Informal document, GRSP-74-40
(74th GRSP, 4-8 December 2023
agenda item 6)

The Idea of the contents about Amendment of R16

Japan/NTSEL

National Traffic Safety and Environment Laboratory

Objective

- When the slack of the buckle belt became larger, the forward movement of the occupant became larger. And in those cases, the occupant safety became worse (GRSP69-24, GRSP70-32). So Japan propose to amend R16 to to limit the slack of the buckle belt in rear seats(GRSP2021-19)

- In the interested members meeting, it was pointed out that Japan’s proposal make additional work to the vehicle manufactures and TS, though the number of the target vehicles was very small.

- So Japan ament to make comfiermed method simplify.

Flow Chart of Amend Confirmed Method

The difference between the actual strap length and the straight line distance between the effective belt anchorage and Buckle Point should be [50] mm or less, checking by 3D data of drawing

Yes

Check the difference between the parts and data（if needed, judged by TS）

No need

approved

needed

Compare the parts and data

Same

approved

different

No

Satisfy one of the bellow conditions

a. To do the tensile test of buckle strap assembly by [2.0] kN and the movement should be [50] mm or less

b. Manufacture show that the buckle strap assembly has the same performance of the requirement（by experimental data, simulation-, desktop strength calculations, etc）, and TS allow that.

satisfy

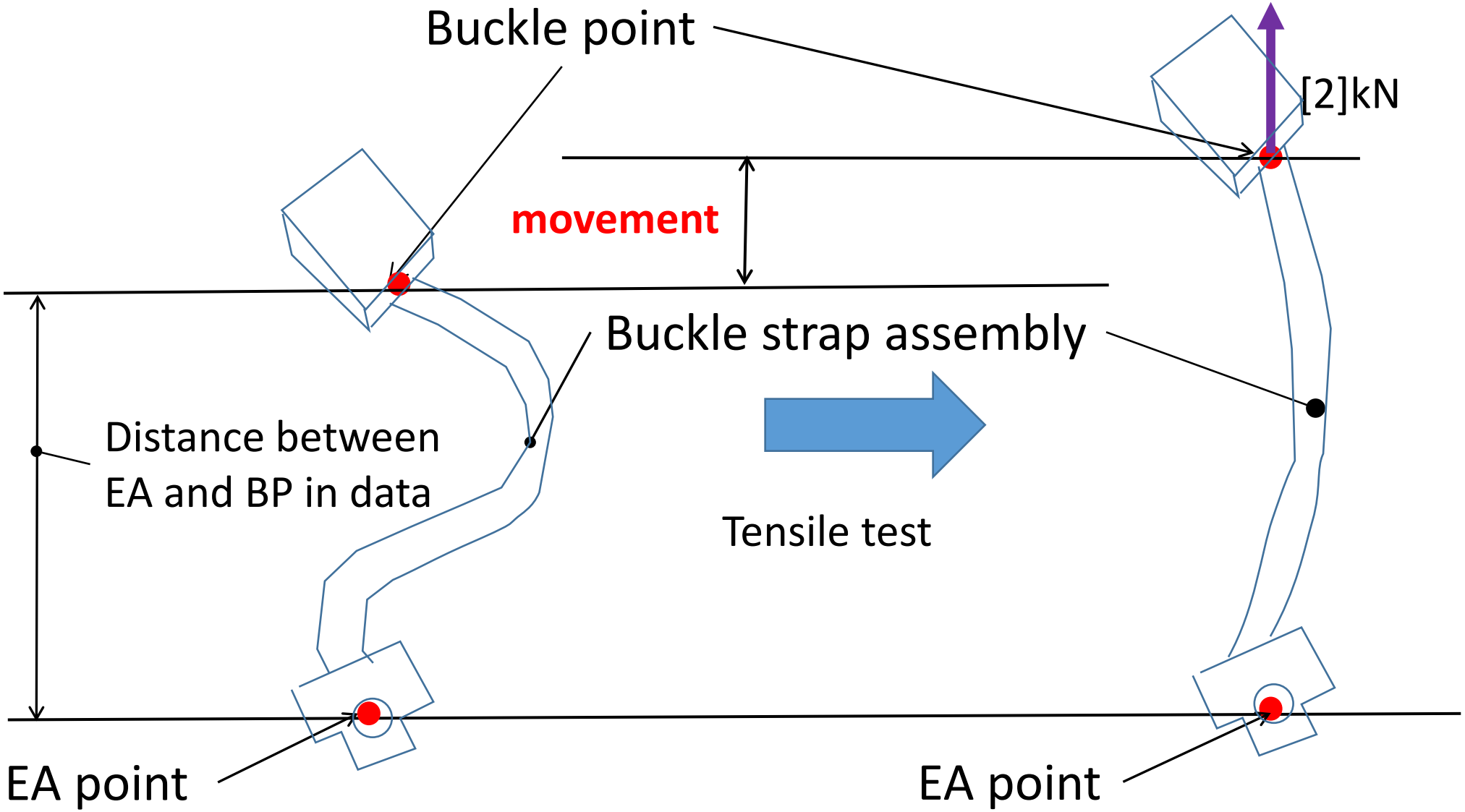
approved

Not satisfy

Not approved

※ The seat whose seatbelt is equipped with pretensioner is excluded.

