DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

[Docket NHTSA–2010–00062]

Consumer Information; Program for Child Restraint Systems

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

ACTION: Request for comments.

SUMMARY: On April 24, 2009, DOT announced that NHTSA would establish a new consumer information program, as part of the New Car Assessment Program, to help caregivers find a child restraint system ("child safety seat") that fits their vehicle. Under the program, NHTSA will make available information from vehicle manufacturers as to the specific child safety seats the manufacturers recommend for individual vehicles. This document primarily details observations from an agency pilot study conducted to determine reasonable conditions for participation in such a program. It also proposes a set of forms comprised of objective criteria which vehicle manufacturers can use to identify child safety seats that fit their vehicles. The agency anticipates that this program will make it easier for caregivers to select a child safety seat that fits in their vehicle.

DATES: Comments should be submitted early enough to ensure that they are received no later than March 28, 2011.

ADDRESSES: Comments should refer to the docket number above and be submitted by one of the following methods:

• *Federal Rulemaking Portal: http://www.regulations.gov*. Follow the online instructions for submitting comments. Fax: 1–202–493–2251.

• *Mail:* Docket Management Facility, U.S. Department of Transportation, 1200 New Jersey Avenue, SE., West Building Ground Floor, Room W12–140, Washington, DC 20590–0001.

• *Hand Delivery:* West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue, SE., Washington, DC between 9 a.m. and 5 p.m. ET, Monday through Friday, except Federal Holidays.

• *Instructions:* For detailed instructions on submitting comments and additional information on the rulemaking process, *see* the Public Participation heading of the Supplementary Information section of this document. Note that all comments received will be posted without change to *http://www.regulations.gov*, including any personal information provided.

• *Privacy Act:* Anyone is able to search the electronic form of all comments received into any of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, *etc.*). You may review DOT's complete Privacy Act Statement in the **Federal Register** published on April 11, 2000 (Volume 65, Number 70; Pages 19477–78).

FOR FURTHER INFORMATION CONTACT: For non-legal issues related to the Vehicle-Child Restraint System (CRS) Fit program, you may contact Ms. Jennifer N. Dang, Office of Crashworthiness Standards (Telephone: 202–493–0598). For legal issues, you may contact Ms. Deirdre Fujita, Office of Chief Counsel (Telephone: 202–366–2992). You may send mail to these officials at the National Highway Traffic Safety Administration, 1200 New Jersey Avenue, SE., West Building, Washington, DC 20590–0001.

SUPPLEMENTARY INFORMATION:

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I. Executive Summary

Child restraint systems (CRS) are very effective at protecting children sitting in vehicles that are involved in motor vehicle crashes. Nonetheless, past studies have shown that installation mistakes that reduce or negate the effectiveness of CRS still occur frequently. Instances of misuse for child restraints can be attributed to user error or to incompatibilities between the child restraint and the vehicle. To address misuse due to user error, NHTSA conducts a CRS Ease of Use (EOU) program. To address the need for increased compatibility, DOT announced, on April 24, 2009, that NHTSA would establish a new consumer information program, as part of the New Car Assessment Program, to help caregivers find a child restraint system that fits their vehicle.

The agency believes that this program will (1) provide consumer service by offering guidance on vehicle-CRS matchups, (2) complement NHTSA's Ease of Use program, 4 Steps for Kids consumer information campaign, as well as other child passenger safety initiatives, and (3) encourage child restraint and vehicle manufacturers to work together to address the need for increased compatibility.

This document outlines factors that the agency deemed significant to the development of a Vehicle-CRS Fit program and details observations from an agency pilot study conducted to determine reasonable conditions for participation in such a program. It also proposes a set of forms comprised of objective criteria that vehicle manufacturers can use to identify child safety seats that fit their vehicles. In developing the proposed evaluation forms, the agency considered general installation techniques that are required for all CRS installations, specific installation techniques and other factors that apply to certain types of CRS or particular modes of use, and vehicle features that may influence proper CRS fit. Under the program, NHTSA will disseminate a list of child restraints that manufacturers suggest will fit in their individual vehicles on Safercar.gov.

To participate in the program, vehicle manufacturers shall recommend at least three current model year child restraints within each of three different CRS categories (rear-facing, forward-facing, and booster). For the forward-facing category, at least one high-weight harness CRS shall be recommended, and for the booster category, no more than one of the three recommended booster seats may be a dedicated backless booster. Additionally, the three recommended CRS for each of the three CRS categories shall be from three different CRS manufacturers and shall also meet three established price points (inexpensive, moderately-priced, and expensive) based on the child restraint's Manufacturer's Suggested Retail Price. To ensure recommended CRS satisfy the proposed fit evaluation criteria, the agency is also proposing to conduct its own assessments to spot-check fit for recommended vehicle-CRS combinations.

The agency is proposing this program for voluntary participation by vehicle manufacturers and is seeking comment on all of its aspects.

II. Introduction

NHTSA is primarily responsible for reducing deaths, injuries, and economic losses as a result of motor vehicle crashes. Child safety seats, technically referred to as child restraint systems (CRS) by Federal Motor Vehicle Safety Standard (FMVSS) No. 213, "Child restraint systems," are widely agreed to be the most effective motor vehicle safety equipment available for restraining children. Although parents and caregivers strive to protect their children in motor vehicles, unfortunately, statistics on CRS misuse reveal that installation mistakes still happen with considerable frequency. A 2004 study conducted with the support of NHTSA estimated that errors in installation, identified as critical errors by the study, occur at a high rate of 72.6 percent.[1] While this study found the most common reasons for misuse to be loose harness straps securing the child to the CRS and loose vehicle seat belt attachment to the CRS, other types of misuse were also observed. Though instances of misuse such as loose vehicle seat belts can be attributed to user error, in some cases it may also be attributed to incompatibilities between the CRS and the vehicle. Due to the variety of vehicle and child restraint features in the U.S. market, some combinations of child restraints and vehicles make proper installation more difficult to achieve.

In the spring of 2009, the Secretary of Transportation tasked the agency with conducting a top-to-bottom review of child restraint regulations and consumer information. As a result of this internal review, the agency determined that while CRS are effective at protecting children, more can be done to improve their performance. Several agency initiatives were developed toward that end. Several programs pursue upgrading FMVSS No. 213 by adding side impact requirements to the standard, and by evaluating future improvements to its frontal impact requirements.

In addition, a new consumer information initiative was begun to enhance the ease with which parents and caregivers can choose a CRS for their vehicle, knowing that the CRS will fit their vehicle when installed. Under the program, NHTSA will make available recommendations from vehicle manufacturers as to the specific child safety seats, in various price ranges, that fit in individual vehicles. NHTSA believes that providing parents with information about which child restraints fit in their vehicle(s) will improve consumers' confidence in and comfort with using CRSs, and will reduce installation mistakes.

This document describes the agency's efforts to develop, pilot test, and propose a Vehicle-CRS Fit program for consumer information purposes. The agency is proposing this program, which will be part of NHTSA's New Car Assessment Program (NCAP), for voluntary participation by vehicle manufacturers and is seeking comment on all of its aspects. Vehicle manufacturers who wish to participate could use finalized versions of the evaluation forms provided in this document as a means of determining whether a particular CRS meets the agency's criteria for fit in their vehicles. Once a vehicle manufacturer has determined that a child restraint satisfies the agency's criteria for fit, it may submit this information to NHTSA for publication on the agency's consumer information Web site, *http://www.safercar.gov.*[2]

III. The Current Child Safety Problem

Child restraints reduce fatal injury by 71 percent for children less than 1 year old and by 54 percent for toddlers (1–4 years old) in passenger cars.[3] Similarly, in light trucks, the corresponding reductions are 58 and 59 percent for infants and toddlers.

The agency, along with manufacturers, local governments, and consumer groups, have consistently urged the public to put all children in age-appropriate restraints in the rear seats of vehicles. In recent years, many States have also passed child restraint and booster seat laws, which require children to travel in approved restraints for their age.[4] These education and regulatory efforts are working; over the past decade, the percentage of unrestrained child fatalities has decreased significantly: 23 percent in 2008 [5] compared to 43 percent in 1998.[6] In June of 2009, NHTSA published a Research Note that provided more detailed demographic information about child restraint use. In a national probability sample of gas stations, day care centers, recreation centers, and restaurants in five fast food chains, it determined that 99 percent of children under age 1, 92 percent of children from ages 1 to 3, 89 percent of children ages 4 to 7, and 85 percent of children ages 8 to 12 were restrained.[7]

Tragically, in 2008, there were still 297 passenger vehicle occupant fatalities among children under 4 years of age. Restraint use was not known for all of these fatalities, but of the 282 children whose restraint use was known, 94 (32 percent) of those children were unrestrained. In the same year, however, an estimated 244 lives of children under age 5 were saved by proper restraint use. Of these lives saved, 219 were attributed to the use of child restraints and 25 to the use of adult safety belts. If 100 percent restraint use for children under age 5 had been attained in 2008, the agency estimates that 79 additional lives, for a total of 323 children, could have been saved that year.[8]

[1] Decina L.E. and Lococo K. H. (2004). *Misuse of Child Restraints.* NHTSA Publication No. DOT HS 809 671, Page 2.

[2] As part of the program, NHTSA will spot-check the fit of CRSs in vehicles to make sure that the information is accurate.

[3] *Traffic Safety Facts 2007: Occupant Protection,* DOT HS 810 991, National Center for Statistics and Analysis, 1200 New Jersey Ave, SE., Washington, DC 20590, Page 4.

[4] *http://www.iihs.org/laws/ChildRestraint.aspx.*

[5] *Traffic Safety Facts 2008: Children,* DOT HS 811 157, National Center for Statistics and Analysis, 1200 New Jersey Ave, SE., Washington, DC 20590, Page 4.

[6] *Traffic Safety Facts 1998: Children,* DOT HS 808 951, National Center for Statistics and Analysis, 400 7th Street, SW., Washington, DC 20590, Page 4.

[7] *Traffic Safety Facts: Child Restraint Use in 2008—Demographic Results,* NHTSA Publication No. DOT HS 811 148, National Center for Statistics and Analysis, 1200 New Jersey Ave, SE., Washington, DC 20590, Pages 2–5.

[8] *Traffic Safety Facts 2008: Occupant Protection,* DOT HS 811 157, National Center for Statistics and

IV. NHTSA's CRS Activities

When a parent or caregiver is seeking information regarding a new CRS purchase, the agency's guidance is that a caregiver should select a restraint that is certified as meeting FMVSS No. 213, fits the child, can be used correctly every time, and can achieve a proper installation in the vehicle in which it will be used. The agency addresses these recommendations in the following ways:

- All child restraints sold in the United States must comply with the requirements in FMVSS No. 213. This standard contains dynamic frontal impact sled tests as well as strict labeling and component durability and strength requirements. All child restraints are evaluated on a pass-fail basis. Test dummies representing newborn, twelve-month-old, three-year-old, and six-year-old children are secured in age-, height- and weight-appropriate CRS to evaluate their dynamic performance. The latter three dummies are instrumented and must meet HIC (Head Injury Criterion), head excursion, and chest acceleration requirements when subjected to the 213 test. FMVSS No. 213 also specifies knee excursion requirements for CRS tested with the three-year-old and six-year-old dummies, and additional structural durability and requirements with which all CRS must comply.
- To ensure that consumers choose a child restraint that fits their child, the agency created its *4 Steps for Kids* consumer information campaign. This initiative arranges the agency's child passenger safety message into four phases, or "steps," of a child's development. The first three "steps" are CRS-related guidelines that explain to consumers how to properly transition children from rear-facing restraints to forward-facing restraints and finally to belt-positioning boosters. The fourth "step" provides information on when it is appropriate for children to transition into rear seat adult lap/shoulder belts. Choosing age-, height-, and weight-appropriate restraints for children throughout their development reduces their risk of injury in a crash.
- As mentioned earlier in the introduction, high rates of misuse for child restraints have been observed. To address this concern, along with child restraint usability, the agency conducts a CRS Ease of Use (EOU) program. The agency published a Final Notice announcing the EOU program in November of 2002.[9] This program created child restraint usability ratings based on five categories: Ease of Assembly, Clarity of Labeling, Clarity of Instructions, Ease of Securing the Child, and Ease of Securing the CRS in the Vehicle. Substantial improvement in CRS usability features was observed: Only 57 percent of child restraints received the top rating when the program began, and by 2007, 81 percent of child restraints received the top rating. In 2008, the program was updated to reflect changes in the CRS fleet by: Amending certain criteria, re-distributing the Ease of Assembly criteria category among the remaining four, and converting to a five-star rating system instead of the previous three-letter rating system.[10] The agency continues to add child restraint usability ratings to the list each year. As of December 2009, ratings for 128 child restraints were available.[11] Child restraints are evaluated separately from vehicles through this program, but certain facets of the program relate to vehicle installation. The "Ease of Securing the CRS in Vehicle" category addresses features on the child restraint that aid in vehicle installation. For example, built-in seat belt lock-offs [12] eliminate the need for a locking clip in many instances. Wider belt paths allow the caregiver to more easily route the seat belt or lower attachment belt through the belt path, and push-button lower anchor connectors may be pushed on and removed with the touch of a button. Features such as these lessen the effort required to install a child restraint and are, in many cases, accommodated by the vehicle.
- The agency also conducts several other child passenger safety initiatives. NHTSA maintains the content of the National Child Passenger Safety Certification curriculum through partnerships with respected child passenger safety experts.[13] This certification program is estimated to have trained tens of thousands of interested individuals to become Child Passenger Safety Technicians (CPSTs). During this certification, individuals learn how to properly install a large variety of child restraints and how to assist parents and caregivers in doing so themselves. CPSTs are an especially valuable resource to the agency because they can provide information to the caregivers at the community level. The curriculum is monitored and updated as necessary based on changes to the CRS fleet and best practice methodology.[14] The agency also manages National Child Passenger Safety Week, an annual campaign during which community organizations across the country host safety seat checkups and other child passenger safety awareness events.

NHTSA's major child passenger safety initiatives (FMVSS No. 213, *4 Steps for Kids,* Ease of Use, and the CPST Curriculum) help parents and caregivers select an age-, height-, and weight-appropriate CRS that is simple to use and that is safe. However, the agency has recognized for some time that because of incompatibility issues between the vehicle and the CRS, parents and caregivers may still have difficulty not only selecting a CRS that fits their vehicle(s), but also properly installing selected child restraints in their vehicle(s). The CPST Curriculum may also not reach the general public. Accordingly, the agency has taken several steps to address vehicle-CRS compatibility issues.

V. Addressing Vehicle-CRS Compatibility

A. Consumer Information

To date, the agency's attempts at developing a consumer information program that addresses vehicle-CRS compatibility issues have encountered a number of challenges. One of the most difficult issues the agency has had to resolve is how to manage the enormous amount of information that can be generated on the dozens of CRSs and vehicles on the market and the possible interface between each CRS and each vehicle model.

In the fall of 1995, NHTSA tried to develop a vehicle and child restraint database. At the time, the agency surmised that a vehicle-CRS matrix could be distributed via CD–ROM to caregivers, child passenger safety advocates, and any other parties that educate the public about proper child restraint use. The resulting matrix was intended to be all-inclusive; information on specific child restraints would be coupled with details about vehicle makes, models, and available seating positions in which they could be successfully installed. However, during the database development, the agency

Analysis, 1200 New Jersey Ave, SE., Washington, DC 20590, Page 4.

[9] 67 FR 67448, Docket NHTSA–2001–10053.

[10] 73 FR 6261, Docket NHTSA–2006–25344.

[11] Ease of Use Ratings can be found either in Docket NHTSA–2006–25344 or at *http://www.nhtsa.gov/portal/nhtsa_eou/.*

[12] Some child restraints have built-in devices for locking the vehicle seat belt in place so that the retractor or separate locking clips do not have to be used.

[13] These experts include members of The National Child Passenger Safety Board, AAA, Safe Kids Worldwide, The Children's Hospital of Philadelphia, vehicle and CRS manufacturers, and others.

[14] CPST best practice methodology is considered the most acceptable way to transport a child safely on the basis of the child's age, weight, height, and body development.

determined that its initial work toward providing information on the compatibility of 35 CRS with 100 vehicles from model years 1993–1996 was overly ambitious. The sheer number of vehicle/CRS combinations made the data collection efforts overwhelming, especially considering that the agency was only working with a subset of the entire vehicle and CRS fleets. The initial matrix was also limited in its usefulness; the data applied only to the specific combinations of vehicles and child restraints listed. Because the development of the database proved unworkable, and because adoption of a standardized CRS attachment system was under consideration, the agency decided to discontinue its efforts to develop a vehicle-CRS matrix.

B. LATCH

On March 5, 1999, the agency issued a final rule establishing FMVSS No. 225, "Child restraint anchorage systems." This standard, which became fully effective on September 1, 2002, required the *L*ower *A*nchors and *T*ethers for *CH*ildren (LATCH) system in most passenger vehicles and compatible hardware components on child restraints. A "LATCH" system is comprised of a set of small bars (known as lower anchors) located near the seat bight, and a third attachment point (known as a top tether anchor) located above or behind the vehicle seat. FMVSS No. 225 requires a LATCH system to be installed at two rear seating positions on vehicles, and a top tether anchor at a third position. The final rule also amended FMVSS No. 213 to require child restraints to be equipped with attachments that mate with vehicles' lower anchors.

The intention of the rulemaking was to provide an easy-to-use CRS attachment system that is independent of the vehicle seat belts. Through LATCH, incompatibility problems were reduced, and CRS installation made more intuitive and more effective.

