

SPECIFICATION

DECELEROMETERS

FOR TESTING

- Category A All Classes Including Class 1 & 11
Category B. All Classes Excluding Class 1 & 11
Category C. Class 1 & 11 Only

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CONTENTS

	Page
1. Introduction	2
2. Technical Requirements	2
2.1 Display	2
2.2 Operational Aspects	2
3. Calibration	3
3.1 Accuracy	3
4. Operating Instructions	3
5. Identification	4
Annex 1	5
a) Additional requirements for the testing of motor bicycles, motor bicycle derived tricycles and certain quadricycles which are unable to be tested using a free standing decelerometer	
b) Definition of categories	

VOSA
Private Vehicles Scheme Management
Unit 8 Woodlands Court
Ash Ridge Road
Almondsbury Business Park
Bristol BS32 4LB
Tel: 01454 453392
Fax: 01454 453394

1. INTRODUCTION

This Specification details the minimum performance and constructional requirements for Decelerometers intended to be used for the statutory annual MOT brake performance testing of Class I, II, III, IV, V, VI & VII vehicles in accordance with the Motor Vehicle (Tests) Regulations 1981, as amended. The Specification is applicable also for Decelerometers intended to be used for the statutory annual brake performance testing of Heavy Goods Vehicles in accordance with the Goods Vehicles (Plating and Testing) Regulations 1988, as amended.

The Specification does not rule out additional features supplied with the equipment provided that the features are acceptable on health and safety grounds and do not prevent or make it more difficult to carry out the MOT Test as prescribed.

Note : This specification is based on traditional decelerometer equipment. Any alternative approach that does not meet the requirements specified below will be considered and assessed on its merits. Details of any alternative approach must be submitted with initial application

2. TECHNICAL REQUIREMENTS

The Decelerometer shall be safe to use, robustly constructed to acceptable engineering standards and designed such that it remains physically stable under dynamic braking conditions.

Note: A decelerometer is not truly a measuring instrument, it simply compares the deceleration of the vehicle under test with the local acceleration due to gravity. Normally a damped pendulum is linked to an indicator that shows '0%' when static and '100%' when the deceleration of the vehicle is equal to the local acceleration due to gravity. No allowance is made for vehicle dip during braking. For ease of understanding, the indicated reading is referred to as 'Brake Efficiency' in this Specification.

2.1 Display

The display shall;

- a. be marked in percentage brake efficiency (%)
- b. have a maximum brake efficiency value of at least 100%
- c. be marked with increments of at least 1% throughout the range

Note: If a mechanical indication is used, the width of all markings shall not be greater than the smallest gap between the markings and there shall be a clear cursor or indicator that is no greater in width than the width of the finest marking.

- d. retain the maximum brake efficiency value until manually reset
- e. be easily readable in a wide range of light conditions

2.2 Operational Aspects

- a. The unit shall be clearly marked to align with the direction of vehicle travel.
- b. If electronic, low battery power shall be indicated and an automatic self-check shall cause the unit to not indicate a brake efficiency value when the battery has insufficient power to maintain accuracy.

3. CALIBRATION

A suitable means of calibration shall be available.

The calibration equipment shall;

- a. be suitable for checking accuracy at the following values;
0, 16, 25, 50, 80 & 100%
- b. have a method and operational accuracy that is traceable to a national physical standard
- c. be certified by a UKAS accredited laboratory, or an equivalent European laboratory, that it is traceable to a national physical standard.

3.1 Accuracy

Brake performance readings shall be accurate to within;

+/- 3% of the true value

from 15% up to and including 100%.

4. OPERATING INSTRUCTIONS

Operating instructions shall be supplied with each Decelerometer.

The operating instructions shall;

- a. be written in English
- b. explain how to operate the Decelerometer and how to interpret the results
- c. detail how to use the Decelerometer to carry out a brake performance test and make reference to the need to follow the brake test procedure detailed in the latest version of the relevant MOT Inspection Manual when carrying out a statutory MOT test.
- d. state the frequency required for calibrating the Decelerometer and the need for it to be carried out by the manufacturer or an UKAS approved organisation

Note: Inclusion of the calibration procedure in the operating instructions is not essential but written details of the calibration procedure to be used shall be made available for assessment at the approval stage.

5. IDENTIFICATION

The Decelerometer shall be marked with a durable identification on the exterior showing the make, model and serial number.

Annex 1

a) Additional Requirements for the Testing of Motor Bicycles, Motor Bicycle Derived Tricycles and Certain Quadricycles Which are Unable to be Tested Using a Free Standing Decelerometer

If approval is being sought for the testing of the above vehicles the decelerometer must satisfy the following criteria.

- the method of attachment must be quick and easy to use without the risk of injury due to pinching etc
- have the ability to be securely attached by a means that will not cause damage to the vehicle or affect the safe control of the vehicle whilst it is under test.
- decelerometers currently approved for other classes that have been modified to comply with these requirements, must retain their accuracy when used with any new attachment methods.
- Be of a water resistant design

b) Categories

- free standing decelerometers that also convert to meet the above criteria will normally be approved as Category A
- all other free mounted submissions not falling into Category A will normally be approved as Category B
- decelerometers meeting the criteria above but are unable to be used in a free standing position will only normally be approved as Category C. However consideration will be given as to whether the fixing submitted for approval would be suitable for the testing of all vehicles.

The approval certificate will show the category of approval. Testing Stations authorised to test Class III & IV vehicles will be encouraged to purchase a Category A decelerometer in order that they have the ability to accommodate motorcycle derived trikes and sit astride quadricycles.