

Informal document GRSP-54-40
(54th GRSP, 17-20 December 2013
agenda item 14)

ECE Regulation N°94

Status report IWG FI

54th session of GRSP 17-20 December 2013

Meetings

- 18th Meeting – 24 January 2013 – OICA Paris
- 19th Meeting – 27 February 2013 – EC
Brussels
- 20th Meeting – 09 April 2013 – OICA Paris
- 21st Meeting – 11 June 2013 – CLEPA Brussels
- 22nd Meeting – 19 September 2013 – BAST
Bergish Gladbach
- 23rd Meeting – 29 January 2014 - Brussels

Main achievement

Configuration				Structural Integrity		Restraint Test		
				Fuel leakage/ HV				
				40% Offset,		100% fullwidth		
				ODB, 56km/h 65YO		FWRB, 50km/h 65 YO	FWRB, 50km/h [65YO - 51YO]	See ECE R12 definition of wall
				Driver	Passenger	Driver	Passenger	✓
				Middle	Middle	Middle	Forward Middle 1/3	According to current definition of 1.4.3.11.1 of Annex 3
				50% Hill	50% Hill	50% Hill	5% Hill	✓
A	Occupant	1	HPC	1000	1000	1000	1000	✓
		2	aHead 3ms	80g	80g	80g	80g	✓
		3	Neck tension	1,1 kN (60ms) 2,9 kN (35ms) 3,3 kN (0ms)	1,1 kN (60ms) 2,9 kN (35ms) 3,3 kN (0ms)	3.3 kN	2.9 kN	✓
		4	Neck shear	1,1 kN (>45ms) 1,5 kN (25-35ms) 3,1 kN (0ms)	1,1 kN (>45ms) 1,5 kN (25-35ms) 3,1 kN (0ms)	3.1 kN	2.7 kN	✓
		5	Neck Moment- ext.	57 Nm	57 Nm	57 Nm	57 Nm	✓
		6	[ThCC]	42 mm	42 mm	42mm	[34 mm - 42 mm]	Rod Pot
		6a	aTh 3ms	-	-			✓
		7	V°C	1,0 m/s	1,0 m/s	1,0 m/s	1,0 m/s	✓
		8	FCC	7,58 kN (10ms) 9,07kN (0ms)	7,58 kN (10ms) 9,07kN (0ms)	9,07 kN	[7 kN] (0ms)	✓
		9	TCFC	8kN	8kN			✓
		10	Kneeslider	15 mm	15 mm			✓
11	TI	1,3	1,3			✓		
B	Structural Integrity	12	Steering wheel displacement	Z < 80 mm; x < 100 mm		no measurement		✓
		13	Door locking/ opening	+New NL amendment		To be assess as in offset		✓
		14	Dummy removal	opening force buckle 60N		opening force buckle 60N		✓
		15	Fuel leakage	30g/min		To be assess as in offset		✓
		16	EVS requirements	to be inserted		To be assess as in offset		to be decided Look during drafting new R94
		17						
C	Compatibility	18	Geometry alignment	R42 Based géométric assessment				interim introduction, not for 12/2013

Configurations of tests

Structural Integrity		Restraint Test			
Fuel leakage/ HV					
40% Offset,		100% fullwidth			
ODB, 56km/h 65YO		FWRB, 50km/h 65 YO	FWRB, 50km/h [65YO _ 51YO]	See ECE R12 definition of wall	
Driver	Passenger	Driver	Passenger	✓	
Middle	Middle	Middle	Forward Middle 1/3	✓ According to current definition of 1.4.3.11.1 of Annex 3	
50% HIII	50% HIII	50% HIII	5% HIII	✓	

Occupants protection

1	HPC	1000	1000	1000	1000	✓
2	a Head 3ms	80g	80g	80g	80g	✓
3	Neck tension	1,1 kN (60ms) 2,9 kN (35ms) 3,3 kN (0ms)	1,1 kN (60ms) 2,9 kN (35ms) 3,3 kN (0ms)	3.3 kN	2.9 kN	✓
4	Neck shear	1,1 kN (>45ms) 1,5 kN (25-35ms) 3,1 kN (0ms)	1,1 kN (>45ms) 1,5 kN (25-35ms) 3,1 kN (0ms)	3.1 kN	2.7 kN	✓
5	Neck Moment- ext.	57 Nm	57 Nm	57 Nm	57 Nm	✓
6	ThCC	42 mm	42 mm	42mm	[34 mm - 42 mm]	? Rod Pot
6a	aTh 3ms	-	-			✓
7	V*C	1,0 m/s	1,0 m/s	1,0 m/s	1,0 m/s	✓
8	FCC	7,58 kN (10ms) 9,07kN (0ms)	7,58 kN (10ms) 9,07kN (0ms)	9,07 kN	7 kN (0ms)	✓
9	TCFC	8kN	8kN			✓
10	Kneeslider	15 mm	15 mm			✓
11	TI	1,3	1,3			✓