LATCH successfully resolved some of the compatibility problems that users experienced with seat belts. In most vehicles, child restraints can be installed using LATCH successfully. In a 2006 NHTSA survey, loose installation rates of child restraints had decreased from previous studies: Sixty-one percent of child restraints were securely installed using LATCH in the 2006 study, whereas a 2004 study examining incorrect installations with seat belts found only up to forty-six percent of child restraints were securely installed.[15] The report concluded that there are two main reasons for this development: The absence of locking clips and the simplified process of fastening the LATCH attachments to the vehicle anchors. Many caregivers prefer using LATCH over seat belts when possible. Of those surveyed with experience using both LATCH and a seat belt, seventy-five percent preferred LATCH. Fifty-five percent of those who did not use LATCH were either unaware that lower anchors were available in their vehicle or were unsure how to use them.[16]

In short, the LATCH system has successfully provided caregivers with an alternative to seat belts installations. Caregivers using LATCH to install their child restraint no longer have to remember a host of additional seat belt installation steps such as locking the vehicle seat belt when installing the child restraint. They also do not have to wrestle with seat belt geometry incompatibilities such as buckle stalk lengths and anchor points.

VI. Considerations for Development of a New Consumer Information Program To Address Vehicle-CRS Compatibility

NHTSA is committed to improving vehicle-CRS compatibility and providing better consumer information. LATCH has improved the ease with which a CRS can be installed in a vehicle; however, it does not standardize the contours of the vehicle seat or the footprint of the CRS. Consequently, some child restraints might fit a particular vehicle better than other child restraints. Getting parents to select a restraint that is known to fit their vehicle ensures that they begin the installation process with a higher potential for success and level of efficiency in attaining a correct installation. It can also reduce their frustration and confusion. For these reasons, the agency has decided to develop and propose a consumer information program to address CRS fit in vehicles.

The agency hopes that a program that focuses on vehicle-CRS compatibility will drive not only improved vehicle designs, but perhaps improved CRS designs, too, as child restraint and vehicle manufacturers will likely have to work together to address the need for increased compatibility. Changes to CRS footprints, redesigned belt paths, and more LATCH-friendly hardware are a few of the design changes that could be introduced as a result of compatibility-focused efforts. Although the agency realizes that implementation of such changes may take time, we believe that voluntary design improvements will nonetheless occur due to the increased cooperative efforts between vehicle and CRS manufacturers to improve vehicle-CRS compatibility.

To best serve consumers, the agency believes that any program designed to assess vehicle-CRS compatibility should complement and supplement other child restraint and vehicle information it promulgates. Such a program should also result in a robust, repeatable assessment so that it is effective at not only helping parents and caregivers choose a child restraint that fits their vehicle(s), but also, in turn, helps deter misuse and frustration stemming from incompatibilities. We believe this can best be achieved by developing a program that is based solely on objective criteria. A program based on objective criteria should be simpler for manufacturers and evaluators to understand and use compared to one based on subjective assessments. Establishing objective assessment criteria should also help to minimize manufacturer concerns that consumers selecting a recommended CRS may still have difficulty fitting the CRS in their vehicle(s). This may promote increased voluntary participation as a result and ultimately provide consumers with the CRS information that they need.

VII. Review of Worldwide Child Restraint Consumer Information Programs

In developing a program that would assist consumers in finding a child restraint that fits in their vehicle(s), NHTSA examined other child restraint-related consumer information and rating programs internationally and did not find a system that met all of the agency's needs.[17] However, a portion of a draft ISOFIX usability standard developed by the International Standards Organization (ISO) was found to be most relevant.[18]

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[15] Decina, L.E., Lococo, K.H., Doyle, C.T., *Child Restraint Use Survey: LATCH Use and Misuse,* NHTSA Publication No. DOT HS 810 679, National Highway Traffic Safety Administration, December 2006, Page 2.

[16] Additionally, it was found that caregiver preference played a large role in LATCH use. For example, even though the CRS may technically fit in the vehicle seat, the caregiver may find that locating the LATCH anchors is difficult due to stiff vehicle cushions or the deep placement of anchors within some vehicles' seat bights. Others may simply be more comfortable using the seat belt to install the child restraint because of prior experience with that method of installation; others may simply assume that the seat belt is safer.

[17] The agency's review of child restraint consumer information programs is included as Appendix A.

[18] ISO is a collection of organizations from 162 countries responsible for establishing world-wide voluntary industry standards. Representatives from

In 1999, ISO published a draft standard outlining specifications for a rigid anchor system, known as "ISOFIX," for attaching child restraints to vehicles. In 2004, it also developed a draft standard on tether anchorages and their acceptable locations in vehicles. Together, these two draft standards outlined the requirements for a dedicated in-vehicle CRS installation system that is very similar to the U.S. LATCH system. In addition, ISO has since drafted rating forms for evaluating the usability of vehicle ISOFIX designs with different child restraints.[19] The intent of these ratings forms is to assess the usability of a particular vehicle's ISOFIX system as well as a particular child restraint's installation features (which is similar to, but not as comprehensive as, the agency's current Ease of Use program). In addition, the forms also assess the interface between that vehicle and CRS when the user actually performs an installation.

Of all the consumer information and ratings programs the agency examined, the ISO draft standard most closely fit the agency's needs because of its unique assessment of the installation interface between a CRS and a vehicle. However, the agency was not able to draw extensively from the draft ISO usability standard for the proposed Vehicle-CRS Fit program for a number of reasons. For instance, in light of its comprehensive Ease of Use program, the agency did not see a need for including a CRS usability evaluation as a part of this Vehicle-CRS Fit program, nor did the agency feel that inclusion of criteria pertaining to the usability of CRS attachment hardware was warranted. Adopting a program that evaluates the actual vehicle-CRS interface would effectively address certain ISO criteria related to the usability of CRS attachment hardware in vehicles because the attachment hardware may generate installation issues, such as instability, that can prohibit a child restraint from fitting properly in a vehicle. Some of the ISO criteria also incorporate the ease of performing tasks related to the installation, and many of these are then designated "good," "average," or "poor." For the proposed program, the agency wanted to include only objective installation criteria that pertain to proper fit, *i.e.,* whether a proper fit was achieved, not the ease of attaining that fit. In addition, the ISO draft rating forms only evaluate ISOFIX installations. The agency wanted a program that assessed both LATCH and seat belt installations. Finally, the ISO draft standard does not cover booster seats either, and the agency wanted to include these in its Vehicle-CRS Fit program since they are an important part of its child passenger safety initiatives.

VIII. Conditions for Participation, Program Administration, and Distribution

Observations from an agency pilot study confirmed that installation issues can arise from either the child restraint or the vehicle, and can also be vehicle-CRS interface specific. For some vehicles, the same fit problem was observed when installing several different CRS types (infant, convertible, combination, booster, *etc.*) and models of child restraints. Considering that these same child restraints could be properly installed in several other vehicle models, it appears that for the vehicle models in which the subject child restraints would not fit, design changes to accommodate a greater number of CRS models would be appropriate. In some instances, inadequate fit was observed for every seat belt or LATCH installation for every child restraint installed in a vehicle. Therefore, it is likely that manufacturers of such vehicles would need to make changes to improve fit for both LATCH and seat belt installations to have information included in the consumer information program described today. Additionally, it was found that certain vehicle features may prohibit the installation of certain types of CRS in certain seating positions. Consequently, it may not be reasonable for vehicle manufacturers to claim that a child restraint fits in all applicable seating locations within a vehicle. Furthermore, space constraints, particularly for smaller vehicle models, may dictate the position of a vehicle's front seats or rear seating positions that are acceptable for installation of certain CRS.

A. Conditions for Participation in the Vehicle-CRS Fit Program

In the interest of time and the need for improved consumer information, the agency is proposing that this program begin as a voluntary effort in MY 2012 for vehicle manufacturers only; however we are seeking comment on whether more time is needed. We believe that consumers will shop for a CRS having their vehicle already in mind, so it would be most reasonable for the fit program to be vehicle-based. The agency also believes gaining access to vehicles is more difficult and burdensome for child restraint manufacturers than it is for vehicle manufacturers to gain access to child restraints. However, the agency does not think that child restraint manufacturers should be excluded from the vehicle-CRS fit efforts; in fact, the contrary is true. NHTSA highly encourages vehicle and child restraint manufacturers to work together to complete these fit assessments. However, at this time, the agency will only collect vehicle-child restraint fit suggestions from vehicle manufacturers.[20]

The agency is proposing that vehicle manufacturers should install child restraints in their vehicles, and while doing so, should bear in mind the considerations outlined throughout this document, and use the evaluation forms included in Appendix D (once they are finalized) to assess CRS fit in their vehicles. For a manufacturer to indicate that a specific child restraint fits in a particular vehicle, the child restraint must be assessed in all applicable modes of use and in all appropriate seating positions in the vehicle. Depending on the restraint, modes of use can include, but are not limited to: Rear-facing, forward-facing, booster (high-back and backless), with and without a base, and with both "short" and "long" belt paths, where applicable. Child restraints that manufacturers determine fit a vehicle must fit in every appropriate seating location in the vehicle. For most passenger cars, appropriate seating positions will include those in the rear or second row; however, additional rows of seating must also be assessed, if applicable.

Because of the agency's continuing efforts to ensure that children ride in the rear seat, the agency does not expect manufacturers of vehicles with rear seats that can accommodate child restraints to provide fit suggestions for the front right passenger seat.[21] For two-

these countries have helped publish over 17,500 international standards on various technical subjects, products, and processes.

[19] ISO/DIS 29061–1. *Road vehicles—Methods and criteria for usability evaluation of child restraint systems and their interface with vehicle anchorage systems.*

[20] Vehicle-CRS fit recommendations will be accepted only for those vehicles having Gross Vehicle Weight Ratings (GVWRs) of 10,000 lbs. or less, as this program is intended to supplement NCAP, which limits testing to vehicles having GVWRs of 10,000 lbs. or less.

[21] The agency understands that in some cases, such as in transporting four children in a vehicle with only five seating positions, forward-facing restraints or booster seats may be correctly installed in the front right passenger seat. However, as the agency wants to encourage that children be properly restrained in the rear of the vehicle unless the vehicle in which they are traveling does not have a rear seating location, the agency does not want to suggest to parents and caregivers that the front seat is an acceptable travel position for younger occupants by providing vehicle-CRS fit recommendations for this seat. Therefore, the agency does not expect vehicle manufacturers to

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seaters and pickup trucks without a rear seat that have an air bag on-off switch, however, we believe that it would be appropriate to indicate child restraints that fit the front right passenger seat.

The agency is proposing to not permit manufacturer recommendations of child restraints or boosters that fit in only certain seating positions or rows in the vehicle. The agency feels that parents and caregivers who purchase a child restraint for their vehicle based on this program should have the option to use it in all appropriate seating locations. This is especially important when the family grows and child restraints are often moved from the center to the two outboard seating positions or from the second to the third row. However, the pilot study showed that it may be difficult for vehicle manufacturers to meet this condition for participation. In a number of cases, an excellent fit was possible in outboard seating positions, but not in the center position, or vice-versa. Accordingly, although the agency tentatively believes that this stipulation is necessary, we are requesting comment on whether we should permit a CRS to be identified by the vehicle manufacturer as fitting its vehicle even if the CRS does not fit in all seating positions. Although we would like eventually to list only those child restraints that fit unconditionally in vehicles, should we accept, at this point in the program, a listing of CRSs that fit in only certain seating positions? Limitations on CRS use in the vehicle could be noted on Safercar.gov. We question whether requiring that a CRS fit all seating positions in all rows (except the driver's seat row) may result in reduced vehicle manufacturer participation in the short term and no CRS being listed for a number of vehicles on Safercar.gov.

Although vehicle manufacturers must ensure that recommended child restraints fit for all applicable modes of their use, the agency has tentatively decided to allow the manufacturer to specify that a child restraint fits when installed with either LATCH or the vehicle seat belts (plus top tether, if applicable). Of course, it is most ideal for a child restraint to fit correctly using either method of installation. However, the agency's pilot study revealed that requiring both methods for this program would make it difficult for many manufacturers to participate. Depending on the vehicle design, either a LATCH or seat belt installation was found to be problematic for many of the CRS selected for the pilot study, but not necessarily both.

The agency feels that giving the vehicle manufacturers the option to assess fit for either LATCH or seat belt installations will likely result in better participation and useful information for consumers. This approach can alert consumers to incompatibilities related to LATCH anchor spacing, seat belt length, buckle stalk length, *etc.,* that they may not have been otherwise aware of, hopefully decreasing the number of incorrect installations in the field. The agency also suspects that some vehicle manufacturers will be interested in making design changes to increase the number of child restraints that can achieve a proper installation in their vehicle(s) with either LATCH or seat belts. The agency recognizes, however, that making vehicle improvements to either system can require some lead time. Consequently, in the interim, manufacturers can provide consumers with fit suggestions based on either child restraint installation method.

The agency is also proposing that to participate in the Vehicle-CRS Fit program (*i.e.,* to have the CRS information included on Safercar.gov), vehicle manufacturers need to identify at least three current model year child restraints within each of three different categories: rear-facing, forward-facing, and booster. We are proposing to condition participation on listing restraints in all type/age categories as a way to encourage manufacturers to address systematically and comprehensively the issue of CRS fit for all ages and sizes of children. These categories were also chosen because they follow NHTSA's *4 Steps for Kids* program.

Child restraints within each of the three type/age categories should also be from three different child restraint manufacturers. This condition for participation is being proposed to encourage vehicle manufacturers to work with a variety of child restraint manufacturers and products. It will also discourage a vehicle manufacturer from forming partnerships with only one child restraint manufacturer and thus minimize consumer confusion or belief that only one brand of child restraint is acceptable for use in their vehicle. Also, NHTSA believes that this condition may give manufacturers with low volume child restraint models the opportunity to gain additional exposure. To satisfy the booster category, we are proposing that no more than one of the three booster seats can be a dedicated backless booster. This condition is being proposed for a few reasons. For one, most backless boosters have higher minimum height and weight requirements than their high-back counterparts. Therefore, requiring more high-back boosters in order to participate serves to cover a greater range of child sizes. In addition, some high-back boosters are designed such that the back can eventually be removed and used as a backless booster when the child reaches a certain height. In this, there are a number of products on the market that are both styles in one and would have to be evaluated for fit in both high-back and backless modes anyway. Further, the agency suspects that due to their increased complexity, high-back boosters will likely exhibit more fit complications.

The agency is tentatively proposing to not permit vehicle manufacturers to recommend fewer than three child restraints for any one of the three categories (rear-facing, forward-facing, and booster); recommendations of only one or two child restraints for any one category will not be posted on Safercar.gov. The agency questions whether this approach is appropriate or whether providing one or two recommendations for any one category may better serve consumers than providing no CRS recommendations for a particular category. Comments are requested on this issue.

Since it is generally advisable for parents to keep children in a harness for as long as possible to ensure the highest level of crash protection, the agency is proposing to further stipulate that at least one high-weight harness CRS be identified in the forward-facing category. These high-weight harness CRS are child safety seats that allow use of internal harness systems on children weighing more than 40 pounds. If a vehicle manufacturer has fulfilled the basic program participation conditions, they then have the option of also recommending "All-in-one," "three-in-one," and built-in child restraints. Recommendations made for these CRS types, however, are optional. They would have to be in addition to those made for child restraints outlined previously as conditions for participation. Figure 1 depicts the acceptable types of CRS that can be recommended within each of the three main categories.

assess front right passenger seat fit if a usable rear seat exists.

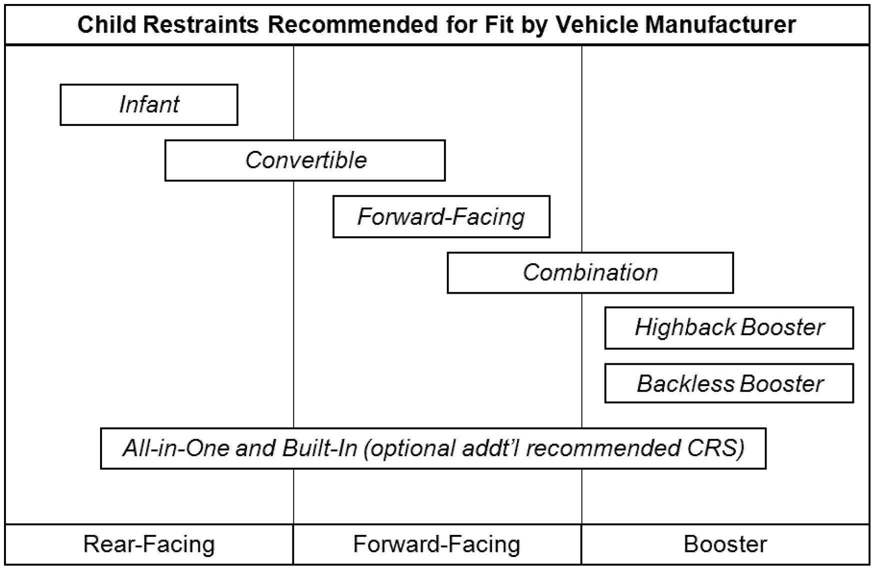

Figure 1: Acceptable Types of CRS for Each Category

The agency's last proposed condition for participation in this program regards price points. Within each of the three categories (rear-facing, forward-facing, and booster), vehicle manufacturers must identify products that meet established price categories based on the child restraint's Manufacturer's Suggested Retail Price (MSRP). The proposed price points for each category, which were established based on a survey of model year 2009 CRS, are shown in Table 1. These price points were established so that CRS selection is not limited to the most expensive child restraints available, and again to ensure a variety of CRS makes and models. A child restraint does not need to be expensive to provide adequate crash protection. Likewise, the agency wants to encourage through this program that a child restraint does not need to be expensive in order to fit properly in one's vehicle. If a vehicle manufacturer would like to fulfill only the minimum conditions for participation for three child restraint recommendations in a particular category, they must include at least one restraint that falls in the "inexpensive" range and at most one restraint in the "expensive" range. If more than three child restraints are recommended for any one category, the additional child restraints may fall within any price point the vehicle manufacturer chooses. The agency is proposing to provide vehicle manufacturers with this price-point information with the *Buying a Safer Car* information request and plans to re-evaluate the price points as needed. Comments are requested on this approach.

