
**Road vehicles — Durability test
method of starter relay for stop and
start system**

*Véhicules routiers — Méthodes de test d'endurance pour le relais
démarreur stop and start system*



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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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Foreword

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Introduction

A stop and start system requires more frequent engine starting therefore, the starter relay used in such an engine should be durable. Currently, there is no common durability test method for starter relays, and most individual durability test methods of vehicle manufacturers and relay suppliers use actual starter solenoids as electrical loads of the relay. However, heat mass of the starter solenoid is not sufficient, so cooling equipment and/or a longer test cycle time are necessary to prevent starter solenoid damage.

This document provides a test method using a simulated electrical load which can shorten the test period or eliminate cooling equipment.

Road vehicles — Durability test method of starter relay for stop and start system

1 Scope

This document defines the durability test methods of a starter relay for passenger vehicles (12 V) with a stop and start system. It uses a simulated electrical load to represent the starter solenoid.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

stop and start system

system to stop the engine automatically when its operation is not needed, and to start the engine automatically when its operation is needed

3.2

starter solenoid

mechanical switch equipped with a solenoid that supplies current to the DC motor of the starter motor and/or shifts starter motor pinion to engage the ring gear of internal combustion engine

3.3

starter relay

relay that opens and closes the circuit to the starter solenoid

3.4

simulated load

electric load used as a substitute for the starter solenoid

4 Structure of starting circuit

The starting circuit is shown in the [Figure 1](#). The starter relay opens and closes the circuit to the starter solenoid.