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UN Vehicle Agreements

Type Approval Certification Periodic Technical Inspection

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Vehicle Regulations and Transport Innovations Section



Content

- I. WP.29
 - a) WP.29 Activities
 - b) WP.29 scope and organization
- II. The tools of WP.29
 - a) Vehicle approval: the 1958 Agreement
 - b) Vehicle certification: the 1998 Agreement
 - c) Periodic technical inspections (PTI): the 1997 Agreement
- III. Better vehicles by implementation of the UN Vehicle Agreements



Content

I. *WP.29*

- a) *WP.29 Activities*
- b) *WP.29 scope and organization*

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The World Forum for Harmonization of Vehicle Regulations (WP.29)

- UNECE Sustainable Transport Division: secretariat to WP.29 for more than 60 years
- WP.29 is:
 - the unique worldwide regulatory forum for the automotive sector
 - administrating three Multilateral UN Agreements

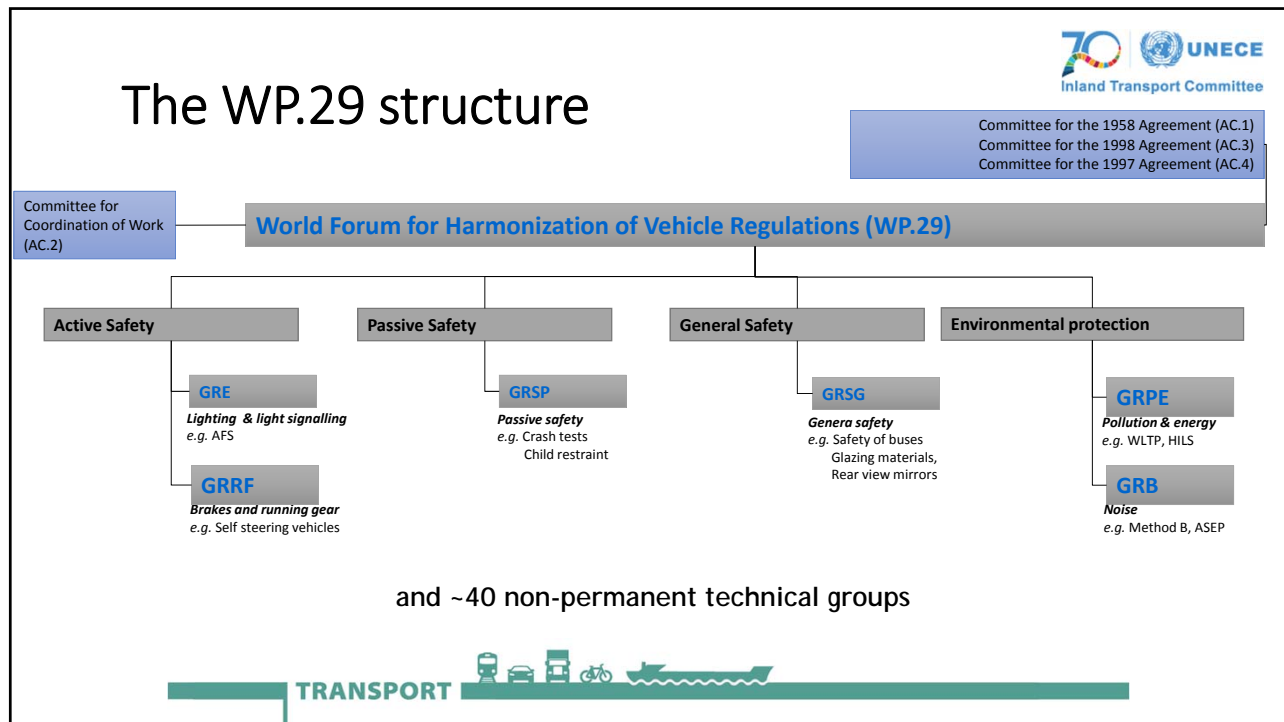


Construction regulations
1958 Agreement – Type Approval Regulations with mutual recognition of the type approvals
1998 Agreement – Global Technical Regulations



