

Submitted by the expert from Japan

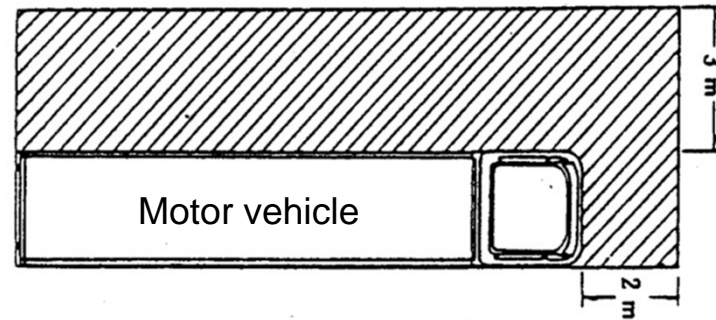
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Agenda item 12)

Indirect Field of Vision in Large Vehicles

1. Background to the improvement of field of vision in Japan

In the Japanese road environment, large vehicles often enter even narrow roads where the sidewalk and the vehicular section are not clearly separated (see p. 2). Therefore, since the 1970s when the traffic volume increased, the number of accidents where large vehicles involve pedestrians at left turns had risen, which became a social problem. With this background, in the 1980s, it was made mandatory to ensure field of vision for large vehicles covering the area 2.0 m forward of the vehicle and 3.0 m on the side of the vehicle (passenger's side) (see the figure below).

A cylinder with diameter of 30 cm and height of 1.0 m within the shaded area must be visible directly or using a mirror.



After implementation of this regulation, the number of accidents involving pedestrians at left turns decreased significantly.

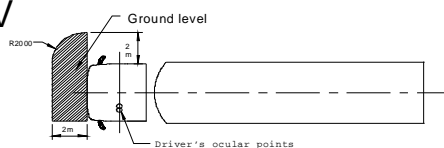
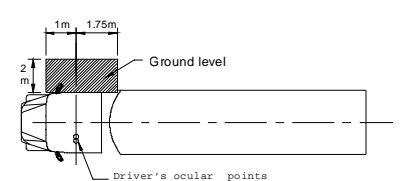
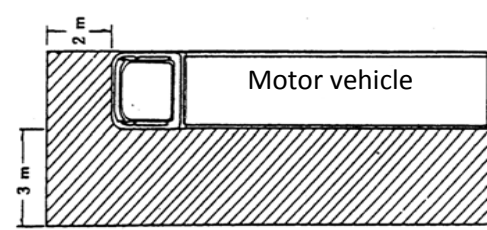
Examples of the Japanese road environment

Large vehicles and buses are driven even on narrow roads where the sidewalk and the vehicular section are not separated.



2. Differences between R46 and Japanese Regulation

When turning left at narrow intersections, it is important to visually check the vehicle's surroundings in a short time. Thus, in Japan, there are many cases where three mirrors are positioned closely to one another so that the field of vision can be ensured with a minimum movement of the driver's line of vision (see p. 4). However, since R46 requires the ground to be visible and mirrors to be positioned at a height of more than 2.0 m, we would not be able to position the mirrors as described above.

	Mirrors	Object of vision	Positioning
R46	<p>Class V</p>  <p>Class VI</p> 	Ground	Installation at a height of not more than 2.0 m prohibited
Japan	<p>Front mirror, side mirror</p>  <p>* In the case of right-hand drive</p>	A pole with dia. of 30 cm and height of 1.0 m	Anywhere, as long as the impact relaxation standards are met.

3. An Example of the Positioning of Mirrors in Japanese Large Vehicles

By positioning mirrors closely to one another, two in front of and beside the vehicle for visibility of the vicinity and one beside the vehicle for visibility of the rear, it is possible for the driver to efficiently check the areas required to be visible at the start of the vehicle or left turns.

Mirror for viewing the side and rear of the vehicle

Side mirror for viewing the vicinity of the vehicle



Mirror for viewing the front of the vehicle

* Mirrors at passenger's side in a right-hand drive vehicle

Benefits

- * The Japanese field of vision standards are effective to reduce, on narrow roads, blind areas in viewing obstacles within the field of vision immediately in front of the vehicle and beside the vehicle (at the passenger's side) in its vicinity.
- * This will significantly lower the number of accidents involving pedestrians at left/right turns.
- * From the standpoint of promoting the IWVTA as well, Japanese requirements are beneficial in ensuring safety for countries with similar road environments.

Thank you for your attention.