



I, PETER WILLIAM BOYD, Executive Manager, Standards Development and Future Technologies Division, a delegate of CASA, make this instrument under 21.601 (2) (a) of the *Civil Aviation Safety Regulations 1998*.

Peter Boyd  
Executive Manager  
Standards Division

2012

## Australian Technical Standard Order C1006—Restraint system automated release device

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### 1 Name of instrument

This instrument is the Australian Technical Standard Order C1006.

### 2 Commencement

This instrument commences on the day after it is registered.

### 3 Application

This Australian Technical Standard Order (ATSO) prescribes the minimum performance standards (*MPS*) which restraint system automated release devices must meet in order to obtain an ATSO authorisation or letter of design approval and so be identified with the applicable ATSO marking.

### 4 Definition

In this ATSO:

*restraint* means a tether, strop, cargo tie-down, seat belt or similar device.

*Restraint System Automated Release Device* means a dual-purpose restraint-release device used in conjunction with a restraint and an anchor point in the aircraft. The device keeps the occupant/restrained item inside the aircraft during flight and automatically activates to release the person or restrained item from the anchor point if the aircraft ditches or crashes into the sea.

### 5 Minimum performance standard for Restraint System Automated Release Device

The minimum performance standard for a Restraint System Automated Release Device is as follows:

- (a) in restraint mode:
  - (i) the device must have been tested to its ultimate rated strength. If the device is designed to attach to occupant restraints, the device must have a load rating of not less than 15kN;
  - (ii) for the load rating test, the device must be attached to the anchor point and restraint, using a method representative of that likely to be found in service;

- (iii) a device designed for occupant restraint must be designed to interface with the restraint without their modification;
  - (iv) the device must not interfere with, or modify, the attaching restraint system's function or release method;
  - (v) if the device can be easily removed from an anchor point with one hand, the release mechanism must be designed to be a dual action;
  - (vi) the device must be designed so as to protect against unintentional disengagement;
  - (vii) if attaching to a restraint, the device must be specifically designed against dynamic rollout;
  - (viii) the device must not restrict the attaching restraint system's range of movement;
- (b) in release mode:
- (i) if the device is designed to release only in salt water, it must be demonstrated to trigger the release in potassium chloride/water solutions down to a minimum water salinity of 31.0 parts per thousand (PPT) 3.1%;
  - (ii) the device must have defences against inadvertent activation by salt spray, rain or fluid spillage;
  - (iii) the device, when immersed, must release within 5.5 seconds, but not within 1.5 seconds;
  - (iv) the device must not be affected, or its activation time delayed, by contact with water at low temperatures; the device must be demonstrated to activate in water temperatures from 1° to 30° centigrade;
  - (v) on release, any component of the device that may remain attached to the restraint it is releasing must be of a profile that is not prone to snagging;
  - (vi) once released, the device must not be capable of being refitted and made ready for immediate reuse;
- (c) compliance with standards:
- (i) temperature—RTCA/DO160G Section 4, Category A2;
  - (ii) temperature variation—RTCA/DO160G Section 5, Category B;
  - (iii) humidity—RTCA/DO160G Section 6, Category B;
  - (iv) operational shocks— RTCA/DO160G Section 7, Category A;
  - (v) vibration— RTCA/DO160G Section 8, Category U, fuselage zone, unknown helicopter frequency;
  - (vi) waterproofing— RTCA/DO160G Section 10, Category W;
  - (vii) sand and dust— RTCA/DO160G Section 12, Category S;
  - (viii) salt fog— RTCA/DO160G Section 14, Category T;
  - (ix) radio frequency susceptibility— RTCA/DO160G Section 20, Category R modified with an upper frequency limit of 12 GHz;
  - (x) flammability— RTCA/DO160G Section 26, Category C;
- (d) additional requirements:
- (i) capable of self-diagnosing internal faults and clearly indicate to the end user the presence of such faults to prevent unsafe use of the device; and
  - (ii) non-type specific.

