

## DRAFT AMENDMENT NO. 2

TO

### IS 16694:2018 AUTOMOTIVE VEHICLES – SAFETY BELTS, RESTRAINT SYSTEMS AND SAFETY BELT REMINDER

[Page 1, clause 3.1, (see also Amendment No. 1)] — Substitute the following for existing:

**‘3.1 Safety-Belt Reminder** — Means a system dedicated to alert the driver when driver and/or all other front facing seat occupant(s) does not use the safety-belt. The system is constituted by a detection of an unfastened safety-belt and by a driver's alert which is a first level warning and a second level warning.’

[Page 1, clause 3.4, (see also Amendment No. 1)] — Substitute the following for existing:

**‘3.4 First Level Warning** — Means a visual warning activated when the ignition switch is engaged (engine running or not) and the driver's and/or front facing seat occupants’ safety-belt is not fastened. An audible warning can be added as an option.’

[Page 1, clause 3.5, (see also Amendment No. 1)] — Substitute the following for existing:

**‘3.5 Second Level Warning** — Means a visual and audible warning activated when a driver operates a vehicle without fastening of driver and/or front facing seat occupants’ safety-belt.’

[Page 1, clause 3.6, (see also Amendment No. 1)] — Substitute the following for existing:

**‘3.6 Safety-Belt is not Fastened** — Means at the option of the manufacturer, either the driver and/or front facing seat occupants’ safety-belt buckle is not engaged or the webbing length pulled out of the retractor is 100 mm or less.’

[Page 1, clause 3.8, (see also Amendment No. 1)] — Delete

[Page 4, clause 5.4.1, (see also Amendment No. 1)] — Substitute the following for existing:

**‘5.4.1** Vehicle manufacturer shall equip the driver and all other front facing seating position of M1 category of vehicles with a safety-belt reminder system the vehicle manufacturer shall provide the following:

- a) First level warning; and
- b) Second level warning.

The safety-belt reminder system shall satisfy the requirements of 5.4.2.’

(Page 4, clause 5.4.1) — Add the following new clauses 5.4.1.1 and 5.4.1.1.1 after 5.4.1:

‘**5.4.1.1** Driver and all other front facing seat occupants’ safety belt reminder provided in category M1, shall meet requirements given at **Annex A**. Optionally, at the choice of manufacturer verification for front facing rear seat occupants’ safety belt reminder for M1 category vehicles may be carried out in line with requirements of **Annex B** and **Annex C**. Vehicles complying AIS-145 safety belt reminder installation requirement are deemed to comply relevant requirements of IS 16694.

**5.4.1.1.1** A safety-belt reminder is not mandatory on removable rear seats for Existing models, which are already type-approved prior to the date of implementation of Amendment 6 to AIS-145 / Amendment 2 to IS 16694 as notified by the Central Government.’

*(Page 4, clause 5.4.1.1) — Renumber the clause 5.4.1.1 as 5.4.1.2:*

‘**5.4.1.2** The deactivation of the safety-belt reminder may be allowed, provided that such deactivation satisfies to the requirements of **5.4.2.6**.’

*[Page 4, clause 5.4.2.1.1 (see also Amendment No. 1)] — Substitute the following for existing:*

‘**5.4.2.1.1** Visual warning shall be so located as to be readily visible and recognizable in the daylight by the driver and distinguishable from other alerts. Where the visual signal warning symbol employs the colour red, it shall use a symbol as shown in Fig.2 or provisions specified in AIS-071 (Part 1) thereof may also be used.’

*[Page 4, clause 5.4.2.2 (see also Amendment No. 1)] — Substitute following for the existing:*

‘**5.4.2.2** First level warning shall be at least a visual warning activated for 4 s or longer when the driver and/or front facing seat occupants’ safety-belt is not fastened and the ignition switch is engaged.’

*(Page 5, Annex A) — After Annex A, Add the following Annex B and Annex C:*

**‘ANNEX B**  
*(Clause 5.4.1.1)*

**ALTERNATE TESTS PROVISIONS FOR SAFETY BELT  
REMINDER REQUIREMENTS FOR M1**

**B-1. Definitions:**

**B-1.1 Safety-belt reminder** — A system dedicated to alert the driver when any of the occupants do not use the safety-belt. The system is constituted by a detection of an unfastened safety-belt and by two levels of driver's alert: a first level warning and a second level warning.

**B-1.2 Visual warning** — A warning by visual signal (lighting, blinking or visual display of symbol or message).

**B-1.3 Audible warning** — A warning by sound signal.

**B-1.4 First level warning** — A visual warning activated when the ignition switch or master control switch is activated and any of the occupants' safety-belt is not fastened. An audible warning can be added as an option.