TABLE 1—PRICE POINTS FOR CRS CATEGORIES

	Rear-facing	Forward-facing	Booster
Inexpensive	< $100	< $130	< $80
Moderately Expensive	$100–$200	$130–$230	$80–$100
Expensive	> $200	> $230	> $100

B. Program Administration

The agency proposes that the easiest way to collect child restraint and vehicle fit suggestions is through NCAP's annual *Buying a Safer Car* information request since vehicle manufacturers are already familiar with its submission process. Though participation in this program would be voluntary, the agency would also need to ensure that any fit information it receives from manufacturers is correct. As in the pilot study, the agency could rent or lease vehicles to spot-check child restraints identified by vehicle manufacturers as fitting specified vehicles. Using the final versions of the evaluation forms proposed in this document, the agency would spot-check the vehicle-CRS fits identified by the vehicle manufacturers.[22]

C. Program Distribution

The agency is proposing that the vehicle-CRS fit combinations identified by vehicle manufacturers be published via the Safercar.gov Web site, the agency's main consumer information portal. Adding this information to Safercar.gov can provide consumers with the best available vehicle-CRS fit information and provide market incentives among manufacturers. In the past, this has helped to ensure the success of voluntary programs such as the agency's side air bag out-of-position testing initiative through NCAP.[23] Nearly every vehicle manufacturer

[22] Similar to how NHTSA conducts its EOU program, the agency is proposing that two two-person agency teams would spot-check fit recommendations in the same vehicle. If both teams did not reach similar conclusions about whether a CRS meets the fit requirements for a particular vehicle, another NHTSA representative would make the final determination.

[23] Each year, vehicle manufacturers provide evidence to the agency that they have conducted (and passed) a series of tests designed to assess the aggressivity of side air bags with respect to out-of-position occupants. Participating vehicle manufacturers are given credit on Safercar.gov in exchange for providing this data.

voluntarily participated in this program within two years. The agency has also taken a similar approach in MY 2011 for promoting vehicles with advanced crash avoidance technologies.[24] Though this program does not assess the occupant protection afforded by a particular vehicle-CRS combination in a crash, the agency believes that giving consumers information on whether a child restraint may be installed properly in a vehicle does provide indirect safety benefits. By providing consumers with information about child restraints that have been successfully installed in particular vehicles, the agency seeks to improve consumers' confidence in and comfort with selecting and using CRSs, and to reduce installation mistakes in the field.

For the Vehicle-CRS Fit program, the agency is proposing to display all suggested child restraints along with information pertaining to vehicle star ratings and safety features. As is the case in the Ease of Use program, NHTSA plans to minimize consumer confusion by emphasizing to consumers that the child restraint suggestions are not recommendations based on the CRS or vehicle's safety performance. Furthermore, to reduce manufacturer concerns that displaying particular child restraint suggestions on Safercar.gov will imply that assessments are an indicator of occupant safety in the event of a vehicle crash, the agency proposes to add a disclaimer to the Vehicle-CRS Fit assessment section of the Web site which will state, "*NOTE: The restraints above have been determined to fit successfully in this vehicle via the method(s) listed. This is an assessment of installation ONLY and should NOT be considered a safety claim for the vehicle or the child restraint. ALL child restraints and vehicles sold in the United States must pass rigorous Federal standards. Child restraints provide high levels of safety when selected to be age- and size-appropriate for the child and properly installed.*"

In addition, it will be further explained that the child restraints listed may not be the only products that can achieve a successful installation in that vehicle. To address concerns that parents and caregivers may believe that child restraints listed on Safercar.gov are the only CRS that are acceptable for their child and that will fit in their vehicle, the agency proposes to also include the following note: "*This list of child restraints is not all-inclusive. Vehicle manufacturers voluntarily provide this information for parents and caregivers as a starting point to help them select a child restraint that fits their child and fits their vehicle. You may find other child restraints that fit equally as well as those presented above. Also, you may contact a Child Passenger Safety Technician (CPST) in your area to check that your child seat both fits and is installed properly in your vehicle by clicking here: http://www.nhtsa.gov/cps/cpsfitting/index.cfm.*"

If, during spot-checking activities, a child restraint is found to not meet the fit assessment criteria, NHTSA is proposing to remove that information from Safercar.gov Web site. This is consistent with removing the "M" from vehicles determined not to meet the side air bag out-of-position testing requirements. The same strategy was employed when spot-checking the performance of certain crash avoidance technologies for MY 2011 vehicles and beyond. If the deletion of that child restraint means the vehicle no longer meets the participation conditions for that category, the agency proposes to give the vehicle manufacturer the opportunity to indicate another child restraint, which will be checked for fit by the agency. If no alternatives can be found, and the vehicle no longer meets the program's participation conditions, it is proposed that all child restraint suggestions for that vehicle will be deleted from Safercar.gov. Alternatively, the agency proposes to allow the vehicle manufacturer to contest the result from the spot-check test by demonstrating that the restraint in question fulfills the fit assessment criteria. Such a challenge will be reviewed by agency staff and a decision will be made as to whether the restraint meets the assessment criteria for "fit" and hence, the listing of the child restraint.

For each vehicle model, the agency envisions a detailed page on Safercar.gov that shows consumers the child restraints that have been indicated as appropriate for all vehicle seating position in the three categories—rear-facing, forward-facing, and booster. We also propose to indicate LATCH availability in the vehicle and whether the manufacturer has indicated each child restraint fits properly using vehicle seat belts, LATCH, or both. Having a dedicated Web page will also give the agency the opportunity to reinforce important principles and programs such as *4 Steps for Kids* and the CRS Ease of Use program. Consumers will be shown the height and weight ranges for the child restraints of interest. The agency also intends to link consumers to other areas of child passenger safety on NHTSA's Web site as well as offer installation tips and best practice guidance.

The agency intends to use this Web site to disseminate any installation notes that the vehicle manufacturer may need to communicate. Such additional information can include, but would not be limited to: Front seat positioning along the seat track, sharing of outboard lower anchorages to "create" a center LATCH position, instances in which using lower anchors or seat belts in certain seating locations eliminates the use of other positions, *etc.*

IX. Pilot Study To Assess Effectiveness of Preliminary Vehicle-CRS Fit Program Evaluation Criteria

A. Development of Vehicle-CRS Fit Evaluation Forms

In deciding to model its Vehicle-CRS Fit program after the draft ISO CRS–Vehicle usability program, the agency wanted, most importantly, to draw on the concept of developing a set of standard criteria to achieve the most repeatable assessments possible. The agency believed that developing standard evaluation forms would be the most beneficial approach for both vehicle manufacturers and consumers. The consumer information program would be enhanced if vehicle manufacturers, CRS manufacturers, consumers, and NHTSA have a common understanding of what the program considers a "proper fit." Vehicle manufacturers would be able to directly use these forms in their internal assessments and would have more certainty in knowing that NHTSA will agree with their assessments of fit. Without a set of evaluation criteria, it could be possible for some vehicle manufacturers to submit data to the agency that does not meet NHTSA's expectations for a proper installation. In addition, if varying criteria were used, the agency might not be able to assist consumers in understanding what a manufacturer's fit recommendations constitute.

As mentioned previously, to ensure a robust assessment, the agency reasoned that only objective criteria should be considered for the Vehicle-CRS Fit program. Accordingly, the agency's program will not assess how easily a child restraint can be installed in a vehicle, but will simply assess whether it can be installed successfully (*i.e.,* whether the child restraint can fit in the vehicle). Although this is somewhat contrary to the draft ISO CRS-vehicle usability program, NHTSA believes there is subjectivity in the draft ISO criteria concerning the assessment of the ease of fit (such as those that require the

[24] **Federal Register** Volume 72, No 175, 51908–51973. September 11, 2009.

evaluator to assess the ease of performing a task).

The agency has tentatively determined that the best way to objectively evaluate CRS fit in vehicles is to develop criteria based on factors known to influence installation, as outlined in the National Child Passenger Safety Certification Training Program student manual.[25] The agency considered both general installation techniques (*i.e.,* those that are required for all child restraint installations), as well as specific techniques that may be necessary for installation of certain types of child restraints or particular modes of use, such as ensuring that infant and rear-facing convertible restraints can be installed to the proper recline angle, ensuring that seat belts are of adequate length to install CRS with multiple belt paths (both long and short), and that the carry handle on infant restraints can be positioned according to manufacturer instructions. The agency was careful to incorporate vehicle features that influence proper CRS fit, such as top tether anchorages, lower anchorages, vehicle seat belts, and vehicle head restraints. In addition, we added criteria surrounding CRS installation tightness, and maximum weight limits of LATCH anchorages, as each of these factors can also dictate vehicle-CRS compatibility. It should be noted that many of the factors that were determined to be influential to achieving proper CRS installation based on the CPST student manual, including attachment to lower anchors, ability to tighten lower attachments once they are connected to lower anchors, maximum side-to-side and front-to-back movement of the CRS once it is installed, operation of the CRS harness once the CRS is installed, and tightening of the top tether once it is attached to the tether anchor, also mimicked criteria included in the draft ISOFIX usability standard.

Comments are requested on our use of the National Child Passenger Safety Certification Training Program student manual and the manual's determinations as to whether a CRS fits a vehicle. The benefits of using the manual are that the criteria contained therein have been used in the child passenger safety community for years as determinants of CRS fit. Accordingly, the manual serves as the primary guide to proper CRS installation and is a prominent child passenger safety resource. The installation criteria included in the manual are based on common sense, simplicity, and a "best practices" perspective. Furthermore, the agency's pilot study confirmed that applying the criteria outlined in the CPST manual resulted in secure CRS installation. However, because the agency is unaware of any test or accident data supporting some of the criteria specified for proper installation, the agency does not know if certain criteria should be used verbatim from the manual. An example of this is the criterion that no more than 20 percent of a child restraint's base may hang over the edge of the vehicle seat. Comments are requested as to why 20 percent should be used as the limit. Could the delineation be set at 25 percent, or 60 percent? NHTSA requests comments on the merits of using each of the criteria discussed in this document, and requests that commenters supporting the use or non-use of a criterion submit data supporting their position.

Probably the most important aspect of child restraint installation that the agency considered when developing the criteria, was to ensure that a given CRS can be installed in a particular vehicle according to the instructions of both the child restraint and vehicle manufacturers. The agency acknowledges that in the field, child restraints may be equipped with installation features that are not required by FMVSS No. 213. Some examples of these features are tethers that some CRS manufacturers recommend using on some convertible CRS when the CRS is installed rear-facing, and some manufacturer recommendations to use LATCH attachments on a booster seat, to keep a booster seat in place. Though top tethers on rear-facing CRSs and LATCH attachments on booster seats are not required by Standard No. 213, the agency believes that, if recommended by the child restraint manufacturer for use in attaching the CRS to the vehicle, such features must be able to be used in the particular vehicle being assessed. Accordingly, the agency believes that it was also important to add criteria to ensure that a CRS could be installed to meet the installation requirements stipulated in both the vehicle owner's manual and the CRS user's manual.

Preliminary evaluation criteria were developed based on the aforementioned considerations and were organized into a draft evaluation form, which served as the basis for the pilot study conducted by the agency. This draft form is included in Appendix B for reference.

B. Pilot Study Approach

To ensure that the preliminary evaluation criteria were robust enough to assess CRS fit in vehicles, the agency conducted a hands-on pilot study in which ten CPSTs installed various child restraints into different makes and models of newer vehicles. During each installation, the draft evaluation forms were used to gauge whether the subject child restraint could be properly installed in each vehicle. The pilot study sought to determine whether the criteria were complete enough to reasonably assess various and important aspects of proper CRS installation and whether they could sufficiently highlight instances of incompatibility between CRS and vehicles.

1. Vehicle Selection

When choosing pilot study vehicles, the agency attempted to select various types of vehicles, including two- and four-door passenger cars, station wagons, and sport utility vehicles (SUVs). Vehicles from different manufacturers were selected so a wide range of designs and characteristics that could influence child restraint fit was included in the study.[26] In addition, vehicles were chosen that had challenging seat contours, head restraint designs, and top tether and lower anchor locations. Most of the pilot study vehicles were rented from local car rental companies. Selection was therefore limited to vehicles that were available at the time of the study.

Table 2 shows a summary of the vehicles that were selected for the study.

[25] The National Child Passenger Safety Certification Training Program is a curriculum designed to teach participants about the importance of child safety and how to properly install child restraints. Certified technicians, CPSTs, are equipped with the knowledge to explain installation procedures to parents and caregivers so that they may safely transport their families, and to empower them with the knowledge to confidently install and reinstall child restraints as needed. The training program, which is based on the concept of learning (the facts, skills, and information), practicing (the new skills and information), and explaining/teaching (what was learned to parents and caregivers), was developed by NHTSA in the mid-1990s and has been updated by the agency as needed. The National Child Passenger Safety Board oversees the quality and integrity of the training and certification requirements, while Safe Kids Worldwide administers certification. CPSTs receive hands-on experience through a variety of activities, including child safety seat checks, and their exposure to common installation problems, incompatibility issues, general knowledge of child restraints and features, make them a valuable resource for parents and caregivers seeking child restraint installation assistance.

[26] The 2003.5 Mazda Protégé was included in this study because it was readily available for assessment and its vehicle seat characteristics were considered representative of those observed in the modern fleet.

TABLE 2—PILOT STUDY VEHICLES

Body style	Vehicle make model	Model year
2dr Passenger Car	Mitsubishi Eclipse	2009
2dr Passenger Car	Pontiac G5	2009
4dr Passenger Car	Chevrolet Impala	2009
4dr Passenger Car	Chrysler Sebring	2008
4dr Passenger Car	Dodge Charger	2009
4dr Passenger Car	Ford Focus	2009
4dr Passenger Car	Hyundai Elantra	2009
4dr Passenger Car	Mazda Protege	2003.5
4dr Passenger Car	Toyota Yaris	2008
Station Wagon	Subaru Forester	2006
Sport Utility Vehicle	Nissan Murano	2009
Sport Utility Vehicle	Toyota RAV4	2007

2. CRS Selection

Similar to the methodology used to select pilot study vehicles, the agency sought child restraints from different manufacturers that covered a wide range of features and footprints in an effort to continue exploring incompatibility issues. The agency also selected CRS that spanned a large price range and ensured that the pilot study covered at least two of each of the six types of child restraints—infant, convertible, combination, high-back booster, backless booster, and all-in-one seats. To conserve funds, CRS selection was limited to a selection of models used for the 2009 CRS Ease of Use program. The thirteen chosen CRS are listed in Table 3.

TABLE 3—PILOT STUDY CHILD RESTRAINTS

CRS type	CRS model	MSRP
Infant	Combi Shuttle EX	$170
Infant	Graco Snugride 32	140
Infant	Safety 1st Designer 22	80
Convertible	Graco ComfortSport	80
Convertible	Britax Boulevard CS	310
Convertible	Sunshine Kids Radian XT	250
Combination	Safety 1st Summit	100
Combination	Britax Frontier	280
High-Back Booster	Learning Curve B505	100
Backless Booster	Magna Clek Olli	100
Backless Booster	Evenflo Amp	25
All-in-One	Safety 1st All in One	140
All-in-One	Evenflo Symphony	200

C. General Pilot Study Observations

The pilot study exposed vehicle-CRS incompatibility issues stemming from vehicle seat belts, lower anchorages, top tether anchorages, vehicle interior space, and vehicle seat geometry, each of which will be described in the sections to follow. The specific results of the pilot study are included as Appendix C of this document.

Based on the pilot study evaluation form criteria, not every child restraint in the pilot study was determined to fit properly in every pilot study vehicle. More incompatibilities were observed during seat belt installations than during those with LATCH. When seat or seat back contour incompatibilities were observed, it often led to neither method of installation meeting the pilot study criteria for fit. There were no child restraints that were unable to fit in any pilot study vehicle according to the pilot study evaluation forms. Likewise, there was no vehicle in which none of the pilot study child restraints were determined to fit. However, it is clear from the chart in Appendix C that some vehicles had more incompatibilities with pilot study CRS than others. Likewise, some pilot study child restraints had more incompatibilities with the pilot study vehicles than others.

In general, the evaluation criteria used for the pilot study permitted robust and repeatable assessments.[27] However, it was determined that the evaluation form should be modified so that the act of filling out the assessment forms would be more logical and efficient. Consequently, the single evaluation form was expanded to three separate evaluation forms, one each for rear-facing, forward-facing, and booster modes. This three-form approach mirrors the format of the agency's existing CRS Ease of Use program, follows the logic of *4 Steps for Kids,* and permits distinction between installation methods. Furthermore, criteria were also removed or clarified based on the pilot study observations.[28] The revised forms have been included in Appendix D. The criteria that serve as the basis for these evaluation forms will be discussed below, as well as the agency's explanations of how these forms were derived and should be used.

X. Pilot Study Observations and Resulting Proposed Fit Criteria

The following section details incompatibility observations made by CPSTs during the Vehicle-CRS Fit pilot study. Photographs of these observations can be found in the document titled, *Vehicle-CRS Fit Pilot Study Observations,* included in this

[27] For all child restraints and installation modes assessed during the pilot study, two CPSTs conducted independent assessments and arrived at a mutual agreement as to whether a CRS could be properly installed in a particular vehicle.

[28] It was determined that removed criteria were already reflected in other criteria.

docket. This section also references additional widely-known vehicle-CRS incompatibilities that may not have been observed directly in this study, but were known to the CPSTs through their previous or anecdotal experience. Through the collective expertise of the agency and the CPSTs participating in the pilot study, the set of modified evaluation forms, included in Appendix D, was developed and is thus being proposed for use by the agency in assessing the fit of CRS in vehicles.

In each section, observations from the pilot study will be discussed and followed by the criteria the agency is recommending be used to assess vehicle-CRS fit. If needed, additional clarifications about a criterion's intention are presented after the criteria themselves.