Tensile test idea



movement <= [50]mm

Tensile Test method of the buckle strap assembly

1. Fix the bracket of the buckle strap assembly that was attached to the vehicle anchorage to the lower part of the tensile testing machine.

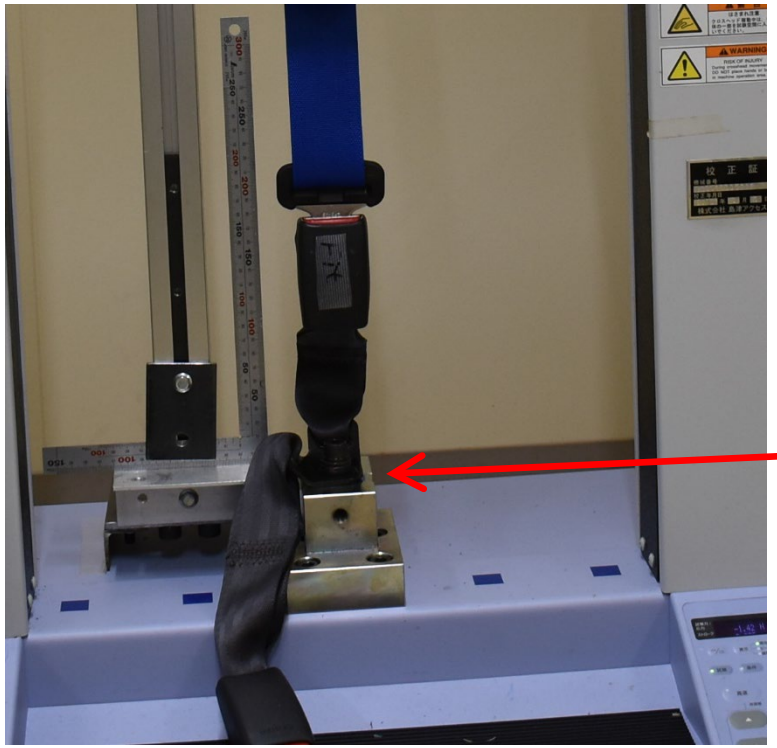
2. Fix the buckle at a position on the loading line of the tensile testing machine, such that the distance between the buckle point and EA point is the same as the straight line distance between the EA and Bd point.

3. Attach the tongue to the buckle and set the belt of the tongue to the upper part of the tensile testing machine. The tension on the belt of the tongue is 4 ± 3 N. After that, the buckle is released.

4. Perform a tensile test and measure the load and the movement of the buckle.

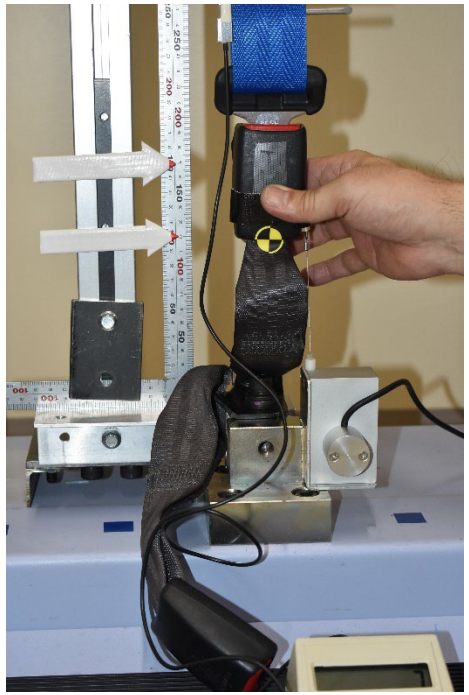
Tensile Test method of the buckle strap assembly

1. Fix the bracket of the buckle strap assembly that was attached to the vehicle anchorage to the lower part of the tensile testing machine.