**B-1.5 Second level warning** — A visual and audible warning activated when the vehicle is operated in accordance with **B-2.2.4.1.1** to **B-2.2.4.1.3** and when the safety-belt is or becomes unfastened, depending on the relevant seating position requirement.

**B-1.6 Safety-belt is unfastened** — At the option of the manufacturer, either the safety-belt buckle of any occupant is not engaged or the length of the pulled-out webbing is less than the length of the webbing which is needed to buckle an un-occupied seat in the rear most seating position.

**B-1.7 Vehicle is in normal operation** — Vehicle is in forward motion at the speed greater than 10 km/h.

## **B-2. Safety-belt reminder equipment**

### **B-2.1** Requirements per specific seating position and exemptions

**B-2.1.1** The seating position of the driver of M1 category vehicles as well as the seating positions of the occupants of seats in the same row as the driver seat of M1 category vehicles shall be equipped with a safety-belt reminder satisfying the requirements of **B-2.3**.

**B-2.1.2** All seating positions of the rear seat row(s) of M1 category vehicles shall be equipped with a safety-belt reminder satisfying the requirements of **B-2.4**.

**B-2.1.3** A safety-belt reminder is not compulsory on folding seats (i.e. normally folded and designed for occasional use, as well as seating positions fitted with an S-type belt (including Harness belt).

Notwithstanding **B-2.1.1** and **B-2.1.2** above, safety belt reminders are also not required for rear seats in ambulances, hearses, and motorcaravans as well as for all seats for vehicles used for transport of disabled persons, vehicles intended for use by the armed services, civil defence, fire services and forces responsible for maintaining public order.

### **B-2.2** General requirements

#### **B-2.2.1** *Visual warning*

**B-2.2.1.1** The visual warning shall be so located as to be readily visible and recognisable in the daylight and at night time by the driver and distinguishable from other alerts.



(item K.01 – ISO 2575:2000) or,



**B-2.2.1.2** The visual warning shall be a steady or flashing tell-tale.

### **B-2.2.2** Audible warning

**B-2.2.2.1** The audible warning shall consist of a continuous or an intermittent (pauses shall not exceed 1 second) sound signal or of continuous vocal information. Where vocal information is employed, the vehicle manufacturer shall ensure that the alert is able to employ the language either English or Hindi.

**B-2.2.2.2** Audible warning shall be easily recognized by the driver.

### **B-2.2.3** First level warning

**B-2.2.3.1** The first level warning shall be at least a visual warning activated for 30 seconds or longer for seating positions covered by **B-2.1.1**, and for 60 seconds or longer for seating positions covered by **B-2.1.2**. When the safety-belt of any of the seats is not fastened and the ignition switch or master control switch is activated.

**B-2.2.3.2** The first level warning may be discontinued when:

- a) None of the safety-belts which triggered the warning are unfastened; and
- b) The seat or seats which triggered the warning are no longer occupied.

**B-2.2.3.3** The activation of the first level warning shall be tested according to the test procedure defined in **C-1**.

### **B-2.2.4** Second level warning

**B-2.2.4.1** The second level warning shall be a visual and audible signal activated for at least 30 seconds not counting periods in which the warning may stop for up to 3 seconds when at least one or any combination of the conditions at the choice of manufacturer, set out in **B-2.2.4.1.1** to **B-2.2.4.1.3** is/are fulfilled. The second level warning shall supersede the first level warning when the first level warning is still active.

**B-2.2.4.1.1** The distance driven greater than the distance threshold. The threshold shall not exceed 500 m. The distance driven when the vehicle is not in normal operation shall be excluded.

**B-2.2.4.1.2** The vehicle speed greater than the speed threshold. The threshold shall not exceed 25 km/h.

**B-2.2.4.1.3** The duration time (engine running, propulsion system activated, etc.) is greater than the duration time threshold. The threshold shall not exceed 60 seconds. The first level warning duration time and the duration time when the vehicle is not in normal operation shall be excluded.

**B-2.2.4.2** The thresholds to trigger safety belt reminder listed in **B-2.2.4.1.1** to **B-2.2.4.1.3**, may be reset when:

- a) Any of the doors have been opened while the vehicle is not in normal operation; and
- b) The seat or seats which triggered the warning are no longer occupied.

**B-2.2.4.3** The second level warning may be discontinued when:

- a) None of the safety-belts which triggered the warning are unfastened;
- b) The vehicle ceases to be in normal operation; and
- c) The seat or seats which triggered the warning are no longer occupied.

