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REVISION OF THE CONSOLIDATED RESOLUTION R.E.1

Improving bicycle, motorcycle and moped safety

Note by the secretariat

Members of WP.1 will find below a draft recommendation concerning bicycle, motorcycle and moped safety revised by the small group made up of the United States of America (chair), FEMA, FIM and IMMA and taking into account the remarks made at the 48th session. Once adopted by WP.1, the draft will fit into Chapter 6 “Special rules relating to two-wheeled vehicles” of the new structure of R.E.1 (see document ECE/TRANS/WP.1/2005/15/Rev.2).

Chapter 6 **Special rules relating to two-wheeled vehicles**

6.1 Bicycles

The use of the bicycle is developing not just as a means of transport, often as a substitute for a motor vehicle, but also as a leisure activity.

Numerous countries or local authorities are putting in place voluntary policies to promote the use of bicycles with the general aim not only of protecting the environment, in particular in the fight against atmospheric pollution, but also of safeguarding public health.

This category of users is, however, subject to a high number of accidents on the roads due to the fact that, in the absence of special lanes dedicated to them, they have to integrate into the general traffic or even face up to general traffic conditions, for example at intersections. It is important therefore to reinforce the safety of these users through specific measures or infrastructure installations.

6.1.1 **Technical aspects**

6.1.1.1 Visibility at night (2.1)

In addition to the provisions on the equipment of bicycles contained in the Vienna Convention on Road Traffic of 1968 (Article 33, paragraph 1), the complementary measures below should be taken to improve their visibility at night as well as that of their users:

6.1.1.1.1 Equipment of the bicycle

Without prejudice to existing national legislation concerning normal lighting devices for bicycles, they shall be equipped:

At the front: with a white reflex-reflector.

On the sides: with amber reflectors fixed to the spokes of the wheels or with retroreflective devices showing a continuous circle.

On the pedals: With white, yellow or amber reflectors which allow clear visibility of the movement and identification of the presence of the cyclist.

6.1.1.1.2 Equipment of the cyclist

It is recommended that cyclists wear light-coloured clothing, supplemented by retroreflective **material** [...] to reinforce their visibility and **facilitate** their identification by other road users.

6.1.1.2 Marking of trailers coupled to cycles (2.3)

If a trailer is coupled to a cycle, the trailer must be equipped at the rear with a red reflecting device and also, if the rear lamp of the cycle is hidden by the trailer or is not lit, a red lamp shall be placed on the rear of the trailer.

6.1.2 **Special rules**

6.1.2.1 Wearing of helmets (3.4)

Users of bicycles should be encouraged to wear a suitable helmet, whether riders or passengers.

6.1.2.2 Safety reflector arm

In order to ensure a protection zone between the cyclist and other road users, it is recommended to equip the bicycle with a device known as a "safety reflector arm".

All the above-mentioned devices should be the object of information or awareness campaigns aimed at users, in particular schoolchildren. Checks should be organized to ensure that cycle equipment conforms to these rules, in particular those relating to lighting and visibility, and sanctions should be envisaged in case of non-conformity.

6.2 **Two-wheeled vehicles equipped with a propelling engine**

6.2.1 **Introduction**

The official statistics for road accidents usually show that riders of motorcycles and mopeds are involved in more accidents than other road-user categories. In-depth studies into the causes of these accidents show a variety of reasons for these high figures.

Motorcycle riders are more likely to be involved in fatal and injury accidents than are operators of other vehicles. While statistics differ among countries, motorcycles are involved in an accident with another vehicle, in approximately 50 per cent of accidents. A recent European study on motorcycle crashes¹ has reconfirmed other in-depth study findings that the most important cause of multi-vehicle accidents is driver or rider error.

To be effective in reducing motorcycle and moped crashes and related deaths and injuries comprehensive motorcycle and moped safety programmes should be established and supported. In what follows, recommendations are made based on the most successful practices that have been developed over the years. [...]

