



Number: CTSO-C114

Date of approval: Jun 21, 2019

Approved by: Xu Chaoqun

## China Civil Aviation Technical Standard Order

This China Civil Aviation Technical Standard Order (CTSO) is issued according to Part 37 of the China Civil Aviation Regulations (CCAR-37). Each CTSO is a criterion which the concerned aeronautical materials, parts or appliances used on civil aircraft must comply with when it is presented for airworthiness certification.

### Safety Belts

#### 1. Purpose.

This China Civil Aviation Technical Standard Order (CTSO) is for manufacturers of safety belts applying for CTSO authorization (CTSOA). This CTSO prescribes the minimum performance standards (MPS) that safety belts must first meet for approval and identification with the applicable CTSO marking.

#### 2. Applicability.

CTSO-C22g will be cancelled once this CTSO-C114 is effective. After effective date of CTSO-C114 applications for CTSO-C22g will be no longer accepted. Safety belts approved under CTSO-C22g prior to the date of this CTSO-C114 may continue to be manufactured. The safety belts have applied for CTSO-C22g prior to the date of this CTSO-C114 will be approved and identified with CTSO-C114.

This CTSO affects new application submitted after its effective date.

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Major design changes to article approved under this CTSO will require a new authorization in accordance with section 21.353 of CCAR-21-R4.

### 3. Requirements.

Safety Belts that are to be identified with this CTSO and that are manufactured on or after the date of this CTSO must meet standards set forth in SAE AS8043 “Aircraft Torso Restraint System,” dated March 1986.

a. **Functionality.** This CTSO’s standards apply to safety belts which consist of any strap, webbing or similar device including all buckles or other fasteners, and all integral hardware designed to secure a person in an aircraft with the intention of minimizing injury.

b. **Failure Condition Classifications.** There is no standard minimum failure condition classification for this CTSO. The failure condition classification appropriate for the equipment will depend on the intended use of the equipment in a specific aircraft. Document the loss of function and malfunction failure condition classification for which the equipment is designed.

c. **Functional Qualification.** Demonstrate the required functional performance under the test conditions set forth in Society of Automotive Engineers, Inc. (SAE), Aerospace Standard (AS) 8043, “Aircraft Torso Restraint System,” dated March 1986.

d. Environmental Qualification.

(1) American Society for Testing Materials (ASTM) G23-81, Standard Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials.

(2) ASTM B117-73, Standard Method of Salt Spray (Fog) Testing.

(3) ASTM D756-78, Standard Practice for Determination of Weight and Shape Changes of Plastics Under Accelerated Service Conditions.

e. Test Methods

(1) American Association of Textile Chemists and Colorists (AATCC) Standard Test Method 8-1981, Colorfastness to Crocking.

(2) AATCC Standard Test Method 107-1981, Colorfastness to Water.

(3) Federal Test Method Standard 191 Method 5906.

(4) AATCC Chart for Measuring Transference of Color.

f. Deviations. Alternative test procedures or analytical data that produce an equivalent level of safety may be used if specified at the time of CTSO application and approved in accordance with 21.368(a) in CCAR-21-R4.

4. Marking.

a. Mark at least one major component permanently and legibly with all the information of 21.423(b) in CCAR-21-R4. The marking must include the serial number.

b. Also, mark the following permanently and legibly with at least the manufacturer's name, subassembly part number, and the CTSO number:

(1) Each component that is easily removable (without hand tools);

and

(2) Each sub-assembly of the article that you determined may be interchangeable.

#### 5. Data Requirements.

The applicant must furnish the responsible certification personnel with the related data to support design and production approval. The application data include a statement of conformance as specified in section 21.353(a)(1) in CCAR-21-R4 and one copy each of the following technical data:

a. A complete description of the safety belt, including material identification and specification.

b. Operating instructions and limitations, sufficient to describe the equipment's operational capability.

c. Installation instructions and limitations.

d. Manufacturer's CTSO qualification test report showing results of testing accomplished according to paragraph 3.c of this CTSO.

e. Detailed maintenance instructions, including specific guidance on the limits of wear and damage permissible to webbing material which

would warrant replacement, i.e., explain how and/or when the breaking strength of the webbing would be expected to drop below the specified abrasion breaking strength.

f. The quality control system (QCS) description required by 21.358 in CCAR-21-R4, including functional test specifications. The QCS should ensure that you will detect any change to the equipment that could adversely affect compliance with the CTSO MPS, and reject the item accordingly.

6. Data to be Furnished with Manufactured Units.

If furnishing one or more articles manufactured under this CTSO to one entity (such as an operator or repair station), provide one copy or technical data and information specified in paragraphs 5.b and 5.e of this CTSO. Add any data needed for the proper installation, certification, use, or for continued compliance with this CTSO. In addition, a note with the following statement must be included:

“The conditions and test required for CTSO approval of this article are minimum performance standards. It is the responsibility of those desiring to install the article either on or within a specific type or class of aircraft to determine that the aircraft installation conditions are within the CTSO standards. If not within the CTSO standards, the article may be installed only if further evaluation by the applicant documents an

acceptable installation and is approved by the Administrator.”

7. Availability of Reference Documents.

- a. Copies of SAE AS 8043 may be purchased from the Society of Automotive Engineers, Inc., Department 331, 400 Commonwealth Drive, Warrendale, PA 15096.
- b. Copies of ASTM B117-73, D756-78, and G23-81 may be purchased from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.
- c. Copies of AATCC Chart for measuring Transference of Color and Standard Test Materials 8-1981 and 107-1981 may be purchased from the American Association of Textile Chemists and Colorists, P. O. Box 12215, Research Triangle Park, NC 27709.
- d. Copies of Federal Test Method Standard 191 Method 5906 may be purchased from the Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.