In Use PTI regulations
1997 Agreement – Adoption of Uniform Conditions for Periodical Technical Inspections of Wheeled Vehicles and the Reciprocal Recognition of Such Inspection





WP.29 is worldwide, unique and transparent

- Agreements open to all Nations of the UN
- Participation open to States, Governmental Organizations (GOs) and NGOs, but

Decisions are taken by Governments (of CPs)

Countries contracting parties to Vehicle Regulations Agreements
Number of Agreements
1 (light blue), 2 (medium blue), 3 (dark blue)

No other worldwide organization covers this area

TRANSPORT (with icons of a train, car, truck, bicycle, and ship)

What is WP.29 doing?

Emissions of pollutants and CO₂

General safety



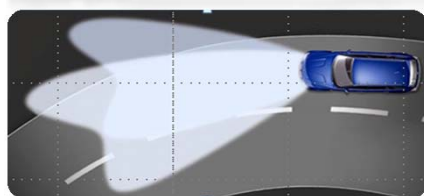
Passive safety



Noise



Active safety



Lighting and light signalling


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The Agenda 2030 and Road Safety

The Sustainable Development Goals (SDGs)

Two targets are directly relevant for road safety



3.6. By 2020, halve the number of global deaths and injuries from road traffic accidents.



11.2. By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.

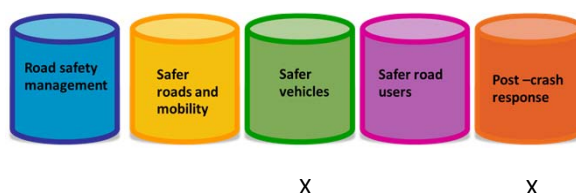

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UN decade of action for road safety 2011-2020

The plan



The 5 pillars



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Principal Elements of the 1958 Agreement

Eligible Contracting Parties to the 1958 Agreement:

Members of UN



The 1958 Agreement provides:

Legal framework for the adoption of uniform UN Regulations on the vehicle construction

Reciprocal recognition of Type Approval
Approved once and accepted everywhere (CPs)

Elimination of barriers to trade



Principal Elements of the 1958 Agreement

- All vehicle parts and systems approved according to UN Regulations under the 1958 Agreement bear the unique **E**-marking



- The Type-Approval with an approval number and the approval date + test reports



Latest Developments in Vehicle Regulations



- Revision 3 to the 1958 Agreement will enter into force on 14 September 2017
- Evolution of the Agreement (Revision 3):
 - (a) allowing the Contracting Parties to grant type approvals according to former versions of UN Regulations annexed to the 1958 Agreement;
 - (b) adding new provisions for the International Whole Vehicle type Approval (IWVTA) system;
 - (c) establishing, at UNECE, an electronic Database for the Exchange of Type Approval documentation (DETA) between all the Contracting Parties to the Agreement;



Latest Developments in Vehicle Regulations (cont.)



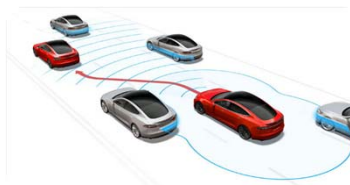
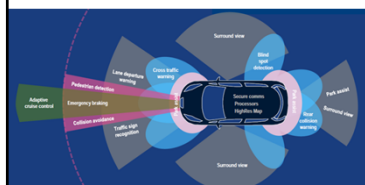
- (d) modifying the voting conditions for the adoption of new UN Regulations or their amendments to existing UN Regulations (i.e. from the two-thirds majority under Revision 2 to four-fifth majority under Revision 3); and
- (e) reviewing and strengthening the current provisions with the aim to improve the functioning and reliability of the type approval procedures and the conditions for their mutual recognition (i.e. quality assurance assessment, certification and conformity of production procedures, the tasks, responsibilities and competences of involved parties and aspects related to enforcement such as ensuring market surveillance and safeguard measures).