The recommendations address those related to the rider and those linked to the road environment. While some recommendations address the vehicle, i.e., motorcycle or moped, these are not addressed in-depth as they are included in other Regulations and Recommendations. [...]

¹ **Motorcycle Accident In-Depth Study (MAIDS).**

6.2.1.1. Rider permits and licensing for mopeds and motorcycles

The permit allows the authorities to control who has access to the road. It also acts as a means of testing whether or not the rider has a sufficient knowledge of the rules of the road and control of the vehicle.

Different strategies for motorcycle licensing have been tried over the years, with mixed success. Detailed accident studies have shown that a key element in creating safe riders is experience. Research has shown that successful completion of a rider-training programme can provide the equivalent of up to six months of riding experience. Such research findings have promoted the increase in the use of phased licensing systems.

The European experience has been that young road users usually progress from a bicycle to a moped and then to a motorcycle or car. In countries where the climate makes two-wheeler riding attractive, mopeds are seen as a special form of bicycle and a first step towards motorised transport. The minimum age for mopeds has therefore been 14 years in such countries and the requirements for obtaining a permit, if indeed one is required at all, have therefore been confined to a theoretical test on the rules of the road.

For motorcycles, the trend has been towards a phased introduction to the more powerful vehicles. Thus, a learner rider in Europe will be restricted to a limited performance motorcycle for the first two years and then allowed to ride a more powerful machine. From the fact that it is experience that counts, it follows that time spent riding/operating the motorcycle and not further testing governs the progress from one category of motorcycle to another. Similarly, some countries allow car drivers to use the car permit to act as a permit for the limited class of motorcycle, on the grounds that such people have experience of using the road. In practice, such riders usually take some form of training to become familiar with the operation of the motorcycle. *(The secretariat believes this subparagraph should be transferred to section 6.2.2.2 because it only concerns motorcycles.)*

The choice of the permit structure for motorcyclists depends on many factors in each country and experience shows that no one solution can be claimed to have a better result than another. The guiding principle should be that specialised training should complement a general safety education and the whole supported by a progressive introduction to more complex and powerful vehicles. Increasingly, this means that the acquisition of a permit has become linked to a system of rider training. *(Same remark as above.)*

6.2.1.2 Rider training

Initial rider training (pre-licence training) is very important. It should be affordable and accessible. It should be conducted within an agreed syllabus. Where the services of professional instructors are employed they should be qualified to an agreed standard and should always be experienced motorcyclists.

The training programme should in addition to teaching relevant machine control skills, also address hazard awareness and avoidance and the importance of rider attitude and behaviour and its consequences.

The objective of initial rider training should be to give the necessary skills and knowledge to ride safely and responsibly in traffic and not simply to be to obtain a licence. To this end, licence-testing arrangements should seek to evaluate that a rider has acquired the necessary skills and knowledge to ride safely and responsibly.

(The secretariat believes this section should either be transferred to section 6.2.2.2 if it only concerns motorcycles or be adapted to also introduce mopeds)

6.2.1.3 Protective gear

Motorcycle **and moped riders** and passengers should be **required** to use **protective helmets** and encouraged to use the **following additional** protective equipment: proper clothing, including gloves, boots, long trousers, and a durable long-sleeved jacket; and eye and face protection.

(The secretariat believes this point should be deleted because it is also dealt with in the relevant sections concerning mopeds and motorcycles.)

6.2.1.4 Safety campaigns

Public information campaigns provide an opportunity to educate motorcycle and moped riders, as well as other motorists and road users. Such campaigns should emphasize issues of rider conspicuity and motorist/other road user awareness of motorcycles **and mopeds**. These programmes should address: daytime use of [...] headlights; brightly coloured clothing and reflective materials for motorcycle **and moped riders** and [...] helmets with high daytime and night time conspicuity; lane positioning [...] to increase vehicle visibility; reasons why motorists do not see motorcycles **and mopeds**; and, especially, ways that other motorists and road users can increase their awareness of **motorcycle and moped riders**. **Regardless of country-specific legislation, and in addition to law enforcement strategies (see Section 6.2.1.5 below), safety campaigns to educate and encourage motorcycle and moped riders and passengers to use protective helmets and additional protective equipment should be promoted.** *(This section has been adapted by the secretariat to also introduce mopeds.)*

