

**Docket:** NHTSA-2020-0093  
**Child Restraint Systems**

April 5, 2021

To: National Highway Traffic Safety Administration  
From: Denise Donaldson, Safe Ride News Publications

Re: Comments on changes to FMVSS 213

Safe Ride News Publications (SRN) appreciates the opportunity to comment on this NPRM to upgrade FMVSS 213 for the benefit of child passengers. As a member of the child passenger safety community for nearly 40 years, as well as a co-petitioner for one of the proposals addressed in this NPRM, SRN has a vested interest in the improvement of this important safety standard.

SRN is generally in favor of the proposals in this NPRM, as they are timely and, in fact, long awaited. Therefore, while the following comments include some feedback that would require further research to be fully considered, we do not intend to suggest any delay in finalization and implementation of the proposed improvements. Any steps that would slow the resolution of the current NPRM are urged to be undertaken subsequent to this rulemaking to inform future improvements.

Comments for specific sections of the NPRM:

**Section III: Updating the Representative Seat Assembly.**

Safe Ride News is in favor of the changes that will make the test seat cushion and belt/LATCH geometry more representative of current vehicles and easier to source/replace parts.

**Section IV: Type 2 Rather Than Type 1 Belt**

We are also glad that car seats with an internal harness will be tested while installed using a lap-shoulder belt because it's clear that these types are now predominant in the field. However, we urge NHTSA to consider using a shoulder belt that replicates the spooling effect of a real vehicle seat belt (such as the surrogate belt developed by UMTRI, Klinich et al, 2020) rather than a fixed belt. A surrogate seat belt retractor would make booster testing more representative, as well.

Although eliminating the current requirement to test CRs installed using a lap-only belt would offset the burden of the proposed new lap-shoulder testing, we have several concerns on this point. There are still many vehicles in use that have lap-only belts; pre-MY 2008 vehicles are still widely in use, and these models typically have lap-only belts in the center seat (where LATCH is rarely present as an installation alternative). Some families are even using vehicles made prior to MY 1989, in which all rear positions could have lap-only belts; these are often families with limited resources who already face other safety disadvantages. Therefore, SRN is not convinced that the proposed testing (using LATCH and lap-shoulder belts) would adequately ensure the safety of children in all vehicles for the following reasons:

LATCH as a stand-in for testing with a lap-only belt?: Even if LATCH were a perfect stand-in, most CR models aren't subject to LATCH testing using dummies anywhere close to their upper harness-use limits due to the 65-pound combined weight ceiling for testing with LATCH. CRs that weigh 14 pounds or more (the majority of today's models\*) are required to be tested while installed with LATCH only with the 22-pound 1-yo and 36-pound 3-yo dummies because the next-larger dummy, the HIII 6-yo, weighs 51 pounds (51+14=65). In fact, a number of CR models on the market weigh more than 28 pounds, and since the Hybrid III dummy weighs 36 pounds, these models are expected to pass tests using LATCH only with the 1-yo/22-lb. dummy because 29+36=65. Since the mode for the harness-use maximum of today's convertible and all-in-one CRs is solidly at 65 pounds—and those models nearly always weigh over 13 pounds—the vast majority of models have no LATCH testing requirement that would check use for children at the upper range of allowed harness use.

Lap-shoulder belt and lap-only belt performance essentially the same?: The NPRM also says, "Test data do not indicate any significant difference in performance in current child restraint designs when installed using a Type 1 versus a Type 2 belt." However, we are not convinced by the referenced supporting test data (provided in Tables 11 and 12 in the NPRM). The models tested were limited in quantity (3), and only one, a Graco Nautilus, was tested forward facing. While both RF and FF performance are important, on this point our initial concerns are about FF use since that involves larger children who are more likely to challenge the CR's structural integrity and excursion measures.

The Nautilus was tested with a Hybrid III 6-yo while installed tethered using a 2- and 3-point belts. Besides the fact that one individual test is too small of a sample, this scenario is flawed for such comparison in a number of ways.

First, at 51 pounds, the 6-yo isn't close to the model's 65-pound limit; per standard, this model would be subject to testing with the *weighted* 6-yo, 62-pound dummy; comparisons using the weighted 6-yo, much closer to the model's allowed use limit, could be informative.

