

KES

Seat Belt

KES D-C301

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MG **MOTORS**

1. Purpose

This automobile parts standard aims at securing proper quality by standardizing specifications.

2. Scope of Application

This standard applies to seat belts.

3. Report of Evaluation Result

The results of evaluation on the designated items shall be submitted to KIA in the form of a report at the designated time.

The designated time and items shall mutually be agreed upon at the time of design review or discussion of purchase parts.

4. Meaning of Terminology

The definition of terms shall conform to JASO Z 217.

5. Specification Indicated in Drawings

1) Destination.

2) Position of anchor point.

3) Atmospheric temperature for an extended high-temperature test.

However, only in case where a temperature of other than 80°C is specified.

4) Dimension A for a wire bending endurance test.

However, only in case the length is less than 250mm.

6. Evaluation Standard

The evaluation standard for seat belts shall conform to Table 1 - Table 5.

Remarks 1. The number of samples shows the number of test pieces at each stage.

Symbol	Stage	Meaning
D	Development	Sample size applicable to prototypes prepared until the time when the final full engineering prototype is completed.
PV		
IP-1		
IP-2		

2. The quality ranks are in accordance with a separate standard established by Quality Assurance Department.

A : The parts which may endanger life or cause fires by their failure.

AR: The parts which are subjected safety, pollution and other regulations.

B : The parts which so disable the basic function of vehicles as to make driving impossible or cause remarkable deterioration of product reliability and quality.

C : All parts except A, AR and B ranked parts.

Table 1 Assembly Performance

Evaluation Item	Evaluation Standard	No. of Test Pieces				Quality Rank	Evaluation Method
		D	PV	IP-1	IP-2		
Rolling-in force Characteristic	(1) Housing capacity P is 0.09 - 0.13 kgf {0.88 N - 1.27 N}	5				A	7.1.1(1)
	(2) Rolling-in time is less than 2 seconds						7.1.1(2)
Pulling-out force characteristic	Pulling-out force P is 1.5 kgf {14.7N} or less	5				B	7.1.2
Webbing stability (Prevention of reversion of webbing)	No reversion of webbing	5				A	7.1.3
Requirements of fittings	(1) Each attaching portion is to operate without abnormality when tightened at a torque of 10 kgf · m {98 N · m} (2) Each anchor bolt is to have a tensile strength of more than 60 kgf/mm ² {588 MPa}	5				A	7.1.4
Tongue retaining force of each tongue stopper	The tongue drawing force from the tongue stopper is P > 5kgf {49N}	5				AR	7.1.5

Table 2 Resin Parts Performance

Evaluation Item	Evaluation Standard		No. of Test Pieces				Quality Rank	Evaluation Method
			D	PV	IP-1	IP-2		
Environmental resistance	The evaluation standard for resin parts,such as covers and the like shall satisfy the following specifications of KES D-G008		5				B	As per KES D-G008
	SPECS	TEST CONDITION EVALUATION STANDARD						
	STIFFNESS	-----						
	SHORT HEAT RESISTANCE	Hs-04, A2, B1						
	LONG HEAT RESISTANCE	H ℓ - 1.02						
	COLD RESISTANCE	Cs - OL						
	GUARD WAX RESISTANCE	-----						
	THERMAL SHOCK RESISTANCE	Th-020						
	CHEMICAL RESISTANCE	Cr-10						
	WEATHER-ABILITY	-----						
	SUNLIGHT RESISTANCE	Li-OB						
	BURNING RESISTANCE	M						
Assembly characteristic	The assembly charactercstic of covers and the like to be assembled by Kia Motar Corporation shall be as follows:Setting load 7 kgf {69 N} or less.Removing load 5 kgf {49 N } or less.		5				C	Load is measured by a push-pull gauge

