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# NATIONAL METROLOGY VERIFICATION REGULATION OF THE PEOPLE'S REPUBLIC OF CHINA

# JJG 1092-2013

## Locomotive Speedmeters

机车速度表检定规程

**(English Translation)**

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Preview: page 1 of 4 shown, 9 in the full document. Complete English PDF, instant download:
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# Table of Contents

Introduction (II)
1 Scope (1)
2 Overview (1)
3 Metering performance requirements (1)
3.1 Measurement range (1)
3.2 Indication error (1)
3.3 Return error (1)
3.4 Zero Error (1)
3.5 Speed setpoint deviations (1)
3.6 Insulation Resistance (2)
4 General Requirements (2)
4.1 Appearance (2)
4.2 Interaction of each part (2)
5 Control of measuring instruments (2)
5.1 Verification Conditions (2)
5.2 Verification Project (2)
5.3 Calibration Method (2)
5.4 Test results processing (4)
5.5 Test cycle (4)
Appendix A Locomotive speedometer test records (5)
Appendix B Test certificates/test results in the notice page format (6)

**5.5 Test cycle (4)**

Appendix A locomotive speedometer test records (5)

Appendix B test certificates/test results in the notice page format (6)

## Introduction

JJF1002-2010 "national verification procedures write rules", JJF1001-2011 "common terminology and measurement Definitions ", JJF1059.1-2012" Evaluation and Expression of Uncertainty in Measurement "together constitute the support of the protocol development the basic series of specifications.



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This procedure is a reference to the TB/T 2438-1993 "indicating analogue speedometer locomotive" of metering and general performance requirements Drafting of technical requirements.

This procedure was first formulated.

Locomotive speed meter testing procedures

1 Scope

The order applies to locomotive speed table (hereinafter referred to as the speedometer) initial verification, and subsequent use an examination.

2 Overview

The speedometer is used to measure the speed of the train of a special measuring instruments, speedometer indicator is mounted on the locomotive or motor car Driver's steering group on stage, instead of supporting a sensor mounted to the wheel shaft, the locomotive speed indicator values come out.

Speedometer refers magnetic sensor speedometer (hereinafter referred to as "magnetic speed table") and a photoelectric sensor Speedometer (hereinafter referred to as "photoelectric speedometer").

Magnetic-electric speedometer is driven to rotate within the magnetic sensor AC tachometer generator rotor by locomotive axle, resulting in post DC voltage, AC voltage and the linear relationship between the locomotive speed to measure the speed of the locomotive. Sample output for speed control Locomotive automatic control operation, when the engine speed reaches or exceeds the speed setpoint, speed of the surface of the respective board LED status transformation, the corresponding relay contacts switch simultaneously, in order to achieve the locomotive speed control.

Photoelectric speedometer is driven to rotate the grating within the photosensor by the locomotive axle, generates a pulse signal having a pulse the frequency is proportional to the rotational speed of the wheel, which is proportional to the engine speed; pulse signal output circuit and then through the channel conversion circuit no, by measuring the signal circuit to measure the speed of the locomotive.

3 metering performance requirements

3.1 Measuring range

Measuring upper range of the speedometer should be one of the following values. 100km/h, 120km/h, 150km/h, 160km/h, 200km/h, 250km/h, 300km/h, 350km/h, 400km/h, 450km/h.

3.2 Indication error in the measuring range, the error rate than the value shown in Table zero value should not be negative error, the error value should not at 5km/h.

3.3 Return Error



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Within the speedometer measuring range at any point hysteresis errors should be less than 2.5km/h.

3.4 Zero Error

When a table showing the value of stable speed limit was reduced from measurement to zero, if not the pointer back to zero, the error should not exceed Over ± 2km/h.

3.5 speed setpoint deviations (for magnetic-electric speedometer) when the value of the speed setpoint and speed for switching differential value shall not exceed ± 3km/h.

**Note:** The "speed setpoint bias" applies only to the speed set point speedometer.



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