---

\* See 2021 *LATCH Manual*, pages A-29, A-35, and A-41 for the weights of several current models; these listings of top-volume sellers are generally lighter than many others on the market, but most are well over the 13-pound threshold. Therefore, these represent conservative examples for this point. Other examples can be found by reviewing Appendix A entries.

Also problematic is that the comparison tests were done only while the CR was tethered. While this is the recommended use condition, it cannot be considered typical. NHTSA is aware that many studies have shown caregivers tend not to attach the tether, especially when a CR is installed using a seat belt. In fact, many vehicle brands limit tether use to a combined weight of 65 pounds\*, so in those vehicles tethering a Nautilus would be discouraged by the vehicle manufacturer after the child weighs 45 pounds.

These points matter because, unlike a lap-only belt, a lap-shoulder belt includes an additional length of webbing running higher through the CRs belt path, and that is likely to perform some function in limiting head excursion. Even the provided Nautilus example, though tethered, showed 15% less head excursion when installed using a lap-shoulder belt compared to a lap-only belt. This difference is not insignificant, and it signals the likelihood that the difference would be more pronounced if the seat were tested with these belts using a heavier dummy and in an untethered state.

What if manufacturers were to say lap-only belts may not be used?: SRN knows CR manufacturers care about the safety of children and tend to test their products far beyond the minimal FMVSS requirements. However, that should not be assumed. And, since it is common practice for manufacturers to prohibit CR use that has not been tested, removing the requirement to test with a lap-only belt could also have the negative consequence of leading to CR instructions that prohibit installations using lap-only belts. This would be a very undesirable outcome for a number of reasons. It would unnecessarily compel families with vehicles made before MY 1989 to place CRs in the front seat, and with those made MY 1989–2008 to not utilize the center seat. These scenarios represent a double-whammy: They'd shift children in CRs away from seats with known safety advantages for them, while making it more likely that adults would have to use the less-safe 2-point belts that remain vacant after the car seat is installed. In addition, please consider the extreme limitation that would be placed on conventional CRs used on school buses, where 2-point belts are more common than 3-point types, even in many newer buses.

In summary, SRN applauds the move to modernize (and harmonize with Canadian standards) by requiring testing using lap-shoulder belts. However, we urge the use of a belt that replicates the spooling effect of a retractor, and we feel it is premature to remove testing requirements using lap-only belts. If NHTSA believes performance of a LATCH installation closely resembles a lap-only belt, using LATCH as a stand in for a lap-only belt should be required at all required dummy weights and tested in both the tethered and non-tethered state. Additionally, SRN urges NHTSA to consider ways to prevent the possibility that manufacturers will disallow CR installation using a typical, CR-friendly lap-only belt (any with a manually adjusting, locking latchplate or an ALR-mode retractor).

---

\* Per the 2021 *LATCH Manual's* Appendix B, for factory-installed TAs, this includes all GM brands (current and defunct), Hyundai, Kia, Porsche, Tesla, and certain older FCA models. These limits are stated in the *LATCH Manual* and have begun to be included in some owner's manuals, as well.

## V. Denial of Petition Regarding a Floor

The efficacy of deploying a load leg on both RF and FF CRs is widely known, and SRN is generally pleased to see models on the market that utilize this safety feature. While there is no doubt that NHTSA is aware of the advantages of the load-leg safety feature, it is understood that its standards are set up to test for baseline safety, not for the purpose of pressing for models to have extra bells and whistles. However, in denying Volvo's petition to include a floor on test bench for the test bench, the NPRM says:

"A generic floor would serve no purpose in the FMVSS No. 213 compliance test. FMVSS No. 213 standardizes the method of attachment to the vehicle seat and requires CRSs to meet the FMVSS No. 213's dynamic performance requirements when attached to the test seat assembly using the standardized attachments (seat belt assembly; child restraint anchorage system)."

This statement and the ensuing explanation suggest that a load leg has no place in NHTSA's vision for CR installation, implying a stance that actively *dissuades* such CR safety advancements. Instead, the NPRM says standardization in installation is preferred, explaining that consumers are better off not being expected to "learn novel ways" of installing a child restraint.