Table 3 Retractor Performance

Evaluation Item		Evaluation Standard	No. of Test Pieces				Quality Rank	Evaluation Method				
			D	PV	IP-1	IP-2						
Sensor sensitivity	Sensitive angle	Sensitive angle θ shall be $15^{\circ} \leq \theta \leq 27^{\circ}$	To be separately given				AR	7.2.1				
	Sensitive G (Vehicle sensitive ELR)	To satisfy requirements of respective regulation					AR	As per each law and regulation				
	Sensitive G (Webbing sensitive ELR)	(1) For Europe and Australia, it does not lock at 1.0 G, but locks at 1.5G					AR	As per EEC 82/319.				
		(2) For Domestic and North America, it does not lock at 2.5 G										
Rolling-in force	(1) For Domestic, North America, General one-axis rolling-in spring type shall be $0.2 \text{ kgf } \{2.0 \text{ N}\} \leq P \leq 0.5 \text{ kgf } \{4.9 \text{ N}\}$ Two-axis rolling-in spring type shall be $0.15 \text{ kgf } \{1.47 \text{ N}\} \leq P \leq 0.3 \text{ kgf } \{2.9 \text{ N}\}$	AR					As per FMVSS No. 209					
	(2) For Europe and Australia, $0.2 \text{ kgf } \{2.0 \text{ N}\} \leq p \leq 0.5 \text{ kgf } \{4.9 \text{ N}\}$ However, the rolling-in force after durability test of Group B shall be more than 50% of the initial	AR					As per EEC 82/319					
Lock-up resistance of tension reliefer		No lock-up								A	7.2.14	
Dynamic performance		Strength members shall be free from any damage and deformation leading to a tear									AR	As per ADR No. 40
Static strength		Strength members shall be free from any damage and deformation leading to a tear									AR	7.2.15

Table 4 Buckle & Tongue Performance

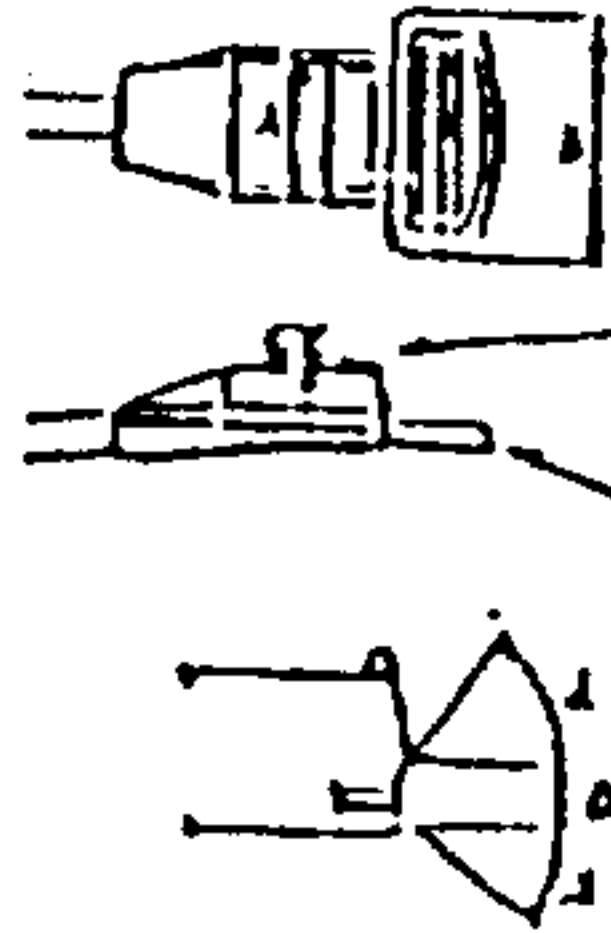
Evaluation Item	Evaluation Standard	No. of Test Pieces				Quality Rank	Evaluation Method
		D	PV	IP-1	IP-2		
Dimensions of each portion	$A \geq 46\text{mm}$ $B \leq 95\text{ mm}$ $C \leq 3\text{ mm}$ $D \leq (\text{Tongne thick-ness}) + 5\text{ mm}$  Slide button Tongue $\alpha \leq 70^\circ$ $\beta \leq 70^\circ$ * Requirements of α, β are excluded for Domestic, North America	To be separately given				AR	By measuring dimensions
Pseudo-latch characteristic	In the condition where the buckle and tongue do not latch, $P < 0.1\text{ kgf}$ {1.0N} in any case. However, this does not apply to Domestic, General.					AR	7.3.1
Inserting force	1.0 kgf {9.8N} $P < 2.5\text{kgf}$ {24.5N} When latching, it must give a clear click					AR	7.3.2
Dissociating force	(1) Under no load . For Europe, Australia $1.0\text{kgf}\{9.8\text{N}\} < P < 1.6\text{kgf}\{15.7\text{N}\}$. For Domestic, North America $1.0\text{kgf}\{9.8\text{N}\} < P < 3.0\text{kgf}\{29.4\text{N}\}$						7.3.3(1)
	(2) Under load . For Europe, Australia $P \leq 6.0\text{kgf}\{58.8\text{N}\}$. For Domestic, North America $P \leq 12.0\text{kgf}\{117.7\text{N}\}$						7.3.3(2)
Static strength	By the classification method in ECE No. 16 . Tipe II(two-point bell) webbing type buckle $P \geq 1600\text{kgf}\{15691\text{N}\}$. Other type buckle $P \geq 2000\text{kgf}\{19613\text{N}\}$					AR	7.3.4

