

Clarification of the Seatbelt Anchorage Test Method

As a comment on TRANS/WP.29/GRSP/2003/12, Japan would like to make the following proposal for the above test method:

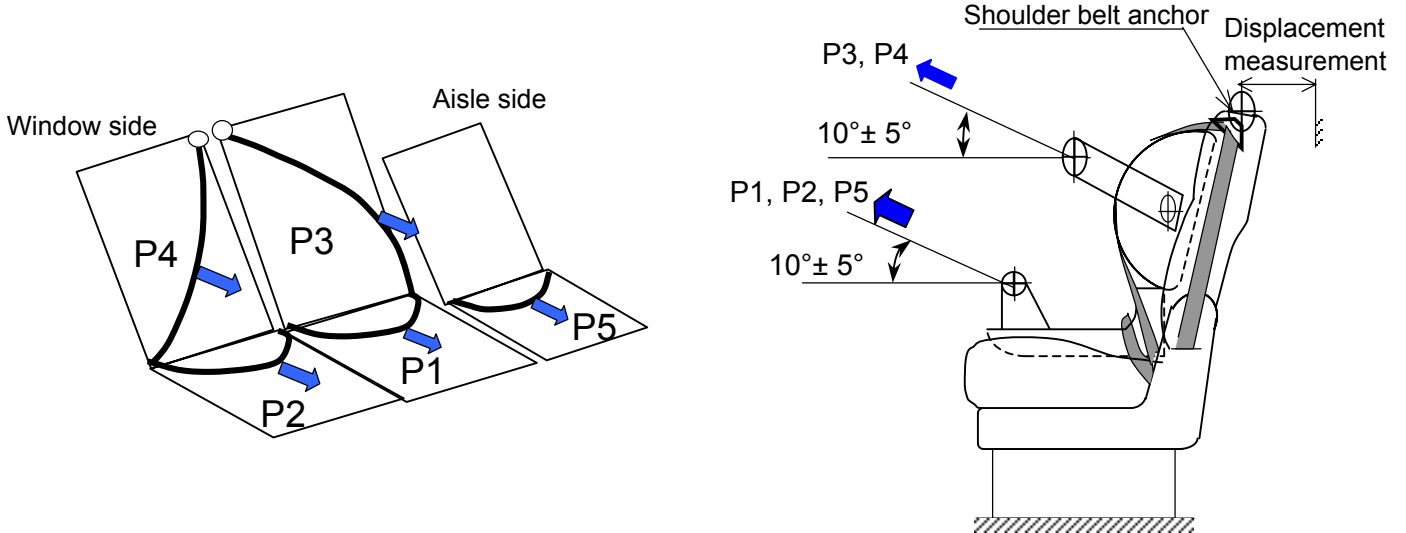
A. PROPOSAL

While section 6.3.3 requires the load-lifting time to be "as fast as possible", the load-lifting time needs to be prescribed in terms of a specific length of time in seconds. Japan proposes the required load-lifting time to be "within 60 seconds".

B. JUSTIFICATION

- 1 Literature on metal tests indicates that, as the tensile speed is increased, both yield point and tensile strength rise and a moderate elongation results; however, if the tensile speed is further increased beyond a certain point, subsequent elongation is discontinued.
- 2 Similar phenomena were observed in our present test, and in addition a greater elongation was recorded when the tensile speed was slower. This is probably attributable to the application of a load for a longer time.
- 3 Although the number of test samples was just one, our present test found a greater displacement and a greater residual strain of the shoulder anchorage resulting from a slower load-lifting speed. Accordingly it can be said that the strictness of seatbelt anchorage testing can be enhanced by applying a slower load-lifting time.
- 4 In the R80 dynamic test applying a vehicle speed of 30-32 km/h, a tensile force generates on the lap belt and then reaches the peak within approximately 0.5 second from the start. This time length is shortened if the applied vehicle speed is increased to 50 km/h, but at this higher vehicle speed it becomes practically impossible for a static test to simulate a dynamic test.

Reference (Test Results)



Test No.	Target load time until specified load is reached	100% duty load (kN)					Displacement					
		P1	P2	P3	P4	P5	Measuring point (shoulder belt anchor)	Displacement (mm)				
		6.05	6.05	4.50	4.50	8.12		50%	100%	Average	Residual	Average
No.1	5 sec (Actual measurement taken at 14.1 sec)	6.14	6.07	4.52	4.59	8.15	Aisle side	42	127	118.5	54	49.5
		(101.6%)	(100.4%)	(100.5%)	(102.1%)	(100.3%)	Window side	44	110		45	
No.2	60 sec (Actual measurement taken at 60.0 sec)	6.07	6.10	4.62	4.57	8.15	Aisle side	46	136	132.0	65	61.5
		(100.3%)	(100.8)	(102.7)	(101.6)	(101.3)	Window side	48	128		58	

The displacement after 60 seconds was 1.11 times larger than after 14.1 seconds ($132.0 \div 118.5$), and the residual strain was 1.24 times larger ($61.5 \div 49.5$).