Latest Developments in Vehicle Regulations



WP.29 is the forum where the performance requirements and the technical regulations applicable to automated vehicles are defined :



WP.29 committed to continue improving the safety and environmental performance of vehicles:

- Blind Spot Monitoring
- Safety of Electric Vehicles
- WLTP...
- Child restraint systems
- Safety belt anchorages
- Quiet road vehicles ...



Principal Elements of the 1998 Agreement



Eligible Contracting Parties to the 1998 Agreement:

Members of UN



The 1998 Agreement provides:

Legal framework for the adoption of uniform Global Technical Regulations
- UN GTRs -

No administrative provisions
(for self certification and homologation)



Principal Elements of the 1998 Agreement

Contracting Parties to the 1998 Agreement

Commit themselves to implement a GTR into national legislation, when voting in favour

Need a system/agency for market surveillance and enforcement of production compliance

The 1998 Agreement requests

Regular reporting by Contracting Parties on the implementation of GTRs in their national law



Latest Developments in Vehicle Regulations

- New Global Technical Regulations
 - No. 17 on crankcase and evaporate emissions of L category vehicles
 - No. 18 on OBD for L category vehicles
 - No. 19 on evaporate emissions WLTP
- Draft Global Technical Regulation (for adoption in November)
 - No.20 on electric vehicle safety
- Amendments to existing Global Technical Regulations:
 - No.1 on door locks and door retention systems
 - No.15 on WLTP
 - No.16 on tyres



Principal Elements of the 1997 Agreement

Eligible Contracting Parties to the 1997 Agreement:

Members of UN



The 1997 Agreement provides:

Legal framework for the adoption of uniform UN Rules for PTI of vehicles in use

Reciprocal recognition of certificates of such inspections for cross-border use of vehicles



Principal Elements of the 1997 Agreement



Resolution R.E.6

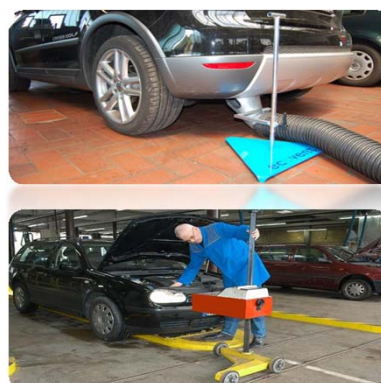
- Facilities & equipment
- Skills & training
- Supervision

For environmental issues

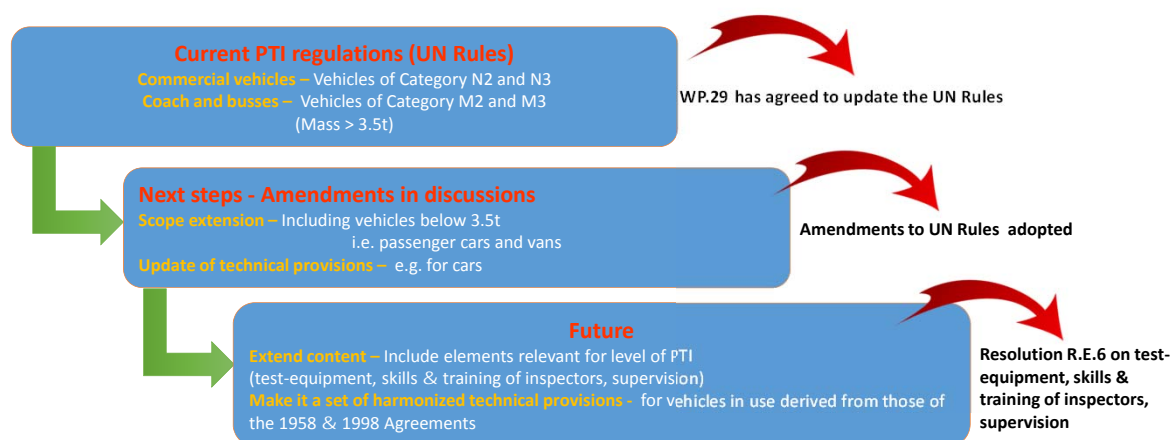
For safety inspection

For LPG/LNG vehicles

For electric and hybrid vehicles



Status of the 1997 Agreement



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Implementation of 1958 Agreement



