

# Existing and Future U.S. Child Restraint Safety Standards

SAE

Government/Industry Meeting

May 2001



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# DISCUSSION

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- < FMVSS 213 – History / Upgrades
- < FMVSS 225 – New “LATCH” System
- < Recent Injury and Fatality Distributions for Child Occupants
- < Child Passenger Safety Provisions Under TREAD Act



# FMVSS 213 “Child Restraint Systems”

- < Effective January 1, 1981
- < Children Up To 50 lbs.
- < All Child Restraint Systems
- < Dynamic Test Procedure
- < 2 Child Dummies
  - , 6-month-old CAMI and Part 572C 3-year-old
- < Injury and Dummy Excursion Criteria
- < CRS Buckle Release Force Requirements
- < Labeling Requirements



# FMVSS 213 “Child Restraint Systems”

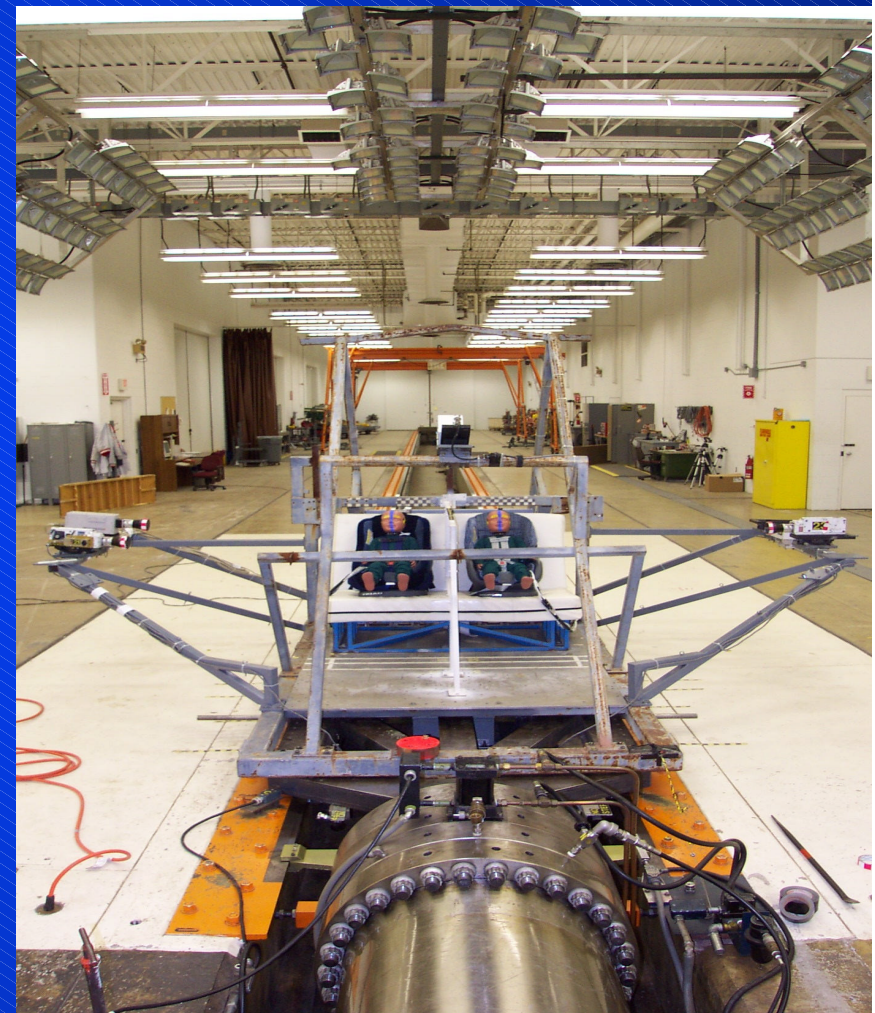
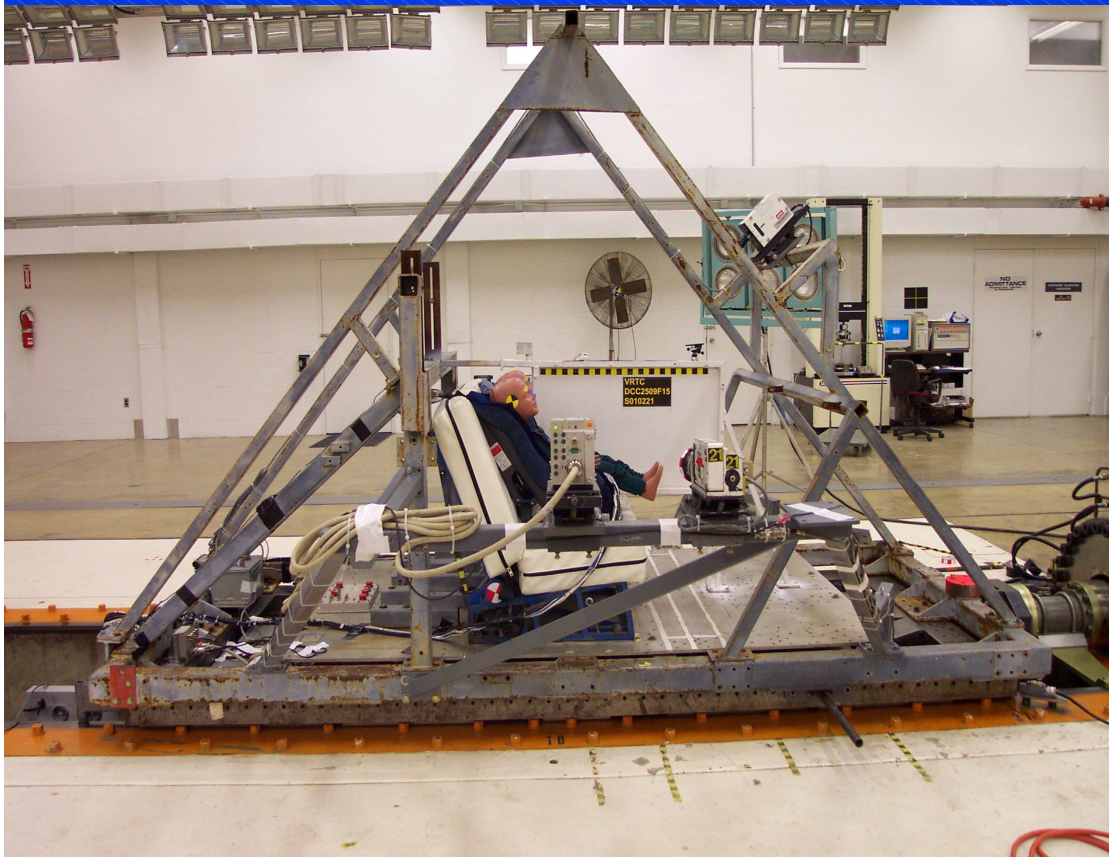
## < Dynamic Sled Test