This is likely to be true, but despite what is preferred in theory, our actual system and standards simply do not ensure uniformity. So, at this time SRN is not commenting so much on how the lack of a vehicle floor fails to promote the load leg feature, but that its absence is failing to ensure that models currently sold (and growing in popularity) can be used safely. The NPRM says, "The test parameters are also chosen and designed to reflect how child restraints are actually *used* in the real world." SRN notes that, with at least six car seat brands on the market selling one or more models with this feature, load legs *are* part of the real world.

The NPRM cites the low tether use rate but doesn't acknowledge that this fact is another reason alternative energy-management features like load legs are desirable. Although load legs seem like a novelty, their use is at least as straightforward (and often more so) than use of a tether. But the NPRM hits the nail on the head by stating:

"The FMVSSs also have no performance requirements for the vehicle floor to ensure stable installation of a support leg and sufficient rigor to withstand loading from a leg during a crash."

This lack of vehicle floor standardization is the main concern for the use of load legs. Establishing a minimum strength threshold for safe deployment of load legs would be beneficial to vehicle and CR makers alike, whether that threshold becomes a requirement for vehicle manufacturer floors or provides guidance for determining when instructions should prohibit the use of the leg due to floor-strength concerns\*.

---

\*The 2021 *LATCH Manual* includes notes from FCA for some vehicle models that say use of a load leg in one or more seating positions is prohibited, ostensibly due to the presence of under-floor storage. However, when manufacturers were asked to provide similar instructions, as needed, for the recent update to the manual, none indicated similar limitations for their vehicles and one, Honda Odyssey, now includes a note from Honda saying that use of a load leg is okay, *despite* the presence of a storage door on the floor. Therefore, it would be unfortunate to simply site the presence of under-floor storage as a reason not to deploy a load leg. Better would be to inform all manufacturers what the expected crash load for a deployed load leg would be so that manuals can include informed instructions.

In summary, while SRN believes it is preferable that FMVSS 213 not *discourage* the addition of useful safety features, our comments at this time focus more on what is needed to properly test models currently being sold and used in today's market. A vehicle floor could help ensure that load leg features are used safely when deployed and instill caregiver confidence in their use. As stated in the NPRM, all models with this feature must also continue to be required to pass standards with the leg stowed, as well.

However, to be clear: Although SRN is urging further study and action on this topic, we recognize that this would require time; we are not suggesting that this be tackled before finalizing the current proposals. Rather, we ask that the petition not be closed with a denial, but rather a promise for further study.

#### **VI. No Change to Crash Pulse**

We have no comment on the decision to maintain the current test pulse, other than to agree that this seems to have been thoroughly studied; others who have more knowledge on this topic than we do seem to be satisfied, as well.

#### **VIII. Communicating with Today's Parents: a) Car seat registration**

SRN encourages steps that are expected to improve the rate of CR registration so that owners will be more likely to respond to CR recalls. NHTSA proposes to allow a wording that will ensure caregivers that their provided contact information will be used for no other purpose than to advise of a recall, and SRN strongly agrees that this is useful and should even be required. In addition, it is clearly time to require the option (in addition to the postcard) of online registration. On this point, in addition the option of entering a web address, SRN encourages that QR codes be allowed that would take caregivers directly to the site and could potentially preload the model details.

While providing manufacturers some leeway in the appearance of the postcard (and the new online registration), SRN urges NHTSA to examine this topic carefully before allowing too much variability in these materials. SRN agrees with the NPRM that the bottom/mail-in part should remain the same. The top/informational part, where some control might be ceded, should remain recognizable. As stated in earlier parts of the NPRM, there are advantages to standardization; many families purchase CRs from multiple brands over the years, so having the card be familiar-looking is a plus. Also, while it is likely that CR manufacturers would come up with very visually clear and appealing layouts for the card, this should not be assumed of every manufacturer. And, while the use of illustrations and pictograms are helpful to many users, a wide array of such drawings is not necessarily good. It would be better to have NHTSA develop and supply standard pictograms that are allowed.

Bottom line: Rather than going from a strictly defined card to offering manufacturers a clean slate for their own designs, SRN urges a middle ground that allows some creativity and marketing appeal on registration materials, but that maintains key elements (certain wording, font sizes, color ranges, icons) that NHTSA deems essential. The resultant materials should be unmistakable in their purpose from one CR to another, even while allowing some flair by the CR brand.

