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KES

**Definition of Specification
Measurement Terminology
for Passenger Car**

KES A – C002

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1. Scope of Application

This shall regulate the definition of specification measurement lists, method and terminology for an interior and exterior of a sample car (Passenger car) which is a part of preceding works.

2. Output List

- (1) Car condition (Measurement condition)
- (2) Car measurement list
 - (a) Classification of car specification measurement lists

Table 1

	List number	Remark
Exterior dimensions	22	1W → 22A
Ground clearance	6	23A → 28H
Interior dimension front	41	29W → 69L
Interior dimension rear	21	70W → 90H
Entrance and exterance dimensions	8	91H → 98L
Luggage capacity	2	99H → 100V
Total	100	1W → 100V

- (b) Car specification measurement detailed lists

Table 2

Section		No.		Remark
Exterior Dimensions	1W		Wheel Tread Front	SAE W101
	2W		Wheel Tread Rear	SAE W102
	3H		FWC to Ground	

Table 2 (Continued)

Section \ No.			Remark
	4L	Wheel Base	SAE L101
	5A	Body Base Line Angle	
	6W	Max Car Width	
	7W	Max. Body Width At H-point	SAE W117
	8W	Car Width Front Doors Open	SAE W120
	9W	Car Width Rear Doors Open	SAE H121
	10H	Max Car Height	SAE L101
	11L	Max Car Length	SAE L103
	12L	Over hang Front	Ø L104
	13L	Over hang Rear	Ø L105
	14H	Cowl Foint to Ground	SAE H114
	15L	Cowl Foint to FWC	SAE L125 + L128
	16H	Deck Foint to Ground	SAE H138
	17L	Deck Foint to FWC	SAE L123 + L125
	18L	Upper Structure Length	SAE L123
	19H	Rocker Panel to Ground Front	SAEH L112
	20H	Rocker Panel to Ground Rear	SAE H111

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Table 2 (Continued)

Section \ No.			Remark
	21H	Side Glass Height	SAE H159
	22A	Windshield Slope Angle	SAE H122
Ground Clearance	23A	Angle of Approach	SAE H106
	24A	Angle of Departure	SAE H107
	25A	Lamp Breakover Angle	SAE H147
	26H	Front Bumper to Ground	SAE H103
	27H	Rear Bumper to Ground	SAE H105
	28H	Min · Ground Clearance	SAE H156
Front exterior dimensions	29W	H.Point to C/CL	SAE W20
	30H	H.Point to FWC	
	31L	H.Point to FWC	
	32H	H.Point to Ground	SAE H5
	33H	H.Point to AHP	SAE H30
	34L	H.Point to AHP	SAE L53
	35L	H.Point Travel	SAE L17
	36H	H.Point Rise	SAE H58
	37A	Back Angle	SAE L40
	38A	Hip Angle	SAE L42
	39A	Knee Angle	SAE L44
	40A	Foot Angle	SAE L46

Table 2 (Continued)

Section \ No.			Remark
Front interior dimension	41L	Max. Effective Leg Room	SAE L34
	42W	Shoulder Room	SAE W3
	43W	Hip Room	SAE W5
	44W	Seat Cushion Width	SAE W16
	45L	Seat Cushion Depth	SAE L9
	46L	Effective Cushion Depth	SAE L10
	47H	Seat Back Height	SAE H77
	48H	Effective High Room	SAE H61
	49W	Lateral Head Clearance	
	50H	Effective T-point Head Room	SAE H75
	51H	Eyellipse to S/W Top	SAE H49
	52H	H.Point to Wind-Shield Lower D.L.O	SAE H6
	53H	H.Point to Wind-Shield Upper D.L.O	SAE W64
	54W	Max. S/W. Diameter	SAE W9
	55L	Min. S/W. Diameter	
	56A	Max. S/W. Angle	SAE H18
	57A	Min. S/W. Angle	
	58W	SWC to C/CL	SAE W7

Table 2 (Continued)

Section \ No.			Remark
Front interior dimension	59H	SWC to H.Point	
	60L	SWC to H-Point	
	61H	SWC to AHP	SAE H17
	62H	SWC to AHP	SAE L11
	63H	SW Bottom to Thigh CL	SAE H13
	64L	SW Bottom to Knee point	
	65L	SW Bottom to Torso	SAE L7
	66H	SW Bottom to Cushion	SAE H74
	67L	SW Bottom to Seat Back	SAE L22
	68L	SW Bottom to Brake Pedal	SAE L13
	69L	Brake pedal to Accelerator	SAE L52
Rear interior dimension	70W	H-point to C/CL	SAE W20
	71H	H-point to FWC	

Table 2 (Continued)

