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World Forum for Harmonization of Vehicle Regulations**Working Party on Automated/Autonomous and Connected Vehicles*****Fifth session**

Geneva, 10-14 February 2020

Item 9 (b) of the provisional agenda

Motorcycle braking:**UN Regulation No. 78****Proposal for a new 05 series of amendments to UN
Regulation No. 78 (Motorcycle braking)****Submitted by the expert from the International Motorcycle
Manufacturers Association****

The text reproduced below was prepared by the expert from International Motorcycle Manufacturers Association (IMMA) with the aim to harmonise the requirements of UN Regulation No. 78 with the latest amendments to UN Global Technical Regulation (GTR) No. 3 adopted by the Working Party on Automated/Autonomous and Connected Vehicles (GRVA) at its fourth session. It is based on the informal document GRVA-04-05. The modifications to the existing text of the Regulation are marked in bold for new or strikethrough for deleted characters.

* Formerly: **Working Party on Brakes and Running Gear (GRRF)**.

** In accordance with the programme of work of the Inland Transport Committee for 2020 as outlined in proposed programme budget for 2020 (A/74/6 (part V sect. 20) para 20.37), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.



I. Proposal

Insert a new paragraph 2.31., to read:

"2.31. **"Disable the antilock brake system"** means to put the system into a state where it will no longer fulfil the technical requirements in paragraph 9 of Annex 3 to this Regulation."

Paragraph 5.1.15., amend to read:

"5.1.15. ~~When~~**If** a vehicle is equipped with the means to indicate emergency braking, activation and de-activation of the emergency braking signal shall only be generated by the application of ~~the any~~ service braking system when the following conditions in paragraphs 5.1.15.1. through 5.1.15.2. are fulfilled:³"

Paragraph 5.1.15.2., amend to read:

"5.1.15.2. ~~The following conditions may also be used:~~

- ~~(a)~~ ~~The signal may be generated from a prediction of the vehicle deceleration resulting from the braking demand respecting the activation and de-activation thresholds defined in paragraph 5.1.15.1. above; or~~
- ~~(b)~~ The signal may be activated at a speed above 50 km/h when the antilock system is fully cycling (as defined in paragraph 9.1. of Annex 3) and deceleration is at least 2.5m/s². ~~The deceleration may be generated from the prediction described in point (a).~~ The signal shall be deactivated when the antilock system is no longer fully cycling."

Insert a new paragraph 5.1.15.3., to read:

"5.1.15.3. **The signal may be generated from a prediction of the vehicle deceleration resulting from the braking demand respecting the activation and de-activation thresholds defined in paragraph 5.1.15.1. above.**"

Paragraph 5.1.16., amend to read:

"5.1.16. A means to disable the antilock brake system is not permitted.

By derogation, ~~vehicles which are suitable for off road driving and~~ **a means to disable the antilock brake system is allowed, if vehicles are** fitted with a riding mode selector allowing an "off-road" or "all terrain" mode ~~may be fitted with a single means (e.g. switch, lever, button, menu option) to disable the antilock brake system function, which is only permitted under~~ **and** the following provisions **are met:**

- (a) The vehicle is stationary; and
- (b) The disablement of the antilock brake system function shall be the result of a deliberate action by the rider according to one of the following methods:
 - (i) Simultaneous actuation of the antilock brake system ~~on/off~~ **disable-switch** and ~~the front, rear or combined brake system actuator~~ **a service brake system control (i.e. brake lever or pedal);** or
 - (ii) The actuation of the antilock brake system ~~on/off~~ **disable-switch** for a minimum of two seconds; or
 - (iii) The progression through at least two successive steps or levels of actuation of a **control (e.g. rotating knob, a touch panel switch or a menu option selector);**

³ At the time of type approval, compliance with this requirement shall be confirmed by the vehicle manufacturer.