Table 5 Webbing Performance

Evaluation Item		Evaluation Standard	No. of Test Pieces				Quality Rank	Evaluation Method
			D	PV	IP-1	IP-2		
Flex-rigidity (mm)		80~120	To be separately given				AR	7.4.1
Color fastness to light		63 ± 3°C 300Hr ; Over Grade 4 63 ± 3°C 400Hr ; Over Grade 3 83 ± 3°C 250Hr ; Over Grade 3					AR	7.4.2
Color fastness to water		Change in color ; Over Grade 4 Staining ; Over Grade 4					AR	7.4.3
Color fastness to washing		Change in color ; Over Grade 4 Staining ; Over Grade 4					AR	7.4.4
Color fastness to perspiration		Change in color ; Over Grade 4 Staining ; Over Grade 4					AR	7.4.5
Color fastness to rubbing dry		White cotton cloth ; Over Grade 3 White foam leather ; Over Grade 3					AR	7.4.6
Color fastness to rubbing wet	Webbing not to be immersed in artificial perspiration	White cotton cloth ; Over Grade 3 White foam leather ; Over Grade 3					AR	7.4.7
	Webbing to be immersed in artificial perspiration	White cotton cloth ; Over Grade 3 White foam leather ; Over Grade 3						
Burning resistance cm/min		$\beta \text{ max} \leq 9.0$ $\bar{B} + 3S \leq 10.0$					AR	KES D-G008
Dye migration	Webbing not to be immersed in artificial perspiration	Over Grade 4					AR	7.4.8
	Webbing to be immersed in artificial perspiration	Over Grade 3						

