

**Proposal Concerning the Mandatory Installation of
Middle-Side Direction Indicator Lamps on Large Vehicles**

Submitted by the Experts from Japan

To prevent the underrunning of cyclists and pedestrians by large trucks in their left turns, Japan requires the installation of middle-side direction indicators on both sides of large trucks, in addition to the regular side direction indicators, for enhanced visibility of side turn signals. Accordingly, Japan proposes the addition of the following requirements concerning middle-side direction indicators to the Draft GTR.

1. Requirements Proposed to Be Added

Para.6.5. DIRECTION INDICATOR LAMP

Para. 6.5.2. Number

In addition, 2 middle-side direction indicators shall be installed on N category vehicles exceeding 7,500 kilograms in gross vehicle weight, not including tractors trailing a semi-trailer.

“6.5.2. Number

Motor vehicle ($\leq 7,500$ kilograms in gross vehicle weight):

2 front direction indicator lamps

2 side direction indicator lamps

2 rear direction indicator lamps + 2 optional rear direction indicator lamps

Motor vehicle ($> 7,500$ kilograms in gross vehicle weight), not including buses and tractors trailing a semi-trailer

2 front direction indicator lamps

2 side direction indicator lamps

2 middle-side direction indicator lamps

2 rear direction indicator lamps + 2 optional rear direction indicator lamps

Trailer:

2 side direction indicator lamps for trailers of 6000 mm or more in overall length,

2 rear direction indicator lamps + 2 optional rear direction indicator lamps.”

Para. 6.5.3. Arrangement (see Figure 2)

Amend (see Figure 2.) to (see Figures 2-1, 2-2); add Fig. 2-2.

Read as: **6.5.3. Arrangement** (see Figures 2-1, 2-2)

Para. 6.5.4. Position (see Figure 2)

Amend (see Figure 2.) to (see Figures 2-1, 2-2); add Fig. 2-2.

Read as: **6.5.4. Position** (see Figures 2-1, 2-2)

Para. 6.5.4.2. In height:

Same as the Draft GTR (not less than 350 mm above the ground and not more than 1,500 mm above the ground)

Para. 6.5.4.3. In length:

Add the following:

“middle-side direction indicator lamps:

The frontmost edge of the luminous area of the middle-side direction indicator shall be within 2,500 mm rearward of the cab's rear end.”

Para. 6.5.5. Geometric visibility (see Figure 2.)

Amend (see Figure 2.) to (see Figures 2-1, 2-2); add Fig. 2-2.

Read as: **6.5.5. Geometric visibility** (see Figures 2-1, 2-2)

Para. 6.5.5.1. Horizontal angles

Side direction indicator:

Amend to read: **5° outwards to 60° outwards to the rear as shown in Figure 2- 1.**

Add the following:

“Middle-side direction indicator:

The middle-side direction indicator shall be visible from any point on the vertical plane 1,000 mm outwards of the vehicle's outermost point and parallel to the median longitudinal plane of the vehicle, and between a height of 1,000 mm and 1,600 mm from the ground and between the vertical line 1,000 mm forward to the installation position of the middle-side direction indicator and the other vertical line equidistant with the vehicle's rear end from the installation position of the middle-side direction indicator (see Figure 2-2).”

Para. 6.5.5.2. Vertical angles:

Add the following:

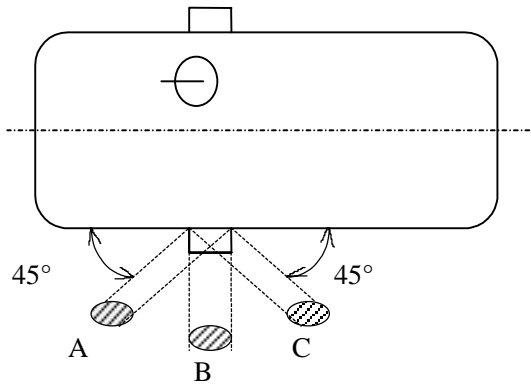
“The middle-side direction indicator shall be visible from any point on the vertical plane 1000 mm outwards of the vehicle's outermost point and parallel to the median longitudinal plane of the vehicle, and between a height of 1,000 mm and

1,600 mm from the ground and between the vertical line 1,000 mm forward to the installation position of the middle-side direction indicator and the other vertical line equidistant with the vehicle's rear end from the installation position of the middle-side direction indicator (see Figure 2-2).”