- , 30 mph test velocity (delta-V)
- , Frontal impact simulation
- , Peak acceleration between 21-24 g's
- , Standard bench seat fixture
- , Dummies required to meet injury criteria
  - > HIC and chest acceleration
  - > Head and knee excursion limits





# 213 Sled Test Buck



# Upgrades to FMVSS 213 Since 1981

- < CRS Certification for Both Motor Vehicles and Aircraft
- < CRS with Tethers Must Pass 30 mph Test With Tethers Unattached
- < Permit Installation of Built-In CRS in Passenger Cars and Minivans
- < Manufacturers Must Provide Postage Paid Registration Form with Each CRS





# Upgrades to FMVSS 213 Since 1981 (contd.)

- < Revised Requirement for Add-On CRS with Adjustable Seating Positions
- < Allow Controlled Motion of CRS
- < Facilitate the Manufacture of Belt Positioning Child Seats
- < Addition of 3 Test Dummies (newborn, 9-month-old, 6-year-old)



# FMVSS 225 “Child Restraint Anchorage Systems” (LATCH)

- < Effective September 1, 1999 with Phase-In thru September 1, 2002
- < Improve child restraint and vehicle compatibility:
  - , Requires vehicles to have 2 lower anchorages (6 mm rigid bars) and 1 upper anchorage, independent of vehicle belt restraint
    - > 2 systems rearward of front seat
    - > 3<sup>rd</sup> tether anchor, if 3 rear designated seating positions
    - > 1 system in front passenger seat if no rear seat or insufficient room in rear seat, ONLY if equipped with OEM airbag cutoff switch