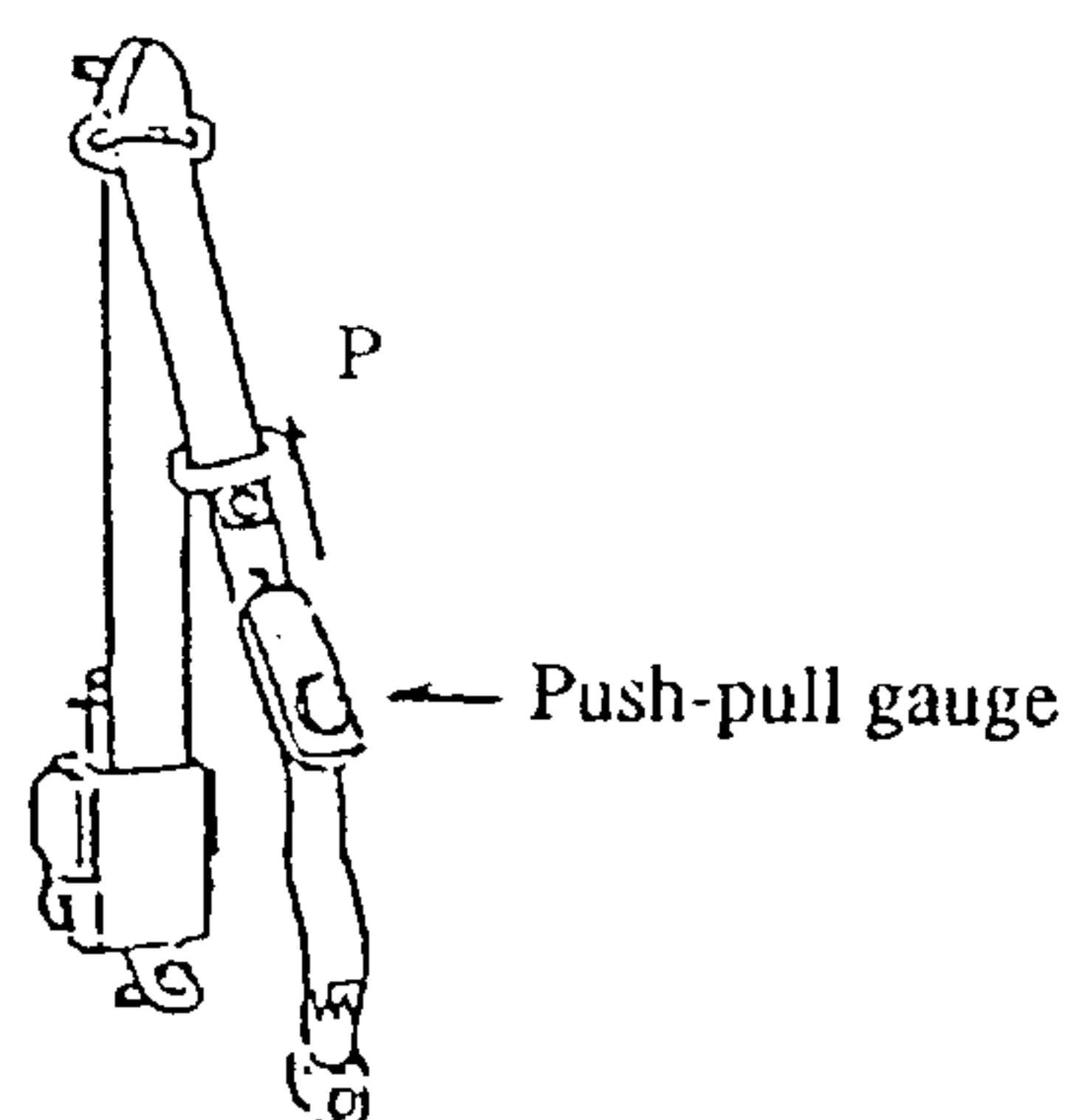
7. Evaluation Method

7.1 Assembly Performance

7.1.1 Rolling-in force characteristic

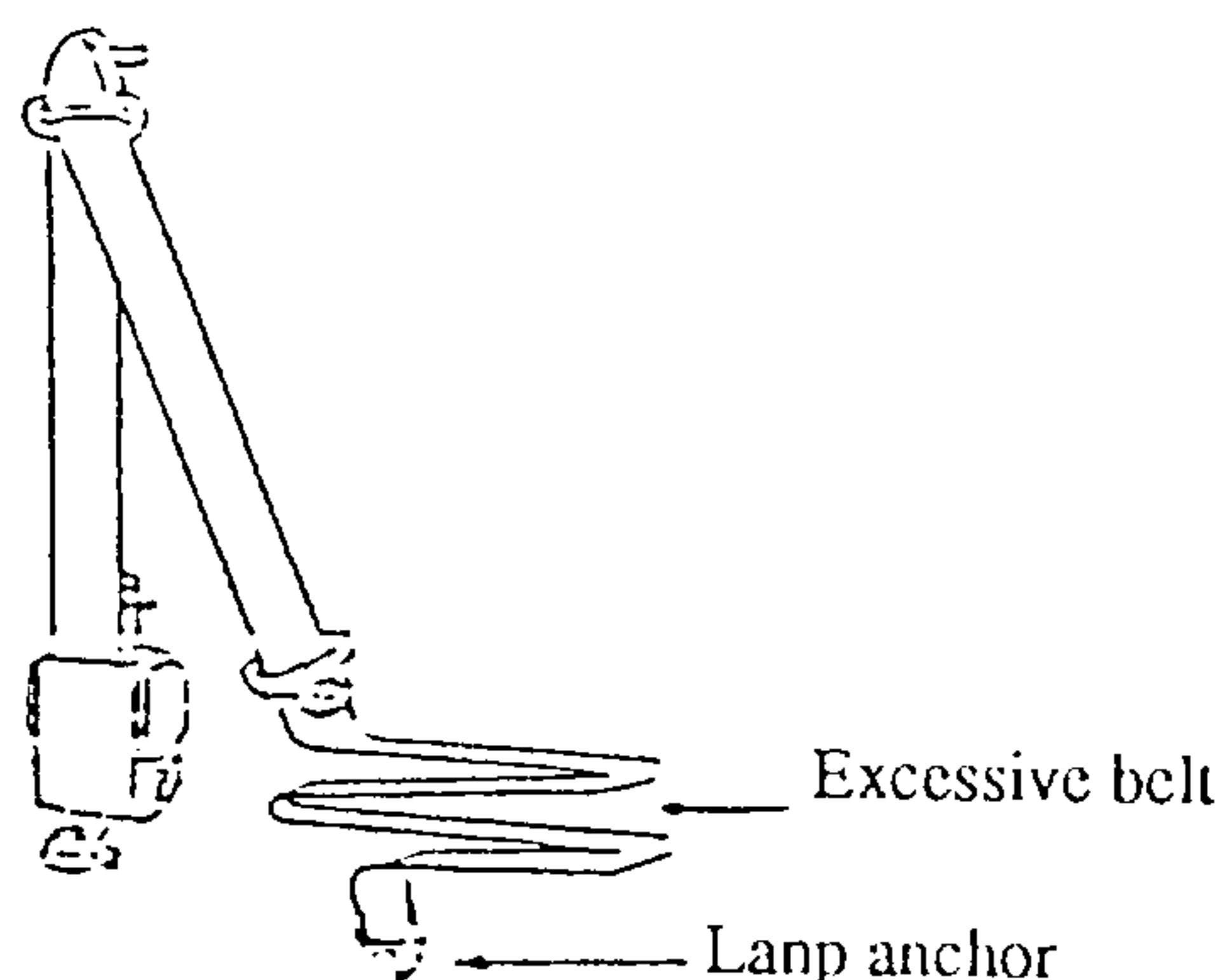
(1) Housing capacity

- (a) Attach a seat belt to a car or to a jig which can simulate a condition of seat belt attached to a car. In case a belt guide, trim, etc, are provided in the belt route, they must be included.
- (b) Hang a push-pull gauge on the tongue or its surrounding and pull out the belt 150~200mm vertically downward.
- (c) Gradually roll in the belt and when the belt is pulled out 50 mm from the condition of being fully rolled in, measure the load P then with a push-pull gauge.