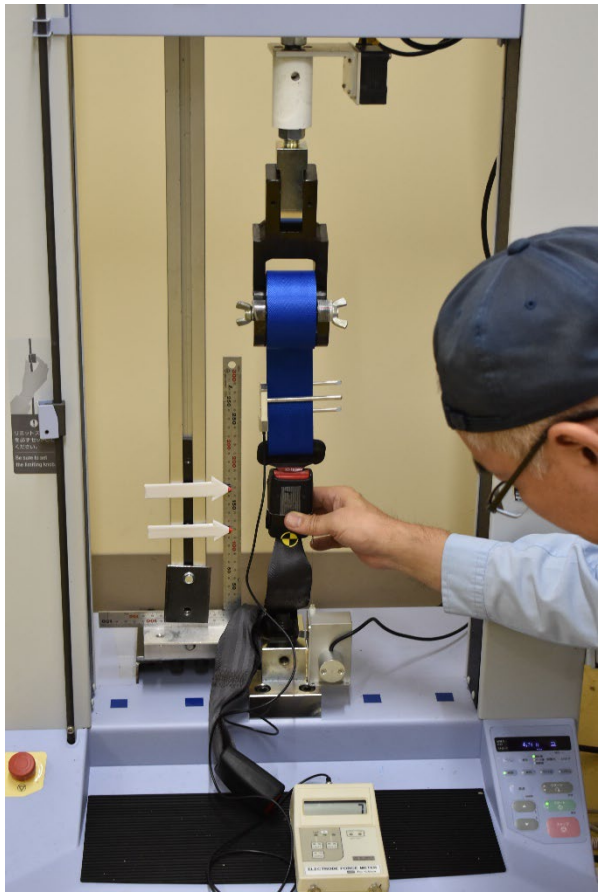
Tensile Test method of the buckle strap assembly

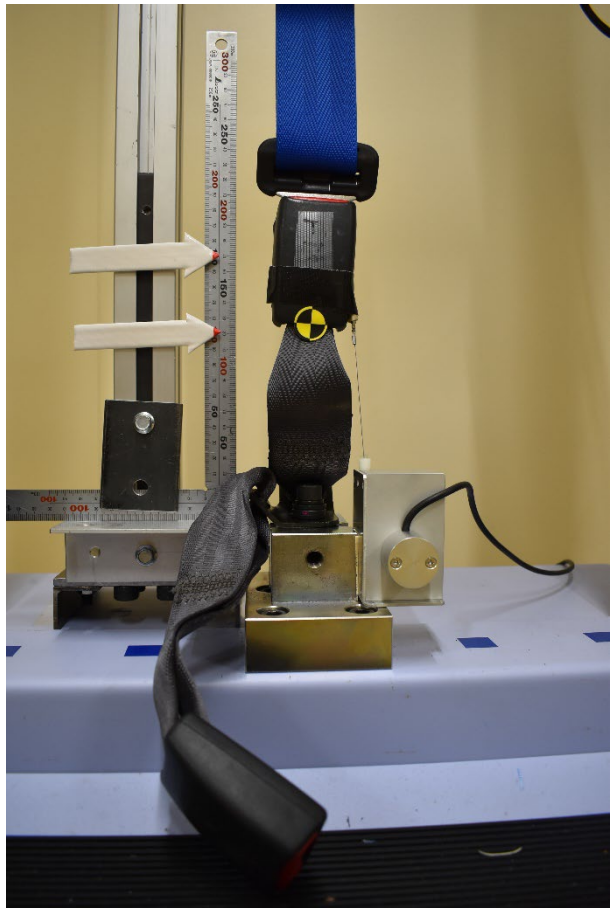
2. Fix the buckle at a position on the loading line of the tensile testing machine, that the distance between the buckle point and EA point is the same as the straight line distance between the EA and Bd point.



Tensile Test method of the buckle strap assembly

3. Attach the tongue to the buckle and set the belt of the tongue to the upper part of the tensile testing machine. The tension on the belt of the tongue is 4 ± 3 N. After that, the buckle is released.





Tensile Test method of the buckle strap assembly

4. Perform a tensile test and measure the load and the movement of the buckle.

To do the tensile test of buckle strap assembly by 1,000 N and the movement should be [50] mm or less

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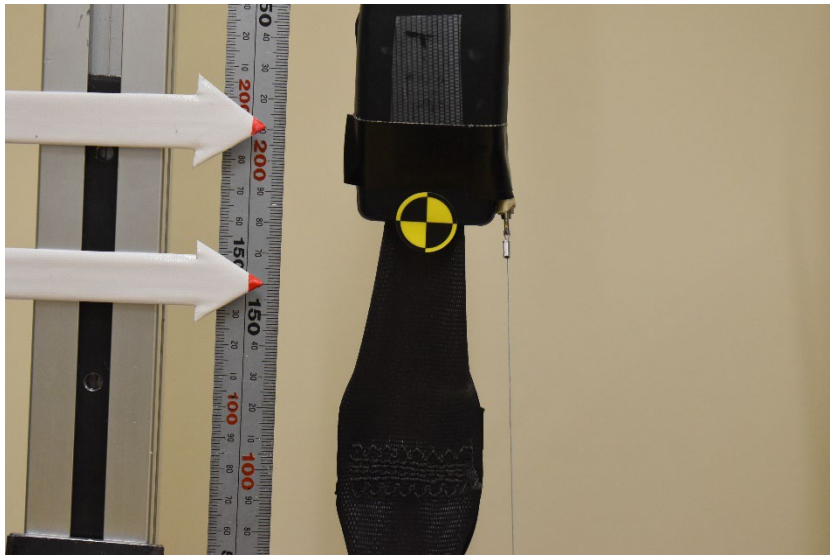