6.2.1.5 Law enforcement

As with other areas of road safety, law enforcement personnel play an important role in motorcycle and moped safety. Enforcement of licensing, impaired driving laws and laws governing motorcycle operation is as important for two-wheeled vehicles as for four-wheeled vehicles. Besides enforcing road safety rules and regulations, law enforcement is important in properly investigating collisions and maintaining a reporting system that documents the occurrence of collisions. Such a reporting system can be used to assist in identifying programmes and policies needed to increase motorcycle and moped safety. Law enforcement can also

provide public information and education support for motorcycle and moped safety.

6.2.1.6 Infrastructure

Traffic engineering is a critical element of any crash reduction programme. Road traffic authorities should be aware of the needs of motorcyclists as road users and their particular characteristics and vulnerability. Policies should be developed regarding the design and the placing of road and roadside furniture, such as signs and lights and service covers and markings. Road maintenance and repairs should be undertaken with their effect on powered two wheelers being appreciated and measures which lessen the consequences of a rider colliding with a crash barrier should be given priority.

The development of comprehensive national strategies to be used by those responsible for road construction and maintenance, which aim to improve the infrastructure for powered two-wheelers [...] should be promoted.

6.2.2 Recommendations for improving the safety of moped and motorcycle riders are provided below.

6.2.2.1 Special rules concerning mopeds

6.2.2.1.1 Technical aspects (3.5)

6.2.2.1.1.1 *Visibility at night*

Without prejudice to existing national legislation on conventional lighting, mopeds shall be equipped with lateral markings consisting of either amber reflex-reflectors or retro-reflective material showing a continuous circle on the sidewalls of the tyres.

[...].

Any rear registration plates for these vehicles should be retro-reflective [...].

6.2.2.1.1.2 *Performance*

Modifications of mopeds resulting in a change in their performance and safety of operation shall be prohibited.

[...]

The use and sale of devices which allow such changes should also be prohibited and provision should also be made for checks and sanctions.

6.2.2.1.1.3 *Trailers*

Where trailers are permitted by national legislation:

- (a) Trailers shall be such that the performance of the combination ensures sufficient safety of operation (speed, visibility, braking).
- (b) Trailers coupled to mopeds must be fitted at the rear with a red reflecting device. If the red lamp of the moped is hidden by the trailer and/or its load, a red lamp must be placed on the rear of the trailer.
- (c) If the moped has a registration plate and it is hidden by the trailer or its load, a registration plate reproducing the registration number shall be affixed at the rear of the trailer.

6.2.2.1.2 Rules concerning the use of mopeds (3.5)

- a) Moped drivers should be at least 14 years of age.
- b) Governments are recommended to promote tuition for moped drivers.
- c) The wearing of a helmet approved for both riders and passengers of mopeds should be made obligatory in all circumstances, **as already imposed by the European Agreement supplementing the Vienna Convention on Road Traffic (Ad Article 27)**. *(Addition proposed by the secretariat.)*
- d) The wearing of light-coloured clothing or of reflecting and fluorescent devices on clothing, in particular when driving at night or in reduced visibility, shall be recommended and encouraged.

6.2.2.1.3 Safety of moped users

Public information safety campaigns should be encouraged as they provide an opportunity to educate moped riders, as well as other motorists and road users. Such campaigns should emphasize issues of rider conspicuity and motorist/other road user awareness of mopeds. *(The secretariat believes this subparagraph should be deleted because it is already covered in the section 6.2.1.4)*

Domestic legislation shall make it compulsory for moped riders to drive with the passing lamps or running lamps switched on in daylight. *(Addition proposed by the secretariat.)*

6.2.2.2 **Special rules concerning motorcycles**

6.2.2.2.1 Technical aspects (3.6)

6.2.2.2.1.1 *Visibility*

In addition to the obligatory lighting and light-signalling devices prescribed by the 1968 Convention on Road Traffic:

(a) Motorcycles **may** be equipped with the following additional devices:
(Note: UNECE Regulation 53 makes these optional, as their safety benefit has not been established for motorcycles.)

