

**INFORMAL MEETING ON THE DEVELOPMENT OF THE GLOBAL
TECHNICAL REGULATION (gtr) ON MOTORCYCLE BRAKE
SYSTEMS**

Blainville, Quebec

October 25, 2002

1. Canada held the first informal meeting on the development of the gtr on motorcycle brake systems on October 25th, 2002 under the chairmanship of Mr. D. Davis (Canada). Experts from the following countries participated in the meeting: Canada; United States of America. Experts from the following non-governmental organizations and manufacturers also attended the meeting: American Motorcyclist Association (AMA); Biokinetics and Associates LTD.; Federation of European Motorcycle Associations (FEMA); Harley-Davidson; International Motorcycle Manufacturers Association (IMMA); International Organization of Motor Vehicle Manufacturers (OICA); Kawasaki Canada; Kawasaki Heavy Industries; Motorcycle & Moped Industry Council (MMIC); PMG Test and Research Centre; Yamaha Canada.

Documentation: Proposed timetable for gtr development, Presentation by Mr. Davis, Presentation by Mr. Bergevin, Presentation by Mr. Rodger, informal document from Italy. The documents are in the annexes to this report.

2. The meeting was brought to order and the provisional agenda was distributed. The agenda of the meeting was approved without change.

3. Mr. Davis gave a brief presentation on the structure of WP.29 and its administrative committees, and on the gtr development process. This was followed by a presentation from Mr. Bergevin describing Canada's process for the development of the motorcycle brake gtr, including a very brief outline of the testing of motorcycle brake systems to three different world regulations (FMVSS 122, ECE R78, Japan SS 12-61). It was explained why and how the motorcycle braking tests will be used in the process of developing the new gtr on motorcycle brake systems. A compact disc containing Mr. Davis' and Mr. Bergevin's presentations was distributed following the meeting.

4. Dr. Rodgers of IMMA gave a presentation on the advantages and particularities of a gtr and he also shared some results of IMMA's previous testing and comparison analysis between the North American, European and Japanese motorcycle brake systems regulation.

5. Italy was unable to attend, however, they provided written comments dated Oct. 21, 2002. This document was distributed and discussed. The Italian position reflected the content of the previous three presentations.

6. In the ensuing discussion and question period, it was agreed to develop the gtr, which would harmonize existing regulations by adoption of the most stringent and cost effective provisions. Additional analyses would be done to adopt performance requirements related to the new technologies, including Anti-Lock Brake System (ABS) and Combine Brake System (CBS).

7. To assure that the gtr will contain meaningful provisions there is a need for world motorcycle collision statistics. These data will play an integral role in the decision making process toward gtr development. All contracting parties were asked to provide any available information to Canada.

Annex 1

Presentation by Mr. Davis

Global Regulation Harmonization



ASFBE

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ECE 1958 Agreement

- 1958 – “Agreement Concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts”
The 1958 agreement recognizes type approval and the self-certification process
- 1990-92 - Proposal and development of amendments to expand the 1958 Agreement to non-European countries
- 1994 - Draft adopted by the Contracting Parties and rejected by the United States
- 1995 - Entry into force of the amended 1958 Agreement including allowances for mutual recognition of type approval and self-certification systems
- Currently approx. 40 signatories – Administered by Executive Committee AC.1

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Technical Expert Groups

- Working Party on the Construction of Vehicles (WP.29)
- Administrative Committee - AC.2
- Subsidiary “Groups of Rapporteurs” Meetings of Experts
- Active Safety:
 - Working Party on Lighting and Light-Signalling (GRE)
 - Working Party on Brakes and Running Gear (GRRF)
- Passive Safety:
 - Working Party on Passive Safety (GRSP)
- General Safety:
 - Working Party on General Safety Provisions (GRSG)
- Environment Considerations:
 - Working Party on Pollution and Energy (GRPE)
 - Working Party on Noise (GRB)