# FMVSS 225 “Child Restraint Anchorage Systems” (LATCH)

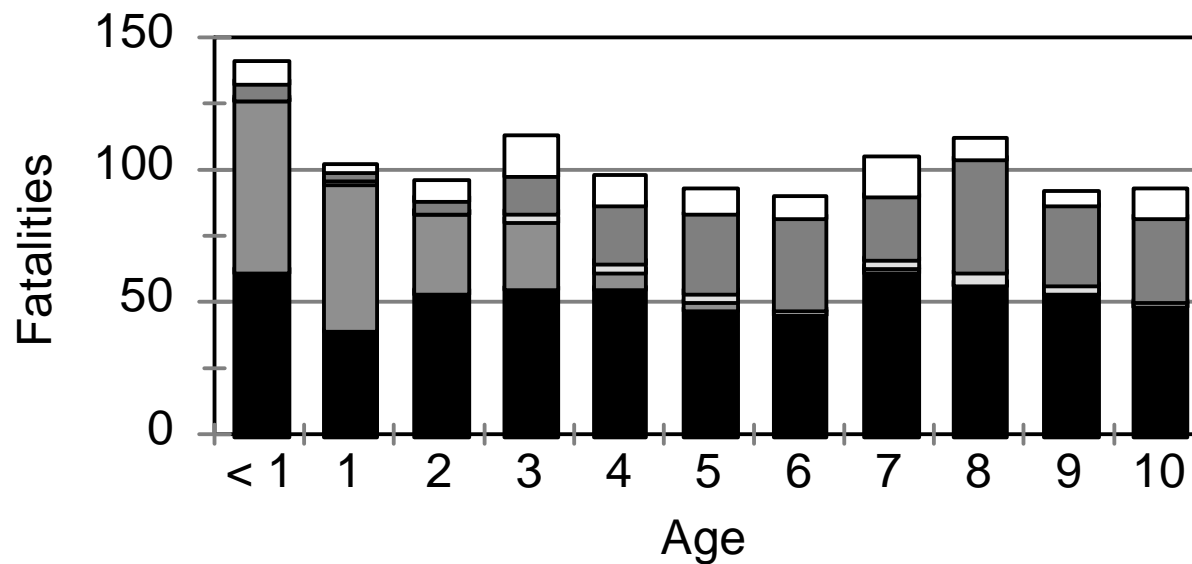
- < Improve child restraint and vehicle compatibility:
    - , Requires CRS to have means for attaching to the new independent anchorage system
      - > FMVSS 213 amended – head excursion limit lowered to 28 in. when top tether used
    - , CRS designed as toddler/belt-positioning booster is required to have LATCH attachments
    - , Not applicable to harnesses, car beds or belt-positioning booster seats
- CRS attachments can be either rigid or flexible



# Child Passenger Safety-1999 FARS

## Child Fatalities by Age

Ages 0 through 10



“Restr. CSS” includes cases with various types of improper use.