A. Vehicle Seat Belts

Prior to the introduction of LATCH, vehicle seat belts were the sole method of securing child restraints in vehicles. Seat belts are used to secure a child restraint to a vehicle by routing them through a structurally-reinforced belt path in the restraint. When the child restraint is attached tightly to the vehicle, and the child is then secured tightly to the CRS, the child and its restraint are effectively coupled to the vehicle, which ensures proper ride-down as the vehicle comes to a stop during a crash.[29]

Seat belts have traditionally been a contributing factor to vehicle-CRS incompatibilities, especially when locking clips are required for proper installation.[30] The agency has issued a number of regulations to address the difficulty of using a locking clip. Beginning in 1996, the lap belt portion of all vehicle seat belts other than the driver's have been required to be "lockable" in order to help eliminate the need to use locking clips.[31] The majority of vehicle manufacturers choose to employ either a locking latch plate or a "switchable" retractor in order to meet this requirement. Either of these solutions is an improvement over the need to use additional devices such as a locking clip to secure the seat belt. However, the agency found in a study on CRS misuse that loose vehicle seat belt-CRS attachment was the first or second-most prevalent type of critical misuse in the field depending on the type of restraint.[32] Though the study did not cite the exact reasons for loose seat belt installations, it is possible that a portion of those may have been due to a failure to lock the seat belt properly. Not all parents or caregivers are aware that seat belts must be completely pulled out to engage switchable retractors, nor are they aware of techniques that can help ensure locking latch plates remain locked. For these reasons, seat belts are often still misused when installing child restraints.

In December of 2004, the agency published a final rule requiring Type II seat belts in center rear seating positions.[33 34] Previously, lap/shoulder belts were only required in outboard seating positions; as a result, some vehicle manufacturers had continually installed only Type I lap belts in the center rear seats of vehicles.[35] Installing lap/shoulder belts in the center rear seating position allows all rear positions to be acceptable for booster seat use, rather than only the outboard positions. This is particularly important considering booster seat use has increased.[36] Accordingly, booster misuse rates should decline over time as the fleet of older vehicles with lap belts diminishes.

Even with the introduction of LATCH, vehicle seat belts remain vital to the installation of child restraints in many vehicles. An agency LATCH study found that 25 percent of parents and caregivers familiar with using both lower attachments and anchors, as well as seat belts to secure child restraints, actually preferred seat belt installations over LATCH installations.[37] In addition, there are a number of reasons why a seat belt installation may be the only choice for installing a child restraint. For one, most vehicles do not have lower anchors at the center rear seating position; parents who want to install their child restraint in that position must therefore use a seat belt. Another major reason is that CRS market trends towards higher-weight harnessed seats suggest that in the coming years there will be an increased move to install child restraints using vehicle seat belts after children exceed the manufacturer weight limits of the lower anchors.[38] For these reasons, the agency believes the program should consider assessment criteria that relate to vehicle seat belts.

The CPST curriculum teaches that a child restraint is securely installed only if it does not move more than one inch side-to-side or front-to-back when pulled at the belt path. The pilot study revealed numerous instances in which the subject CRS could not meet this requirement when installed using the vehicle seat belts. To better restrain older children, teenagers, and adults, seat belt buckle stalks may be very long or may be anchored forward with respect to the seat bight. Unfortunately, these two seat belt characteristics can have an adverse effect on one's ability to achieve a sufficiently tight child restraint installation (*i.e.,* enable not more than one inch side-to-side movement), especially if the belt path on that child restraint is very long. In some instances, the buckle rests at the entrance to the belt path; this is expressly prohibited in some child restraint manuals as it may adversely affect the stability of the restraint. When positioned in a similar manner, a latch plate equipped with its own locking mechanism may not lock properly due to the angle at which it is resting.

The agency acknowledges that the CPST curriculum permits caregivers to twist buckle stalks in order to achieve a tight installation or to prevent buckles from resting against the entrance to the belt path, as long as the CRS and vehicle manufacturers both allow the practice. The agency has received data from Indiana Mills & Manufacturing, Inc. (IMMI) that indicates no considerable reduction in the strength of the seat belt webbing is observed if a flexible seat belt buckle is twisted three times; therefore, twisting the seat belt buckle

[29] During a crash, the vehicle's front end is designed to crush and absorb the crash energy, which effectively extends the distance, and accordingly time, over which the occupant compartment comes to rest. Tightly coupling the occupants to the vehicle will permit them to realize the full effects of riding down the crash with the vehicle and will reduce the forces acting on the body. Therefore, it is imperative that for applicable child restraints, not only is the child securely restrained by the internal harness, but also that the child restraint is tightly attached to the vehicle to ensure adequate ride-down. This will effectively serve to lessen the likelihood that the child's movement will be stopped abruptly because of contact with a hard vehicle surface.

[30] A locking clip is a device, normally provided by the child restraint manufacturer, which keeps the lap portion of a lap/shoulder belt tight by securing it near the latch plate. The locking clip prevents the seat belt (and thus the child restraint) from moving freely.

[31] § 571.208, S7.1.1.5.

[32] Decina L.E. and Lococo K. H., *Misuse of Child Restraints.* NHTSA Publication No. DOT HS 809 671, National Highway Traffic Safety Administration, 2004, Pages 33–34.

[33] 69 FR 70904, December 8, 2004.

[34] A Type II seat belt is defined by FMVSS No. 209, "Seat belt assemblies," to be a combination of pelvic and upper torso restraints, which is commonly referred to as a lap/shoulder or three-point belt.

[35] A Type I seat belt is defined by FMVSS No. 209 to be a lap belt for pelvic restraint.

[36] *Booster Seat Use in 2008.* May 2009. NHTSA Publication No. DOT HS 811 121.

[37] Decina, L.E., Lococo, K.H., Doyle, C.T., *Child Restraint Use Survey: LATCH Use and Misuse,* NHTSA Publication No. DOT HS 810 679, National Highway Traffic Safety Administration, December 2006, Page 3.

[38] High-weight harness child restraints permit children weighing more than 40 lbs. to be restrained by the internal harness of the CRS until they reach a higher maximum weight limit stipulated by the CRS manufacturer.

three or less times is considered acceptable practice and is often necessary to achieve a tight fit.[39] The agency believes, however, that this practice is not well-known to the average parent or caregiver. In addition, many buckle stalks in the vehicle fleet cannot be twisted due to rigid plastic coverings. Some child restraints have higher belt paths than others, which can eliminate the need for twisting the seat belt. Therefore, for the purposes of the pilot study, twisting buckle stalks was not permitted to achieve proper fit in a seating location. NHTSA has tentatively decided it will not twist buckle stalks in assessing the fit of CRSs in vehicles.

In some vehicles, the agency observed instances in which seat belt latch plate buttons interfered with belt-locking hardware outfitted on some infant restraints. The latch plate button is installed by the vehicle manufacturer to keep the latch plate in an accessible location for occupants to use. In a few instances throughout the pilot study, this interference was such that the seat belt could not be sufficiently tightened. In other cases, the seat belt button inhibited the proper use of the rear-facing child restraints' built-in seat belt lock-offs. Although it was not observed during the pilot study, given the wide range of child restraints and vehicles available in the marketplace, it is feasible that such buttons could interfere with lock-off hardware on forward-facing restraints and belt-positioning hardware on booster seats, as the pilot study revealed several occasions where the seat belt buttons in certain vehicles nearly caused such interference with installation for the selected CRS.

Some child restraints are designed with multiple belt paths for caregivers to route the seat belt through. Sometimes a certain belt path must be used when the child is of a particular size or weight. Due to various vehicle characteristics, there are cases in which only one belt path can be used. For example, CPSTs in the pilot study observed that some vehicle seat belts are not long enough to properly install some child restraints using all of the available belt paths. Other times, one path may result in a more stable installation than the other. Although these instances were rare, and this issue is not suspected to be a widespread problem, it is a possibility in the field and, NHTSA tentatively believes, is worth noting.

Though it is not a common practice in the U.S., some child restraint manufacturers give caregivers the option of routing the shoulder belt portion of the seat belt around an infant seat carrier rather than feeding it through the belt path. It is likely that some vehicle seat belts will not be long enough to be used with child restraints in this manner. NHTSA has tentatively decided to assess the belt's ability to be routed around the CRS if the CRS manual recommends or allows such a belt routing option. If the belt is not long enough to be used in this manner, NHTSA will deem the CRS as not fitting that seating location or vehicle.

During the pilot study, evaluators noted that certain seat belt anchors were too narrowly spaced to accommodate some booster seats. This creates a situation where the seat belt buckle may actually sit behind or underneath the child and the restraint. Buckling the child can be difficult, if not impossible, and may not allow for proper routing of the lap belt portion of the seat belt across the child's upper legs. Narrow anchorage points for seat belts may also limit the ability to properly use them to install any type of child restraint, not just boosters, although this was not specifically observed in the pilot study. There may be other times, for example, when a child restraint (particularly at its belt path) is too wide and actually rests on top of the seat belt buckle. In such cases, proper routing and tightening of the seat belt are unlikely and the child restraint would therefore be deemed incompatible with that particular seating location or vehicle.

In one pilot study vehicle, the seat belt was found to be incompatible with the belt positioning hardware on a high-back booster. In this case, the seat belt, when pulled from its retractor, could not move freely though the belt guide hardware because of incompatible geometry between the two.[40] This condition can create unwanted slack in the shoulder belt portion of the seat belt, and present a dangerous situation since a loose seat belt may not restrain a child's upper body properly in the event of a crash. However, the pilot study participants found it somewhat difficult to quantify this condition with objective criteria. Depending on the weight of the child using the booster, the height to which the booster's head restraint is raised, and the force with which the seat belt is pulled from its retractor, different conclusions may be made as to the potential for unwanted shoulder belt slack. Our experience with the pilot study found that the majority of seat belt slack is generally preventable if the installer exercises due care; however, there can also be vehicle seat belt-booster seat combinations that are overly prone to the creation of slack and should thus be avoided. In light of this, the agency is seeking comment on the frequency and severity of this issue in the field, as well as any information about how we may develop an objective method for determining whether slack exists between a particular booster seat shoulder belt guide and the vehicle seat belt. The agency proposes to include an evaluation criterion for whether seat belt slack is created between a booster and vehicle seat belt on the final Vehicle-CRS Fit forms.

Based on the above observations from the pilot study, NHTSA proposes to add the following criteria to its Vehicle-CRS Fit assessment forms in order to identify compatibility issues specific to child restraints and vehicle seat belts:

—Does the distance between the Type II seat belt's lap belt anchor and buckle allow the child restraint to be installed properly (rear-facing and forward-facing CRS) or the booster to be positioned properly?
—Is the seat belt length sufficient to properly install the CRS using all possible belt paths permitted by the CRS manufacturer and in all rear-facing (rear-facing CRS) modes of use or forward-facing (forward-facing CRS) modes of use?
—Does the seat belt buckle interfere with proper CRS installation (rear-facing and forward-facing CRS)?
—Does the seat belt latch plate button limit the use of any lock-off or other hardware on the CRS or otherwise prohibit proper installation (rear-facing and forward-facing CRS)?

NHTSA has tentatively determined that all criteria must be met to establish that a child restraint meets the fit assessment conditions for a given vehicle. Assessments should be made for forward-facing CRS and rear-facing CRS, and also for booster seats, if applicable. NHTSA is also proposing that if proper installation of the child restraint cannot be achieved with the seat belt designated for each applicable seating location within the vehicle, it should be determined that the child restraint does not meet the fit assessment conditions for seat belt installation for the subject vehicle.[41]

[39] This information was received in a letter from Jerry Thompson, an Engineering Manager at IMMI Child Division, dated September 28, 1998.

[40] This mounting location is sometimes referred to as the "D-ring" location.

[41] For those vehicles having two or more rows of seats, assessments will be made only for rear seating positions. Assessments will be made for the right front passenger seat and also for the front middle seat, if available, for vehicles having only one row of seats.

The agency tentatively believes that it is important that parents have the option to move a child restraint to a different seating position within the vehicle if necessary in order to accommodate adult passengers or additional children. Comments are requested on this issue.

B. Top Tether Anchorages

A child restraint's top tether attachment strap is an important feature because it can reduce head excursion for children positioned in forward-facing CRS in frontal crashes, thus reducing the likelihood that a child will experience head contact with the vehicle interior.[42] It can not only provide stability by reducing the amount of forward and side movement during travel, but can also help achieve a tight installation. Although not required by NHTSA's standards, some manufacturers provide top tethers for their rear-facing child restraints. Accordingly, NHTSA identified the attachment and proper tightening of a CRS top tether as important assessments of child restraint fit in a vehicle. To the extent that a parent or caregiver is unable to attach a child restraint's top tether to the tether anchor in the vehicle or improperly installs the top tether because of vehicle-CRS incompatibility, and the CRS manufacturer or vehicle manufacturer recommends use of the tether with the particular CRS in that rear- or forward-facing orientation, NHTSA tentatively believes the child restraint should not be identified as one that meets the fit assessment conditions for that vehicle.

The agency's pilot study revealed that the location of the top tether anchor in relation to the head restraint and vehicle seat belt can be a prominent factor in determining vehicle-CRS compatibility. When some child restraints were properly positioned forward-facing on the vehicle seats in two passenger cars, the distance between the top of the CRS and tether anchor, which was located on the vehicle's rear shelf, was insufficient to permit the tether to be tightened. In these cases, the vehicles were not designed with regards to the minimum tether distance required for the installation of the subject CRS.[43] Had the tether anchor been located more rearward on the vehicle shelf, or had the rear head restraint been higher, or in some cases adjustable, it is possible that the top tether attachment strap from the subject child restraints could have been adequately tightened. This was not a problem for other child restraints installed in the forward-facing mode in these same vehicles because the backs of the other child restraints did not extend as high as those from the child restraints previously mentioned. The shorter height of these CRS permitted a greater distance between the top of the child restraint and the tether anchor, and consequently permitted proper tether adjustment and tightening.

Additionally, the agency is also aware of instances in which a vehicle's tether anchor is located too far away from the respective seating location to permit attachment of a top tether. This is most commonly observed in SUVs and hatchbacks.

Vehicle seat and head restraint designs can also pose top tether use problems. Non-adjustable head restraints that are smaller in size or that are extremely rounded on top may permit the top tether strap(s) to slip off of the head restraint during travel. Additionally, geometry differences between the CRS and the vehicle seat can sometimes permit the reinforced portion of the top tether webbing to catch on the vehicle seat or head restraint upon tightening. Consequently, a loose tether may result without the parent or caregiver's knowledge.

To identify compatibility issues specific to child restraints and vehicle tether anchors, NHTSA has decided to propose the following criteria on its Vehicle-CRS Fit assessment forms:

—Can the rear-facing tether be attached to the appropriate vehicle tether anchor (forward-facing CRS and boosters, if applicable) or location in the vehicle (rear-facing CRS, if applicable)?

—Can the top tether be properly tightened (forward-facing CRS and boosters, if applicable) or can the rear-facing tether be properly tightened (rear-facing CRS, if applicable)?

NHTSA is proposing that assessments should include whether or not the top tether on the child restraint can be attached to the vehicle's top tether anchorages and tightened. If the top tether cannot be attached, we would determine that the CRS does not meet the fit assessment conditions for the given vehicle. If the top tether can be attached, a further assessment of whether or not it can be tightened would then be made. If, upon tightening, the tether strap begins to slide off of the head restraint or catches on any part of the vehicle seat such that the tether seems taut, yet loosens or shifts position upon pulling the CRS from side-to-side at the belt path, the child restraint does not meet the aforementioned criteria. Assessments would be made for forward-facing CRS and also for rear-facing CRS and booster seats, if so equipped. For CRS equipped with a top tether and designed to be installed rear-facing, the agency is proposing to assess whether the tether can be properly attached to the vehicle when the CRS is installed in the rear-facing mode. Such assessments will be made only if the CRS user's manual instructs that tether attachment is either acceptable or required for the rear-facing mode and the vehicle owner's manual does not explicitly prohibit attachment of a rear-facing tether. The top tether assessment would also only be made for convertible child restraints placed in the rear-facing mode if the CRS user's manual explicitly states that tether attachment is either acceptable or required for the rear-facing mode.

C. Lower Anchorages

As mentioned previously, the intent of the LATCH system was to introduce a user-friendly system that would make CRS installation independent of the seat belts. When using the lower anchor portion of LATCH, there is no need to lock the vehicle's seat belt when installing the CRS, use a locking clip, twist long belt buckle stalks to achieve a tight fit, or combat seat belts that are anchored forward of the seat belt buckles. Therefore, it was expected that LATCH would be less prone to incorrect routing and loose fit, two sources of misuse often associated with seat belt installations, and accordingly, would reduce misuse and incorrect installation of child restraints. This was evidenced by the 2006 NHTSA CRS misuse study. This study found that the lower attachment strap was routed through the correct path for 93 percent of the CRS surveyed and a tight installation was achieved for 70 percent of the CRS.[44 45] Accordingly, real world experience demonstrates that LATCH, and in particular, the lower attachments, provides safety benefits to many parents and caregivers who experience difficulty attaching a child restraint correctly in a vehicle or find that the vehicle's seat belts are incompatible with a child restraint. However, as mentioned previously, the agency also recognizes that LATCH, although

[42] *See http://www.cpsboard.org/pdf/techmanual/StudentManual_R0108_ch6.pdf.*

[43] Here, the minimum distance required is equal to the length of the tether hook plus the reinforced stitching length on the tether strap webbing.

[44] Decina, L.E., Lococo, K.H., Doyle, C.T., *Child Restraint Use Survey: LATCH Use and Misuse,* NHTSA Publication No. DOT HS 810 679, National Highway Traffic Safety Administration, December 2006.

[45] A CRS installed with lower anchorage attachments was considered securely installed if the lower attachment connectors were installed right side up, the lower attachment straps were flat and routed to the correct anchors, and the installation was tight.

effective, has not addressed all vehicle-CRS compatibility problems.

