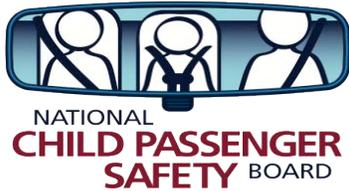




TECH UPDATE

www.cpsboard.org June 2014



Regulatory Review: Seat Belts Now Required on New Motorcoaches

In November 2013, the National Highway Traffic Safety Administration (NHTSA) issued a new rule requiring three-point seat belts on motorcoaches. Motorcoaches are buses mostly used to travel between cities, while transit buses transport people within a city. The rule does not apply to school buses or transit buses.

The rule goes into effect November 2016. It changes part of Federal Motor Vehicle Safety Standard (FMVSS) No. 208. The seat belts must have a mechanism to install a child restraint such as a switchable retractor or locking latch plate. Some buses made before the rule goes into effect will already have seat belts that follow the new rule. So there will now be motorcoaches that allow easier car seat installation. But it will take a long time before all of them have seat belts. Older buses may have seat belts that can't be locked. Parents thinking of traveling by motorcoach with kids should call the company to ask whether seat belts are available. If they don't lock, they might need to use a locking clip or car seat with a lockoff.

You can find out more at this website, including a link to the final rule.
<http://www.nhtsa.gov/About+NHTSA/Press+Releases/NHTSA+Announces+Final+Rule+Requiring+Seat+Belts+on+Motorcoaches>

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Seat Check Smarts: Why Don't We Lock Seat Belts on Kids in Boosters or in Belts All the Time?

In many vehicles, we switch the retractor from emergency locking mode to automatic locking mode when installing a car seat with a seat belt. When older children switch to using a booster, they are often happy with how much more they can move around. Parents and technicians sometimes wonder if it would be better to lock the seat belt when using a booster or just the seat belt.



In general, the answer is no. When designing seat belt systems, the retractors allow some initial spool out so the torso rotates forward. This lets the shoulder belt engage firmly with the shoulder. It also lets the shoulder belt pull through a sliding latch plate to tighten the lap belt. This provides better loading through the pelvis. Allowing the torso to rotate past vertical helps to prevent submarining under the lap belt. This is why vehicle and child restraint manufacturer instructions do not instruct you to switch the retractor when using a booster or seat belt. If the seat belt is locked, it would prevent the forward torso motion and could lead to submarining.

Sometimes a kid moves around so much in a booster that the shoulder belt is hardly ever in position. For these kids, a higher-weight harnessed seat or a travel vest should be considered.

Take home message: Manufacturers generally do not allow locking the seat belt with kids in boosters or seat belts.



Follow the CPS Board

1. New Improved Website: www.cpsboard.org
2. On Facebook: National Child Passenger Safety Board
www.facebook.com/NCPSB2011
3. Also On Facebook: CPS Certification
www.facebook.com/cpscirt

Focus on Testing: Comparison of US and Canadian Child Seat Safety Standards

In 2010, the Canadian Motor Vehicle Safety Standard (CMVSS) 213 was updated. Now its requirements more closely match those of the United States Federal Motor Vehicle Safety Standard (FMVSS) 213. Both standards describe methods for crash testing child seats and regulate how they must perform. They also use the same crash test dummies, test bench seat and crash acceleration/speed.

However, some differences still exist. Laws in Canada state that every car seat sold must conform to CMVSS 213. A National Safety Mark on the seat shows that it meets the standard. There is no mark or 'stamp' of approval needed for US market. A testing difference is that CMVSS uses a three-point lap/shoulder belt to test all car seats. The US standard only requires lap/shoulder belts when testing boosters.



Canadian National
Safety Mark

Both standards test child seats for kids weighing up to 65 pounds. However, starting in February 2014, FMVSS 213 will apply to kids up to 80 pounds. The new 10-year-old dummy used for US testing is not part of the Canadian standard.

For rear-facing car seats, CMVSS has a limit on the dummy's head movement during crash rebound. The US does not have this limit. In FMVSS 213, forward-facing seats are tested with and without a tether. The excursion limit is 28" with the tether and 32" without it. If the car seat passes the 28" limit without a tether, it doesn't need to have a tether. CMVSS 213 requires a top tether and does not test without it.