## 6 STATEMENT OF CONFORMANCE

- (1) A person must not identify a Restraint System Automated Release Device with an ATSO marking unless the person does so in accordance with subregulation 21.603(1) or 21.617(3) of CASR 1998, having obtained an ATSO authorisation or a letter of ATSO design approval.
- (2) To obtain an ATSO authorisation or a letter of ATSO design approval, an applicant must submit the documents referred to:
  - (a) in subregulation 21.605(2), for an ATSO authorisation; or
  - (b) subregulation 21.617(1), for a letter of ATSO design approval.

## **7 MARKING**

In addition to the marking requirements of paragraph 21.607(1)(c) of CASR 1998, a Restraint System Automated Release Device;

- (a) must be marked with its rated strength; and
- (b) if it is designed only to release in salt water, must be marked accordingly.

## **8 MAJOR CHANGE**

A major change to a design, within the meaning of subregulation 21.611(3) of CASR 1998, will require a new ATSO authorisation or a letter of ATSO design approval.

## **9 DATA REQUIREMENTS**

- (1) In addition to the document requirements of subregulation 21.605(2) or 21.617(2) of CASR 1998, whichever is applicable, an application for an ATSO authorisation; or a letter of ATSO design approval must be accompanied by 1 copy of each of the following:
  - (a) a complete technical description of the Restraint System Automated Release Device, including detail drawings, manufacturing procedures, material identification and specifications;
  - (b) operating instructions and limitations;
  - (c) a completed compliance summary against the applicable performance standards established in this ATSO;
  - (d) conformity inspection reports for the tested components;
  - (e) a Component Maintenance Manual (**CMM**) containing information on the periodic maintenance, calibration and repair for the continuing airworthiness of the equipment, including recommended inspection intervals and service life;
  - (f) qualification and approval test reports against the applicable functional performance standards established in this ATSO.
- (2) In addition, the manufacturer must supply to a user with each Restraint System Automated Release Device:
  - (a) operating instructions and limitations; and
  - (b) the CMM.

## **Explanatory Statement**

### **Civil Aviation Act 1988**

### **Civil Aviation Safety Regulations 1998**

### **Australian Technical Standard Order C1006**

Subsection 98 (1) of *the Civil Aviation Act 1988 (the Act)* provides that the Governor-General may make regulations for the purposes of the Act and in the interests of the safety of air navigation.

Regulation 21.601 prescribes the requirements for the issue of an Australian Technical Standard Order (ATSO). CASA has issued an ATSO C1006 which is intended to prescribe the minimum performance standards (*MPS*) which a restraint system automated release device must meet in order to obtain an ATSO authorisation or letter of design approval.

The ATSO provides prospective manufacturers with a clear description of the particular parameters that such a device has to meet. These parameters are primarily the relevant standards mentioned in the ATSO. In addition, the manufacturer has to supply CASA with various technical documents relating to the device, including operating instructions and limitations and a component maintenance manual.

This ATSO is the original issue of the MPS. It will allow the evaluation of the devices to which it applies. If it is not published, Australian manufacturers are at risk of designing and manufacturing equipment that does not meet an acceptable standard.

### **Legislative Instruments Act**

Under paragraph 98 (5AA) of the Act an instrument issued under paragraph 5A of the Act is a legislative instrument if the instrument is expressed to apply in relation to a class of aircraft, persons or aeronautical product. The instrument relates to design standards and is issued under regulation 21.601 of the Civil Aviation Safety Regulations. The ATSO is, therefore, a legislative instrument and it is subject to tabling and disallowance in the Parliament under sections 38 and 42 of the LIA.

### **Compatibility with human rights**

This instrument is compatible with the human rights and recognised or declared in the international instruments listed in section 3 of the *Human Rights (Parliamentary Scrutiny) Act 2011*.

### **Human rights implications**

The instrument sets out technical requirements as described above. The instrument does not engage any of the applicable rights or freedoms.

### **Conclusion**

The instrument is compatible with human rights and freedoms.

### **Consultation**

Draft ATSO C1006 will be published for public comment. The responses received from respondents will be considered and incorporated where appropriate.

The ATSO has been made by a delegate of CASA, in accordance with subregulation 11.260 (1) of CASR 1988.

[Australian Technical Standard Order C1006]