**B-2.2.4.4** The second level warning shall be resumed for the remainder of the required duration when one or any combination of the conditions, at the choice of the manufacturer, set out in **B-2.2.4.1.1** to **B-2.2.4.1.3** is/are again fulfilled.

**B-2.2.4.5** For the condition that a safety belt becomes unfastened pursuant to **B-2.3.3** and **B-2.4.5**, the thresholds set out in paragraphs **B-2.2.4.1.1** to **B-2.2.4.1.3** shall be measured from the point in time at which unfastening occurs.

**B-2.2.4.6** The activation of the second level warning shall be tested according to the test procedure defined in **C-2**.

**B-2.3** Safety-belt reminder for driver and occupants of seats in the same row as the driver.

**B-2.3.1** Safety-belt reminders for driver and occupants of seats in the same row as the driver shall fulfil the requirements set out in **B-2.2**.

**B-2.3.2** The colour and symbol of the visual warning shall be as defined in AIS-071(Part 1).

**B-2.3.3** The second level warning shall be activated when a safety-belt is or becomes unfastened while the vehicle is in normal operation and while, at the same time, any one condition or any combination of the conditions, at the choice of the manufacturer, set out in **B-2.2.4.1.1** to **B-2.2.4.1.3** is satisfied.

**B-2.4** Safety-belt reminder for occupants of rear seat row(s).

**B-2.4.1** Safety-belt reminders for occupants of rear row(s) shall fulfil the requirements set out in paragraph **B-2.2**.

**B-2.4.2** The visual warning shall indicate at least all rear seating positions to allow the driver to identify, while facing forward as seated on the driver seat, any seating position in which the safety-

belt is unfastened. For vehicles that have information on the occupancy status of the rear seats, the visual warning does not need to indicate unfastened safety-belts for unoccupied seating positions.

**B-2.4.3** The colour of the visual warning may be other than red and the symbol of the visual warning for safety-belts covered by **B-2.1.2** may contain different symbols other than defined in AIS-071(Part 1). In addition, the first level warning of seating positions covered by **B-2.1.2** may be cancellable by the driver.

**B-2.4.4** A common tell-tale may be used for safety-belts covered by **B-2.1.1** and **B-2.1.2**.

**B-2.4.5** The second level warning shall be activated when a safety-belt becomes unfastened while the vehicle is in normal operation and while, at the same time, any one condition or any combination of the conditions, at the choice of the manufacturer, set out in **B-2.2.4.1.1** to **B-2.2.4.1.3** is satisfied.

**B-2.5** The safety-belt reminder may be designed to allow deactivation.

**B-2.5.1** In the case that a short term deactivation is provided, it shall be significantly more difficult to deactivate the safety-belt reminder than buckling the safety-belt on and off (i.e. it shall consist of an operation of specific controls that are not integrated in the safety-belt buckle) and this operation shall only be possible when the vehicle is stationary. When the ignition or master control switch is deactivated for more than 30 minutes and activated again, a short-term deactivated safety-belt reminder shall reactivate. It shall not be possible to provide short term deactivation of the relevant visual warning(s).

**B-2.5.2** In the case that a facility for a long term deactivation is provided, it shall require a sequence of operations to deactivate, that are detailed only in the manufacturer's technical manual and/or which requires the use of tools (mechanical, electrical, digital, etc.) that are not provided with the vehicle. It shall not be possible to provide long term deactivation of the relevant visual warning(s).

## ANNEX C (Clause 5.4.1.1)

### ALTERNATE SAFETY-BELT REMINDER TESTS

**C-1** The first level warning shall be tested according to the following conditions:

- a) Safety-belt is not fastened;
- b) Engine or propulsion system is stopped or idling, and the vehicle is not in forward or reverse motion;
- c) Transmission is in neutral position;
- d) Ignition switch or master control switch is activated;
- e) A load of 40 kg is placed on each seat cushion in the same row as the driver's seat, or the state in which occupants are on board the vehicle is simulated by an alternative method

specified by the vehicle manufacturer, provided an occupant's load does not exceed 40 kg. This may also be done for the rear seats at the request of the vehicle manufacturer;

Or alternatively (at the choice of the manufacturer):

An object or human representing a 5th percentile adult female is placed on each seat cushion as specified by the manufacturer in the same row as the driver seat, or the state in which occupants are on board the vehicle is simulated by an alternative method specified by the vehicle manufacturer as agreed by the testing agency. This may also be done for the rear seats at the request of the vehicle manufacturer.

