

**Stationary noise test for motorcycles in traffic and during the periodical technical inspection
in accordance with § 29 of the German Road Traffic Registration Regulations
(transmitted by the expert from Germany)**

Abstract

In road traffic, two-wheel motor vehicles are frequently perceived as being too loud. In order to detect such loud motorcycles in traffic or during the periodical technical inspection within the framework of the main inspection in accordance with § 29 of the German Road Traffic Registration Regulations, the stationary noise value included in the registration documents and measured during type-approval is to serve as a comparative value.

In 1975, the implementing provisions for the stationary noise test of vehicles in traffic were adopted in a directive. It does, however, not enable the police officers carrying out the test to make a final judgement. Thus, the punishment of a manipulation or a defect of the exhaust system by the police officer checking the vehicle is only possible indirectly or with a time delay due to the consultation of an expert.

The Federal Ministry of Transport, Building and Housing has commissioned the Federal Highway Research Institute to determine suitable equipment, implementing provisions and tolerances for carrying out stationary noise tests at motorcycles in order to be able to perform justiciable stationary noise tests during vehicle spot-checks.

Basic investigations were made for the variation of the measured values in the course of the measuring procedure and for the variation of the measuring equipment. Stationary noise tests performed at new motorcycles served the purpose of assessing the production variance. By means of further stationary noise tests at a sufficiently high number of motorcycles determined by random sampling during a general vehicle spot-check, the practicability of the procedure was tested and the necessary margins of error were determined. For the same reason, stationary noise tests were performed at a sufficiently high number of motorcycles within the framework of the periodical technical inspection in accordance with § 29 of the German Road Traffic Registration Regulations at the testing agencies.

Technical guidance for the investigation was provided by an advisory group consisting of representatives from the technical services (TÜV, DEKRA, KÜS), the manufacturers of motorcycles and measuring equipment, the users of two-wheel vehicles, the Federal Environmental Agency, the police and the Ministries of Transport and the Environment.

The investigations showed that the stationary noise test at motor cycles can be performed with sufficient accuracy. This applies especially to measuring equipment which was within the framework of this investigation successfully tested for its suitability as regards accuracy and its reproducibility under real operating conditions. The decisive factor in this connection was the property of the equipment to perform computer-controlled sound-level measuring only if the measured speed was maintained for at least two seconds within a range of $\pm 5\%$ of the desired speed.

By the stationary noise test it is possible to detect conspicuously loud two-wheel vehicles. Owing to the restricted correlation of standing noise and driving noise it is, however, only to a limited extent possible to draw conclusions for other relevant operating conditions. It would, therefore, be desirable to perform a driving noise test in accordance with the Directive 97/24/EEC within the framework of vehicle spot- checks. For reasons of reasonableness, a simplified driving-noise test, in combination with the standing noise measurement, seems to offer the possibility of checking two-wheel motor vehicles more comprehensively within the framework of vehicle spot- checks. This measurement would make it, in principle, possible with a relatively low work load, apart from the standing noise, to record a further operating condition of the vehicle, thus enhancing the meaning of the test. The issue of noise measurement under traffic conditions and during the recurrent vehicle inspection should also increasingly be discussed by international bodies. The findings and experiences made within the framework of this project have been taken into consideration in testing instructions.