#### **VIII. Communicating with Today's Parents: b) Information on correctly using CRS**

SRN is generally in favor of the improvements proposed to this portion of the standard, with a few exceptions that will be noted. To the extent that these

recommendations are posed as bringing the standard up to date with the times, we agree; most of these updates have been needed for decades.

In 2011, SRN and Evenflo submitted a petition to NHTSA requesting changes to certain required usage labeling. While the petition suggested alternative labels that would help guide caregivers to best practice, the petition focused on these labels primarily because the required wording was (and is) flawed, routinely misleading caregivers and even CPSTs about proper use. The proposals in this NPRM largely accommodate if not the letter of this 10-year-old petition, certainly its spirit and intent. In the ensuing years, the industry has evolved, and as NHTSA points out, even the AAP's CR selection criteria recommendations referred to in the petition have been somewhat revised—but the problematic label requirements have remained. So, if submitting the petition in 2021 rather than 2011, our goals would be the same, but our suggested solutions would, happily, be likely to be similar to what NHTSA has now proposed.

One area of potentially dangerous confusion is caused by a CR's required statement of usage range (weight and height). One of the points made in the submitted petition was that, despite the fact that multi-modal CRs have been on the market for decades, manufacturers are required to state an overall range for weight/height on the label. This is bound to result in confusion; especially dangerous is the misunderstanding that an internal harness may be used to a weight limit meant only for booster mode. Therefore, it's clear that lifting this requirement in favor a requirement for labels to state the weight and height range specifically for each mode of use is the right thing to do.

The other main point of the petition was to improve the "turnaround weight" statement for convertible CRs, which was required to be stated in a way that routinely led users (and even CPSTs) to misunderstand that this was the *required* weight to turn forward facing (rather than the *minimum* weight for use rear facing). Given the known safety benefits of staying rear facing as long as possible, this statement was a consistent problem. Rather than address this wording problems, the NPRM proposes an even better solution, which is to do away with the requirement of this statement altogether in favor of stating a 26.5-pound limit for all CRs in forward-facing harness mode. SRN is in favor of this approach, but strongly urges that the limit be 30 pounds rather than 26.5. For practical reasons, it's easier for caregivers to track a round milestone like 30 pounds. For safety reasons, it is better to well exceed the 95<sup>th</sup> percentile one-year-old, ensuring that this i-year milestone is a minimum for virtually all children, and to encourage caregivers to keep as many children as possible riding rear-facing during the second year of life, as well. CR manufacturers may actually welcome this steadying of instructions that level the playing field for those who want to provide instructions that align with child safety. SRN expects manufacturers will react similarly to the proposed requirement for booster use to be limited to children who are at least 40 pounds, which SRN strongly supports.

In addition to these weight limits, SRN would like to comment on the need for additional guidance regarding child age and height.

First, manufacturers should be prohibited from stating that children may ride forward facing once they are age one. Although the AAP no longer states age 2 specifically, it still indicates that children are better off staying rear as long as possible—likely beyond age 2. It should be noted, as well, that at least 16 states also require children to remain in RF mode until age 2. In requiring the weight minimum for riding forward facing (proposed 26.5 lbs., urged 30 lbs.), it would be a shame for this

upgraded message to be confused by other messaging that could be read to imply that an age of 1 supersedes the weight minimum.

Regarding the booster weight minimum of 40 pounds, due to behavioral/mental development and the maturity requirement for booster use, SRN recommends that a minimum age also be given for booster use, as well as a required statement of warning regarding a child's behavioral status. An ideal age minimum would be 5, about the time children start kindergarten. However, manufacturers that already voluntarily state an age minimum typically say age 4; at this age, an accompanying behavior warning is even more warranted. (For instance: "Minimum age 4; child must be able to control behavior so that proper seat belt use is maintained for the duration of a ride.)