Section \ No.			Remark
Rear interior dimension	72L	H-point to FWC	
	73H	H-point to Ground	SAE H10
	74H	H-point to Wheel point	SAE H31
	75L	H-point to Couple Distance	SAE L50
	76A	Back Angle	SAE L41
	77A	Hip Angle	SAE L43
	78A	Knee Angle	SAE L45
	79A	Foot Angle	SAE L47
	80L	Effective Legroom	SAE L51
	81L	Back of Front Seat to Rear Seat	SAE L3
	82L	Knee Clearance	SAE L48
	83W	Shoulder, Room	SAE W4
	84W	Hip Room	SAE W5
	85L	Seat Cushion Depth	SAE L21
	86L	Effective Cushion Depth	SAE L12
	87H	Seat Back Height	SAE L12
	88H	Effective Head Room	SAE H78
	89W	Lateral Head Clearance	SAE H63

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Table 2 (Continued)

Section \ No.			Remark
Getting on and exit dimension	90H	Effective T-point Head Room	SAE H76
	91H	Entrance Height Front	SAE H11
	92H	Exit Height Rear	SAE H69
	93H	Upper Body Opening to Ground Front	SAE H50
	94H	Upper Body Opening to Ground Rear	SAE H51
	95H	Step Height Front	SAE H130
	96H	Step Height Rear	SAE H131
	97L	Foot Clearance Front	SAE L18
	98L	Foot Clearance Rear	SAE L19
Lower position	99H	Lift over Height	SAE H196
	100V	Luggage Capacity	

3. Terminology Definition and Contents

3.1 Condition and state of measured car

- o The measurement methods are based on SAE J 1100 (73.9) and have several differences.

(1) Measured vehicle : Position of curb weight (Same adjustment as K.S)

Remark : Tire pressure should be in the normal driving condition which producer recommends.

(2) Measurement base point

- o T₂ basis : Front wheel center
- o W₂ basis : Ground line

(3) Measurement

- (a) Project car lines with laser beam by using an auto-graph measurement system and measure by copying this on sheet attached on the wall by using a drawing appliance.

Very accurate because of 1:1 drawing (full scale drawing)

1/10 sheet assuring accuracy finally shall be drawn up by reducing the 1:1 drawing by the ration of 1:10 by an accurate method and using an appliance.

- (b) SAE H-point machine manikin : Set up it inside a car according to SAE J8266 (1974.1).

- Manikin weight : 76.5 kg (167.0 lb)
- When the driver seat and rear seat cannot use 95 %, use 10 % or 50 %.

Remark : When it is impossible to measure the rear seat with 10 % manikin set up, measure at the rear most of the front seat and move the front seat forward for the space for the 10 % manikin to be get. Then, measure at this position.