The agency's pilot study suggested that, like seat belt anchor points, the design of a vehicle's lower anchorages can also present compatibility issues. The overwhelming majority of child restraints in the U.S. employ flexible lower attachments. In these systems, the lower attachments must first be connected to the vehicle's lower anchorages. Then, the additional webbing must be tightened to eliminate system slack and achieve a tight fit. The majority of child restraints have at least one push-button or tilt-lock adjustment mechanism on their lower attachment straps that provides tension and then eventually allows for that tension to be released if the CRS needs to be removed from the vehicle.

In some vehicles assessed during the pilot study, incompatibilities were observed between the lower attachment strap adjusters and the CRS lower attachment path. In most cases, this occurred because the location of the vehicle's lower anchorages was high in relation to the resting surface of the CRS, thus minimizing the distance between the CRS lower attachment path and the vehicle's lower anchorages. In some cases, this was complicated by lower anchorages that protruded from the seat bight, which served to further decrease this distance. Similar to, as mentioned previously, when a seat belt buckle rests on the edge of the child restraint's belt path, it is undesirable for the lower attachment strap adjusters to contact the frame or edge of the CRS belt path. A proper fit could not be achieved in these cases.

High seat bights were also observed to have compatibility issues with LATCH-equipped backless booster seats as well. Though booster seats are not required to have components that attach to LATCH anchors, a number of products have entered the market in recent years that use components that attach to lower LATCH anchors to stabilize the booster on the vehicle seat. When installed using its rigid lower anchors, one backless booster seat was unable to sit flat on the vehicle seat pan because the vehicle's lower anchors were located in the seat back rather than in its bight. A similar observation was made when attempting to position the same booster seat without trying to attach the lower rigid attachments to the vehicle anchors in that same position within the vehicle. Because the vehicle did not have a gap at its seat bight and the booster manufacturer required that the rigid attachments be inserted into the seat bight if they were not being used, the booster was once again not able to be properly positioned on the vehicle seat.[46]

Other incompatibility issues were identified when attempting to install a LATCH-equipped backless booster seat using the rigid lower attachments. It was observed that if a vehicle's lower anchors were too far forward or exposed in relation to the seat bight, the LATCH-equipped backless booster seat may be positioned forward on the vehicle seat pan and away from the vehicle seat back. In such instances, a large gap was created between the booster and the seat back. This may result in children being unable to sit flat against the seat back and leaning forward. Such a position can lead to increased head excursion during a crash. In addition, this condition may also allow children to slouch, whereby the lap portion of the seat belt may sit over the occupant's soft abdominal region instead of over the pelvis. If the seat belt is resting on soft tissue instead of bone, internal organs are more at risk in the event of a crash. The pilot study also revealed that a similar phenomenon can occur when traditional backless booster seats that are void of lower attachments are positioned against raised or prominent seat bights that essentially push the booster away from the seat back.

To establish that a child restraint is compatible with a vehicle's lower anchors, the following criteria should be met:

—Can the lower attachments on the CRS (rear-facing and forward-facing CRS) or booster (if so equipped) be properly attached to the vehicle's lower anchorages?
—Can the lower attachments on the CRS (rear-facing and forward-facing CRS) or booster (if so equipped) be tightened, if necessary, after the initial connection to the lower anchorages?
—When the CRS is installed (rear-facing and forward-facing CRS) or the booster is positioned (booster, if so equipped) using lower anchorages, is there access to the vehicle's adjacent seat belt buckles?

For the Lower Anchorages category, NHTSA is proposing to assess whether the CRS can be attached to the vehicle's lower anchorages. It would be permissible to move a seat belt buckle out of the way to do so. If the lower attachment straps on the CRS can be successfully attached to the vehicle's lower anchorages, it would then be assessed whether the lower attachment straps on the CRS could be adequately tightened to provide a secure fit and permit limited movement.[47] Additionally, once the CRS is attached to the vehicle's lower anchors, it must be determined whether the vehicle's adjacent seat belt buckles can be accessed and used. However, if a vehicle manufacturer permits sharing of inboard lower anchorages from the outboard vehicle seating positions to create a center LATCH position, or if a manufacturer permits a center LATCH position that is offset from the center designated seating position, NHTSA reasons that it would be impractical to use the seat belt buckles from the adjacent seat positions when a child restraint is installed with LATCH in the created center position. Therefore, for such center LATCH positions, the agency is not proposing to assess whether there is access to the adjacent seat belts as long as the vehicle manufacturer specifies in the owner's manual that the seat belt buckles related to the adjacent seating locations cannot be used when the created center LATCH position is utilized. This aims to minimize the possibility that a consumer may improperly use or route the seat belt in adjacent seating locations that would be considered non-use positions, and would therefore be exempt from the aforementioned assessment. The agency is distinguishing between outboard and center LATCH positions because some consumers may want to install a child restraint in the center position, even if the vehicle does not offer a dedicated LATCH position at the center seat. Accordingly, the agency does not want to discourage vehicle manufacturers from including center LATCH positions, particularly in smaller vehicles where a dedicated center LATCH position may be impractical. If a vehicle manufacturer permits the sharing of inboard lower anchorages from outboard seating positions to create a center LATCH position in any one vehicle model, NHTSA will also confirm that the CRS user's manual does not prohibit installation of the given child restraint in such positions. For vehicles having a fold-down armrest in the center rear seating location, the agency will verify that the CRS manufacturer permits installation of the child restraint at such

[46] NHTSA tentatively believes that it should assess the attachment and proper tightening of the CRS lower LATCH attachments of a CRS when the CRS manufacturer or the vehicle manufacturer recommends or specifies use of the lower LATCH anchorages with that CRS. To illustrate, although FMVSS No. 213 does not require lower LATCH attachments on booster seats, if the booster seat has such attachments and the vehicle manufacturer identifies the booster seat as one that fits its vehicle, then NHTSA will assess the fit of the booster on the vehicle seat using the lower LATCH attachments.

[47] Specific tightness requirements for CRS installation are outlined in Section IX E. of this document.

locations. All assessments will be made for rear-facing and forward-facing child restraints and also for LATCH-equipped booster seats.

Although the pilot study did not reveal instances in which a CRS could not be installed using LATCH if the adjacent seat belt was in use, the possibility may exist. The agency recognizes that using the seat belt in a position adjacent to a CRS installed with LATCH may be necessary or desirable for parents and caregivers transporting other adults or older children in booster seats. Therefore, the agency is requesting comments on whether an additional requirement should be added to address access to a vehicle's lower anchorages when a CRS is installed using the seat belt in an adjacent seating position. If the addition of such a requirement is deemed necessary, the agency would make this assessment for LATCH seating positions adjacent to a seat belt-installed CRS as long as the vehicle owner's manual does not prohibit the use of LATCH in that position when the adjacent seat belt is in use. Similar to the previous criterion to assess seat belt access when LATCH is in use, the agency is proposing that this additional LATCH access criterion would be applicable to created center LATCH positions and overlapping center LATCH positions, if permissible, as well as designated LATCH positions. In other words, the agency is proposing to apply this LATCH access requirement to every LATCH position in the vehicle when a CRS is installed using the vehicle seat belts in the adjacent seating position(s).

This program will not assess how easily a child restraint's lower connectors can be either attached to or detached from a vehicle's lower anchors, nor will this program evaluate the likelihood that one will be able to misuse a vehicle's LATCH hardware. The agency recognizes that connector attachment may be difficult if the vehicle's lower anchors are recessed deep within the vehicle seat bight, if the vehicle seat cushion is stiff, or if clearance around the vehicle's lower anchors is inadequate; however, the agency tentatively concludes that evaluating the ease of attachment or detachment would lead to subjective, rather than objective, fit assessments. As the agency's intent is to provide a robust, repeatable evaluation of CRS fit in vehicles, the agency will not incorporate criteria that focus on ease of installation at this time. The agency hopes, however, that as child restraint and vehicle manufacturers work together to address compatibility, they will recognize and address such issues. Because the agency's misuse studies have shown that there is a greater likelihood that a child restraint will be securely installed with LATCH lower attachments than with a vehicle seat belt, the agency hopes that vehicle manufacturers will also make it easier for parents and caregivers to locate a vehicle's LATCH anchors within a vehicle so that they may be more intuitive to use.

D. Head Restraints

Prominent, fixed head restraints can present incompatibilities between vehicle seats and some child restraints, especially forward-facing restraints and high-back boosters. In some vehicles, a forward-facing CRS was only able to make contact with the vehicle at the seat bight and at the head restraint and evaluators were not able to achieve a tight installation. In other vehicles, the installation was secure but the child restraint manufacturer required a specific amount of contact between the seat back and the restraint. In such cases, the head restraint's geometry prevented the child restraint from contacting the back of the vehicle seat, which violated the child restraint manufacturer's instructions. This problem may have been eliminated for some high-back booster seats if the head restraint was removable or adjustable instead of fixed. As mentioned previously, pilot study evaluators also observed instances where top tethers could not be sufficiently tightened over fixed head restraints when there was not adequate distance for attachment of the tether hook. In all of these cases, the child restraint did not meet the proposed conditions for proper installation.

In light of these observations, NHTSA is proposing to include one head restraint-related criterion on its Vehicle-CRS Fit Assessment forms. In order to establish that a child restraint fits in a vehicle, the following should be met:

—Does the vehicle head restraint interfere with proper CRS installation (forward-facing CRS) or booster positioning (high-back booster only)?

To eliminate incompatibilities between head restraints and child restraints, all available methods of remedy indicated in the vehicle and/or CRS owner's manual may be employed. These can include, but are not limited to head restraint removal, moving the head restraint upward into a locked position, and tilting the head restraint rearward. If proper installation of the child restraint cannot be achieved using all listed remedy methods, it would be determined that the child restraint does not fit in the subject vehicle.

E. CRS Installation, Use, and Tightness

In the event of a crash, it is imperative that a child restraint be tightly coupled to the vehicle so that the child occupant is afforded the full benefits of riding down the crash with the vehicle. Vehicle design factors such as space limitations and seat characteristics can pose significant challenges for the installation of certain types of child restraints. Additionally, a variety of CRS characteristics, including assorted footprint shapes, belt path locations, belt positioning features, and overall sizes, can create challenges for vehicle seat cushions. While it is beneficial for parents and caregivers to identify vehicle-CRS combinations that have a wide variety of options available to meet their needs, this diversity may make it difficult for parents and caregivers to identify vehicle-CRS combinations that provide to a proper fit.

During the agency's pilot study, it was observed that some vehicles were simply too small to accommodate certain CRS types or certain CRS orientations. In two vehicles, the roofline of the vehicle limited the height to which the head restraints of certain combination and high-back booster seats could be raised in the outboard seating locations. This is especially important since the head restraints on most child restraints designed for forward-facing installation, including many boosters, now come with wider and more padded side wings in the head area. These are typically comprised of energy absorbing foam and are intended not only to confine the head, but also to attenuate lateral loads. If the parent or caregiver is unable to fully adjust the headrest, the feature of the booster or other forward-facing child restraint may not be able to be used, and the child's head may still be able to extend above the height at which the head restraint on the CRS or booster can adjust depending on the slope of the roofline.

Other vehicles did not offer adequate space to properly position rear-facing child restraints. In newer vehicles, certain rear-facing child restraints may interfere with a vehicle's advanced air bag sensors if the restraints are allowed to rest against the front seat back. In several vehicles studied, unless the vehicle's front seats were set forward of the fore-aft mid-track seat adjustment position, most convertible restraints contacted the front seat back when positioned rear-facing.[48] For those cases, such contact was prohibited by the respective CRS manufacturers. The agency recognizes, however, that some CRS manufacturers permit their child restraints to rest against the back of the vehicle seat. The CPST curriculum also acknowledges that such contact is acceptable if it is not expressly prohibited in either the vehicle owner's manual or the CRS user's manual.[49] Accordingly, the agency is proposing to adopt criteria to assess whether a CRS can be installed rear-facing so as to achieve the appropriate distance relative to the front seat back, as prescribed by the CRS manufacturer in the CRS owner's manual. If the CRS owner's manual does not provide guidance as to whether CRS contact with the front seat back is permitted or not, the agency is proposing to permit such contact.

Proper installation could also not be achieved for several infant restraints positioned in the middle rear seating location in some vehicles because the carrier handle contacted the center console of the vehicle when placed in its manufacturer-prescribed travel position. If the handle is adjusted to the wrong position for travel, during a crash, it may contact the vehicle seat or other vehicle components during rebound and may break, injuring the child or other occupants.[50] Therefore, the agency is also proposing to adopt criteria to assess whether proper placement of the CRS carrier handle can be achieved for rear-facing CRS, if applicable.

The CPST curriculum also teaches that not only must a CRS not move more than one inch from side-to-side or front-to-back when pulled at the belt or lower attachment strap path with one hand to be properly installed, but further specifies that no more than 20 percent of the child restraint's footprint may hang over the edge of the vehicle seat.[51] We are considering using this criterion to assess the CRS stability on the vehicle seat pan since it has been included in the curriculum and is a familiar metric in the child passenger safety community. However, as stated earlier in this preamble, we request comment on the merits of the 20 percent criterion. Should a different value be used instead?

In light of the aforementioned installation issues, NHTSA is proposing that the following criteria are considered when assessing fit in the "CRS Installation, Use, and Tightness" category:

—Does more than 20% of the CRS (rear-facing and forward-facing CRS) or booster base/bottom hang over the edge of the vehicle seat pan?
—Can the CRS be installed so that there is no more than 1 inch of movement side-to-side or front-to-back when pulled at the LATCH path or belt path (rear-facing and forward-facing CRS)?
—Can the CRS be installed rear-facing so as to achieve the appropriate distance relative to the front seat back, as stated in the CRS owner's manual, if applicable? Must also be able to achieve proper placement of CRS carrier handle, if applicable (rear-facing CRS only).
—If the harness is intended to be accessed when the CRS is installed, can it be tightened (rear-facing and forward-facing CRS)?
—Does the positioning prohibit full adjustment of the booster's head restraint or the use of any belt positioning hardware (booster only)?

Although this program will not be evaluating vehicle-CRS combinations for ease of fit at this time, the agency is adopting certain criteria that should help ensure that the installation and use of recommended child restraints will be less difficult for parents and caregivers.

The vast majority of harnessed child restraints currently in the U.S. market use a "continuous" or "one-pull" mechanism to tighten the harness onto the child once s/he has been secured in the restraint. This style of harness tightening mechanism is for use while the CRS is installed in the vehicle, so that the parent or caregiver can appropriately adjust the harness to fit snugly on their child prior to each and every trip. The agency is proposing that in order to meet the fit recommendation conditions, child restraints with harness tightening systems that are intended to be accessed and used while the CRS is installed must actually be able to be accessed and used. If the harness tightening mechanism is not intended to be accessible according to the CRS owner's manual when the CRS is installed in the vehicle, this would not be a proposed requirement for vehicle fit.

The agency is also proposing a criterion that promotes CRS installations without the use of items that did not come from their manufacturers. For example, for proper installation, a rear-facing CRS must achieve a proper recline on the vehicle seat and must achieve proper tightness without the use of after-market objects such as pool noodles or rolled towels. Although it is common practice in the field to use such items, the items are used to solve incompatibility problems. Thus, the agency does not believe that a child seat fit recommendation within this program should depend upon the use of items to fix incompatibility between the CRS and the vehicle.

We believe, in most cases, requiring no more than 20 percent of the CRS bottom to overhang the vehicle seat pan and less than one inch of movement at the belt path when installed should result in a proper, tight installation. However, though not explicitly stated, it is often the case that a child restraint must rest securely on the vehicle seat pan and against the seat back to achieve no more than one inch of movement when installed. As indicated previously, vehicle features such as fixed head restraints may position larger forward-facing restraints or high-back boosters away from the vehicle's seat back, generating large gaps behind the CRS. High seat bights and severe vehicle seat pan contours can also create gaps behind or under a CRS. In addition, some child restraint manufacturer instructions stipulate that proper installation requires a certain amount of contact between the vehicle seat back and the rear of a child restraint when installed forward-facing. The agency is unsure as to the specific reasons for this requirement and is seeking comment on this issue.

It should be noted that the agency is proposing to permit the adjustment of vehicle seat backs, if possible, to achieve appropriate CRS contact with the vehicle seat back. This proposal is aligned with S7(a) of FMVSS No. 225, "Child restraint anchorage systems," which currently permits seat back adjustment in order to attach the SFAD 2 to a vehicle's lower anchorages during testing.[52] Further, adjusting the seat back so that the child restraint would rest securely against the seat back is a reasonable step that a parent or caregiver may take. For forward-facing and high-back booster seats, the agency will also permit evaluators to use all available remedy methods indicated in the vehicle owner's manual to adjust head restraints that may cause gaps.

Prior to the pilot study, the agency was unsure not only as to whether there was a need to develop a criterion to address CRS stability on the vehicle seat back, but also as to what would qualify

[48] The mid-track position is indicative of the seating location of the mid-sized male driver dummy in frontal and side NCAP tests.

[49] *See http://www.cpsboard.org/techmanual.htm,* Page 137.

[50] *See http://www.car-safety.org/guide.html.*

[51] *See http://www.cpsboard.org/techmanual.htm,* Page 137.

[52] SFAD 2 is the static force application device used in FMVSS No. 225 testing to test lower anchorage and tether anchorage strength when seat belts are NOT used to secure a child restraint system in the vehicle.

as an objective criterion. Accordingly, the agency used the pilot study to both assess the need for a criterion, and also to evaluate a potential objective criterion. In particular, the agency assessed whether requiring a minimum of 50 percent contact between the CRS and the vehicle seat back was needed to ensure proper fit. That is, if a forward facing CRS or a booster could not be installed such that at least 50 percent of its rear surface was in contact with the vehicle seat back, then a note to that effect was made on the pilot study evaluation forms, as shown in Appendix C.