(2) Rolling-in time

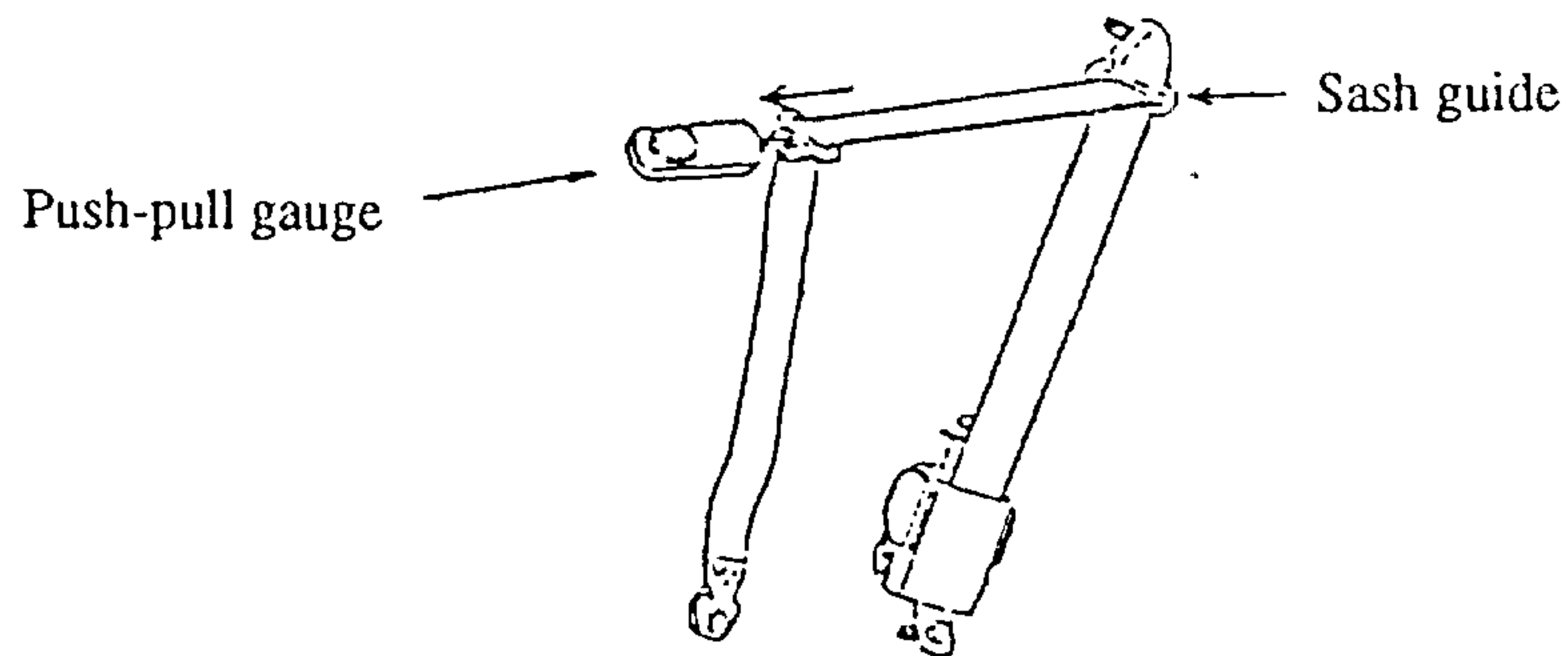
- (a) Set a seat belt in the condition of 7.1.1 (1) (a).
- (b) Fully pull out the seat belt, and then, place an excessive belt at the position of the lap anchor height.
- (c) Measure the time until the belt is completely rolled in from the above condition.