- Vehicle hazard-warning signal;
- Front and rear fog lamps;
- [...]

The fitting of such devices should be encouraged and shall be effected in conformity with the relevant requirements of Regulation No. 53 annexed to the 1958 Agreement.

(b) The registration plate(s) shall be retro-**reflective**. [...]

6.2.2.2.1.2 *Vision*

Motorcycles shall be equipped with at least one rear-view mirror.

6.2.2.2.1.3 *Protective devices and their use* [...]

Each passenger should be provided a seat and footrests.

Motorcycle riders and passengers shall be required to use approved protective helmets, as already imposed by the European Agreement supplementing the Vienna Convention on Road Traffic (Ad Article 27).
(Addition proposed by the secretariat.)

Moreover, they should be encouraged to use the following protective equipment:
[...] proper clothing, including gloves, boots, long trousers, and a durable long-sleeved jacket; and eye and face protection.

6.2.2.2.1.4 *Trailers*

Where trailers are permitted by national legislation:

(a) Trailers shall be such that the performance of the combination ensures sufficient safety of operation (speed, visibility, braking).

(b) Trailers coupled to motorcycles must be fitted at the rear with a red reflecting device. If the red lamp of the motorcycle is hidden by the trailer and/or its load, a red lamp must be placed at the rear of the trailer.

(c) **If the rear registration plate is hidden by the trailer or its load, a registration plate reproducing the registration number of the motorcycle shall be affixed at the rear of the trailer.**

[...]

6.2.2.2.2 Rules concerning the use of motorcycles (3.6)

6.2.2.2.2.1 *Aptitudes required for drivers*

To obtain a motorcycle driving permit candidates should be required to pass both theoretical and practical tests after receiving appropriate instruction. Rider training for motorcycle permit candidates should be affordable and accessible; conducted within an agreed syllabus; and conducted by qualified, experienced instructors.

The use of high-performance motorcycles, as defined nationally/internationally, should be either:

- subject to meeting the requirements of a progressive permit system with appropriate training and experience on a lower performance motorcycle, or
- subject to minimum age requirements and training required to pass the appropriate level of test.

6.2.2.2.2.2 *Safety of motorcyclists*

Public information safety campaigns should be encouraged as they provide an opportunity to educate motorcycle riders, as well as other motorists and road users. Such programmes should address: daytime use of motorcycle headlights; brightly coloured clothing and reflective materials for motorcycle riders and motorcycle helmets with high daytime and night time conspicuity; lane positioning of motorcycles to increase vehicle visibility; reasons why motorists do not see motorcycles; and, especially, ways that other motorists and road users can increase their awareness of motorcyclists. **In addition, regardless of specific laws or regulations, public information campaigns should be promoted to educate and encourage motorcycle riders and passengers to use protective helmets and other protective equipment.**

(The secretariat believes this entire subparagraph should be deleted because it already appears in section 6.2.1.4.)

As with other areas of road safety, law enforcement personnel play an important role in motorcycle safety. Enforcement of licensing, impaired driving laws and laws governing motorcycle operation is as important for two-wheeled vehicles as for four-wheeled vehicles. Law enforcement also has an important role in investigating and documenting motorcycle collisions, and permitting the data to be used to improve motorcycle safety.

Road traffic authorities should be aware of the needs of motorcyclists as road users and their particular characteristics and vulnerability. Policies should be

developed regarding the design and the placing of road and roadside furniture, such as signs and lights and service covers and markings.

All countries should make it compulsory for motorcycle **riders** to drive with the passing lamps or running lamps switched on in daylight, **as already required by Article 32.6 of the Vienna Convention on Road Traffic.** (*Modification proposed by the secretariat.*)