The agency also evaluated whether this criterion, if needed, was both sufficient and objective. For the purposes of the pilot study, it was not necessary for a child restraint to meet this requirement to achieve acceptable fit.[53] Although the agency observed several instances during the pilot study in which child restraints could not be installed in certain vehicles to meet this requirement, with the exception of one vehicle-CRS combination, each of these vehicle-CRS combinations also failed to meet an additional fit requirement. Some of the restraints that did not meet the seat back contact requirement could not be installed to meet the CRS manufacturer's installation instructions; others, when installed, could be moved more than one inch side-to-side or front-to-back. For these reasons, and since the agency could not find data regarding an appropriate amount of surface area contact between a child restraint and the vehicle seat back or seat pan, NHTSA is specifically seeking comment on whether a vehicle seat back-to-CRS contact criterion is necessary and should be included on the final set of evaluation forms. If such a criterion is deemed necessary, the agency is also seeking comment on what the appropriate, objective criteria should be. Similarly, the agency is also seeking comment on whether it should adopt a requirement that assesses CRS stability on a vehicle seat pan. Although such a criterion was not evaluated during the pilot study, the agency did observe several instances in which large gaps could be seen under an installed CRS due to CRS incompatibility with vehicle seat bights or seat pan contours. The agency is also seeking comment on what an appropriate, objective seat pan contact criterion would be, should it be deemed necessary.

[53] During the pilot study, the agency made an attempt to develop an objective criterion for contact between the CRS and the vehicle seat and felt 50 percent contact was a reasonable starting point for evaluation.

The agency is proposing an additional assessment that pertains to whether a rear-facing CRS contacts the vehicle seat in front of it when installed. Certain vehicle manufacturers prohibit rear-facing child restraints from touching the front seat back because of potential interference with advanced air bag sensors. Similarly, child restraint manufacturers may also require that an installed child restraint may not come within a specified distance of the front seat back. NHTSA tentatively believes that, if the CRS user's manual or the vehicle owner's manual specifies that either the child restraint may not contact the seat back in front or that a certain distance must be maintained between the CRS and the back of the front seat, we should take this into consideration. The child restraint should be installed and assessed for fit in the vehicle such that the specified distance (if any) is maintained. For fit assessments under the vehicle-CRS program, the agency is proposing that manufacturers make two assessments with respect to the front seat position—one with the front seat set to its mid-position on its seat track and one with the front seat set to its forward-most position on its seat track.[54] The agency acknowledges that not all front seats will be able to be positioned in their mid-track position when a CRS is installed rear-facing in the seat behind it. As long as the front seat can be placed in any lockable position with its seat back at the vehicle manufacturer's nominal seat back angle, a CRS can be considered to meet the fit assessment conditions in that vehicle. While it may be impractical to move the driver's seat to its full forward position while operating the vehicle, the consumer has the option of moving the front passenger seat of a vehicle to that location to accommodate a rear-facing CRS, even if that means other adult passengers may also have to sit in the rear seat. The agency expects manufacturers to note any fit recommendations that require a front seat to be placed forward of the mid-track location. We intend to disseminate that information to consumers.

The agency understands that vehicles of the same make and model can have different upholstery and options that may affect the installation of a child restraint. In the agency's experience, however, these variations have not been severe enough to affect the ability to install the same child restraint within variations of one vehicle make and model. That said, the agency expects vehicle manufacturers to exercise due care; if a particular trim line or vehicle option will have an effect on the consumer's ability to achieve proper vehicle-CRS fit, the manufacturer should not recommend that vehicle-CRS combination for this program.

[54] Mid-position for these fit assessments is taken to be the midpoint between the full-forward and full-rear position of the seat on its mid-track, using only the primary seat fore-aft controls. If a particular vehicle is available with different front seat options, the manufacturer should exercise due care by assessing fit in the vehicle seat whose mid-track seat position would be rear-most with respect to the child restraint. During all assessments, the front seat back should be set to the vehicle manufacturer's nominal seat back angle.

F. Vehicle Owner's Manual

Proper installation of a child restraint requires that the parent or caregiver read and follow all the requirements of both the vehicle owner's manual and the child restraint user's manual. However, NHTSA is aware of some cases in which the vehicle cannot accommodate the child restraint properly due to constraints imposed by either the child restraint manufacturer or the vehicle manufacturer. As such, NHTSA has decided to propose the following criterion in the "Vehicle Owner's Manual" category for rear-facing CRS, forward-facing CRS, and boosters:

—Can the CRS be installed (rear-facing and forward-facing CRS) or booster be positioned to meet both the restraint manufacturer's and the vehicle manufacturer's instructions?

It is important for parents and caregivers to follow all instructions from both child restraint and vehicle manufacturers, to ensure that the maximum protection possible is afforded. If a child restraint's user's manual advises that the CRS should not be used in a vehicle having a particular type of seating arrangement, this restraint would not meet the assessment conditions. That is, NHTSA would deem this CRS as not fitting a vehicle with that type of seating arrangement, even if the vehicle manufacturer had identified the CRS as one that fits the vehicle. Such an instance may arise if a vehicle manufacturer recommended a child restraint for a particular vehicle that has a specific type of side air bag and the CRS manufacturer's instructions prohibit the installation of that particular CRS next to that type of side air bag.

A lack of information can be challenging for parents and caregivers. It is prudent for both vehicle and child restraint manufacturers to provide sufficient information regarding proper use. As observed in the pilot study, there are instances in which specific features cannot be used or in which the full use of features on the restraint cannot be realized. Not only can this be a disappointment to caregivers, but it can also result in consumers improperly installing the child restraint. For example, suppose a vehicle manufacturer established a maximum weight for children who should be using CRSs with the LATCH system, but did not include the LATCH anchor limit information in the vehicle owner's manual. The harnessed restraint installed with LATCH should be reinstalled with the seat belt when the vehicle's LATCH anchor weight limits are exceeded. However, a parent who was not aware of the weight limit might fail to reinstall the CRS with the vehicle belt after his or her child's weight exceeded the vehicle's LATCH anchor weight limit.

Along similar lines, the vehicle should accommodate the child restraint so that the CRS may be installed to meet the child restraint manufacturer's instructions. For example, for rear-facing infant seats, the carry handle's proper travel position must be reached. If the carry handle makes contact with the vehicle's front seat backs or center console when placed in this position and either the vehicle owner's manual or the child restraint user's manual prohibits such contact, the child seat should not be installed for use in this position in the subject vehicle. A similar rationale should be applied for convertible seats and/or all-in-one seats for which seat back contact is prohibited when positioned rear-facing. Another example may be when a forward-facing child restraint's user's manual states that the restraint's seat back must make full contact with the vehicle seat back, but this condition cannot be achieved because of the seat back or seat pan contour, a high seat bight, or head restraint interference. The restraint should have the ability to be properly utilized in every mode of use and in every adjustment position as described in the manual so that parents and caregivers can properly adjust the child restraint to accommodate the growth of their child(ren).

G. Weight Limits

Most forward-facing child restraints are equipped with internal harness systems that are designed for children weighing 40 pounds or less; however, many child restraint manufacturers now make forward-facing child restraints that are designed for heavier, taller children. These child restraints come with an internal harness system that can be used for children weighing up to 65 pounds, and in some cases, 80 pounds. As mentioned previously, these restraints are informally known as "high-weight harness" restraints. For vehicles that have established child weight limits for their LATCH anchors and those weight limits are lower than the upper child weight limits of these high-weight harness restraints, parents and caregivers should not install or continue to use these CRSs using the LATCH system when children surpass the upper weight range allowed by the vehicle LATCH anchors. In most cases, when the child's weight exceeds the vehicle manufacturer's LATCH child weight limit, the child restraint's lower attachments and/or top tether may have to be detached from the vehicle, and the vehicle seat belt is then used to install the child restraint. In some instances, however, the weight limit established by the vehicle manufacturer for the vehicle's top tether anchor may be higher than that for the vehicle's lower anchors and the top tether may continue to be used after the CRS transitions from LATCH to a seat belt, until a new weight threshold is reached. Regardless of whether the CRS is installed with lower attachments or seat belts, many vehicle and child restraint manufacturers require that the tether also be disconnected once the child reaches a certain weight.

As some vehicle manufacturers do not include information pertaining to the child weight limits for LATCH use in the vehicle owner's manuals, NHTSA is concerned that many parents and caregivers are not given information as to whether they may have to disconnect the child restraint from the LATCH anchors and use the vehicle seat belts as their child gets heavier. There can also be confusion if the weight limits of the CRS and the vehicle LATCH system do not match. To ensure that parents and caregivers are provided with adequate information for proper restraint use and to improve the fit of CRSs in vehicles, NHTSA is proposing the following scenarios to assist vehicle manufacturers in their fit assessment process. In the following scenarios, the LATCH lower anchors and the top tether anchor have the same child weight limit or a LATCH weight limit is not provided by the vehicle manufacturer.

- If the recommended CRS has a maximum child weight limit that is 40 pounds or less, NHTSA will evaluate fit using LATCH lower anchors (with tether) or using seat belts (with tether), at each applicable seating position;
- If the recommended CRS has a maximum child weight limit that is greater than 40 pounds and the vehicle manufacturer does include a child weight limit for LATCH use in the vehicle owner's manual, NHTSA will evaluate fit at each applicable seating position as follows:

(1) If the recommended CRS's maximum child weight limit is less than or equal to the child weight limit specified in the vehicle owner's manual for LATCH use, vehicle-CRS fit may be assessed using LATCH lower anchors (with tether) or using seat belts (with tether);

(2) If the recommended CRS's maximum child weight limit is greater than the child weight limit specified in the vehicle owner's manual for LATCH use, vehicle-CRS fit may be assessed using:

(a) LATCH lower anchors (with tether) or seat belts (with tether)—for children weighing up to the child weight limit specified in the vehicle owner's manual for LATCH use; and

(b) Seat belts only—for children weighing above the child weight limit specified in the vehicle owner's manual for LATCH use.

- If the recommended CRS has a maximum child weight limit that is greater than 40 pounds and the vehicle manufacturer does NOT include a child weight limit for LATCH use in the vehicle owner's manual, NHTSA will evaluate fit at each applicable seating position using:

(1) LATCH lower anchors (with tether) or seat belts (with tether)—for children weighing up to 40 pounds; and

(2) Seat belts only—for children weighing more than 40 pounds.

The agency believes the situation can exist where a vehicle manufacturer could specify a child weight limit for the LATCH system in which the lower anchors have a limit that differs from the weight limit of the top tether. In those situations, we believe the below scenarios would be appropriate for determining whether the lower anchors and top tether should be used. With regard to the lower anchors, we propose that NHTSA will attach the lower anchors if the CRS child weight limit is less than or equal to the anchor's child weight limit provided by the vehicle manufacturer. If the CRS child weight limit is greater than the vehicle's anchors child weight limit, we would not attach lower anchors and would use seat belts instead when assessing the fit of the CRS as the CRS is configured for children weighing above the child weight limit specified in the vehicle's owner manual for LATCH lower anchors. With regard to the top tether, we propose that NHTSA will attach the tether if the CRS child weight limit is less than or equal to the tether child weight limit provided by the vehicle manufacturer. If the CRS child weight limit is greater than the vehicle's tether weight limit, we would not attach the top tether. That is, we would assess fit without using the tether. A summary of the above scenarios is shown in Appendix E.

If NHTSA finds that a CRS does not fit a vehicle seating position when attached by the LATCH system or the seat belt system as described here, NHTSA plans to take action as proposed in the "Program Distribution" section (VII–C).

H. Rear-Facing CRS

Frontal crashes are the most frequently occurring types of crashes. In a frontal crash, a rear-facing CRS acts to cradle the child, prevents the child's head from snapping backward with respect to its body, and helps distribute crash forces over the child's head, neck, and back, thereby reducing the potential for injury to any one body region. It is especially important to face infants (children under one year old AND under 20 lbs) rear-facing, as the child's neck has not yet matured to support the child's head in a frontal crash.

To balance safety and comfort for children restrained rear-facing, it is also imperative that parents and caregivers achieve the appropriate recline angle for rear-facing restraints.[55] This angle, which is recommended by the CRS manufacturer, is typically specified to be between 30 and 45 degrees from vertical, and must be determined when the vehicle is on a level surface. Child restraint manufacturers often equip rear-facing child restraints with a level indicator so that caregivers can install the CRS at the appropriate angle. The prescribed angle must be especially maintained for newborns to prevent their airways from being restricted. As evidenced by the agency's pilot study, parents and caregivers may find it particularly difficult to achieve the appropriate recline angle when installing a rear-facing CRS in a vehicle that has an extreme seat pan contour.

NHTSA's pilot study revealed several instances in which anti-rebound bars, equipped on some child restraints, increased stability on the vehicle seat, particularly for the rear center seating position.[56] The agency also observed that these devices can actually help parents and caregivers to achieve and maintain the recommended recline angle for the CRS.

With these considerations in mind, the agency is proposing the following additional assessment criteria for rear-facing CRS:

—Can the CRS be installed to the recline angle specified by the manufacturer?
—Can the anti-rotational device, if applicable, be adjusted/operated/installed properly?

A rear-facing child restraint should be able to be installed at the manufacturer's prescribed angle (using any level indicators included) when the vehicle is on level ground. The agency is not proposing to permit the use of pool noodles, towels, or other objects to achieve the proper angle for the reasons specified previously. NHTSA is also proposing that an assessment of the installation, operation, and adjustment of anti-rotational devices be made for applicable CRS when installed rear-facing. If the device cannot be used, or if using it prohibits a tight fit, the restraint would not meet the assessment conditions for fit.

XI. Conclusions and Effective Date

For the reasons described above, the agency believes that there is a need to address vehicle-CRS fit via a consumer information program. We are proposing that a voluntary Vehicle-CRS Fit assessment program would be an effective method of meeting this need, as our pilot study showed it to be a viable option. To fulfill the participation conditions for the program, the agency is proposing that vehicle manufacturers follow a list of criteria, similar to those the agency is proposing in Appendix D, to determine CRS that fit in various vehicle models.

Comments are requested on the program, including the criteria described in this document to assess a proper fit of a CRS in a vehicle, and the conditions we are considering setting for participation in the program (conditions that vehicle manufacturers have to meet to have their information listed on Safercar.gov).

We are proposing that the program begin with vehicle model year 2012. However, we are requesting comments on the appropriate lead time for vehicle manufacturers to prepare for and participate in the program. Under our proposed program, vehicle manufacturers will submit recommendations of CRS that fit in their vehicle models to the agency via the *Buying a Safer Car* submission, which is collected annually. Although recommendations will be valid only for vehicle-CRS pairs, vehicle manufacturers need not provide data for all of their vehicle models in order to participate. The agency hopes that over time, a wealth of information will be generated.

As discussed, in the interest of time and simplicity, the proposed program only includes objective fit criteria. Such objective criteria quantify fit in a clear manner, which vehicle manufacturers can quickly comprehend and use to start providing accurate assessments. The agency plans to reevaluate the program after its inception to ensure that consumers are receiving useful and complete information. If the agency determines that it is warranted and practical, additional CRS ease of fit criteria could be added. The agency also expects to revisit other aspects of the program, such as the number and type of fit suggestions being made by vehicle manufacturers. In particular, if the program is adopted, as proposed, the agency may reevaluate whether vehicle manufacturers may continue to claim vehicle-CRS fit for either LATCH or vehicle belts, or decide if the manufacturer must instead claim fit for both systems of attachment.

While vehicle manufacturers will be expected to report CRS fit under the proposed program, we expect there to be motivation for CRS manufacturers to share in the process by identifying vehicles that their products can fit and reporting their findings to vehicle manufacturers. This serves both the vehicle manufacturers' needs, the CRS manufacturers' needs, and consumers' needs. At this time, the agency does not plan to collect CRS fit information from CRS manufacturers directly. The agency believes that, in the interest of time, requesting this information from the vehicle manufacturers is the most appropriate approach. As mentioned, NCAP's *Buying a Safer Car* information request should permit NHTSA to gather this information from the vehicle manufacturers in an organized and efficient manner. Furthermore, the agency does not currently have a means to collect similar information from the CRS manufacturers. That being said, in the interest of providing consumers with a greater number and variety of CRS from which to choose from, the agency is requesting comments on an alternative or additional approach to collecting this information.

XII. Paperwork Reduction Act

Before a Federal agency can collect certain information from the public, it must receive approval from the Office of Management and Budget (OMB). Under the Paperwork Reduction Act of 1995, a person is not required to respond to a

[55] *See http://www.car-safety.org/rearface.html.*

[56] To limit inertia-induced rotation of a rear-facing child restraint upon rebound in a frontal or rear impact crash, many CRS come equipped with an anti-rebound bar. This device serves not only to transmit rotational forces seen by the CRS into the vehicle seat back during sudden changes in velocity, but also may reduce the chance of injuries resulting from a child's contact with the vehicle seat during rebound.

collection of information by a Federal agency unless the collection displays a valid OMB control number with an expiration date. Before seeking OMB approval, Federal agencies must publish a document in the **Federal Register** providing a 60-day public comment period and otherwise consult with members of the public and affected agencies concerning each proposed collection of information.

NHTSA believes that the consumer information program described in this request for comments, if implemented, may result in a collection of information burden on motor vehicle manufacturers, even if the manufacturers provide the information voluntarily. In a separate **Federal Register** document, NHTSA will provide a full description of the proposed collection of information, including: (1) A discussion of the need for the information and the proposed use of the information; (2) a description of the likely respondents (including estimated number and proposed frequency of response to the collection of information); and (3) an estimate of the total annual reporting and recordkeeping burden resulting from the collection of information. A 60-day public comment period will be provided when the description of the proposed collection of information is published.

XIII. Public Participation

How do I prepare and submit comments?

Your comments must be written and in English. To ensure that your comments are correctly filed in the Docket, please include the docket number of this document in your comments.

