



ITSO-C26d

**Government of India**  
Civil Aviation Department  
Directorate General of Civil Aviation  
Aircraft Engineering Division  
New Delhi

Effective  
Date: August 6, 2008.

## **Indian Technical Standard Order**

**Subject: Aircraft Wheels, Brakes and Wheel/Brake Assemblies for FAR Parts 23, 27 and 29 Aircraft**

1. **PURPOSE.** This Indian Technical Standard Order (ITSO) prescribes the minimum performance standards (MPS) that Parts 23, 27 and 29 aircraft wheels, brakes and wheel/brake assemblies must meet to be identified with the applicable ITSO marking.

### **2. APPLICABILITY.**

- a. This ITSO is effective for new applications submitted after the effective date of this ITSO.
- b. Aircraft wheels, brakes and wheel/brake assemblies approved under a previous system may continue to be manufactured under the provisions of their original approval. However, manufacturers approved under previous system are encouraged to follow this ITSO.

**NOTE:** This ITSO **does not** provide MPS for 14 CFR part 25, Transport Category Airplanes. For transport category airplanes, see ITSO-C135, Transport Airplane Wheels and Brake Assemblies.

3. **REQUIREMENTS.** New models of aircraft wheels, brakes and wheel/brake assemblies that are to be so identified and that are manufactured on or after the effective date of this ITSO must meet the MPS of TSO-C26d, APPENDIX 1, Minimum Performance Standard (MPS) attached herewith, for aircraft wheels, brakes and wheel/brake assemblies for small airplanes and rotorcraft. The MPS is based, in part, on the Society of Automotive Engineers (SAE), Aerospace Recommended Practice (ARP) 5381, Minimum Performance Recommendations for FAR Part 23, 27, and 29 Aircraft Wheels, Brakes, and Wheel-Brake Assemblies, dated October 2000.

- a. **Functional Qualification.** The required performance shall be demonstrated under the test conditions specified in APPENDIX 1 of TSO-C26d attached herewith.

ITSO-C26d      **b. Deviations.** The FAA has provisions for using alternative or equivalent means of compliance to the criteria set forth in the MPS of this TSO. Applicants invoking these provisions shall demonstrate that an equivalent level of safety is maintained and shall apply for a deviation as per CAR-21.610.

#### **4. MARKING.**

- a. In lieu of the marking specified in CAR 21.807, the following information shall be legibly and permanently marked on the major equipment components:
  - (1) Name of the manufacturer responsible for compliance.
  - (2) Serial number.
  - (3) Part number.
  - (4) Applicable Indian technical standard order (ITSO) number.
  - (5) Rim size (this marking applies to wheels only).
  - (6) Hydraulic fluid specification (this marking applies to brakes only).
- b. All stamped, etched, or embossed markings must be located in non-critical areas.

#### **5. DATA REQUIREMENTS.**

- a. Application Data. In addition to the data specified in CAR 21.605, the manufacturer must furnish one copy each of the following to the Director (AED), New Delhi:
  - (1) The applicable limitations pertaining to installation of wheels, or wheel and brake assemblies on aircraft(s), including the data requirements of paragraph 6.1 of appendix 1 of this ITSO.
  - (2) The manufacturer's ITSO qualification test report.
- b. Data to be Furnished with Manufactured Articles. As specified in 14 CFR, § 23/27/29.1529, the continued airworthiness of the aircraft on which the equipment is to be installed must be considered.

The manufacturer must provide the applicable maintenance instructions and data necessary for continued airworthiness to each organization or person receiving one or more articles manufactured under this ITSO. In addition, a note with the following statement must be included:

The existence of ITSO approval of the article, displaying the required marking, does not automatically constitute the authority to install and use the article on an aircraft. The conditions and tests required for ITSO approval of this article are minimum performance standards. It is the responsibility of those desiring to install this article either on or within a specific type or class

of aircraft to determine that the aircraft operating conditions are within the capacity of the article demonstrated in accordance with the ITSO standards. The article may be installed only if further evaluation by the user/installer documents an acceptable installation, and the installation is approved by the DGCA.

Additional requirements may be imposed based on aircraft specifications, wheel and brake design, and quality control specifications. In-service maintenance, modifications, and use of replacement components must be in compliance with the performance standards of this ITSO, as well as any additional ITSO-C26d specific aircraft requirements.

## **6. AVAILABILITY OF REFERENCED DOCUMENTS.**

- a. Copies of SAE ARP 5381 may be purchased from the Society of Automotive Engineers Inc., 400 Commonwealth Drive, Warrendale, PA 15096-001-USA.  
([www.sae.org](http://www.sae.org).)
- b. copies of this ITSO and CAR 21, Subpart O are available on DGCA website ( [www.dgca.nic.in](http://www.dgca.nic.in)). For hardcopy of these documents, contact:

The English Book Store  
17-L, Connaught Circus, New Delhi-110 001 (India)

**( Charan Dass)**  
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**APPENDIX 1. MINIMUM PERFORMANCE STANDARD for aircraft wheels, brakes and wheel/brake assemblies for small airplanes and rotorcraft.**

This appendix prescribes the Minimum Performance Standard (MPS) of SAE ARP5381, "Minimum Performance Recommendations for Part 23, 27, and 29 Aircraft Wheels, Brakes, and Wheel-Brake Assemblies", dated October 2000, as modified by the FAA in this TSO. Additions to and one deletion from the standard, are shown in italics as follows:

*Additions:*

1. Page 3, a new paragraph was added after 3.6 to reflect public comments:

*Suitable Tire for Brake Tests,  $TT_{BT}$*

*$TT_{BT}$  is the rated tire type and size.*

*$TT_{BT}$  is the tire type and size that has been determined as being the most critical for brake performance and/or energy absorption tests. The  $TT_{BT}$  must be a tire type and size approved for installation on the wheel ( $TS_{WR}$ ). The suitable tire may be different for different tests.*

2. Page 7, a new paragraph was added after 4.3 to reflect public comments:

*Fire Protection: Except for small parts (such as fasteners, seals, grommets, and small electrical parts) that would not contribute significantly to the propagation of a fire, all solid materials used must meet the applicable flammability rules for the part and category of aircraft.*

*Deletion:*

1. Page 13, paragraph 5.3.3.2 was disregarded. Worn brake testing is not a requirement of Parts 23, 27 or 29, so it cannot be included in this TSO.