Regarding height, SRN notes that upper weight limits for CRs used rear facing have vastly increased over the past decade, but the height, being largely limited by the space in vehicle back seats, has not grown to the same extent for most models. Therefore, these days, a RF CR's height limit is often met before the weight limit (particularly with respect to RF-only models), making this measurement particularly important. The nuances of communicating the height limit was a topic addressed in the SRN/Evenflo petition, in which we suggested a way to point caregivers to the important measure of height when rear facing (the seated height and space to the top of the CR shell) rather than the overall height. Although NHTSA has denied what the petition suggested, the impulse for this request has only grown over the ensuing decade. SRN urges NHTSA, in dismissing the petition's suggested revision (which it says relies too heavily on access to the owner's manual), to take up this topic to find a better solution. In keeping with NHTSA's observation in the NPRM, "The Agency believes that height information should be permanently attached to the CRS where it is readily available and easily accessible," SRN recommends that NHTSA require that a permanent, visible indicator (whether on labels, embossed in plastic, or on fabric) be provided to communicate maximum height (at 1" below the top of the seat shell). This approach would be much clearer, easier to find, and more meaningful than a maximum RF height, and could be provided at little cost to the manufacturers.

Allowing the manufacturers to have more control over how all of this usage information is communicated on labels has some merit, but, as with SRN's comment related to recall registration, NHTSA is urged to maintain some minimum requirements and/or provide some parameters.

## **IX: Streamlining the Use of ATDs**

SRN is in general agreement with the updates to the use of dummies, especially the update to require only the Hybrid III (not the older II). We also see the value of maintaining consistency with the side-impact testing that is currently proposed. However, given that only a 3-yo Qs model has been added to the Federal Register so far, we are concerned that attempting full alignment of these 213 updates to proposals in a separate docket could delay updates that are needed now.

## **X. School Bus CRSs**

This proposal expands CRS definitions in FMVSS 213 to better include some models that are already well established and in use by student transporters today, and SRN supports this clarification. To the extent that such as definition could also prompt manufacturers to innovate in creating new models, all the better. Having a separate category will also make it easier to establish when requirements apply for certain types of restraints are suitable only when they are used in passenger vehicles versus school buses, as needed.

Child safety restraint systems made for school bus use only are anchored to bus seating by means of a cam wrap (described in the NPRM as “seat back mount or a seat back and seat pan mount attachment method”), which makes them entirely inappropriate for use in other types of vehicles. Therefore, as NHTSA notes, clear labeling on these products must state that. In fact, the popular school-bus-only models that utilize cam wraps and meet this definition have always sported the required warning label that the NPRM proposes. However, in SRN’s experience with school transportation providers, it is our observation that this label is often overlooked and misunderstood. Therefore, given that ample time has passed for this sort of field observation, SRN urges NHTSA to review and update the current warning label so that it is easier to read and notice.

For instance, many of the labels are affixed to cam wraps as tags. These are often faced or curled away from the user, and we have seen many that are nearly illegible due to sun-fading and/or fraying. A more noticeable, durable tag would be better. The warning itself could also use clarification:

Current: “WARNING: This restraint must only be used on school bus seats. Entire seat directly behind must be unoccupied or have restrained occupants.”

Recommended: “WARNING: This restraint may be used on school buses only. The entire seat directly behind the wearer must be unoccupied or used *only* by occupants who are belted or in a safety restraint.

This recommended wording is longer, but we’ve found that the shorter wording is so abridged that it is often not understood. In addition, the two warning messages could be separated and stand alone, as they are related but could each stand alone.

Also, the pictogram could be improved by clarifying that the occupant in front is wearing a child restraint (instead of a seat belt). Including a school bus in the images would also help. Since many pupil transportation fleets are a mixture of school buses and other vehicles, like vans and SUVs, it is crucial that the message to use these devices only on school buses is clearly stated.

#### **XI: CPS Issues Arising from Other Research**

Commenting on #2, whether the weight limits of CRs should better match the height limits, SRN says no. Having experienced the many years in which RF weight limits were inadequate to keep even many 1-yos RF, we appreciate the buffer that today’s models provide. Since the height limit is constrained by the fore-aft space in vehicles, any alignment in height and weight limits would involve lowering the RF weight limits. This is not a direction we want to go, especially given that many state laws now specify a child age limit for RF assuming the ample weight limits provided by today’s CRs, even for the heaviest children. What would be better would be to see a greater emphasis on the instructions for height limits, especially the application of a required rear-facing height maximum indicator directly on the front of the CR (as described on page 7 of these comments).

Sincerely,



Denise Donaldson, owner  
Safe Ride News Publications

