

Rear underrun protection for trucks and trailers

1. Scope

This standard applies to rear underrun (referred to in N. America as “underride”) protection devices on ordinary motor vehicles⁽¹⁾ (hereinafter referred to as “vehicles”) used for the transportation of freight. It does not, however, apply to vehicles that correspond to the categories listed below.

Note⁽¹⁾: Ordinary motor vehicles in article 2, separate table 1, of the Road Trucking Vehicle Law Enforcement Regulations.

- (1) Towing vehicles
- (2) Vehicles whose primary purpose or functioning would be significantly impaired by the provision of a rear underrun protection device
- (3) Vehicles with a rear end construction capable of preventing the underriding of the front ends of colliding vehicles to an extent at least equivalent to the rear underrun protection device stipulated in this standard

Remark: The following standard is quoted in this standard.

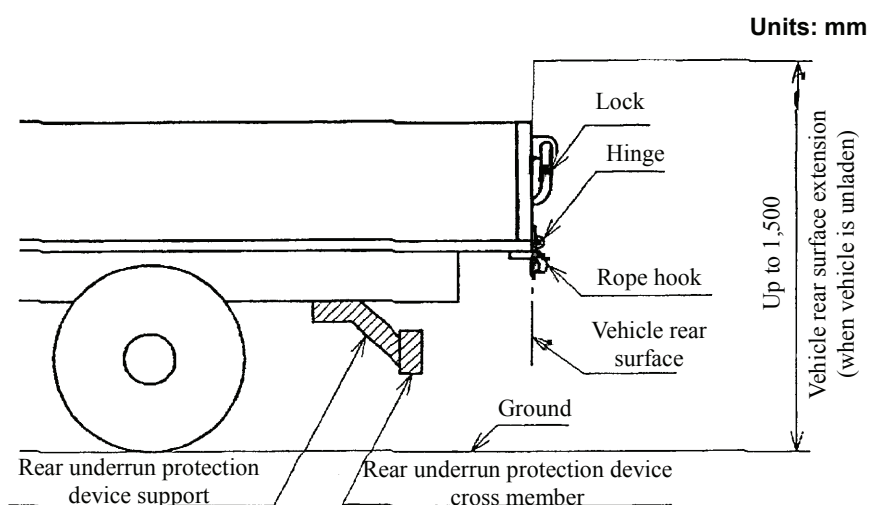
JIS D 0102 Road vehicles – Dimensions, masses, weights, and performances - Vocabulary

2. Definitions

The definitions of the main terms used in this standard are listed below.

- (1) **Rear underrun protection device:** The structure formed of the rear underrun protection device cross member (hereinafter referred to simply as the “cross member”) and its supporting structure (See **Figure 1.**)
- (2) **Unladen state:** The unladen state as specified in **JIS D 0102**
- (3) **Total weight:** The vehicle total weight as specified in **JIS D 0102**
- (4) **Vehicle rear surface:** The plane perpendicular to the vehicle horizontal center plane and extending from the rearmost end of the vehicle (excluding attachments such as hinges, locks, or rope hooks) up to a height of 1,500 mm from the ground when the vehicle is unladen. (See **Figure 1.**)

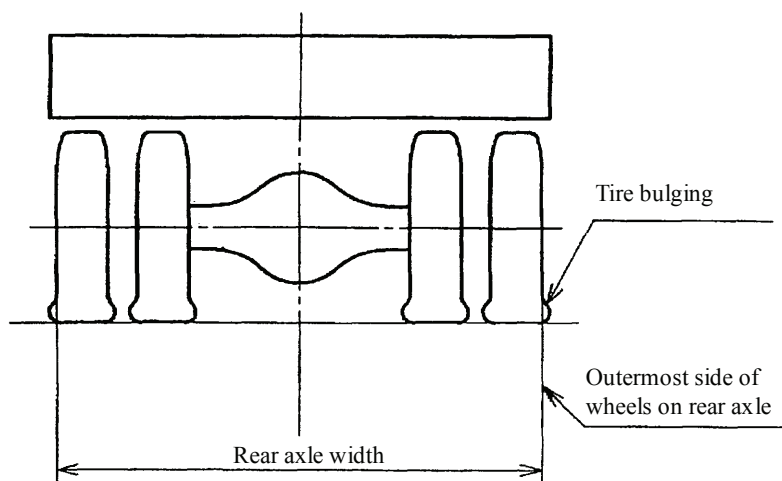
Figure 1: Definition of terms



- (5) **Rear axle width:** The width to the outermost sides of the wheels on the rear axle, excluding the bulging of tires

close to the ground. If the vehicle has more than one rear axle, the width of the widest axle is to be used. (See Figure 2.)