7.1.2 Pulling-out force characteristic

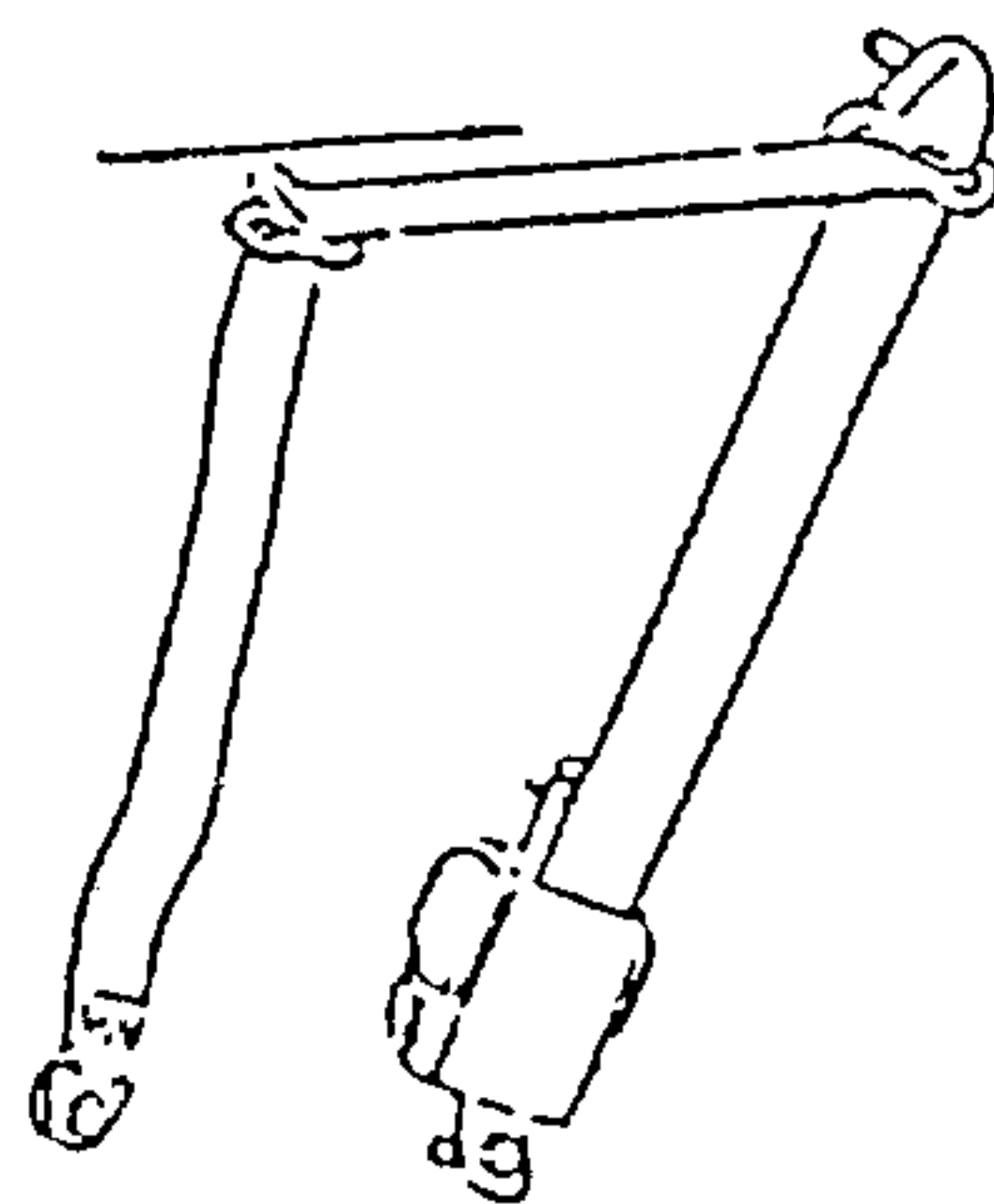
- (1) Set a seat belt in the condition of 7.1.1 (1) (a).

- (2) Pull out the belt a little and hang a push-pull gauge onto it.
- (3) Pull out the belt forward so that the belt between the push-pull gauge and sash guide becomes horizontal.
- (4) Measure with the push-pull gauge the load when the belt is pulled out 700mm from the condition of being fully rolled in.



7.1.3 Webbing stability

- (1) Set a seat belt in the condition of 7.1.1 (1) (a).
 - (2) Pull out the belt 700mm horizontally forward and roll it in.
- Repeat this 20 cycles.



7.1.4 Requirements of fittings

- (1) Confirm if there is any abnormality upon tightening with a torque wrench at a tightening torque of 10 kgf · m {98 N · m}.
- (2) Conduct a tensile test with a tensile tester.

7.1.5 Tongue retaining force of tongue stopper

- (1) Fix the tongue in a horizontal condition with a vice, etc.
- (2) Pull the webbing in every direction and measure the load when the tongue stopper passes the tongue.

At this time, if the tongue stopper does not pass the tongue at a load of over 20 kgf {196 N}, the test is closed and the test result is "over 20 kgf {196 N}".