- Amendments to national legislation
 - Requirements for vehicle approval (e.g. reference to UN Regulations)
 - Requirements for reciprocal recognition of UN Type Approvals
 - Requirements for vehicle registration (e.g. vehicle approval as prerequisite)
 - Responsibilities and sanctions
- Type Approval Authority
 - Administrative procedures for granting, extending, suspension of approvals
 - Assessment, designation and notification of technical services
 - Conformity of production procedures
 - Acting as liaison point to other TAAs and the WP.29 secretariat
- Technical Services
 - May also be private or located outside the country/in any other Contracting Party



Implementation of 1998 Agreement



- Amendments to national legislation
 - Full transposition of the UN GTR into national legislation
 - Introduce provisions for self-certification or homologation
 - Requirements for vehicle registration (e.g. vehicle certification as prerequisite)
 - Responsibilities and sanctions
- National Authority for market surveillance and enforcement of production compliance
 - Procedures for market surveillance and enforcement of production compliance
 - Technical capacity for performing compliance tests once vehicle models are put on the market
 - Enforcement of re-call activities and sanctions against manufacturers
 - Acting as liaison point to the WP.29 secretariat
 - Mandatory status report to AC.3



Implementation of 1997 Agreement



- Amendments to national legislation
 - Requirements for periodic technical inspection (e.g. reference to UN Rules and R.E.6)
 - Requirements for reciprocal recognition of PTI certificates for cross border traffic
 - Requirements for vehicle registration (e.g. PTI as prerequisite)
 - Responsibilities and sanctions
- National PTI Authority
 - Administrative procedures for granting, extending, suspension of authorisation for PTI test centres and for inspectors
 - Requirements for test centres, equipment, skills & training of inspectors and supervision of test centres
 - Acting as liaison point to other PTI Authorities and the WP.29 secretariat
- Test Centres



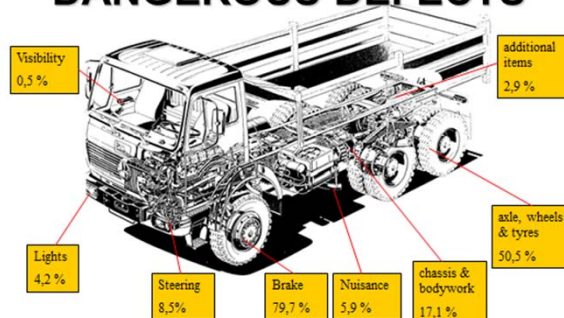
Why does it matter?

Why PTI ?

Example of results of technical roadside inspections
(Austria '08)

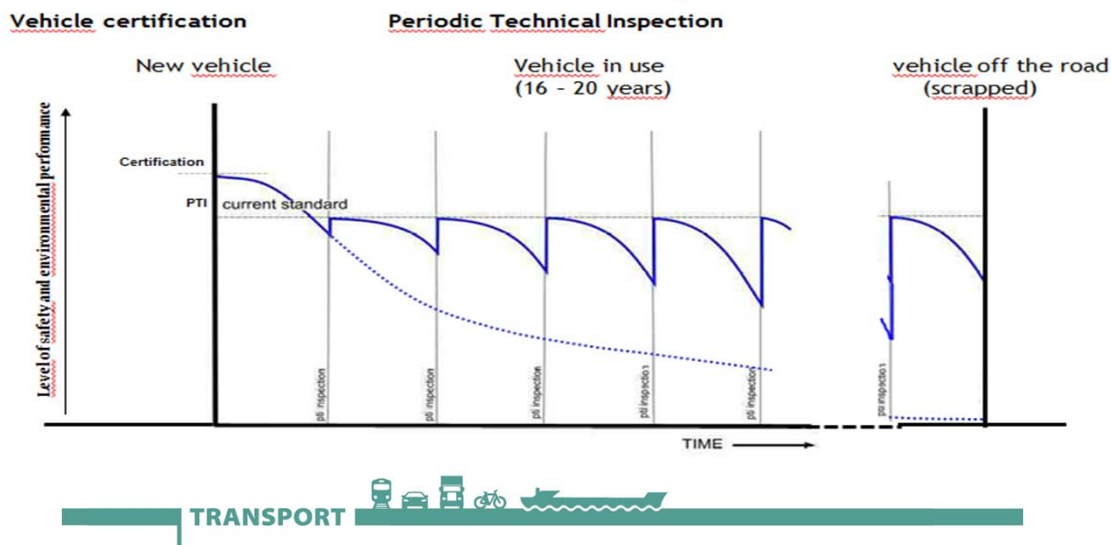
- Evidence base:
 - Technical defects related to fatal accidents (based on in-depth accident analysis)
 - 8 to 15% in high income countries (EU)
 - 15 to 25% in middle income countries
- 1997 Agreement?
 - New specifications for new technologies