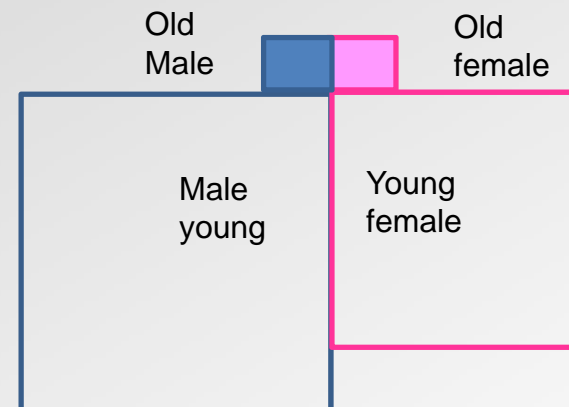
- 45 Male young
- 65 Male elderly
- 45 Female young
- 65 Female elderly

Principle
consequences of changing the restraint system,
by engineering judgement:

Impact on the coverage of the occupants involved,
if shown by arrows:

- ↑ solid green arrow = strong increase of coverage
↑ light green arrow = slight increase of coverage
- ↓ solid red arrow = strong decrease of coverage
↓ light red arrow = slight decrease of coverage

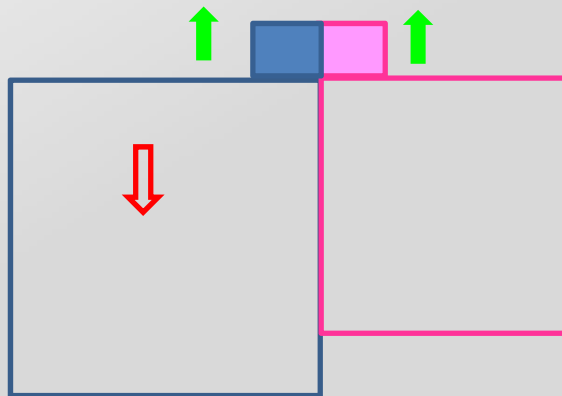
coverage:
**Larger square = larger
population covered**



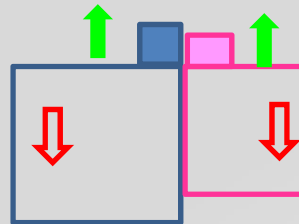
Influence of proposal 5

45 65 45 65
Population M-F, 45yo, >65yo

		ODB 56	FWRB 50
AGE		65 yo	65/51 yo
DUMMIES	driver	AM50-42mm	AM50-42mm
	passenger	AM50-42mm	AF5-42mm



ODB



FWRB



extreme

Up to MAIS 2
(occupants covered among occupants involved)

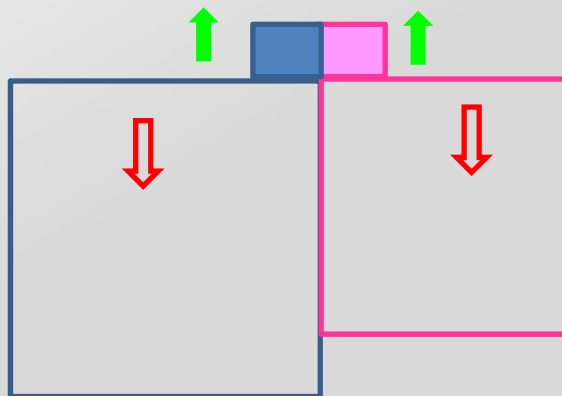
Restraint system tuning for:

- ODB for AM50 elderly
- FWRB for AM50 elderly & AF5 average-elderly.