Canadian Booster
Compression Test

In the US, booster seats can have a lower weight limit of 30 pounds. In Canada, the lower limit can be no less than 40 pounds. CMVSS 213 has a deflection test for booster seats that checks the stiffness and strength of the seat. This ensures proper support for the child. FMVSS 213 does not use this deflection test.

CMVSS and FMVSS both require that all harnessed car seats pass an inversion test for use in aircraft. This makes sure that the child stays in the car seat if it's turned upside down.

Another Teachable Moment

Not finding the top tether anchor, the installer of this car seat attached it to the center seat shoulder belt, which detaches and is stowed near the roof.

Submitted by Laura Malik,
Ann Arbor, MI



NO!

Seat Check Smarts: Spacing Between Rear-Facing Restraints and Vehicle Front Seats

To allow children to stay rear facing as long as possible, rear-facing seats are getting larger. This often makes it more difficult to fit into the space available in vehicle seats. Parents may be concerned about the car seat touching the forward vehicle seat. In many cases, some contact is not a problem. Exceptions are when:

- *The contact prevents the child seat from being installed at the correct angle.* - The correct restraint angle is needed to allow young children to maintain open airways during travel.
- *The child seat manufacturer's instructions prohibit it.* - The added contact may load the child seat in a way that it was not intended.
- *The vehicle manufacturer's instructions prohibit it.* Added load on the back of the vehicle seat may interfere with occupant sensing systems or other occupant protection features in the vehicle.



Rear-Facing Restraint in Contact with Vehicle Front Seat

These reasons highlight why reading instructions (and teaching parents to read instructions) is so important. If a rear-facing child restraint touches the seat in front when it is not allowed, another seating position or another product should be considered.

Recent Research: Child Car Seat Inspection Stations – Who Attends and What is the Benefit?

Researchers in Indiana analyzed data from child safety seat inspection stations. In one year, 7,738 drivers visited with 9,046 children. Most drivers were female (75%). About half (51%) were in a public assistance program. Most parents had infants under age one (44%); 22% were expecting a new baby.

The most common identified car seat misuses were: loose installation (59%), loose harness (52%), incorrect chest clip position (48%), seat belt not locked (36%), incorrect installation angle (22%), and incorrect harness slots used (18%). For kids under age one, 95% came in rear-facing and 98% left rear-facing. Almost no kids between 12 and 23 months switched back to rear-facing from forward-facing. In positions where a tether should be used, it was not attached in 86% of cases.

In 39% of the checks, the child left in a new or different child car seat. 84% of the new seats were given to the family at no cost. All families received education about best child transportation practices. Correct usage was significantly improved for most participants.



Take home message: These data can help CPSTs understand characteristics of individuals who are seeking information and resources in their communities. They also highlight practices that need to be emphasized, like top tether use and extended rear-facing travel.

Reference: O'Neil J, Louson ML, Matthews JD, Bull MJ. **Child Car Seat Inspection Stations: Who Attends and What is the Benefit?**. AAAM Vol 57, 2013; 363-364.

Recent Research: Vehicle LATCH System Features Associated with Correct Child Restraint Installations

A study looked at vehicle factors leading to correct car seat installation using LATCH. Researchers at the University of Michigan Transportation Research Institute (UMTRI) performed the study for the Insurance Institute for Highway Safety (IIHS). They first measured characteristics of LATCH hardware in 98 top-selling 2010-2011 vehicles. From these, twelve vehicles with a variety of LATCH designs were selected to test with volunteers. Thirty-six volunteers tested three vehicles each. They used a rear-facing only car seat, a rear-facing convertible, a forward-facing convertible, and a combination car seat.

From the vehicle survey, most vehicles have the minimum required number of LATCH seating positions. For the 21 vehicles with a third row, 11 had no lower anchors in the third row. Four had no tether anchors in a third row. The volunteers used lower anchors correctly in 60% of LATCH installs. They used the top tether in 48% of forward-facing installs. When they used a tether, they did it right about half the time. Only 13% of installs were error-free. If subjects used the lower anchors correctly, they were also 3.3 times more likely to get the car seat in tight than if they made an error attaching the lower anchors.

Three different vehicle factors made lower anchors easier to use correctly. The first is if the anchor is buried less than 2 cm into the seat bight. The second is if the force to attach the anchor is less than 40 lbf. The third is if there is at least 54 degrees of clearance around the anchor. In vehicles with all three of these design features, subjects were 19 times more likely to correctly use lower anchors compared to vehicles with none of these design features. In this study, the researchers did not find anything that predicted correct tether use.