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Establishing a New Global Agreement

- 1994 – Initiated by the United States of America and negotiated in cooperation with the EU and Japan
“to establish transparent process for improving global road safety, decreasing environmental pollution and consumption of energy, and improving anti-theft performance of vehicles and related components through globally uniform technical regulations”
- 1998 – Concluded and open for signature on 25 June and signed by the United States
- 2000 – WP.29 becomes a Global Forum (March, 120th session):
 - World Forum for Harmonization of Vehicle Regulations (WP.29)
 - Introduction of New Terms of Reference and Rules of Procedure
 - Entered into force on 25 August for 8 Parties
- Currently over 20 signatories - Administered by Executive Committee AC.3

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Global Agreement

- The 1998 Global Agreement defines transparent process for establishing global technical regulations (gtr) through harmonization of existing regulations, or by developing new technical regulations
- It recognizes the importance of enhanced levels of safety and environmental protection and the right of the Contracting Parties to adopt and maintain technical regulations that are more protective of health and the environment than those established at the global level
- Does not include any requirements for certification or approval of vehicle construction

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Global Agreement

- Open to all UN member States and to their regional economic integration organizations
- The Executive Committee (AC.3) of the Agreement is composed of all the Contracting Parties of the Agreement. It oversees the process of recommending, developing and amending global technical regulations and adopts the global technical regulations or their amendments.
- Specialized agencies and organizations may participate in a consultative capacity (a listing is provided)

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Global Technical Regulations

- Development of a harmonized gtr must include a technical review of existing regulations of the Contracting Parties, ECE Regulations and any relevant international voluntary standards
- Development of a new gtr includes the assessment of technical and economic feasibility and of the potential benefits and cost effectiveness of alternative regulatory requirements and the test methods
- Compendium of Candidate Global Technical Regulations lists approved Contracting parties regulations that are supported by a vote of 1/3 of the Contracting Parties present and voting, including the vote of either Japan, the EU or the US

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Canada's Noted Differences ECE/Europe vs. GA/US & Canada

- The GA includes the requirement to review benefits and cost effectiveness of alternative regulatory requirements – this documentation process is not a requirement of the ECE 1958 agreement process
- The “European”/ECE system of developing regulations is based on technical experts develop technical requirements aimed at improving vehicle safety
- The US & Canadian/GA regulatory processes require cost justification and allow for legal review of the technical requirements
- “European” system results in industry/consumer advocates and governments working co-operatively to develop regulations

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Establishing gtr's

- The Global Registry should serve as a repository of global technical regulations that could be adopted by countries from around the world
- If a Contracting Party voted to establish the gtr, that Contracting Party must initiate the national legal procedures to adopt such a gtr as a domestic regulation.
- Other obligations: notification of adopting a gtr; effective date of application of a gtr; notification of a decision not to adopt a gtr; notification of a decision to rescind or amend a gtr
- The Agreement allows for gtr's to contain a "global" level of stringency for most Parties and "alternative" levels of stringency for developing countries

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Implementation of the Global Agreement

- Programme of road safety work adopted by the Executive Committee AC.3 in March 2002:
 - GRE: Installation of Lighting & Light-Signalling Devices (Canada)
 - GRRF: Motorcycle Brakes (Canada)
Passenger Vehicle Brakes (no sponsor)
 - GRSG: Safety Glazing (Germany)
Controls and Displays (Canada)
Vehicle Classification, Masses and Dimensions (Japan – Canada assisting)
 - GRSP: Pedestrian Safety
Lower Anchorages and Tethers for Child Safety Seats (no sponsor)
Door Retention Components (USA - Canada assisting)
Head Restraints (no sponsor)

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Assistance Provided to WP.29 by Non-Governmental Organizations

- OICA - International Organization of Motor Vehicle Manufacturers - An umbrella organization of national motor vehicle manufacturer associations.
- CLEPA - European Association of Automotive Suppliers - An international umbrella organization of component and system manufacturers and their national associations.
- IMMA - International Motorcycle Manufacturers Association
- AIT/FIA - International Alliance of Tourism/International Automobile Federation
- CI - Consumers International - International organization of national consumer associations.
- ISO - International Organization for Standardization
- GTB - Working Party "Brussels 1952" - An international association of lighting experts and lighting equipment manufacturers.

