INTERNATIONAL STANDARD ISO 3006

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Road vehicles — Passenger car wheels — Test methods

Véhicules routiers — Roues pour voitures particulières — Méthodes d'essai

First edition — 1974-11-01

UDC 629.11.012.3

Ref. No. ISO 3006-1974 (E)

Descriptors : automobiles, passenger vehicles, wheels, tests, fatigue tests.

Price based on 2 pages

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3006 was drawn up by Technical Committee ISO/TC 22, *Road vehicles,* and circulated to the Member Bodies in January 1973.

It has been approved by the Member Bodies of the following countries :

Australia	Hungary	South Africa, Rep. of
Austria	Iran	Spain
Belgium	Italy	Sweden
Bulgaria	Japan	Switzerland
Canada	Mexico	Thailand
Egypt, Arab Rep. of	Netherlands	Turkey
France	Poland	U.S.A.
Germany	Romania	U.S.S.R.

The Member Bodies of the following countries expressed disapproval of the document on technical grounds :

Czechoslovakia
United Kingdom

Printed in Switzerland

Road vehicles — Passenger car wheels — Test methods

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies laboratory test methods for evaluating certain essential characteristics of wheels intended for use on passenger cars. Tests for wheels other than pressed steel wheels will be defined in the future as necessary.

The test procedures are :

1) dynamic cornering fatigue;

2) dynamic radial fatigue.

2 GENERAL

Only fully processed new wheels which are representative of wheels intended for the vehicle shall be used. No wheel shall be used for more than one test.

3 DYNAMIC CORNERING FATIGUE TEST

3.1 Equipment

The test machine shall have a driven rotatable device whereby either the wheel rotates under the influence of a stationary bending moment or the wheel is stationary and is subjected to a rotating bending moment.

3.2 Procedure

3.2.1 *Preparation*

The rim flange of the wheel shall be clamped securely to the test fixture. The face of the support of the testing machine shall have the same fixation characteristics as the face of the hub used on the vehicle. If a tyre and wheel assembly is used as a combination for the test, the tyre pressure shall be higher for clamping purposes. The recommended minimum pressure should be 375 kPa*.

The load arm and adaptor assembly shall be attached to the mounting surface of the wheel using non-lubricated studs and nuts (or bolts), in good condition, representative of those used on the vehicle. These wheel nuts (or bolts) shall be tightened at the beginning of the test to the vehicle manufacturer's specified torque values.

Wheel bolts or nuts may be retorqued once during the test. Tightening torque shall not fall below 50 % of its initial value when the minimum load cycle number has been attained. The bending moment shall be maintained within ± 2,5 %.

3.2.2 *Bending moment*

To impart a bending moment to the wheel, a force is applied either

1) perpendicular, or

2) parallel to the plane of the mounting surface of the wheel at a specified distance (moment arm).

3.3 Bending moment determination

The bending moment M (force × moment arm), in newton metres, is determined from the formula

$$M = (R\mu + d)\, F_{v1}\, S$$

where

R is the static loaded radius, in metres, of the largest tyre to be used on the wheel as specified by the vehicle manufacturer;

μ is the assumed coefficient of friction developed between tyre and road;

d is the offset or outset of the wheel, in metres (see ISO . . .**);

F_{v1} is half of the maximum vertical static load, in newtons, on the front axle;

S is the accelerated test factor.

* 100 kPa = 1 bar.

** In preparation.

4 DYNAMIC RADIAL FATIGUE TEST

4.1 Equipment

The test machine shall be equipped with a means of imparting a constant radial load only as the wheel rotates. The suggested equipment incorporates a driven rotatable drum set which presents a smooth surface wider than the loaded test tyre section width. The recommended diameter of the drum is 1 700 mm.

4.2 Procedure

The tyre selected for this wheel test must be representative of the maximum size and type specified by the vehicle manufacturer for the wheel. The recommended cold inflation pressure of the test tyre shall be in accordance with the following values

Service pressure kPa*	Test pressure kPa*
up to 160	280
161 to 280	450

There will be a slight increase in pressure during the test. This increase is normal and no adjustment is necessary. The loading system shall maintain the specified load within ± 2,5 %.

4.3 Radial load determination

The radial load F_r, in newtons, is determined as follows :

$$F_r = F_v K$$

The value of radial load, F_r, to be used is F_{r1} or F_{r2} whichever is greater as determined by the following formulae :

$$F_{r1} = F_{v1} K_1$$

where

F_{v1} is half of the maximum vertical static load, in newtons, on the front axle;

K_1 is the accelerated test factor;

or

$$F_{r2} = F_{v2} K_2$$

where

F_{v2} is half of the maximum vertical static load, in newtons, on the rear axle;

K_2 is the accelerated test factor.

* 100 kPa = 1 bar.