- (c) Disabling of the antilock brake system function shall only be allowed when the riding mode selector is in the "off-road" or "all terrain" mode; and
- (d) The antilock brake system function shall be automatically enabled ~~after each start-up of the vehicle, except for restarts after unintentional stalling of the engine~~ **when exiting from the "off-road" or "all-terrain" ride mode, or after each start-up of the vehicle;** and
- (e) ~~The disablement of~~ **When disabled**, the antilock brake system function shall be indicated by the activation of ~~symbol B.18 as specified in ISO 2575:2010 (ISO 7000 2623) or any other equivalent unequivocal indication of the disabled antilock brake system state. Alternatively, the warning lamp referred to in paragraph 5.1.13. shall be continuously activated (i.e. lit or flashing); and~~ **a yellow or amber tell-tale according to one of the following methods until the ABS is fully functional or operating again:**
- (i) **The following symbol as specified in B.18 in ISO 2575:2010:**
-
- Or
- (ii) **The following symbol as specified in B.05 of ISO 2575:2010:**
-
- With the word "OFF" as follows, according to Y.01 in ISO 2575:2010, whereby the tell tales are adjacent to each other:**
-
- Or;
- (iii) **The text "ABS OFF", or "ABS not available", or,**
- (iv) **The warning lamp referred to in paragraph 5.1.13., continuously activated (i.e. lit or flashing).**
- (gf) ~~Instantaneous re-enablement~~ **Enabling** of a functional stage which complies with anti-lock brake system ~~approval requirements of the antilock brake system under all operation modes shall be warranted and shall be demonstrated to the satisfaction of the Type Approval Authority in paragraph 9 of Annex 3. shall be possible through the single actuation of a control~~ (e.g. simple press of a button or switch) **initiating ABS system start-up procedure; and**
- (fg) Prohibition of any software and/or hardware defeat device compromising or allowing to circumnavigate one or more of the requirements set out in points (a) to (ef)."

Insert a new paragraph 5.1.18., to read:

- "5.1.18. A vehicle fitted with an ABS system active on both axles may be fitted with a rider selectable mode to deactivate the ABS function on the rear axle. When the ABS function is deactivated on the rear axle this shall be indicated by a yellow or amber tell-tale or check control messages* according to one of the following methods until the ABS is fully functional or operating on both axles again:**

- (i) The following symbol as specified in B.18 in ISO 2575:2010:



With the word "REAR" adjacent to it; or

- (ii) The following symbol as specified in B.18 in ISO 2575:2010:



With a symbol of the vehicle adjacent to it with an arrow pointing to the rear axle; or

- (iii) The following symbol as specified in B.05 of ISO 2575:2010:



With the word "REAR OFF" adjacent to it; or

- (iv) The text " REAR ABS OFF", or " REAR ABS not available"; or
- (v) The warning lamp referred to in paragraph 5.1.13., continuously flashing. If the disablement of the ABS system is also indicated by a flashing of this warning lamp as specified in 5.1.16. e-iv, the frequency of the flashing for indicating the deactivation of the ABS system on one axle shall be different from the frequency of flashing to indicate the disablement of the ABS system.

* Pop up messages in the instrument panel"

Insert new paragraphs 9.5. to 9.9., to read:

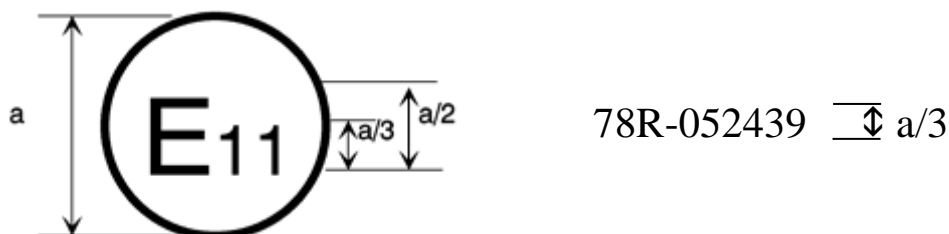
- 9.5.** As from the official date of entry into force of the 05 series of amendments, no Contracting Party applying this UN Regulation shall refuse to grant or refuse to accept UN type-approvals under this UN Regulation as amended by the 05 series of amendments.
- 9.6.** As from 1 September [2023], Contracting Parties applying this UN Regulation shall not be obliged to accept UN type-approvals to the preceding series of amendments, first issued after 1 September [2023].
- 9.7.** Notwithstanding the transitional provisions above, Contracting Parties who start to apply this UN Regulation after the date of entry into force of the most recent series of amendments are not obliged to accept UN type-approvals which were granted in accordance with any of the preceding series of amendments to this UN Regulation.
- 9.8.** Notwithstanding paragraph 9.6., Contracting Parties applying this UN Regulation shall continue to accept UN type-approvals to the preceding series of amendments to this UN Regulation, first issued after 1 September [2023] and extension thereof, for the vehicle types which are not affected by the changes introduced by the 05 series of amendments.
- 9.9.** Contracting Parties applying this UN Regulation shall not refuse to grant UN type-approvals according to any preceding series of amendments to this UN Regulation or extensions thereof."