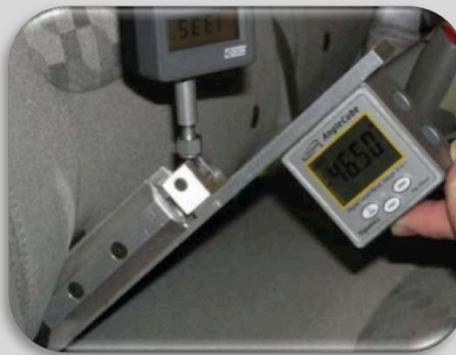
Take home message: This study helps explain why LATCH is harder to use in some vehicles. The results provide information so vehicle manufacturers can make LATCH easier to use.

Reference: [Klinich KD, Flannagan CA, Jermakian JS, McCartt AT, Manary MA, Moore JL, Wells JK. Vehicle LATCH system features associated with correct child restraint installations. *Traffic Inj Prev.* 2013;14\(5\):520-31. doi: 10.1080/15389588.2012.701030.](#)

Vehicle Factors that Make Lower Anchors Easier to Use Correctly:



Lower Anchor Depth
in Seat Bight



Clearance Around
Lower Anchor



Force Required to Attach
Lower Anchor Hook

Technician Spotlight

This month we talk with Amy A. Heinzen, MPH, CPSTI, who is a Program Manager at the National Safety Council

- 1) How long have you been a CPS Tech?** I first became a certified CPST in 2004. However, I moved to Germany and during that time my certification lapsed. When I returned in 2007 I recertified, and became an Instructor in 2008. Therefore, I went through the “old” curriculum with the large test at the end of the course, and the current course with multiple exams and skills assessments.
- 2) Where do you do most of your car seat checks?** Tampa Bay area, FL – Hillsborough, Polk and Pasco Counties.
- 3) What prompted you to take the training?** Work. It was not a requirement, but supported while I was working as a Certified Child Life Specialist at All Children’s Specialty Care of Tampa, a pediatric outreach center of All Children’s Hospital in St. Petersburg, FL. By 2007, I was once again employed by All Children’s Hospital, but then in community education and advocacy with a focus on pediatric injury prevention. I was a Safe Kids Coordinator for two counties and the CPS programs were, and continue to be, a primary focus for the Polk and Pasco Councils of that 5 county coalition. Now, as a Program Manager with the National Safety Council, I hold the Secretariat position with the National Child Passenger Safety Board. Like so many in the CPS field, CPS is now a passion for me and I am fortunate to have an employment position in which my continued certification and work in the field is important to my job.
- 4) What is your favorite CPS resource?** The National Child Passenger Safety Board (NCPSTB). I have been very fortunate to be a part of this Board for several years now and the experiences have truly expanded my knowledge base, as well as afforded me the opportunity to meet so many wonderful technicians and instructors nationally that I would not have met otherwise. Before I became active with the NCPSTB I honestly didn’t realize how many resources were available by the Board. I encourage all CPSTs and Instructors to visit www.cpsboard.org for online CEUs, certification resources, and much more! CPSTs and Instructors are also encouraged to like the National Child Passenger Safety Board on Facebook for important CPS announcements.
- 5) What is your favorite installation hint?** I’m not sure I would consider this a “favorite”, but rather most popular, is educating caregivers about only using LATCH or a seat belt for installation, and making sure if they are using LATCH that the child restraint can be installed with LATCH in the location it is positioned in the vehicle. That seems to me to be a continuous source of confusion for caregivers.
- 6) What is the worst weather you've ever experienced at a car seat check?** Heavy, down-pouring rain. The Tampa Bay area is known as the lightning capital, so typically once there is lightning we take a break, but honestly, I know there are those very dedicated technicians that continue even through these storms.
- 7) What do you think is the best new feature among recent new child restraint products?** I personally like the simplicity of installation with the Britax Click Tight Installation System.

Farewell Issue

Because of changing budget priorities, this will be the last issue of CPS Tech Update for now. We have enjoyed receiving feedback from CPSTs across the country, and look forward to meeting you in person at other CPS education events.

- CPS TU Editors



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