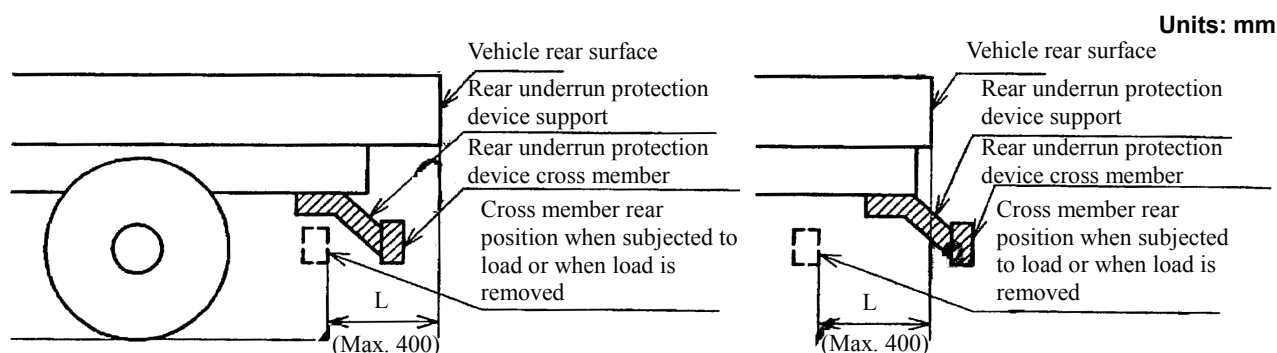
Figure 2: Rear axle width



3. Performance

The performance of the rear underrun protection device is to be tested using the test method described in 5. The horizontal distance (dimension L) between the load points P_1 , P_2 , and P_3 on the rear face of the device described in 5.1.2 and the vehicle rear surface must not exceed 400 mm when subjected to the load or when the load is removed. (See Figure 3.)

Figure 3: Horizontal distance between cross member and vehicle rear surface



4. Device mounting and configuration

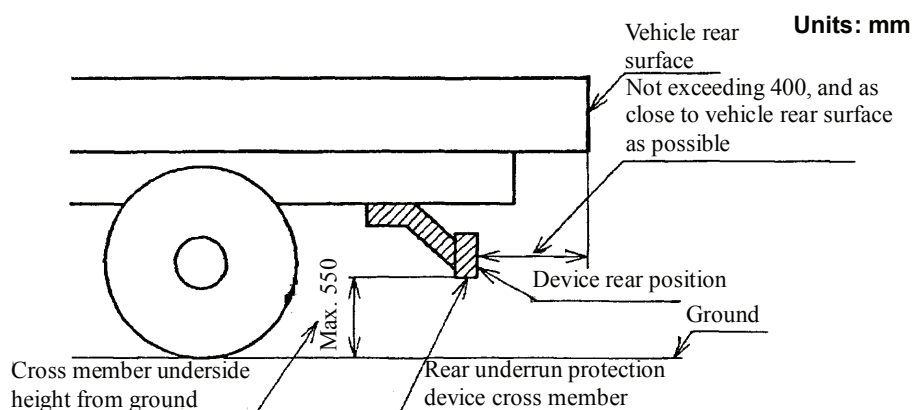
4.1 Height from underside to ground

The underside of the cross member must be no more than 550 mm from the ground across its entire length when the vehicle is unladen. (See Figure 4.)

4.2 Device rear position

If the rear underrun protection device is mounted forward of the vehicle rear surface, the horizontal distance between the rear of the device and the vehicle rear surface must not exceed 400 mm across its entire length when the vehicle is unladen, and should be positioned as close to the vehicle rear surface as possible. (See Figure 4.)

Figure 4: Device height from ground and rear position



4.3 Device overall length

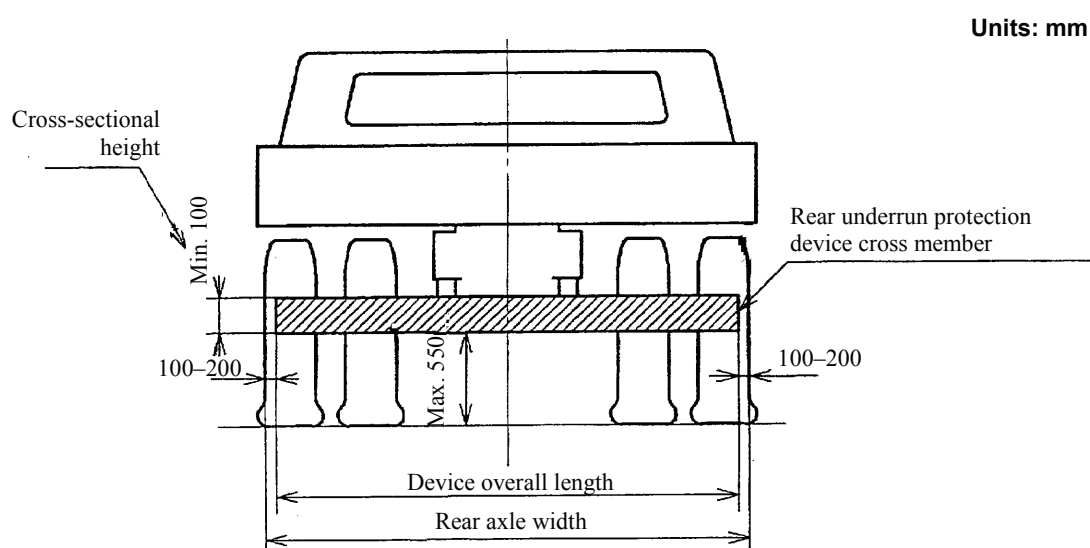
The cross member should normally be a single piece⁽²⁾ across its entire length, and the outer ends of the plane section should be between 100 and 200 mm inside the rear axle width. (See Figure 5.)

Note⁽²⁾: Sectioned construction is permissible in the case of vehicles equipped with upper body structures such as a tailgate lifter, where an integral construction is not possible.

4.4 Device cross-sectional height

The height of the cross-section of the cross member plane section parallel to the vehicle center plane must be at least 100 mm over its entire length. (See Figure 5.)

Figure 5: Device overall length and cross-sectional height



4.5 Device end configuration

The outermost ends of the cross member must not be bent toward the rear. Further, there must be no sharp corners on the outer edges⁽³⁾.

Note⁽³⁾: This condition is satisfied if the outer edges of the cross member outermost ends have a curvature radius of at least 2.5 mm.