

**- PRELIMINARY REPORT -**

**DEVELOPMENT OF A GLOBAL TECHNICAL REGULATION ON  
MOTORCYCLE BRAKE SYSTEMS**

**1. INTRODUCTION**

During the 126<sup>th</sup> session of WP.29 in March 2002, AC.3, the Executive Committee for the 1998 Global Agreement, adopted the 1998 Global Agreement Program of Work, which included the development of a Global Technical Regulation (gtr) on Motorcycle Brake Systems. Subsequently, Canada offered to sponsor the gtr on motorcycle braking requirements at the 52<sup>nd</sup> session of GRRF in September 2002. To proceed with the development of the gtr, AC.3 endorsed Canada's request to establish and chair an informal group on motorcycle brakes, at the 130<sup>th</sup> session of WP.29 in June 2003.

This preliminary report is in response to paragraph 5. of TRANS/WP.29/882 – Guidelines Regarding Proposing and Developing of Global Technical Regulations. It was prepared after a thoughtful review by GRRF of the proposal submitted by Canada for the development of a gtr on motorcycle brake systems, document TRANS/WP.29/AC.3/3, which was adopted by AC.3 at its 7<sup>th</sup> session in March 2003.

**2. CURRENT STATUS**

Existing motorcycle brake regulations have not kept pace with the advancement of modern technologies. With the improvement of disc brake systems and the recent introduction of new technologies such as anti-lock brake systems (ABS) and combined brake system (CBS), modern motorcycles can be equipped with very sophisticated and effective braking systems.

Statistics compiled to date indicate that improved motorcycle brake systems would be beneficial in reducing motorcycle accidents. Fatal motorcycle accidents have been on the rise in North America since 1997. Of particular concern is the rise in motorcycle accident fatalities for the 40 year old and above age group, by 8.2% in Canada from 1994 to 2000, and 24.7% in the United States from 1994 to 1999. In addition, statistics from the United States of America for the period from 1990 to 2000 indicate that about 13 percent of an average of 2,500 motorcycle fatalities were related to braking manoeuvres. A request for additional motorcycle traffic accident data was made at the 52<sup>nd</sup> GRRF, to all nations, in an effort to prepare for the cost effectiveness study for the purposes of the gtr.

All could gain from more stringent and harmonized motorcycle brake system regulations that exploit the benefits of modern technologies. The benefits to the governments would be the improvement of motorcycle safety by adopting best practices, and the leveraging of resources. Manufacturers would benefit from

reduction of the cost of development, testing and production process of new models. Finally the consumer would benefit by having better choice of motorcycle models built to higher, globally recognized standards providing a better level of safety at a lower price.

The development of a gtr on motorcycle brake systems is intended to reduce the injuries and fatalities associated with motorcycle accidents. GRRF believes that it is time to update the current standards with a harmonized regulation, based on the best practices within existing national regulations, while taking into consideration modern brake system technologies that could improve rider safety.

### 3. EXISTING REGULATIONS OR STANDARDS CONSIDERED

A considerable number of regulations and standards are being considered to provide the basis for the development of this gtr, including:

- UN/ECE Regulation No. 78 – Uniform provisions concerning the approval of vehicles of category L vehicles with regard to braking
- U.S. Code of Federal Regulations (CFR) Title 49: Transportation; Part 571.122: Motorcycle brake systems
- Canada Motor Vehicle Safety Regulation No. 122 – Motorcycle brake systems
- EU Directive 93/14/EEC, braking for category L vehicles (in effect, the same as ECE Regulation 78)
- Japan Safety Standard J12-61
- Australian Design Rule 33/00 – Brake systems for motorcycles and mopeds
- ISO 8710:1995, Motorcycles – Brakes and braking devices - tests and measurement methods
- ISO 12364:2001, Two-wheeled motorcycles - Antilock braking systems (ABS) - tests and measurement methods
- ISO 8709:1995, Mopeds – Brakes and braking devices - tests and measurement methods
- ISO 12366:2001, Two-wheeled mopeds - Antilock braking systems (ABS) - tests and measurement methods

### 4. DEVELOPMENT OF A GTR

The global technical regulation will be developed based on best practices in the existing regulations, directives and industry standards. It will also take into account new braking technologies such as ABS and CBS that are available for motorcycles.

Due to the time schedule and nature of the discussions, preliminary discussions on the content of the gtr and research testing have already begun. Four meetings on the topic of the development of a motorcycle brake gtr have been held to date, including two before the informal group was established, as noted below:

- October 25, 2002, in Montreal, Canada
- February 6, 2003, in Geneva, Switzerland

- July 16-17, 2003, in Pisa, Italy. 1<sup>st</sup> meeting by the informal group on Motorcycle Brake Systems
- April 26-28, 2004, in Brussels, Belgium. 2<sup>nd</sup> meeting by the informal group on Motorcycle Brake Systems

The meetings were open to all interested parties. The attendees for the informal group included representatives of:

- Canada
- United States of America
- IMMA (International Motorcycle Manufacturers Association)
- FEMA (Federation of European Motorcyclists' Associations)
- Italy
- Japan
- JAMA (Japan Automobile Manufacturers Association, Inc.)
- JASIC (Japan Automobile Standards Internationalization Center)

IMMA initiated a programme of work at 46/GRRF with the intention to complete a proposal for a gtr for motorcycle brakes. In an effort to select the most stringent performance requirements for a gtr, IMMA conducted an analysis of the relative severity of three national motorcycle brake system regulations in which the UN/ECE Regulation No. 78, the United States Federal Motor Vehicle Safety Standard FMVSS 122 and the Japanese Safety Standard JSS 12-61 were compared. These reports, along with suggested requirements for a gtr, can be found on the ECE website as informal document number 15 presented at 51/GRRF, and informal document number 26 presented at 53/GRRF.

The United States, in a joint project with Canada, conducted a similar study comparing the severity of the same three national regulations. This report was made available at 55/GRRF. Despite having different methodologies for comparison, this work produced results very similar to that of the IMMA work.

The results of these reports were discussed at the 2<sup>nd</sup> informal group meeting in Brussels. A preliminary consensus was reached among all participants, in which the outline of the performance requirements for a gtr on motorcycle brake systems was reached.

The U.S. and Canada are presently conducting a further performance evaluation study of motorcycles equipped with anti-lock brake system compared to conventional braking systems. This report should be available to the public in the near future.

GRRF believes that these efforts are effective in highlighting the differences between each national regulation, and will provide the necessary information to establish an updated and more stringent motorcycle brake system regulation.

Elements, which cannot be agreed upon by the Working Party on Brakes and Running Gear will be identified and dealt with in accordance with protocol established by AC.3 and WP.29.

## 5. FUTURE WORK

A 3<sup>rd</sup> informal meeting is scheduled from the 8<sup>th</sup> to the 10<sup>th</sup> of November 2004, in Montreal, Canada. The purpose of this meeting is to finalize the performance requirements for motorcycle brake systems and review a first draft of the gtr.

The informal group has established a schedule for the development and completion of this gtr. The presentation of a draft gtr is scheduled for 57/GRRF in February 2005 and, in the absence of any major disagreement, the final draft could be approved at 58/GRRF in September 2005. After GRRF's adoption, the final report will be prepared and submitted together with the approved gtr to AC.3 and WP.29 for consideration, in 2006.

## 6. CONCLUSION

Following the preliminary review, GRRF requests the approval of AC.3 for the continuation of this work toward a global technical regulation for motorcycle brake systems, based on the proposal document TRANS/WP.29/AC.3/3.