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Assistance Provided to WP.29 by Non-Governmental Organizations

- ETRTO - European Tyre and Rim Technical Organization - An international organization of tyre and wheel manufacturers.
- FEMFM - Federation of European Manufacturers of Friction Materials
- CEMA - European Committee of Associations of Manufacturers of Agricultural Machinery
- CITA - International Motor Vehicle Inspection Committee
- AECC - Association for Emissions Control by Catalyst
- AEGPL - European LPG Association
- BLIC - Liaison Office of the Rubber Industry of the European Community
- BIPAVER - Bureau internationale permanent des associations de vendeurs et rechangeurs de pneumatiques
- CEA - European Insurance Committee
- CIDADEC - International Confederation of Experts and Consultants

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Assistance Provided to WP.29 by Non-Governmental Organizations

- CONCAWE - The Oil Companies European Organization for Environment, Health and Safety
- EEVC - European Enhanced Vehicle-safety Committee
- ENGVA - European Natural Gas Vehicle Association
- EUROMOT - European Association of Internal Combustion Engine Manufacturers
- EUWA - Association of European Wheel Manufacturers
- IEC - International Electrotechnical Commission
- IRU - International Road Transport Union
- SAE - Society of Automotive Engineers
- UITP - International Union of Public Transport
- UNATAC - Union of Technical Assistance for Motor Vehicle and Road Traffic

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Presentation by Mr. Bergevin



Motorcycle Brake Systems Regulation

Working toward a global technical regulation
(gtr)

October 25, 2002
Blainville, Quebec, Canada

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Background

- Preparation for proposal for harmonization on motorcycle brake systems by IMMA
- AC.3 identify motorcycle brake system as a priority for development of gtr
- Canada volunteered to sponsor motorcycle brake project
- Canada is presently conducting motorcycle brake testing to the requirements of different world regulations in a research study in conjunction with the United States

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Issue

- Combining national regulations into one global technical regulation
- Regulations obsolete? Performance characteristics of motorcycles have undergone vast improvements over the last two decades.
 - More powerful engines;
 - More capable suspensions and chassis; and
 - More capable braking systems than ever before

3



Objective

- Evaluate the current state of braking performance and related motorcycle dynamics
- Compare the levels of stringency of the three motorcycle braking regulations (FMVSS 122, ECE R78, Japan SS 12-61)
- Keep pace with the safety benefits that new technologies can provide
- Draft a gtr on motorcycle brake systems

4



Research Testing

- Five motorcycles were selected for testing
 - Honda VFR 800 (Sport)
 - Harley Davidson FXD Dyna (Cruiser)
 - Honda ST1100 (Touring)
 - BMW C-1 Executive (European)
 - Suzuki Marauder GZ 250 (entry-level)

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Research Testing

- All 5 motorcycles will be tested to each of the three regulations
- The 2 Hondas and the BMW motorcycle will be subjected to extra ABS and CBS research testing
- Tires and critical brake components will be replaced before each test

6

Analysis

- Comparison of the three motorcycle brake systems regulations
- A thorough review and evaluation of the test methods for motorcycle brake systems

7

Review of Regulations

- Identify the unique aspects of each regulation
- Determine areas of potential harmonization between regulations
- Recommend amendments to address new brake technologies like ABS or CBS

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Final Report

- A final report will be prepared containing all the information gathered in the comparison of the motorcycle brake regulations
- Levels of stringency of each of the tests will be determined