Your comments must not be more than 15 pages long. (49 CFR 553.21). We established this limit to encourage you to write your primary comments in a concise fashion. However, you may attach necessary additional documents to your comments. There is no limit on the length of the attachments.

Comments may also be submitted to the docket electronically by logging onto the Docket Management System Web site at *http://www.regulations.gov*. Follow the online instructions for submitting comments.

Please note that pursuant to the Data Quality Act, in order for substantive data to be relied upon and used by the agency, it must meet the information quality standards set forth in the OMB and DOT Data Quality Act guidelines. Accordingly, we encourage you to consult the guidelines in preparing your comments. OMB's guidelines may be accessed at *http://www.whitehouse.gov/omb/fedreg/reproducible.html.*

How do I submit confidential business information?

If you wish to submit any information under a claim of confidentiality, you should submit three copies of your complete submission, including the information you claim to be confidential business information, to the Chief Counsel, NHTSA, at the address given above under FOR FURTHER INFORMATION CONTACT. In addition, you should submit two copies, from which you have deleted the claimed confidential business information, to Docket Management at the address given above under ADDRESSES. When you send a comment containing information claimed to be confidential business information, you should include a cover letter setting forth the information specified in our confidential business information regulation. (49 CFR part 512.)

Will the agency consider late comments?

We will consider all comments that Docket Management receives before the close of business on the comment closing date indicated above under DATES. To the extent possible, we will also consider comments that Docket Management receives after that date. If Docket Management receives a comment too late for us to consider in developing a final decision, we will consider that comment as an informal suggestion for future action.

How can I read the comments submitted by other people?

You may read the comments received by Docket Management at the address given above under ADDRESSES. The hours of the Docket are indicated above in the same location. You may also see the comments on the Internet. To read the comments on the Internet, go to *http://www.regulations.gov*. Follow the online instructions for accessing the dockets.

Please note that even after the comment closing date, we will continue to file relevant information in the Docket as it becomes available. Further, some people may submit late comments. Accordingly, we recommend that you periodically check the Docket for new material.

Issued on: February 18, 2011.

Joseph S. Carra,

Acting Associate Administrator for Rulemaking.

Appendix A: Worldwide Child Restraint Consumer Information Programs

In developing NHTSA's Vehicle-CRS Fit program, the agency considered other international consumer information programs for child restraints. Some of the most prominent are briefly explained below.

A. Child Restraints Evaluation Program (CREP)

The New South Wales Roads and Traffic Authority joined with the National Roads and Motorists Association and the Royal Automobile Club of Victoria to establish a joint program to assess both the relative performance and the ease of using child restraints available in Australia. The resulting program, which began in 1994, is known as CREP, or the Child Restraints Evaluation Program. In addition to frontal and side impact sled testing of child restraints based on the Australian Standard AS 1754, CREP covers installation and compatibility with vehicles and features specific to the child restraint itself. The CREP criteria assess how easily child restraints can be installed as well as how easily a child can be secured. They also include an evaluation of the instructions, the clarity and quality of labeling and packaging, and vehicle compatibility. CREP does not address CRS compatibility as it relates to specific vehicles; therefore, the agency is not proposing this approach.

B. Consumers Union

Consumers Union (CU), publisher of *Consumer Reports* magazine, is a nonprofit membership organization that evaluates child restraints in dynamic sled tests, assesses their ease of use, and evaluates their compatibility with vehicles. In the United States, CU rates child restraints by evaluating the ease of using installation and harness features as well as the ease of placing and removing the child in the restraint. To evaluate compatibility, a few vehicles are selected from each model year that span a variety of body types and features related to child restraint installation. CU raters perform CRS installations in each of these vehicles to generally assess ease of installation. They do not, however, publish specific combinations or suggestions for fit between child restraints and vehicles. In addition, CU conducts sled testing to assign a dynamic performance rating to the child restraint. All of the items are evaluated on a five-part scale using the following rankings: "Excellent," "Very good," "Good," "Fair," and "Poor." The ease of use, installation, and dynamic performance ratings are all combined into an overall rating for consumers based on the same five-part scale. Because the agency is primarily focused on proposing a program that addresses vehicle-CRS compatibility as it relates to specific vehicle and restraint pairs, CU's method of evaluating CRS was not selected.

C. EuroNCAP

The European New Car Assessment Program, or EuroNCAP, also provides consumers with child occupant protection ratings for its vehicles. Vehicle manufacturers recommend child restraints suitable for installation in their products during their offset frontal and 90-degree side impact crash tests.[57] Each vehicle's rear seat is fitted with two child restraints: One suitable for a 3-year-old child and another suitable for an 18-month-old infant. Technicians evaluate the installation of the child restraints prior to the crash tests, and they assess the quality and completeness of the child restraint's labeling information. The dynamic performance of the child restraint is determined by evaluating injury readings from child dummies placed in these child restraints. It is then combined with the installation and labeling evaluation as part of a vehicle's overall child protection rating. Points earned during the evaluation are converted into a star rating. The overall child protection ratings are attributed to the vehicle in question rather than the particular child restraint.[58] In addition, the ratings are specific to that combination of vehicle and CRS and do not necessarily indicate the safety performance of other child restraints in that vehicle. At this time, there are no stand-alone evaluations of child restraints conducted by EuroNCAP. Due to the fact that only a small portion of EuroNCAP's approach is related to vehicle-CRS fit, the agency is not proposing to use this method.

D. Japan NCAP (JNCAP)

The Japanese Ministry of Land, Infrastructure and Transport, in cooperation with the National Organization for Automotive Safety & Victims' Aid, tests and evaluates the safety of automobiles as part of its New Car Assessment Program (JNCAP). In 2002, the JNCAP began rating child restraints for crash protection as well as usability.

JNCAP dynamically rates Japan's most popular child restraints by conducting a frontal sled test in excess of the country's minimum child restraint performance requirements.[59] Child restraints containing age-appropriate dummies are subjected to a 35 mph (56 km/h) sled pulse which is based on the characteristics of the European child restraint safety standard, Economic Commission for Europe's Regulation 44 (ECE R44). The child restraints are installed on a sled buck based on the Toyota Estima, a popular family vehicle similar to the Toyota Sienna in the U.S. The rating is comprised of an evaluation of dummy readings and kinematics, the level of physical damage (if any) to the child restraint, and the release (if any) of child restraint buckles or other hardware. A four-tier rating system is used: "Excellent," "Good," "Normal," and "Not Recommended."

JNCAP's usability ratings are very similar to the structure and content of NHTSA's Ease of Use (EOU) program for child restraint usability. Five child restraint specialists rate each child restraint chosen for dynamic testing across five categories of usability, each of which contains a number of different features for evaluation. The specialists in this program rate each feature on a scale of 1 to 5, with "3" representing an "average" feature. The ratings given by all five specialists for each of the five categories of usability are averaged; all of the features within each category are then averaged as well. No overall rating is provided, but the five usability category scores are presented to the consumer as a numerical value from 1 to 5. Because JNCAP's ratings system does not address vehicle-to-CRS compatibility, this approach is not being proposed.

E. New Program for the Assessment of Child Restraint Systems (NPACS) and the Child Seat Rating Scheme

On August 3, 2009, the United Kingdom Transport Research Laboratory (TRL) announced it would launch a new five-star rating scheme for child restraints in 2010. In its inception, TRL relied heavily on the NPACS (New Programme for the Assessment of Child-restraint Systems) protocol published by the U.K. Department for Transport. Though all child restraints sold in the U.K. must meet the minimum performance standards of ECE R44, TRL's new program will subject products to the NPACS testing protocol, which goes above and beyond the minimum performance standards set forth by ECE R44. The NPACS protocol (as well as the new TRL CRS program) includes a side impact sled test as well as a usability assessment, neither of which TRL felt were addressed sufficiently in ECE R44. The rating scheme that was developed under these efforts will present individual products' safety in terms of an overall star rating, which is based on frontal and side sled test performance as well as a usability assessment. TRL hopes that the ratings will be useful to consumers seeking information on the comparative performance of child restraints as well as provide a new promotional tool for manufacturers and retailers. Again, because the NPACS protocol does not address CRS-to-vehicle compatibility as it relates to specific product pairs, the agency is not proposing to use this protocol.

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[57] The EuroNCAP primarily provides consumers with crash safety ratings for vehicles sold throughout Europe. The program is funded by various European governments and private motoring clubs. EuroNCAP has traditionally rated vehicles for crashworthiness based on an offset frontal crash test at 40 mph (64 km/h) and a 90 degree side impact crash test at 31 mph (50 km/h). Beginning in 2009, a previously optional side impact pole test became a mandatory part of the crashworthiness rating.

[58] However, the child restraints tested in each vehicle are still displayed on the EuroNCAP Web site.

[59] To be sold in Japan, child restraints may be certified to ECE R44, U.S. FMVSS No. 213, or Japan's own regulation, JIS D 0401. The number of child restraints tested each year varies, but in April 2009, results were published for five CRS that were deemed "currently available."

Appendix B: Pilot Study Evaluation Form

NHTSA Vehicle-CRS Fit Assessment Form - Pilot Study

Vehicle Make & Model: ______________ Vehicle Model Year: ______

CRS/Booster Make & Model: ______________ Date of Manufacturer: ______

CRS/Booster Orientation: ______________ Mode of Install: ______

Front

X	X	X
1	2	3
4	5	6

Rear

		PASS	FAIL	SEATING POSITION 1	2	3	4	5	6	RESULT / N/A	NOTES
Top Tether Anchorages	Can top tether be attached to tether anchor using one hand from position of installing?	Yes	No								
	Can the top tether be tightened properly? (Cannot slip off head restraint or catch on seat and distance between CRS and top tether hook is adequate.)	Yes	No								
Lower Anchorages	Are the lower anchors accessible? Is it possible to use them? (Must get positive attachment on each anchorage with sufficient clear space around the anchorages. Can move buckle out of the way.)	Yes	No								
	Can the lower attachments be tightened after the initial connection to the lower anchorages?	Yes	No								
	When installed using lower anchors, is there access to the vehicle's adjacent seat belt buckles (if applicable - outboard seating positions only)?	Yes	No								
	Can lower anchor attachments be detached once tension is released?	Yes	No								
Vehicle Seat Belts	Does the CRS fit between the relevant seat belt buckle and anchor point? (CRS is at least slightly narrower than the distance between the belt buckle and anchor point; can see both belt and buckle anchors)	Yes	No								
	Is seatbelt length sufficient to properly install CRS?	Yes	No								
	Does the seat belt buckle interfere with proper CRS installation? (Buckle routes through CRS or twisting of buckle stalk required for install)	No	Yes								
	Does the installation limit the use of any belt positioning hardware or lock off hardware on CRS? (Can be done with one hand.)	No	Yes								
Head Restraints	Does the head restraint cause interference using all available methods of remedy permitted in vehicle owner's manual (head restraint removal, moving upward into a locked position, tilting rearward)?	No	Yes								
CRS Installation & Stability	Is CRS stable on vehicle seat bottom when installed? (Seat pan contour does not affect stability and at least 80% of CRS rests on vehicle seat pan)	Yes	No								
	Does CRS rest securely on vehicle seat back? (Seat back contour does not affect stability and at least 80% of CRS rests on vehicle seat back - adjustable seat backs can be adjusted)	Yes	No								
	Can the CRS be installed so that there is no more than 1" of movement side-to-side or front-to-back when pulled at belt or LATCH path? CRS must remain stable and properly installed on vehicle seat (even when tugged at outboard side at base of CRS when installed with vehicle belt).	Yes	No								
	Is the CRS harness fully operational when the CRS is installed properly?	Yes	No								
Anti-Rotational Device	Can the anti-rotational device (includes rebound bars and lower tether attachments for rearward installations) be adjusted/operated/installed to achieve the desired position?	Yes	No								
	Can the anti-rotational device be removed?	Yes	No								
Rear-Facing CRS	For rear-facing CRS, can the CRS be properly positioned rear-facing so as to not contact the front seat back or so as to achieve the minimum distance between the CRS and seat back as stated in the CRS user's manual? (Front seat back can be adjusted to position less than vertical and front seat can be positioned to forward-most position on seat track)	Yes	No								
	For rear-facing CRS, forward-facing CRS, and belt-positioning booster, must vehicle seat infront of CRS be moved forward of mid-position with seatback at 25^{o} angle to achieve correct position?	No	Yes								
	Can the CRS be installed at the proper angle? (No pool noodle needed)	Yes	No								
Belt-Positioning Booster Seats	Does the installation prohibit proper seat belt routing? (Must be able to route seat belt in single action.)	No	Yes								
Vehicle Owner's Manual	Does any of the information in the vehicle owner's manual or CRS user's manual prohibit the installation of the recommended CRS?	No	Yes								
	Can CRS be installed to meet CRS manufacturer's instructions?	Yes	No								
Weight Limits	Is the weight limit of the CRS plus the highest weight applicable child less than the weight limit specified for the LATCH anchors?	Yes	No								
		OVERALL RESULT									

Appendix C: Observations From Vehicle-CRS Pilot Study

CRS Model	Mitsubishi Eclipse		Pontiac 5		Chevrolet Impala		Chrysler Sebring		Dodge Charger		Ford Focus	
	Seat belt	LATCH	Seat belt	LATCH	Seat belt	LATCH	Seat belt	LATCH	Seat belt	LATCH	Seat belt	LATCH
Combi Shuttle EX	N(b)	N(f)	N(i)	Y	N(b)(i)	N(c)	N(c)(r)	N(r)	N(b)	Y	Y	Y
Graco Snugride 32	N(b)	Y*	N(i)	Y	N(b)	Y	Y	N(c)	N(b)	N(l)	Y	Y
Safety 1st Designer 22.	N(b)	N(f)	N(b)(r)	N(l)	N(b)	Y	N(f)	N(l)	N(b)(c)	N(c)	N(m)	Y
Graco ComfortSport	N(b)	Y*	Y*	Y*	Y	Y	N(c)(f)	N(c)	N(b)(r)	N(r)	N(t)	N(t)
Britax Boulevard CS	N(b)	Y*	Y*	Y*	N(b)	Y	Y	Y	N(b)	Y*	Y*	N(l)
Sunshine Kids Radian XT.	N(b)	Y*	Y*	Y*	N(b)	Y*	N(b)(c)	N(c)	N(b)	N(l)	Y*	Y*
Safety 1st Summit	N(b)	Y	N(b)(c)	N(l)	N(b)	Y	N(b)(c)	N(c)	N(b)	Y	Y	Y
Britax Frontier	N(b)	Y	N(b)(h)	N(h)	N(b)	Y	N(b)	Y	N(b)(c)	N(c)(f)	N(b)	Y
Learning Curve B505	N(h)(s)	n/a	Y(c)	n/a	Y	n/a	Y	n/a	N(b)	n/a	N(b)	n/a
Magna Clek Olli	Y	N(l)	Y	Y	Y	Y	Y	Y	N(b)	N	N(b)	Y
Evenflo Amp	Y	n/a	N(b)(c)	n/a	Y	n/a	N(c)	n/a	N(b)	n/a	N(b)	n/a
Safety 1st All in One	N(c)(r)	N(l)	N(b)(r)	N(l)	N(b)(r)	N(r)	N(b)(r)	Y*	N(c)	N(c)(f)	N(t)	N(l)(t)
Evenflo Symphony	N(b)	Y*	N(c)(h)	N(f)	N(b)	Y	Y	Y	N(b)(c)(r)	N(f)	N(t)	N(t)

N—Proper fit could not be achieved in every allowable seating position and mode of CRS use for this combination.
Y—Proper fit was achieved for this vehicle-CRS combination in every allowable seating positioning and mode of use for this combination.
*—Front seat may need to be positioned in front half of seat track to accommodate CRS installed rear-facing.
(b)—Seat belt and child restraint are incompatible.
(c)—Seat or seat back contour creates instability and does not allow for a proper install.
(f)—Could not achieve 1″ or less of movement at the belt/LATCH path for this installation.
(h)—Height of roofline prevents the use of this CRS in its highest position.
(i)—Seat belt latch plate button interfered with belt lock-off hardware.
(l)—Lower anchors and child restraint are not compatible.
(m)—Instructions in the CRS or vehicle owner's manual prohibited this installation.
(r)—Proper recline could not be achieved without use of a towel or pool noodle.
(s)—Unwanted slack is created between the vehicle seat belt and the belt guide on this CRS.
(t)—Tether cannot be properly tightened.