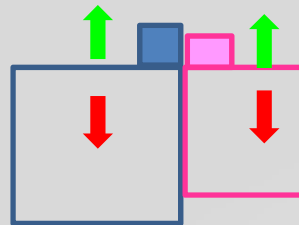
Influence of proposal 6

		ODB 56	FWRB 50
AGE		65 yo	65 yo
DUMMIES	driver	AM50-42mm	AF5-34mm
	passenger	AM50-42mm	AF5-34mm

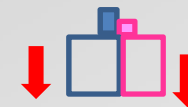
45 65 45 65
Population M-F, 45yo, >65yo



ODB



FWRB



extreme

Up to MAIS 2
(occupants covered among occupants involved)

Restraint system tuning for:

- ODB for AM50 elderly
- FWRB for AF5 elderly.

Structural integrity

11	Steering wheel displacement	Z < 80 mm; x < 100 mm	no measurement	✓
12	Door locking/ opening	+New NL amendment	To be assess as in offset	✓
13	Dummy removal	opening force buckle 60N	opening force buckle 60N	✓
14	Fuel leakage	30g/min	To be assess as in offset	✓
15	EVS requirements	to be inserted	To be assess as in offset	to be decided Look during drafting new R94

21	Geometry alignment	R42 Based geometric assessment		interim introduction, not for 12/2013
----	--------------------	---	--	--

Key questions

- One or two regulations
 - IWVTA ?
 - Update ECE R33 ? [Signatories](#) [Status](#)
 - New regulation ?
- Different scopes for different regions
- Break after phase 1
 - Availability of THOR dummies (50th % & 5th %)
 - Better consensus on compatibility:
 - PDB, MPDB, FWDB
 - Geometric assessment

Structure of document GRSP54/27

1. Scope
2. Definitions
3. Application for approval
4. Approval
5. Specifications
 - 5.1. General specifications applicable to all tests**
 - 5.2. Specifications for the vehicle structure test (Offset Deformable Barrier test)**
 - 5.3. Specifications for the restraint system test (Full Width Rigid Barrier test)**
6. Instructions for users of vehicles equipped with airbags
7. Modification and extension of approval of the vehicle type
8. Conformity of production
9. Penalties for non-conformity of production
10. Production definitively discontinued
- 11. Transitional provisions**
12. Names and addresses of Technical Services responsible for conducting approval tests, and of Type Approval Authorities

Annexes

1. Communication
2. Arrangements of approval marks
3. Test procedure **for the vehicle structure test (Offset Deformable Barrier)**
4. Head Performance Criterion (HPC) and 3 ms head acceleration
5. Arrangement and installation of dummies and adjustment of restraint systems
6. Procedure for determining the "H" point and the actual torso angle for seating positions in motor vehicles
 - Appendix 1 - Description of the three dimensional "H" point machine (3-D H machine)"
 - Appendix 2 - Three-dimensional reference system
 - Appendix 3 - Reference data concerning seating positions
7. Test procedure with trolley
 - Appendix - Equivalence curve - tolerance band for curve $\Delta V = f(t)$
8. Technique of measurement in measurement tests: Instrumentation
9. Definition of deformable barrier
- 10. Certification procedure for the dummy lower leg and foot**
11. Test Procedures for the protection of the occupants of vehicles operating on electrical power from high voltage and electrolyte spillage
 - Appendix - Jointed test finger (IPXXB)
- 12. Test procedure for the restraint system test (FWRB test)** 71

[Transitional provisions]

- 11.9. "Contracting Parties applying the Regulation shall continue to accept approvals to the 01 series of amendments to this Regulation of the vehicles which are not affected by the 02 series of amendments."
- 11.10. Until 18 months after the date of entry into force of the Supplement 4 to the 02 series of amendments to this Regulation, Contracting Parties applying this Regulation can continue to grant type approvals to the 02 series of amendments to this Regulation without taking into account the provisions of Supplement 4
- 11.11. As from the official date of entry into force of the 03 series of amendments, no Contracting Party applying this Regulation shall refuse to grant ECE approval under this Regulation as amended by the 03 series of amendments.
- 11.12. As from [xx] months after the official date of entry into force of the 03 series of amendments, Contracting Parties applying this Regulation shall grant ECE approvals only to those types of vehicle which comply with the requirements of this Regulation as amended by the 03 series of amendments
- 11.13. Contracting Parties applying this UN Regulation shall not refuse to grant extensions of UN type approvals for existing types which have been granted according to the preceding series of amendments to this UN Regulation.
- 11.14. Even after the date of entry into force of the 03 series of amendments, Contracting Parties applying the Regulation shall continue to accept approvals to the 01 or 02 series of amendments to the Regulation, under the condition of paragraph 11.9 above.