DANGEROUS DEFECTS



Why does it matter?

Vehicle Lifecycle



Why does it matter?

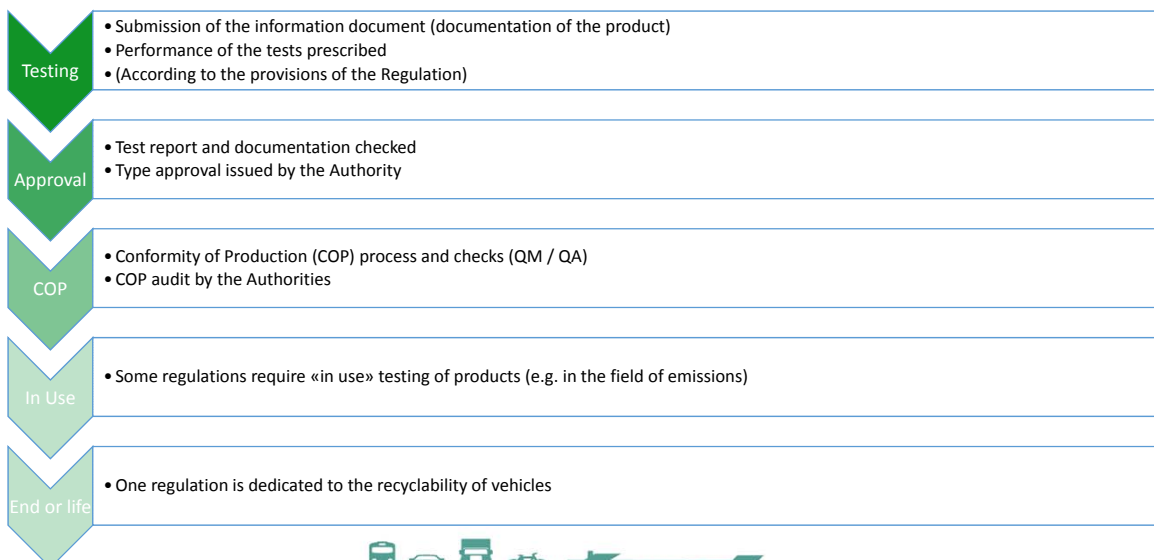
Why vehicle regulations?

Several versions of a given model, because:

- Left Hand Drive
- Right Hand Drive
- The US/Canada version
- The Rest of the World (e.g. for countries with low fuel quality)...