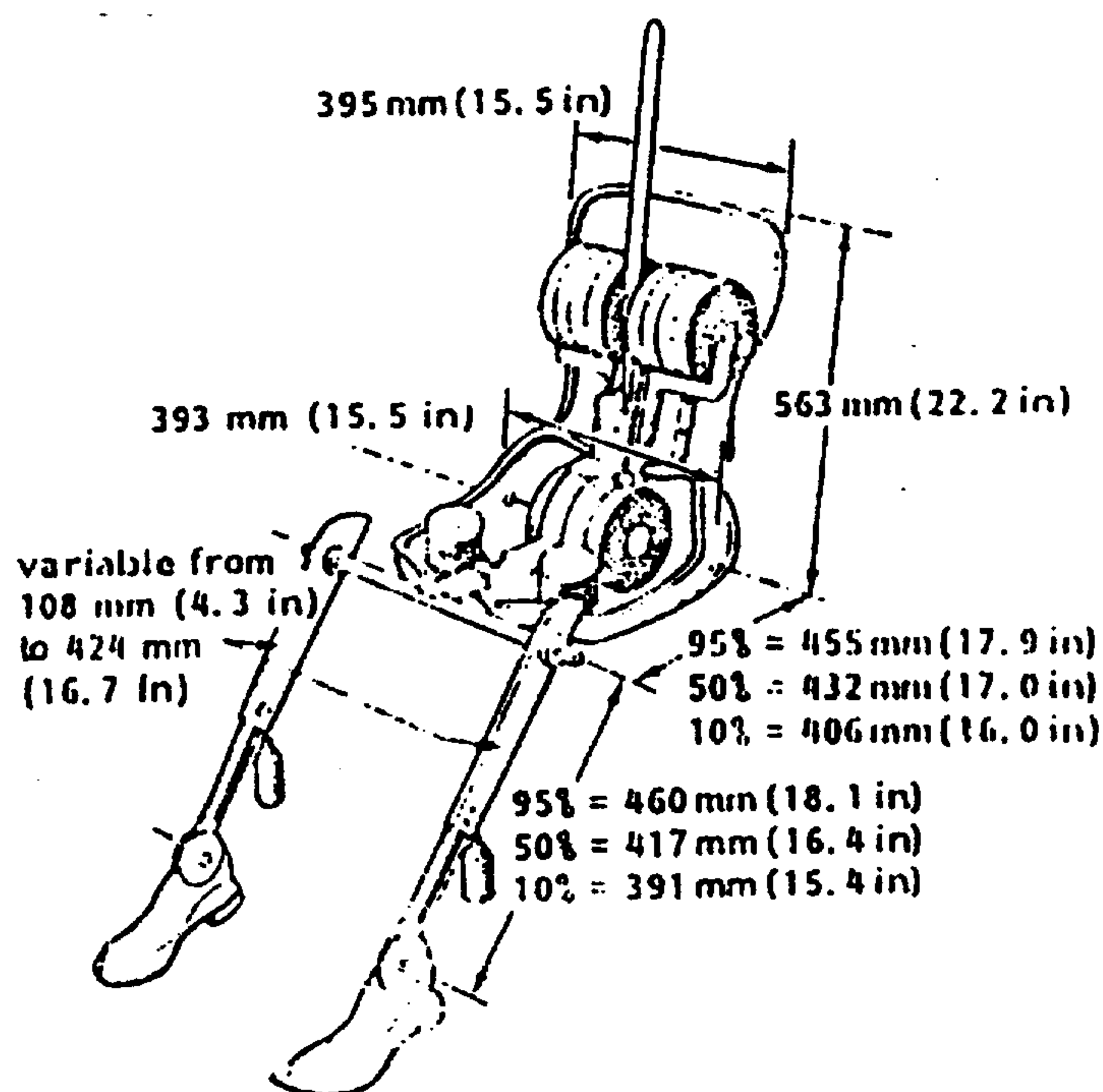


Fig. 1

(c) The minus dimension on a data sheet shall be defined at measurement of 82L knee clearance.

(4) Explanation of data sheet terminology

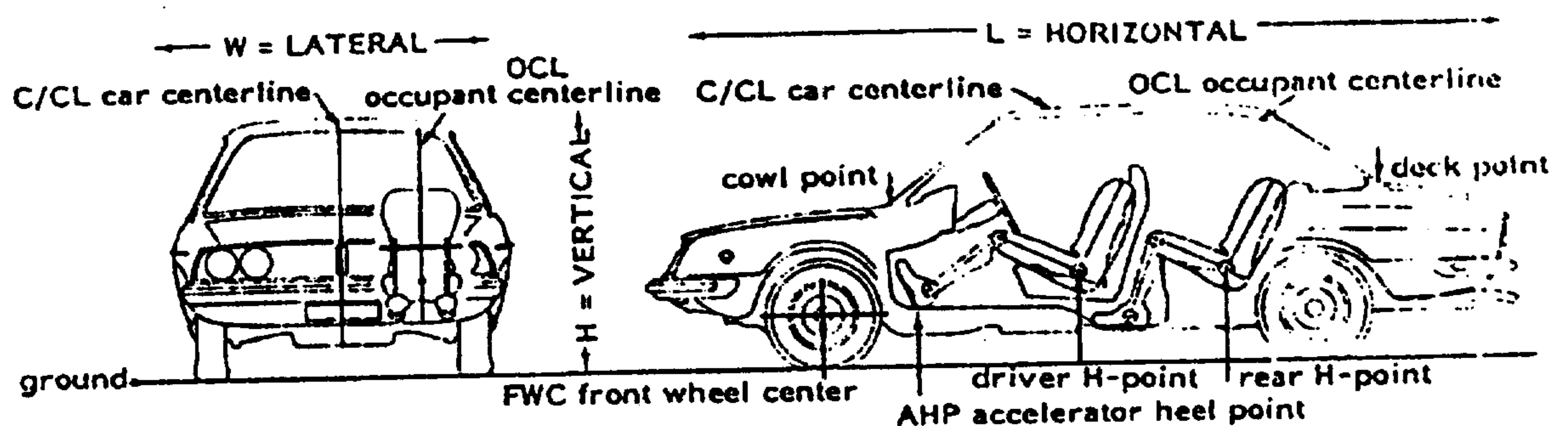


Fig. 2 Front wheel tread

1W : Wheel tread front : Measure distance between tire center lines to a side direction on measurement plane

2W : Wheel tread rear : Same as rear wheel tread 1W

3W : Vertical distance between front wheel center and ground

4L : Wheel base : Horizontal distance between front and rear wheel center

5A : Body base line angle : Angle of ground and car body base line. Generally, rocker panel, door sills or floor. This angle shall be used for converting a curb weight condition to a design weight condition.

6W : Max car width : Distance between the widest points in a car including bumper, moldings, sheet metal and protrusions and excluding rear view mirror (Outer).