Para.6.5.5.3. For the direction indicator to be considered visible throughout the angles of geometric visibility one of the following shall be met:

Add the following:

“To ensure the visibility of the middle-side direction indicator from any point on the plane area shown in Figure 2-2, its minimum luminance shall be 3.0 cd or more at any point in the said plane area; or the projected area of the apparent surface of the middle-side direction indicator shall be at least 40 cm² as projected onto the vehicle's median longitudinal plane, onto the second plane intersecting with the median longitudinal plane at 45 degrees from forward, and onto the third plane intersecting with the median longitudinal plane at 45 degrees from rearward.”



Renumber Figure 2 to Figure 2-1, and add Figure 2-2.

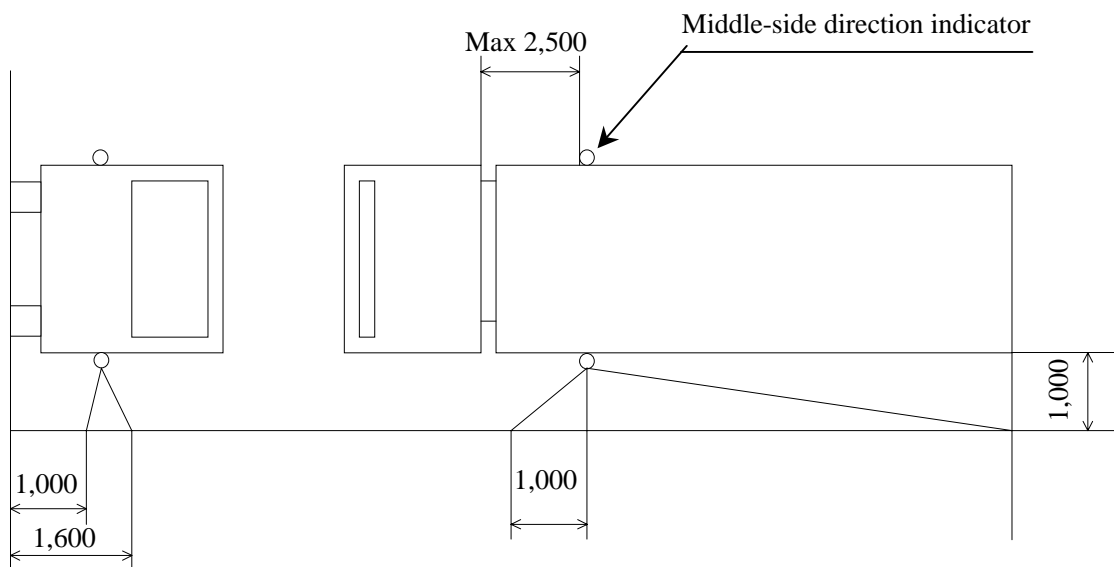


Figure 2-2

2. Justifications

To prevent the underrunning of cyclists and pedestrians by large vehicles, Japan in 1980 began the mandatory installation of a direction indicator lamp in the middle area of each lateral side of the large truck exceeding 8 tons GVW (not including tractors trailing a trailer) and also of the trailer exceeding 8 tons GVW. This was combined with the requirements for expanding the left visual field of the drivers of large vehicles and for improving the sideguard structures of large vehicles. As a result, the number of fatal accidents involving these large vehicles making a left turn was halved as early as in 1989.

Although Japan sets 8 tons of GVW as the boundary of applicable vehicles, its proposal sets 7.5 tons as the boundary to harmonize as much as possible with the vehicle categorization used in ECE Regulations, for example in R46 (rear-view mirrors; para. 16.2.).

Japan's proposal adopts the installation position and visible range of the middle-side direction indicator from the current Japanese regulation. For example, Japan proposes the installation position of a middle-side direction indicator to be within 2,500 mm rearward of the cab's rear end for large trucks. One reason for this is that the middle-side direction indicator needs to be located slightly forward to the side middle point to deal with the different turn radiuses of the front and rear wheels. Another reason is that, if the middle-side direction indicator is located too forward, its visible range will overlap with the visible range of the side direction indicator lamp installed on the cab.

Japan is proposing the visible range of the middle-side direction indicator in terms of a plane running parallel to each side of the large vehicle. This is intended to ensure a good visibility of the middle-side direction indicator for pedestrians and cyclists progressing side by side with the vehicle. The height range of 1,000 mm to 1,600 mm from the ground covers the eyepoint heights of pedestrians and cyclists ranging from 4-year-olds to adults.