Type Approval



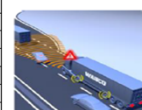
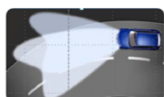
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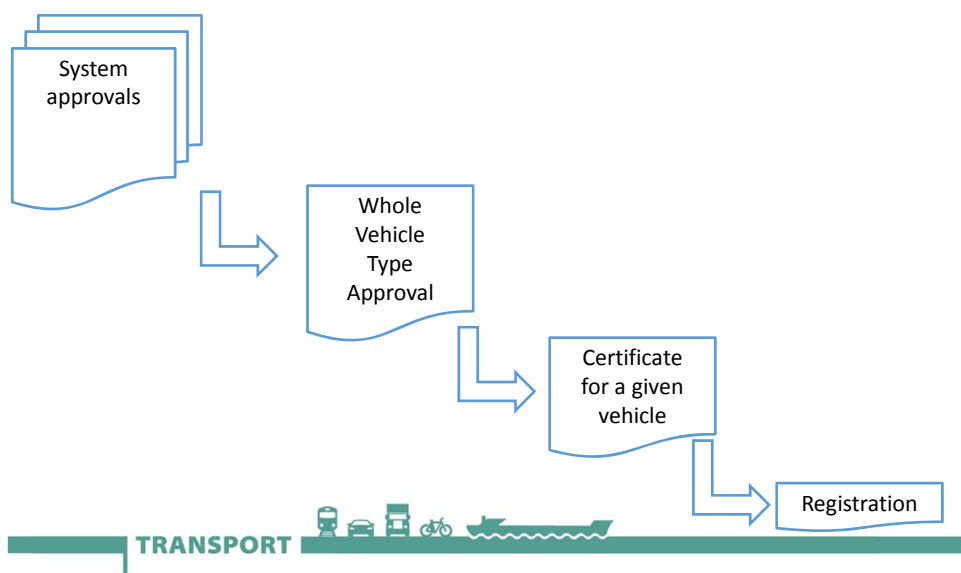
The most important UN Vehicle Regulations to make a change to road safety



Topic	Passenger cars UN Regulation	PTWs UN Regulation	Commercial vehicles UN Regulation
Active safety			
Brakes	R 13 H (incl. ESC) R 140 GTR 8	R 78 (incl. ABS) GTR 3	R 13 (incl. EVSC)
Steering	R 79		R 79
Tyres	R 30/ GTR 16	R 75	R 54
Mechanical couplings			R 55
Passive safety			
Helmets		R 22	
Safety belts anchorages	R 14		R 14
Safety belts	R 16		R 16
Seats/ head restraints	R 17, R 25/ GTR 7		
Frontal collision	R 94		
Lateral collision/ pole side impact	R 95, R 135/ GTR 14		
Pedestrian safety	R 127/ GTR 9		
Child restraints	R 44		
Electric PTW safety		R 136	
Cabs strength			R 29
General safety			
Buses and coaches			R 107
Safety glazing	R 43/ GTR 6		R 43
Devices for indirect vision			R 46
Rear underrun protection			R 58
Lighting and light installation			
Installation of lighting	R 48	R 53, R 74	R 48



How are UN type approvals / certificates used



The advantage of a international regulation

For the business sector:

- The "safe harbor"
- Harmonized requirements
- Simpler export (less/no technical barrier)
- Less uncertainty about market acceptance

For Countries and their citizens:

- Safety
- Better trade
- Interoperability
- Facilitated border crossing



PASSIVE SAFETY

Working Party on Passive Safety (UN GRSP)



Passive Safety (UN/GRSP)

- Safety belts: 1970
- Protective helmets: 1972
- Child Restraint Systems: 1981/2013
- Frontal and lateral crash tests: 1995
- Pedestrian safety GTR: 2008
- ISOFIX anchorages: 2002
- Safety-belt reminders: 2009
- Electric vehicle safety: 2010/2013
- Hydrogen and Fuel Cells Vehicles: 2013/2014
- Pole side impact: 2014
- Electric Vehicles of category L: 2015
- Frontal Impact with focus on restraint systems: 2015
- New GTR on Electric Vehicle Safety: 2017 (Exp. Nov)

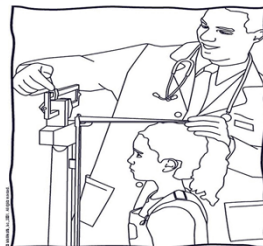


CHILD RESTRAIN SYSTEMS (UN Regulation No. 129)

- ISOFIX “universal” integral CRS
 - ISOFIX
 - 2 lower anchorages + 1 anti rotation device:
 - Top Tether
 - Support leg
 - No use of the adult safety belt for the restraint of the child seat
 - Universal
 - <F2X ISO fixture for FF & <R2 ISO fixture for RF (*)
 - With top tether or support leg (**)
 - Integral
 - Child is restraint only by the CRS restraint system (harness)
 - No use of the adult safety belt for the restraint of the child