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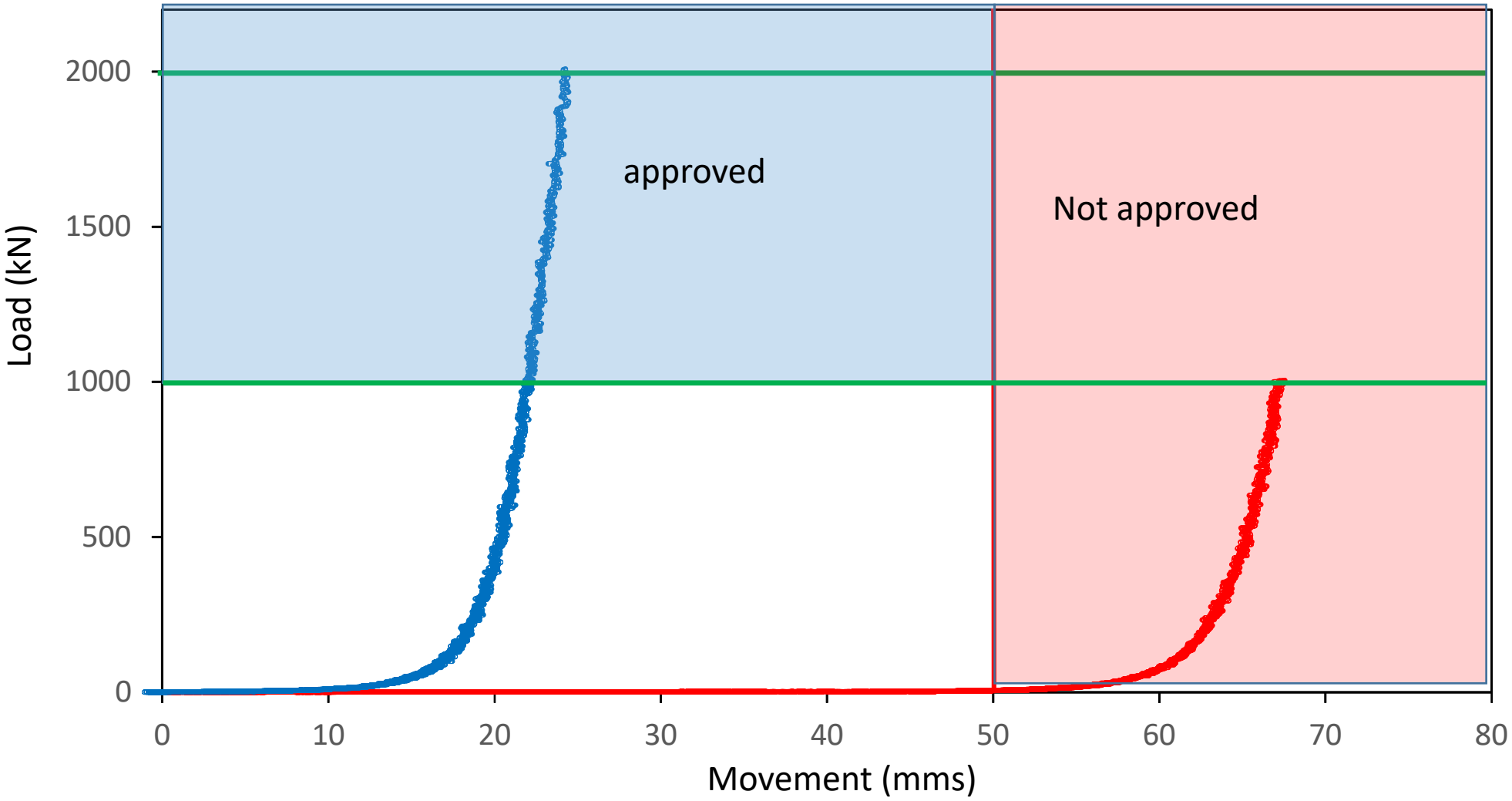
F-S Chart


2000
1500
1000
500
0
Load (kN)
approved
Not approved
0
10
20
30
40
50
60
70
80
Movement (mms)