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(136th WP.29, 21-24 June 2005
agenda items 5.3.2. and B.2.4.2.)

United States of America Request to List Regulations in The Compendium of Candidates

The United States of America requests that the following Federal Motor Vehicle Safety Standards (FMVSS) be listed in the Compendium of Candidates:

- FMVSS 213 - Child Restraint Systems, and
- FMVSS 225 – Child Restraint Anchorage Systems.

Background

Child restraint systems are the most effective way to protect young children involved in motor vehicle crashes. The National Highway Traffic Safety Administration (NHTSA), in the United States of America (USA), estimates that these systems, when properly used, reduce the chance of death in a motor vehicle crash by 71 percent. However, in order for these benefits to be achieved, child restraints must be installed and used properly. A study sponsored by NHTSA found that nearly 80 percent of child restraints were improperly installed or used. Every year, in the USA, an average of 230 children aged 0-6 are killed, and nearly 66,000 are injured in motor vehicle crashes while sitting in child restraints. An estimated 68 deaths and 874 nonfatal injuries could have been prevented if misuse of child restraints were eliminated.

Description of Regulation

To address this problem, NHTSA established a uniform child restraint attachment system. Vehicles are equipped with independent child restraint anchorage systems consisting of three anchorage points: two lower anchorages and one upper anchorage. Each lower anchorage consists of a 6 mm bar located at the intersection of the vehicle seat cushion and seat back, in a location where it will not be felt by passengers. The upper anchorage is a top tether anchorage. These anchorage systems are required at two rear seating positions. In addition, if a vehicle has three designated seating positions in the rear seat or second or third row of seats, another seating position, other than an outboard position must be equipped with a user-ready tether anchorage. Child restraints are required to be equipped with a means of attaching to these anchorage systems.

NHTSA considered several different types of uniform attachment systems. NHTSA selected the vehicle rigid anchorage system because it allows for more flexibility in child restraint designs. The child restraint attachments could be designed to be rigid or nonrigid (i.e., flexible). Both systems provide comparable safety benefits.

A table describing these regulations and comparing them to the Canadian and ECE regulations is provided in document TRANS/WP.29/GRSP/2004/14.

Safety Benefits

The uniform systems will increase safety both by decreasing misuse, and by providing better protection than current systems do even when used properly. Of the estimated 68 lives lost annually due to misuse, this regulation is expected to prevent 30 to 33 fatalities. In the event of a crash, the tether will prevent head excursion and reduce the chance of serious head injury. An estimated 6 to 17 additional lives will be saved by tether anchorages. The safety benefits of both rigid and non-rigid connectors are summarized in Table S-1. It is estimated that these systems will prevent from 36 to 50 fatalities, and from 1,231 to 2,929 nonfatal injuries annually.

Table S-1
Benefits

CRS /Vehicle	Fatality Benefits	Injury Benefits
Rigid/Rigid	36 to 47	1,231 to 2,893
Non-rigid /Rigid	36 to 50	1,235 to 2,929

Estimated Average Costs

Table S-2 presents an estimate of what the agency believes will be the most likely total cost of the regulation. NHTSA believes that sales of child restraints with rigid connectors (shown in Table S-3 to cost from $33.87 to $43.87) and the non-rigid connector system that uses a single strap through the opening on the back of the seat (shown in Table S-3 to cost as low as $9.62) may be limited because few manufacturers indicated they would produce these types of systems. The estimate of most likely costs ($17.19) is thus based on an average of non-rigid connector systems with dual straps. The average vehicle costs ($5.67) are weighted by the number of seating positions required to be equipped with rigid anchorages.

Table S-2
Estimated Average Costs
($1996)

Restraint Type	Per Child Restraint	Per Vehicle	Total Annual Cost	Cost Per Equivalent Fatality (Millions)
CRS Non-rigid/ Vehicle Rigid	$17.19	$5.67	$152 Million	$2.1 to $3.7

Range of Costs

The range of costs for providing anchorages and tethers, and modifying child safety seat designs are summarized in Table S-3. Anchorages and tethers are expected to increase vehicle costs by from $2.82 to $6.62. Child restraint costs will increase by $9.62 to $43.87.

Cost Effectiveness

For the estimated average total annual cost of $152 million, the cost per equivalent life saved is estimated to be $2.1 to $3.7 million (see Table S-2).

Table S-3
Consumer Cost of Various Types of Systems
($1996)

System	Per Child Restraint	Per Vehicle[1]
CRS Rigid	$33.87 - $43.87	
CRS Non-rigid	$9.62 - $21.09	
Vehicle Rigid		$2.82 to $6.62

Technical Documentation

Technical documentation supporting these regulations, including documentation concerning best available technology, relative benefits, and cost effectiveness can be found in the following documents:

- Final Economic Assessment: FMVSS No. 213 Child Restraint Systems, FMVSS No. 225 Child Restraint Anchorage Systems
- Technical Justification for US Regulation (Final Rule: Federal Motor Vehicle Safety Standards; Child Restraint Systems; Child Restraint Anchorage Systems)
- Chart Comparing the US and Canadian Child Restraint Standards to the ECE Child Restraint Standards as they pertain to ISOFIX (TRANS/WP.29/GRSP/2004/14)

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[1] The range represents vehicles with no rear seat (meaning anchorage required for one front seat) to vehicles with three rear seating positions (meaning two seating positions with lower anchorages and tether plus one seating position with just a tether).