

### From the Project Work with Customers

Establishment of Customer Sets for Operating Load Comparison of Test Bench Values, Long-term Testing and Customers for BMW Motorcycle Model R 1150 GS

For many years, the Fraunhofer LBF has worked in the field of measuring vehicle components. Here one great challenge is the collection of operational loads during customer operation. The more exact the customer loads are known, the more reliable the design methods, test programs and test procedures can be developed. With their help, vehicle components can be constructed and designed economically, using light-weight construction. In order to collect information on loads experienced by the customers, a concept was developed and established in the Fraunhofer LBF for the motorcycle model BMW R 1150 GS.

#### Reference measurements

To perform the reference measurements, a vehicle was equipped with multiple measurement points. This allowed reference measurements to be taken on different proving ground public streets and in the test bench. By means of the guidance parameter concept developed by scientists at the Fraunhofer LBF, the number of measurement facilities was reduced to 6.

#### Customer measurements – field test

11 customer vehicles were equipped with a reduced number of measurement sensors that presented no limitations to the customers. The data was recorded over a period of 12 months with the Match-box from the company SWIFT. The data was automatically retrieved by means of cellular telephone 1-2 times per month. Then the data was reduced to identify the manoeuvres and road surface the vehicle had run over.

#### Comparison: customer – long-term testing – test bench

By comparing the operational loads measured during the long-term testing, in the test bench operation and for the 11 customers, it is possible to check the present test concepts and if necessary to make modifications. The procedure may help in the future to perform vehicle testing that more closely approximates use by a customer. The concept presented here can be transferred both to other motorcycle models, to the passenger car field and also to other machines and means of transport.