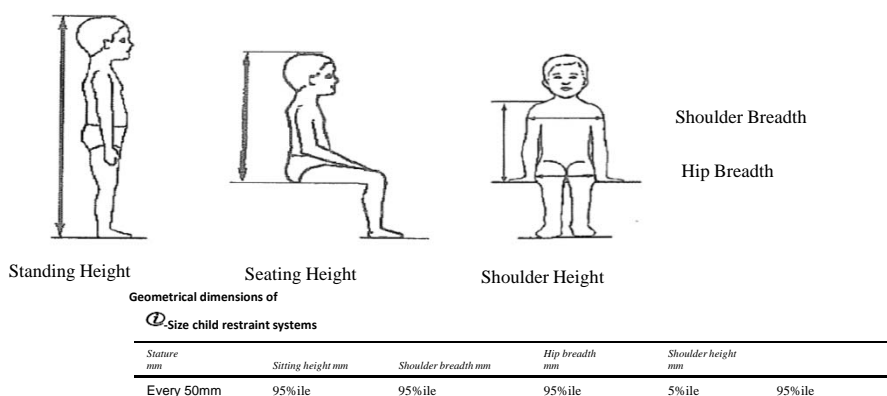
- No group approach



lège d'enfant/de bébé utilisé face à l'avant



Classification on standing height



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- Forward Facing CRS is suitable for a child **older than [15th]** with a mass **not exceeding [22]kg** and a stature comprised **between 75 and 125 cms**
- Rearward Facing CRS is suitable for a child with a mass **not exceeding [18]kg** and a stature comprised **between 40 cms and 95 cms**
- Age limit
- Weight limit
- Size limits

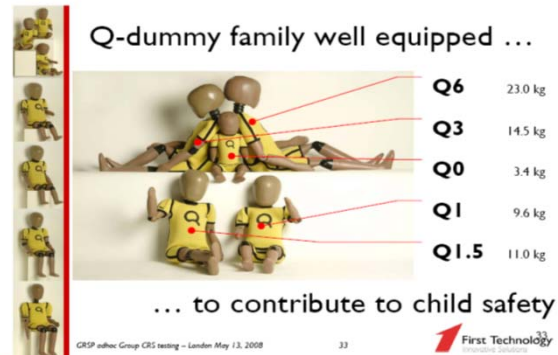
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Use of the Q dummies

For dynamic behaviour in:

- Frontal impact
- Rear impact
- Lateral impact

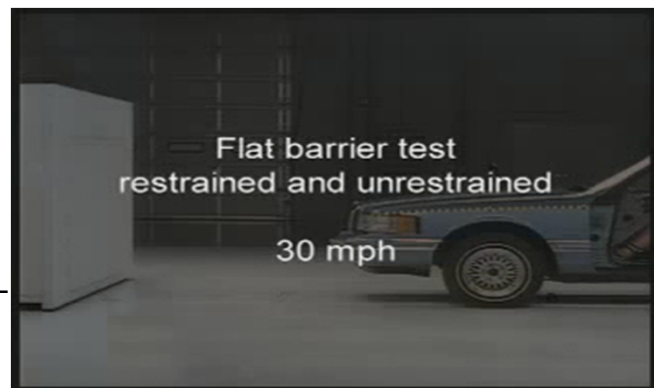


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Safety belts

- Tension reducer: (1997), to reduce lesion on elderly occupants
- Safety-belt reminders (only front-position) : 2009
- Safety-belt reminders for all seating positions in M and N categories of vehicles: 2016

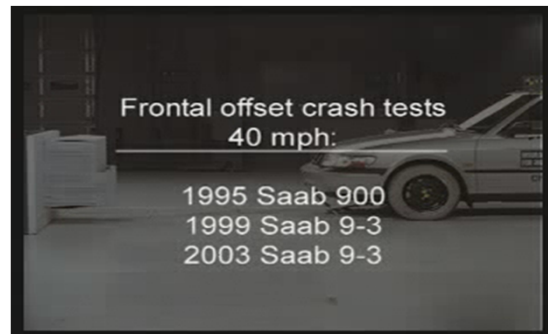


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FRONTAL IMPACT

- Over the years the requirements of frontal impact have become more demanding due to Regulation No. 94. In the following video you can see how the vehicles have become more efficient from the 95.