CRS Model	Hyundai Elantra		Mazda Protege		Toyota Yaris		Subaru Forester		Nissan Murano		Toyota RAV4	
	Seat belt	LATCH	Seat belt	LATCH	Seat belt	LATCH	Seat belt	LATCH	Seat belt	LATCH	Seat belt	LATCH
Combi Shuttle EX	N(b)	Y	Y	Y	N(b)(c)(r)(m)	Y	N(i)	Y	Y	Y	N(b)	Y
Graco Snugride 32	Y	Y	Y	Y	N(b)(m)	Y*	Y	Y	Y	Y	N(b)	Y
Safety 1st Designer 22.	Y	Y	N(b)	Y*	N(b)(c)	Y	N(i)	Y	N(b)	Y	N(b)	Y
Graco ComfortSport	Y	Y	N(b)	Y*	N(b)(c)	N(c)(l)	Y	Y	Y	Y	N(b)	Y
Britax Boulevard CS	Y	Y	N(b)	Y*	N(b)(c)	Y*	Y	Y	Y	Y	N(b)	Y
Sunshine Kids Radian XT.	N(b)	Y	N(b)	N(l)	N(b)	N(l)	N(f)	Y	N(b)	Y	N(b)	N(l)
Safety 1st Summit	N(f)	N(f)	N(b)	N(l)	N(b)(c)	N(l)	Y	Y	Y	Y	N(b)	Y
Britax Frontier	N(b)	Y	N(b)	Y	N(b)(h)(c)	N(h)(l)	Y	Y	N(b)	Y	N(b)	Y
Learning Curve B505	Y	n/a	Y	n/a	N(b)	n/a	Y	n/a	Y	n/a	Y	n/a
Magna Clek Olli	Y	N(l)	Y	Y	N(b)	N(b)(l)	Y	Y	Y	Y	Y	Y
Evenflo Amp	Y	n/a	Y	n/a	N(b)(c)	n/a	Y	n/a	Y	n/a	Y	n/a
Safety 1st All in One	N(r)	Y	N(r)	N(r)	N(c)(r)	N(c)(r)	Y	Y	N(b)(r)	N(r)	N(b)	Y
Evenflo Symphony	Y	Y	N(b)	Y*	N(b)(c)	N(l)	Y	Y	Y	Y	N(b)	Y

N—Proper fit could not be achieved in every allowable seating position and mode of CRS use for this combination.
Y—Proper fit was achieved for this vehicle-CRS combination in every allowable seating positioning and mode of use for this combination.
*—Front seat may need to be positioned in front half of seat track to accommodate CRS installed rear-facing.
(b)—Seat belt and child restraint are incompatible.
(c)—Seat or seat back contour creates instability and does not allow for a proper install.
(f)—Could not achieve 1″ or less of movement at the belt/LATCH path for this installation.
(h)—Height of roofline prevents the use of this CRS in its highest position.
(i)—Seat belt latch plate button interfered with belt lock-off hardware.
(l)—Lower anchors and child restraint are not compatible.
(m)—Instructions in the CRS or vehicle owner's manual prohibited this installation.
(r)—Proper recline could not be achieved without use of a towel or pool noodle.
(s)—Unwanted slack is created between the vehicle seat belt and the belt guide on this CRS.
(t)—Tether cannot be properly tightened.

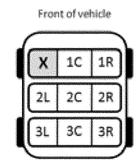
Appendix D: Proposed Vehicle-CRS Fit Assessment Forms

NHTSA Vehicle/CRS Fit Rating Form - Rear-Facing CRS

Vehicle Make & Model: ____________________ Vehicle Model Year: ________

CRS Make & Model: ____________________ CRS Date of Manufacture: ________

Applicable Seating Positon(s): ____________________



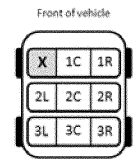
Rear-Facing CRS		PASS	FAIL	Installation Method: Seat Belts	Installation Method: LATCH	RESULT / N/A	NOTES
Tether Anchorages (If Applicable)	Can the rear-facing tether be attached to the appropriate location in the vehicle? (Vehicle must have an acceptable attachment location.)	Yes	No				
	Can the rear-facing tether be properly tightened?	Yes	No				
Lower Anchorages	Can the lower attachments on the CRS be properly attached to the vehicle's lower anchorages? (Must get positive attachment on each anchorage. Can move seat belt buckle out of the way.)	Yes	No				
	Can the lower attachments on the CRS be tightened, if necessary, after the initial connection to the lower anchorages?	Yes	No				
	When the CRS is installed using lower anchorages, is there access to the vehicle's adjacent seat belt buckles? (Applicable for all LATCH positions unless vehicle owner's manual and/or CRS user's manual do not permit.)	Yes	No				
Vehicle Seat Belts	Does the distance between the Type II seat belt's lap belt anchor and buckle allow the child restraint to be installed properly? (CRS is at least slightly narrower than the distance between the belt buckle and anchor point and the seat belt can be buckled.)	Yes	No				
	Is the seat belt length sufficient to properly install CRS using all possible belt paths permitted by the CRS manufacturer and in all rear-facing modes of use?	Yes	No				
	Does the seat belt buckle interfere with proper CRS installation? (Buckle sits on edge of CRS or CRS belt path or buckle routes through belt path when it is not permitted by the CRS manufacturer. Twisting of buckle stalk not permitted.)	No	Yes				
	Does the seat belt latch plate button limit the use of any lock-off or other hardware on the CRS or otherwise prohibit proper installation?	No	Yes				
CRS Installation, Use, and Tightness	Does more than 20% of CRS base/bottom hang over edge of vehicle seat pan?	No	Yes				
	Can the CRS be installed so that there is no more than 1 inch of movement side-to-side or front-to-back when pulled at the LATCH path or belt path?	Yes	No				
	Can the CRS be installed rear-facing so as to achieve the appropriate distance relative to the front seat back as stated in the CRS owner's manual, if applicable? Must also be able to achieve proper placement of CRS carrier handle, if applicable. (Front seat back should be adjusted to vehicle manufacturer's nominal seat back angle and assessments must be made at both the mid fore-aft position on the seat track and the full-forward position. The mid fore-aft position should be determined using only the control that primarily moves seat fore-aft.)	Yes	No				
	If the harness is intended to be accessed when the CRS is installed, can it be tightened?	Yes	No				
Rear-Facing CRS	Can the CRS be installed to the recline angle specified by the manufacturer? (Pool noodles are not permitted.)	Yes	No				
	Can the anti-rotational device, if applicable, be adjusted/operated/installed properly?	Yes	No				
Vehicle Owner's Manual	Can the CRS be installed to meet both the restraint manufacturer's and the vehicle manufacturer's instructions?	Yes	No				
		OVERALL RESULT					

NHTSA Vehicle/CRS Fit Rating Form - Forward-Facing CRS

Vehicle Make & Model: ____________________ Vehicle Model Year: ________

CRS Make & Model: ____________________ CRS Date of Manufacture: ________

Applicable Seating Positon(s): ____________________



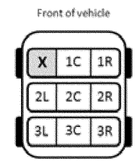
Forward-Facing CRS		PASS	FAIL	Installation Method: Seat Belts	Installation Method: LATCH	RESULT / N/A	NOTES
Top Tether Anchorages	Can the top tether be attached to the appropriate vehicle tether anchor?	Yes	No				
	Can the top tether be properly tightened? (Distance between CRS and top tether hook is adequate.)	Yes	No				
Lower Anchorages	Can the lower attachments on the CRS be properly attached to the vehicle's lower anchorages? (Must get positive attachment on each anchorage. Can move seat belt buckle out of the way.)	Yes	No				
	Can the lower attachments on the CRS be tightened, if necessary, after the initial connection to the lower anchorages?	Yes	No				
	When the CRS is installed using lower anchorages, is there access to the vehicle's adjacent seat belt buckles? (Applicable for all LATCH positions unless vehicle owner's manual and/or CRS user's manual do not permit.)	Yes	No				
Vehicle Seat Belts	Does the distance between the Type II seat belt's lap belt anchor and buckle allow the child restraint to be installed properly? (CRS is at least slightly narrower than the distance between the belt buckle and anchor point and the seat belt can be buckled.)	Yes	No				
	Is the seat belt length sufficient to properly install CRS using all possible belt paths permitted by the CRS manufacturer and in all forward-facing modes of use?	Yes	No				
	Does the seat belt buckle interfere with proper CRS installation? (Buckle sits on edge of CRS or CRS belt path or buckle routes through belt path when it is not permitted by the CRS manufacturer. Twisting of buckle stalk not permitted.)	No	Yes				
	Does the seat belt latch plate button limit the use of any lock-off or other hardware on the CRS or otherwise prohibit proper installation?	No	Yes				
Head Restraints	Does the vehicle head restraint interfere with proper CRS installation? (Can use all available methods of remedy permitted in vehicle owner's manual including head restraint removal, moving upward into a locked position, tilting rearward, etc.)	No	Yes				
CRS Installation, Use, and Tightness	Does more than 20% of the CRS base/bottom hang over the edge of the vehicle seat pan?	No	Yes				
	Can the CRS be installed so that there is no more than 1 inch of movement side-to-side or front-to-back when pulled at the LATCH path or belt path?	Yes	No				
	If the harness is intended to be accessed when the CRS is installed, can it be tightened?	Yes	No				
Vehicle Owner's Manual	Can the CRS be installed to meet both the restraint manufacturer's and the vehicle manufacturer's instructions?	Yes	No				
		OVERALL RESULT					

NHTSA Vehicle/CRS Fit Rating Form - Booster

Vehicle Make & Model: ____________________ Vehicle Model Year: ________

Booster Make & Model: ____________________ Booster Date of Manufacture: ________

Applicable Seating Positon(s): ____________________



Booster Seat		PASS	FAIL	Positioning Method: Seat Belts	Positioning Method: LATCH (If Applicable)	RESULT / N/A	NOTES
Top Tether Anchorages (If Applicable)	Can the top tether be attached to the appropriate vehicle tether anchor?	Yes	No				
	Can the top tether be properly tightened? (Distance between booster and top tether hook is adequate.)	Yes	No				
Lower Anchorages (If Applicable)	Can the lower attachments on the booster be properly attached to the vehicle's lower anchorages? (Must get positive attachment on each anchorage. Can move seat belt buckle out of the way.)	Yes	No				
	Can the lower attachments on the booster be tightened, if necessary, after the initial connection to the lower anchorages?	Yes	No				
	When the booster is positioned using lower anchorages, is there access to the vehicle's adjacent seat belt buckles? (Applicable for all LATCH positions unless vehicle owner's manual and/or CRS user's manual do not permit.)	Yes	No				
Vehicle Seat Belts	Does the distance between the Type II seat belt's lap belt anchor and buckle allow the booster to be positioned properly? (CRS is at least slightly narrower than the distance between the belt buckle and anchor point and the seat belt can be buckled.)	Yes	No				
Head Restraints	Does the vehicle head restraint interfere with proper booster positioning? (Can use all available methods of remedy permitted in vehicle owner's manual including head restraint removal, moving upward into a locked position, tilting rearward, etc.)	No	Yes				
Booster Positioning and Use	Does more than 20% of the booster base/bottom hang over the edge of the vehicle seat pan?	Yes	No				
	Does the positioning prohibit full adjustment of the booster's head restraint or the use of any belt positioning hardware?	No	Yes				
Vehicle Owner's Manual	Can the booster be positioned to meet both the restraint manufacturer's and the vehicle manufacturer's instructions?	Yes	No				
		OVERALL RESULT					

Appendix E: Installation Methods for Assessing Vehicle-CRS Fit

OVERALL CHILD WEIGHT LIMIT IS 40 LBS OR LESS

Is vehicle lower anchor child weight limit in vehicle manual?	Is vehicle top tether anchor child weight limit in vehicle manual?	CRS child weight limit ≤ vehicle lower anchor child weight limit	CRS child weight limit ≤ vehicle top tether anchor child weight limit	Methods of installation that NHTSA will evaluate
Yes	Yes	Yes	Yes	Evaluations Conducted for Children Up to 40 lbs: • Lower Anchors w/Tether or • Seat belts w/Tether.
	No	Yes	N/A	Evaluations Conducted for Children Up to 40 lbs: • Lower Anchors w/Tether or • Seat Belts w/Tether.
No	Yes	N/A	Yes	Evaluations Conducted for Children Up to 40 lbs: • Lower Anchors w/Tether or • Seat Belts w/Tether.
	No	N/A	N/A	Evaluations Conducted for Children Up to 40 lbs: • Lower Anchors w/Tether or • Seat Belts w/Tether.

OVERALL CHILD WEIGHT LIMIT IS GREATER THAN 40 LBS

Is vehicle lower anchor child weight limit in vehicle manual?	Is vehicle top tether anchor child weight limit in vehicle manual?	CRS child weight limit ≤ vehicle lower anchor child weight limit	CRS child weight limit ≤ vehicle top tether anchor child weight limit	Methods of installation that NHTSA will evaluate
Yes	Yes	Yes	Yes	Evaluations Conducted for Children Up To 40 lbs: • Lower Anchors w/Tether or • Seat Belts w/Tether.
			No	Evaluations Conducted for Children Up To Vehicle Tether Anchor Child Weight Limit: • Lower Anchors w/Tether or • Seat Belts w/Tether. Evaluations Conducted for Children Over Vehicle Tether Anchor Child Weight Limit: • Lower Anchors or • Seat Belts.
		No	Yes	Evaluations Conducted for Children Up To Vehicle Lower Anchor Child Weight Limit: • Lower Anchors w/Tether or • Seat Belts w/Tether. Evaluations Conducted for Children Over Vehicle Tether Anchor Child Weight Limit: • Seat Belts w/Tether.
			No	Evaluations Conducted for Children Up To Vehicle Lower Anchor Child Weight Limit: • Lower Anchors or • Seat Belts. Evaluations Conducted for Children Over Vehicle Lower Anchor Child Weight Limit but Under Vehicle Tether Anchor Child Weight Limit: • Seat Belts w/Tether. Evaluations Conducted for Children Over Vehicle Lower Anchor Child Weight Limit: • Seat Belts Only.
	No	Yes	N/A	Evaluations Conducted for Children Up To 40 lbs: • Lower Anchors w/Tether or • Seat Belts w/Tether. Evaluations Conducted for Children Over 40 lbs: • Lower Anchors or • Seat Belts.
		No	N/A	Evaluations Conducted for Children Up To 40 lbs: • Lower Anchors w/Tether or • Seat Belts w/Tether. Evaluations Conducted for Children Over 40 lbs and Under or Equal to Vehicle Lower Anchor Child Weight Limit: • Lower Anchors or • Seat Belts. Evaluations Conducted for Children Over Vehicle Lower Anchor Child Weight Limit: • Seat Belts Only.
No	Yes	N/A	Yes	Evaluations Conducted for Children Up To 40 lbs: • Lower Anchors w/Tether or • Seat Belts w/Tether. Evaluations Conducted for Children Over 40 lbs: • Seat Belts w/Tether.

OVERALL CHILD WEIGHT LIMIT IS GREATER THAN 40 LBS—Continued

Is vehicle lower anchor child weight limit in vehicle manual?	Is vehicle top tether anchor child weight limit in vehicle manual?	CRS child weight limit ≤ vehicle lower anchor child weight limit	CRS child weight limit ≤ vehicle top tether anchor child weight limit	Methods of installation that NHTSA will evaluate
			No	Evaluations Conducted for Children Up To 40 lbs: • Lower Anchors w/Tether or • Seat Belts w/Tether. Evaluations Conducted for Children Over 40 lbs and Under or Equal to Vehicle Tether Anchor Child Weight Limit: • Seat Belts w/Tether. Evaluations Conducted for Children Over Vehicle Tether Anchor Child Weight Limit: • Seat Belts Only.
	No	N/A	N/A	Evaluations Conducted for Children Up To 40 lbs: • Lower Anchors w/Tether or • Seat Belts w/Tether. Evaluations Conducted for Children Over 40 lbs: • Seat Belts Only.

[FR Doc. 2011–4212 Filed 2–24–11; 8:45 am]

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DEPARTMENT OF THE TREASURY

Submission for OMB Review; Comment Request

February 18, 2010.

The Department of the Treasury will submit the following public information collection requirement to OMB for review and clearance under the Paperwork Reduction Act of 1995, Public Law 104–13 on or after the date of publication of this notice. A copy of the submission may be obtained by calling the Treasury Bureau Clearance Officer listed. Comments regarding this information collection should be addressed to the OMB reviewer listed and to the Treasury PRA Clearance Officer, Department of the Treasury, 1750 Pennsylvania Avenue, NW., Suite 11010, Washington, DC 20220.

DATES: Written comments should be received on or before March 28, 2011 to be assured of consideration.

Internal Revenue Service (IRS)

OMB Number: 1545–2081.

Type of Review: Extension of a currently approved collection.

Title: REG–148867–03 (Final) Disclosure of Returns and Return Information in Connection with Written Contracts or Agreements for the Acquisition of Property and Services for Tax Administration.

Abstract: The regulations clarify that redisclosures of returns and return information by contractors to agents or subcontractors are permissible, and that the penalty provisions, written notification requirements, and safeguard requirements are applicable to these agents and subcontractors. Section 301.6103 (n)–1(d) of the proposed regulations require that contractors, agents, and subcontractors who receive returns or return information under the proposed regulations must provide written notice to their officers and employees of the purposes for which returns or return information may be used and of the potential civil and criminal penalties for unauthorized inspections or disclosures, including informing them of the imposition of punitive damages in the case of a willful inspection or disclosure or an inspection or disclosure which is the result of gross negligence. Section 301.6103(n)–1(e)(3) of the proposed regulations require that before the execution of a contract or agreement for the acquisition of property or services under which returns or return information will be disclosed, the contract or agreement must be made available to the IRS.

Respondents: Private sector: Businesses or other for-profits.

Estimated Total Burden Hours: 250 hours.

OMB Number: 1545–1916.

Type of Review: Extension of a currently approved collection.

Title: REG–159824–04 (NPRM) Regulations Governing Practice before the Internal Revenue Service.

Abstract: These regulations set forth minimum standards for State or local bond options.

Respondents: Individuals or households.

Estimated Total Burden Hours: 30,000 hours.

OMB Number: 1545–1774.

Type of Review: Extension of a currently approved collection.

Title: TD 9187 (Final) Extensions of Time To Elect Method for Determining Allowable Loss;

Abstract: The information is necessary to allow the taxpayer to make certain elections to determine the amount of allowable loss under Section 1.337(d)–2T, Section 1.1502–20 as currently in effect or under Section 1.1502–20 as modified; to allow the taxpayer to waive loss carryovers up to the amount of the Section 1.150–20(g) election and to ensure that loss is not disallowed under Section 1.337(d)–2T and basis is not reduced under Section 1.337(d)–2T to the extent the taxpayer establishes that the loss or basis is not attributable to the recognition of built in gain on the disposition of an asset.

Respondents: Private sector: Businesses or other for-profits.

Estimated Total Burden Hours: 36,720 hours.

OMB Number: 1545–1612.

Type of Review: Extension of a currently approved collection.

Title: REG–209830–96 (TD 8779—Final) Estate and Gift Tax Marital Deduction.

Abstract: The information requested in regulation section 20.2056(b)–7(d)(3)(ii) is necessary to provide a method for estates of decedents whose estate tax returns were due on or before February 18, 1997, to obtain an extension of time to make the qualified