this Notice).

4.1.3 All newly designed aeroplanes for which an application to any ICAO contracting states for a Type Certificate is made after 16 June 1986 shall comply with the requirements of this Notice.

4.1.4 For compliance with this Notice the term ‘liner’ includes any design feature, such as a joint or fastener which would affect the capability of the liner to safely contain a fire.

5. Additional information

5.1 The current requirements of JAR-25 and FAR-25 include floor panels for Class C and D cargo or baggage compartments.

6. Cancellation

This Notice cancels Airworthiness Notice No. 60 Issue 2, dated 1 July, 1991 which should be destroyed.

DIRECTOR GENERAL
DEPARTMENT OF CIVIL AVIATION
MALAYSIA