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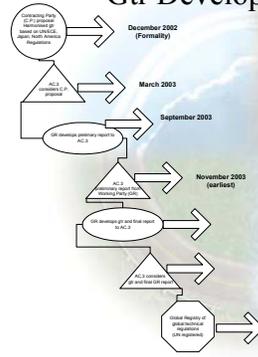
Estimation of Time Schedule for Research Testing



gtr Development

- Write a gtr that:
 - Is acceptable worldwide
 - Consists of the most stringent and cost effective portions of each regulation
 - Consider modern technologies

Gtr Development Process



Presentation by Mr. Rodger

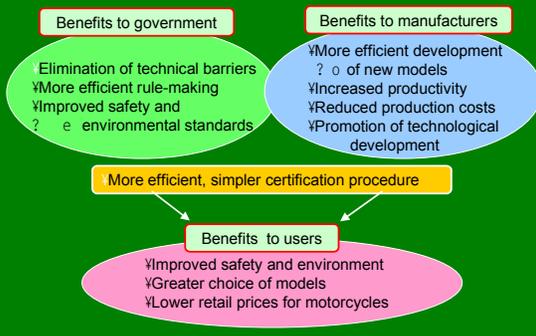
GTR for motorcycle braking

IMMA presentation , Montreal,
02/10/25

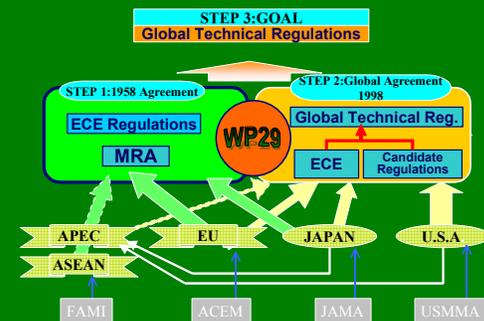
Motorcycle GTR: background

- Why?
- Benefits for Government, manufacturers and consumers
- WTO, Technical Barriers to Trade: i.e. International Regulations, open forum => ISO or UN => WP29

Benefits of Global Harmonization



Overview of Harmonization



Motorcycle GTR: background

- 1998 Global Agreement – IMMA priorities
- 46/GRRF (Sept 1999): project introduced
- 48/GRRF: agreed prog. for future
- 49/GRRF: dry, wet, heat severity comparison
- 50/GRRF: high speed comparison
- 51/GRRF: IMMA severity comparison + outline of GTR
- 52/GRRF: discussion of development of GTR

Motorcycle GTR: sequence

- Step 1: Harmonise the existing regulations into GTR (basis: most stringent existing)
- Step 2: Consider the revision of the GTR on the basis of justifications for:
 - evidence of need (Global Agreement requirement)
 - new technologies, i.e. brake by wire
 - cost/effectiveness

Motorcycle GTR: comparisons

- Required by the 1998 Agreement
- Key issue: relative severity (hard for Contracting Parties to reduce the overall severity in national legislation)
- For motorcycle braking: US FMVSS 122, ECE R78, EU 93/14, Japan's SS 12-61, ISO
- Main comparison: ECE vs FMVSS

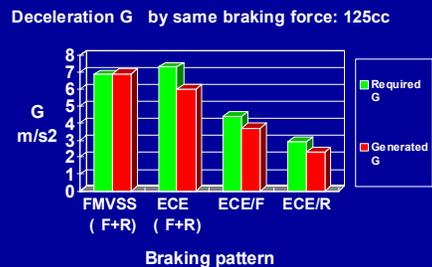
Motorcycle: presentations to GRRF

- Previous IMMA presentations on the relative severity of existing tests:
 - Dry stop test
 - High speed test
 - Heat-fade test
 - Wet test

Dry stop test Results I (2)



Additional dry stop test Results



Italian Position Paper concerning
Global Technical Regulation on Moped and Motorcycle braking

Introductory note

Some data concerning the Italian market (source: National Association of two and three wheel vehicle manufacturers - ANCMA)

