

**Comments on proposed amendments GRRF-64-15 and ECE/TRANS/WP.29/GRRF/2009/22,
regarding Regulation No. 78.**

Regulation No. 78, 03 series of amendments, transposes the text from global technical regulation No. 3. With a view toward global harmonization, it is Canada's intention to recognize Regulation No. 78 as an alternative to its current motorcycle brake system safety regulations. As such, although not a signatory to the 1958 Agreement, subsequent amendments to Regulation No. 78 can affect the safety of motorcycle operators in Canada. In that light, and as the sponsor in the development of the gtr on motorcycle brake systems, we offer the following comments on proposed amendments to Regulation No. 78.

1) Re GRRF-64-15 (originally proposed by Germany), proposed amendment to paragraph 1.1.1.(c):

a) The current text reads as follows:

"(c) The surface has a **nominal** peak braking coefficient (**PBC**) of **0.9** unless otherwise specified"

The proposed text reads:

"(c) The surface has a **nominal** peak braking coefficient (**PBC**) of ≥ 0.9 unless otherwise specified. 1/

1/ The term "**nominal**" means the target value for the surface when it is certified"

The proposed text is contradictory, referring to the **nominal** value as the target value for the surface, while indicating a **PBC ≥ 0.9** . Furthermore, allowing to test on any surface with a PBC of ≥ 0.9 could lead to many issues including braking systems with longer reaction times, longer stopping distances and compliance disputes.

In light of the above, we believe the text was meant to read as follows:

"(c) The surface has a nominal peak braking coefficient (**PBC**) of **0.9** unless otherwise specified. 1/

1/ The term "nominal" means the target value for the surface when it is certified"

b) Regarding the additional proposed text "*If rear wheel lift occurs, a surface with a peak braking coefficient (PBC) lower than 0.9 may be used in that case.*"

1) The occurrence of rear wheel lift requires significant braking effort applied to the front wheel brake. Other than the ABS tests in section 9 (and while determining the PBC value by way of Appendix 1 to Annex 3), the highest front wheel deceleration rate that is required is 4.4 m/s², which is significantly less than what can be achieved on a surface with a PBC of 0.9 (equivalent to a deceleration rate of 8.8 m/s²). The occurrence of rear wheel lift while attempting to meet these minimum performance requirements would suggest an unsafe condition, due to a deficiency with the motorcycle design and/or its braking system.

2) Rear wheel lift is also affected by rider position and skill. Shifting the rider's weight/position on the motorcycle can instigate or prevent such an occurrence.

- 3) With regard to ABS testing, there was no alternative surface friction value in the previous Regulation No. 78. This proposed alternative PBC would suggest a reduction in the level of stringency to the previous requirements.
- 4) It is our opinion that a PBC of 0.9 represents real world conditions. During the development of the gtr, the NHTSA tests exhibited surfaces offering PBC values slightly greater than 0.9. Under these conditions, no rear wheel lift of any significance was observed during the ABS testing for the purposes of developing the gtr. A PBC of 0.9 is also considered normal in the industry (as pointed-out by IMMA).
- 5) As such, should the rear wheel lift occur and the expert test rider cannot control it, we would suggest it is an indication of an underlying problem with the motorcycle design or the calibration of the braking system.
- 6) Should the proposal go forward, we risk motorcycles (particularly ABS-equipped motorcycles) rolling end-over-end as the operators apply emergency braking manoeuvres to avoid a collision.
- 7) By adopting this proposal, Regulation No. 78 would be disharmonized with the gtr.

2) **Regarding the proposal by IMMA to add paragraph 9.3.1.(h) (ECE/TRANS/WP.29/GRRF/2009/22):**

The proposed text reads:

"(h) If the rear wheel lifts from the ground during a test, the control for the service brake on the front wheel may be actuated with a force that is lower than the force that will cause the wheel to lift. In this case, the front wheel ABS need not cycle fully."

- 1) The proposed paragraph defeats the purpose of the ABS test in question (paragraph 9.3), which is to assure minimum braking performance while the ABS system is functioning during brake application.
- 2) This proposal will not address the possibility of rear wheel lift that riders might encounter in real-world conditions.
- 3) The occurrence of rear wheel lift is an indication of an underlying problem with the motorcycle design or the calibration of the braking system that needs to be addressed
- 4) By adopting this proposal, Regulation No. 78 would be disharmonized with the gtr.