Finally ... modern vehicles do not have deformations of the contour of the door and the chassis.

This means that the survival space of the occupants is preserved, and that children are protected by the ISOFIX child seat installation.



MOTORCYCLE HELMETS (UN Regulation No. 22)



Background

- Between 2008 and 2020, 3.4 million fatalities may be caused by motorcycle crashes, 3 per cent of which could be children.
- Wearing and proper use of motorcycle safety helmets can save 42 per cent of lives and avoid 69 per cent of injuries to riders.
- In low and lower-middle income countries motorcycles are often the first or only form of motorized transport.
- In South East Asia, the WHO statistics report that the 11 nations of the region account for the highest proportion of worldwide road deaths at 30.4 per cent.
- PTW account for 34 per cent of these deaths in South East Asia.



July 10, 2017



The work of UN on harmonization of helmet regulations (UN Regulation No. 22 (1))

- 44 Contracting Parties around the world are signatory of UN Regulation No. 22 including Malaysia.
- Since its establishment in 1972 testing methods have been developed over time, becoming more precise and more stringent.
- Need to obtain repeatable results, particularly in different test centres.
- Reproduce tests representing real world crashes.
- Now Regulation No. 22 is considered one of the most demanding ones worldwide.



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Example of E-marked (Helmets)



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E-mark explanations

E = ECE Reg. No. 22; **2** = certified by French Authority;
051018 = ECE Reg. No. 22 **05** series of stringency, with
 Approval Number **1018** issued in France;

P = "Protective", i.e. chin bar tested and
 approved as a protective full-face helmet;

J – Although not visible in this example,
 would for instance signify "Jet" style open face approval;

320678 = Batch Test control number – identifies
 the production batch for which test results are available.



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The work of UN on harmonization of helmet regulations (UN Regulation No. 22 (2))

- Country can use the text of UN Regulation No. 22 as a basis for a national regulation, with no further obligation
- In this case the advantages of mutual recognition and international type approval are not available to the country.
- Therefore, any testing associated with the regulation would have to be carried out at the national level.

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Procedure for implementing UN Regulation No. 22

Phased Approach: rungs of a “ladder of protection”.

Countries can adopt on a national basis the full text of the original version of the Regulation, including the 02 series of amendments as an intermediate step on the path to reach the 05 series of amendments (latest one).

This would encourage countries to strive for the highest level of stringency of the Regulation. They may also decide to accede to the 1958 Agreement.



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Conclusions

Helmets T.A. according to UN Regulation No. 22 with aeration vents, dimension (even for children), weight and price close to a bicycle helmet are going to be deployed on markets thanks to diffusion of pedalex (EV) bikes.



Brasilia Declaration on Road Safety
18-19 November 2015:

PP18: *Taking into account that road traffic deaths and injuries are also a social equity issue, as the poor and the vulnerable are most frequently also vulnerable road users (pedestrians, cyclists, users of motorized two and three wheeled vehicles...) ... policies should be to guarantee protection to all users;*

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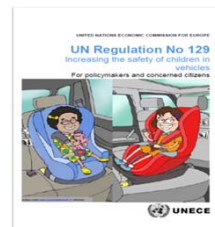
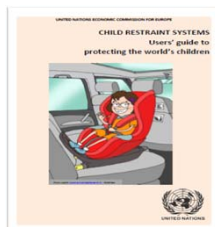
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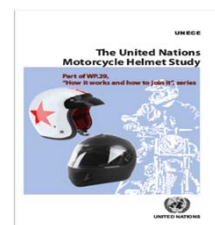
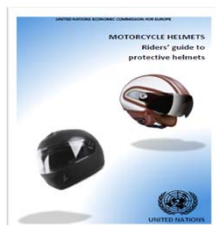
Leaflets and Publications



- Child restraint systems



- Motorcycle helmets



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FOR YOUR ATTENTION**

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