Powered Two Wheels production in Italy in the year 2000

- approximately 500 000 mopeds
- over 540 000 motorcycles

Powered Two Wheels circulating fleet in Italy in the year 2000

- Almost 10 million vehicles, subdivided in approx. 6 400 000 mopeds and over 3 400 000 motorcycles

Number of Powered Two Wheel Manufacturers producing in Italy

- 7 Moped Manufacturers
- 9 Motorcycle Manufacturers

Concerning braking, in Italy mopeds and motorcycles have to be type-approved according to the prescriptions of 93/14/EC Directive or according to the (equivalent) ECE R. 78.

No safety problems have been ever reported owing to inadequate brake systems of these vehicles.

ONU/ECE WP29/GRRF ISSUES

With reference to the discussion concerning Powered Two Wheels brakes harmonisation, which took place during the 52/GRRF meeting (Geneva, 16-18 September 2002), we would like to point out the following:

- Following the establishment of the Global Agreement, according to a GRRF request, IMMA outlined a programme of work at 46/GRRF which it would complete in order to prepare a proposal for a Global Technical Regulation (GTR) for brakes on L-category vehicles.
- The main part of the programme was the analysis of the relative severity of the existing regulations, because no Contracting Party would be able to accept a level of performance which was lower than its current requirements. Therefore, the

comparison was made between the ECE R78, the Japan's Safety Standard 12-61 and the US FMVSS 122 requirements, because these three regulations represent the test procedures in all the other regulations and standards from around the world.

- The IMMA proposal derived from the above mentioned test programme is based on the results of the severity comparison and adopts the ECE testing philosophy. The results have already been presented to GRRF but in summary they are as follows:
 - for the dry stop test, ECE R78 procedure is the most severe
 - for the high speed test, the Japanese procedure is the most severe
 - for the heat-fade test, ECE R78 procedure is the most severe
 - for the wet-test, ECE R78 procedure is the most severe
 - for ABS testing the, ECE R 78 Annex 4 is the only procedure available.
- Canada volunteered to sponsor the motorcycle brakes project. As a consequence of this decision, a meeting has been called for the 25 October 2002 in Montreal, open to any GRRF delegation interested in attending, at which the Canadian administration and other participants will discuss how to pursue the GTR project. Canada expect to have a first GTR proposal ready for informal discussion in 2003.

THE ITALIAN POSITION

On the above mentioned subject the opinion of the Italian Administration is the following:

- Traditionally GRRF relies on industry for information on the future technologies and for suggestions on how the regulations could be developed. Although WP29 and AC3 are currently emphasising the formality of having an administration focus to GTR development, it is necessary to maintain the co-operative nature of GRRF's work, in which there is a blend of industry expertise and government focus
- The requirements of the Global Agreement are such that it is unlikely that an administration is able to devote the necessary time, budget and resources to fulfilling all of the points
- For the foreseeable future most of the models worldwide will be equipped with the traditional two brake systems, because they are cost-effective, in particular for developing markets
- The most effective approach for the development of a GTR should be in 2 steps:
 - a) harmonisation on the most stringent existing regulation, and later on
 - b) discussion on up-grading because such a harmonisation would be an improvement for many Contracting Parties

Therefore, since IMMA provided a solid foundation for a GTR discussion, based on test evidences and on logical assumptions, we fully support the IMMA approach to the GTR on Motorcycle braking, the consequent programme of work and the proposal which is derived by it.

In addition, we do hope that:

- the Canadian sponsorship of the project will consider all the activities already carried out so that a forward plan is worked out, keeping into account documents and proposals which have already been presented and discussed within GRRF.
- GRRF does not want to waste the work already carried out by IMMA and that this will be the foundation of future discussions. GRRF should critically review all research presented to it in order to satisfy itself that the final GTR proposal is properly prepared.

Roma, 21st October 2002