Annex 2, amend to read:

"Arrangements of approval marks

Model A

(See paragraph 4.4. of this Regulation)

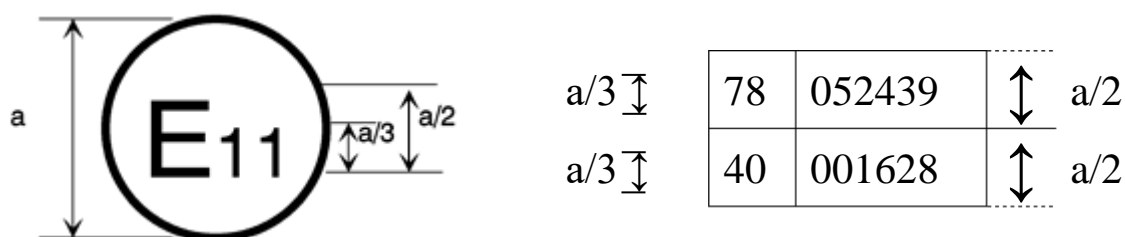


$a = 8 \text{ mm min.}$

The above approval mark affixed to a vehicle¹ shows that the vehicle type concerned has, with regard to braking, been approved in the United Kingdom (E 11) pursuant to UN Regulation No. 78 under approval number 0452439. The first two digits of the approval number indicate that UN Regulation No. 78 already included the ~~04~~ **05** series of amendments when the approval was granted.

Model B

(See paragraph 4.5. of this Regulation)



$a = 8 \text{ mm min.}$

The above approval mark affixed to a vehicle shows that the vehicle type concerned has been approved in the United Kingdom (E 11) pursuant to UN Regulations Nos. 78 and 40. The first two digits of the approval numbers indicate that, at the dates when the respective approvals were granted, UN Regulation No. 78 included the ~~04~~ **05** series of amendments but UN Regulation No. 40 was still in its original form."

Annex 3, paragraph 9.1., amend to read:

"9.1.

General:

- (a) The tests are only applicable to the ABS if fitted **and enabled**;
- ...
- (e) **Vehicles with driver selectable ABS modes (e.g. a dual channel ABS system whereby the ABS on the rear axle can be disabled) shall comply with the technical requirements of this paragraph in all modes where ABS is enabled.**"

¹ This latter number is given merely as an example.

II. Justification

1. The objective of this proposal is to complete the harmonisation between UN Regulation No. 78 and UN GTR No. 3. Following the adoption by GRVA at its fourth session (September 2019) of the proposal for amendment to UN GTR No. 3 submitted by the expert from Italy (ECE/TRANS/WP.29/GRVA/2019/23, as amended by GRVA-04-23), IMMA is herewith proposing to adapt the existing wording of UN Regulation No. 78 to minimise the differences between both regulations, as illustrated by IMMA during the fourth session of GRVA with documents GRVA-04-05 and GRVA-04-06.

2. Paragraph 3.1.17. was added to UN GTR No. 3 with the aim to ensure that the rider is duly informed when activating a riding mode that disables the ABS on the rear axle. For consistency, the same requirement was included in this proposal by adding paragraph 5.1.18. Considering that the compliance with this updated requirement could require the technical modification of vehicles, such as dashboard redesign, it was deemed necessary to submit the proposal as a new series of amendments with transitional provisions of at least 2 years.