- f) The state of the safety-belt reminder is checked for all of the relevant seat(s), in conditions (a) to (e).

**C-2** The second level warning shall be tested according to the conditions set out in **C-2.1** to **C-2.3**, respectively.

**C-2.1** Testing the driver's seating position

**C-2.1.1** Testing the driver's seat when the safety-belt is unfastened before the journey:

- a) The safety-belt of the driver's seat is not fastened;
- b) The safety-belts of seats other than the driver's seat are fastened;
- c) Test vehicle driven with one or any combination of the conditions of **C-2.1.1.1** to **C-2.1.1.3** at the manufacturer's choice;
- d) The state of the safety-belt reminder is checked for the driver's seat, in conditions a) to c).

**C-2.1.1.1** Accelerate the test vehicle to 25 -0/+10 km/h from a halt and continue on the same speed.

**C-2.1.1.2** The test vehicle is driven forward at least 500 m from a halt position.

**C-2.1.1.3** The vehicle is tested when the vehicle is in normal operation for at least 60 seconds.

**C-2.1.2** Testing the driver's seat when the safety-belt becomes unbuckled during the journey:

- a) The safety-belts of the driver's seat and seats other than the driver's seat are fastened;
- b) The test vehicle is driven, at the choice of the manufacturer, under one of the conditions in **C-2.1.1.1** to **C-2.1.1.3** or a combination thereof; and
- c) The safety-belt of the driver's seat is unbuckled.

**C-2.2** Testing the seating position(s) in the same row as the driver's seat.

**C-2.2.1** Testing the seat(s) in the same row as the driver's seat when the safety-belt is unfastened before the journey:

- a) The safety-belt(s) of the seat(s) in the same row as the driver's seat is/are not fastened;

- b) The safety-belts of the seats other than the seat(s) in the same row as the driver's seat are fastened;
- c) A load of 40 kg is applied to the seat(s) in the same row as the driver's seat, or the state in which occupants are on board the vehicle is simulated by a method specified by the manufacturer;

Or alternatively (at the choice of the manufacturer):

An object or human representing a 5thpercentile adult female is placed on each seat cushion as specified by the manufacturer in the same row as the driver seat, or the state in which occupants are on board the vehicle is simulated by an alternative method specified by the vehicle manufacturer as agreed by the testing agency. This may also be done for the rear seats at the request of the vehicle manufacturer.

- d) The test vehicle is driven, at the choice of the manufacturer, under one of the conditions in **C-2.1.1.1** to **C-2.1.1.3** or combination thereof;
- e) The state of the safety-belt reminder is checked for all of the seat(s) in the same row as the driver's seat, in conditions a) to d).

**C-2.2.2** Testing the seating position in the same row as the driver's seat when the safety-belt becomes unbuckled during the journey:

- a) The safety-belts of the driver's seat and seats other than the driver's seat are fastened;
- b) A load of 40 kg is applied to the seat(s) in the same row as the driver's seat, or the state in which occupants are on board the vehicle is simulated by a method specified by the manufacturer;

Or alternatively (at the choice of the manufacturer):

An object or human representing a 5thpercentile adult female is placed on each seat cushion as specified by the manufacturer in the same row as the driver seat, or the state in which occupants are on board the vehicle is simulated by an alternative method specified by the vehicle manufacturer as agreed by the testing agency. This may also be done for the rear seats at the request of the vehicle manufacturer.

- c) The test vehicle is driven, at the choice of the manufacturer, under one of the conditions in **C-2.1.1.1** to **C-2.1.1.3** or combination thereof;
- d) The safety-belt(s) of the seats in the same row as the driver's seat is (are) unbuckled;
- e) The state of the safety-belt reminder is checked for all of the seat(s) in the same row as the driver's seat, for each condition **a)** to **d)**.

**C-2.3** Testing the rear seats:

- a) With the test vehicle stationary, the safety-belts of all seats are fastened;
- b) The test vehicle is put in normal operation and kept running;
- c) The safety-belt of one of the rear seats is unfastened;



- d) The functioning of the safety-belt reminder is checked for all of the seating positions in all seating rows;
- e) Alternatively, at the request of the vehicle manufacturer, the test procedures specified in **C-2.2** to **C-2.2.2**. For the seating position(s) in the same row as the driver's seat may be used for any rear seating position instead.

**C-3** The first level warning test shall have a duration of at least the minimum required time as specified in **B-2.2.3** of Annex B for the first level warning. The second level warning test may be initiated after completion of the first level warning test. However, it shall also be ensured that the second level warning supersedes the first level warning when the first level warning is still active.'

(TED 29)