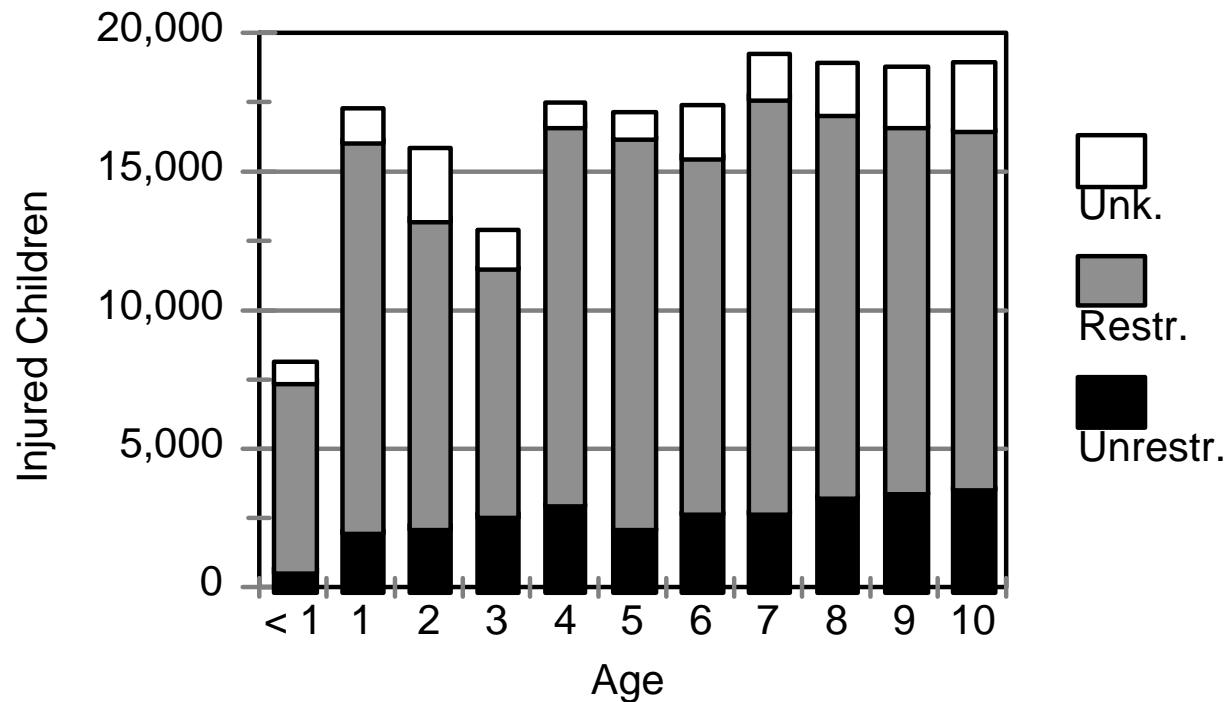
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■ Unrestr.    ■ Restr. CSS    ■ Type Unk  
■ Belted    ■ Unk.

**TSA**  
People Saving People

# Child Passenger Safety - 1999 NASS-GES

## Injured Children by Age



“Restr.” includes children in CS and belts, both properly and improperly used.



# TREAD Act

## < Transportation Recall Enhancement, Accountability, and Documentation (TREAD) Act

- , Enacted November 1, 2000
- , Sec.14. Improving the Safety of Child Restraints



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# TREAD Act Sec. 14(a)

## < Nov. 2001- Issue NPRM:

- , For the purpose of improving the safety of child restraints, including minimizing head injuries from side impact collisions

## < Nov. 2002 – Issue Final Rule



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# TREAD Act Sec. 14(b)

- < Nov. 2001 - Issue NPRM addressing:
  - , (2)(A) Need for ATD representing 10 year old child
  - , (6) Upgrade of FMVSS 213 to cover restraints for children weighing up to 80 lbs
  - , (7) Need to establish booster seat performance and structural integrity requirements thru dynamic testing



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< Nov. 2002 - Issue Final Rule



# TREAD Act Sec. 14(b)

- < Nov. 2001 – Issue NPRM addressing:
  - , (4) Program to provide information on compatibility of CRS and vehicle seats on model-by-model basis
  - , (9) Decision on inclusion of CRS in each vehicle crashed under New Car Assessment Program (NCAP)

< Nov. 2002 – Issue Final Rule



# TREAD Act Sec. 14(b)

- < Nov. 2001 – Issue NPRM addressing:
  - , (8) Decision on applying scaled injury criteria performance levels, including neck injury, developed for FMVSS 208 to child restraints and booster seats covered in FMVSS 213

- < Nov. 2002 – Issue Final Rule





# TREAD Act Sec. 14(g)

- < Nov. 2001 - Issue NPRM addressing:
  - , Establishment of a CRS rating consumer information program
- < Nov. 2002 - Issue Final Rule



# TREAD Act Sec. 14(h)

- < Nov. 2001 - Submit to Congress:
  - , Report detailing study on the use and effectiveness of belt-positioning booster seats



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# TREAD Act Sec. 14(i)

< Nov. 2001

- Develop a 5 year strategic plan to reduce deaths and injuries caused by failure to use the appropriate booster seat in the 4 to 8 year old age group by 25%



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# SAE G/I

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Thank you  
for your interest  
in Highway safety!



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