

SPECIAL NOTE/February 2008

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION: NOTICE OF PROPOSED RULEMAKING (NPRM) ON SCHOOL BUSES

The National Highway Traffic Safety Administration (NHTSA) issued a report in 2002 on the results of a comprehensive school bus research program examining ways of further improving school bus safety. Based on that research, the agency is now proposing several upgrades to the school bus passenger crash protection requirements.

For new school buses of 10,000 pounds or less GVWR, the agency proposes to require lap/shoulder belts in lieu of the lap belts that are currently specified.

For school buses with GVWR greater than 10,000 pounds, the NPRM provides guidance to State and local jurisdictions on the subject of installing seat belts. Each state or local jurisdiction would continue to decide whether to install belts on these large school buses. The NPRM proposes performance requirements for those voluntarily-installed seat belts on large school buses manufactured after the proposed effective date.

Other changes to school bus safety requirements are also proposed, including raising the height of seat backs from 20 inches to 24 inches on all new school buses.

The comment period on this NPRM closed on January 22, 2008 and a final rule is expected later this year.

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Acknowledgements

This National Highway Traffic Safety Administration revised curriculum is designed to be a comprehensive guide for currently certified Child Passenger Safety technicians who wish to address the issues of transporting the pre-school population safely on school buses. In preparing this edition, we have carefully re-examined all of the content, clarified or updated much of the information from the previous edition and added a substantial amount of new information to assist the technician in teaching this within the school bus community.

We are deeply grateful to the many Child Passenger Safety Technicians, Transportation Directors, School Bus Drivers or Aides, Occupational Therapists, Physical Therapists, Early Intervention Specialists or other school personnel who contributed comments which helped us prepare *The Child Passenger Safety Training for School Buses National Training*.

We wish to recognize the contributions of the following people. We apologize if we have neglected to acknowledge all of the people who in some way shared their knowledge or expertise with us.

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Thank you.

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March 2008

CLASSROOM NOTES:

Why are we here?

- School bus drivers are transporting young children
- Preschool age children and infants should be transported in CSRS
- School bus drivers are transporting HeadStart Children

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1. More and more school bus drivers find themselves transporting pre-school age children and infants.
 - School districts are offering early intervention programs/classes for pre-school children
 - School buses are transporting Head Start students
 - School buses also transport pre-school age children to childcare
2. Know your state law
 - By law, most children age 4 and younger must be transported in a child safety restraint system in passenger vehicles.
3. However, even if it isn't the law, national guidelines based on research recommend that pre-school age children be restrained in a CSRS during transport in all vehicles.
4. This means that school bus drivers/attendants/monitors need to know about child safety restraint systems and how they work.
5. The National Highway Traffic Safety Administration (NHTSA) has developed this course to meet that need.

Basic Terms

- Occupant protection
- Child safety restraint system (CSRS)

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CLASSROOM NOTES:

This review will reflect the terminology of the school bus industry.

Occupant protection

Any system that provides protection to a vehicle's occupants in the event of a crash.

Includes:

- a. Seat belts
 - Lap/shoulder belts installed on a certified school bus seat
- b. CSRS
 - The occupant protection systems used to protect infants and pre-school age children in the event of a crash
 - This is any device (except a lap belt) designed for use in a motor vehicle to seat, restrain, or position a pre-school age child
- c. Add-on or integrated child safety seats
 - School bus specific CSRS
- d. Safety vests
- e. Compartmentalization

CLASSROOM NOTES:

Occupant Protection Systems

- Occupant protection works by:
 - Holding occupants in place
 - Spreading crash forces over a wide part of body
 - Spreading crash forces over strongest parts of body
 - Allowing body to “ride down” crash
 - Protecting head and spinal cord

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Holding occupants in place so that they are not thrown around and so that internal injuries are minimized or prevented

- Spreading the forces over a wide part of the body
- Spreading the forces over the strongest parts of the body
 - For older children and adults, the strongest parts are the hips and shoulders
 - For infants, there really isn't a strong part, so the rear-facing seat cradles the entire body and spreads the force over the entire back, head, and neck
- Allowing the body to slowly “ride down” the crash
 - The belt and harness webbing stretch and the vehicle seat cushions compress to let occupants slow down more gradually than the vehicle
- Protecting the head and spinal cord
 - The shoulder belt and the harness keep the head and upper body away from the hard surfaces of the vehicle

CLASSROOM NOTES:

The Challenge

- School buses are now transporting infants and pre-school age children
- How do we do it safely?

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1. How do we safely transport infants and pre-school age children in school buses?
 - a. How should they be secured in a CSRS?
 - b. How should the CSRS be secured in the school bus?
2. References
 - a. Guideline for the Safe Transportation of Pre-School Age Children in School Buses; Can be found at: <http://www.nhtsa.dot.gov/people/injury/buses/Guide1999/prekfinal.htm>
 - b. Appendix - Glossary

CLASSROOM NOTES:

Compartmentalization

- Protective envelope with 2 features:
- Closely spaced seats
- Seat backs that are:
 - High
 - Flexible
 - Energy-absorbing



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1. Compartmentalization is a passive occupant protection system using the concept of eggs in a carton
2. A protective envelope is created that consists of:
 - a. Closely-spaced seats (maximum of 24 inches from the passenger hip joint to the seat back in front of the occupant)
 - b. High-backed seats (top of the seat is 24 inches from the lower cushion) that are flexible and padded on both sides to absorb energy
3. To get the full benefit of compartmentalization occupants must be seated

CLASSROOM NOTES:

Multi Function School Activity Bus (MFSAB)



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3. The MFSAB is classified as a “school bus,” not a “bus.”
 - a. The MFSAB must meet FMVSS 222, as FMVSS 222 is presently written.
 - b. The MFSAB must meet all warning label requirements applicable to school buses. There is no label unique to the MFSAB.
 - c. The MFSAB meets all FMVSS except crash avoidance equipment.
 - d. Because school bus color is regulated by State law, NHTSA does not prohibit the MFSAB from being painted National School Bus Glossy Yellow.
 - e. Since the MFSAB would not pick up or drop off students, on the street, there is no need for traffic control devices such as the 4-way/8-way alternating flashing lights and stop arms. Thus, the school bus flashing lights and stop arms are not required by the FMVSSs for MFSABs.

Consumer Information – Reporting Defects

- Transporter reports the problem
- Where to report it:
 - Manufacturers
 - www.odi.nhtsa.dot.gov/cars/problems/recalls
 - DOT Auto Safety Hotline
1-888-DASH-2-DOT

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CLASSROOM NOTES:

- Each CSRS comes with a product registration form that should be completed and mailed back to the manufacturer.
- Manufacturers can then let product owners know if there is a recall.
- If the child safety seat registration form has not been sent in initially, it can be submitted using the NHTSA CSRS Registration Form, provided in the Appendix, or a registration form can be submitted online thru the manufacturer's Web site.
- Not all recalls directly affect performance. For example, an error printed in the Spanish instructions would not concern English readers.
- Some recalls do not impact crash performance (for example, a defect reported about a carrying handle may not affect the CSRS during a crash.)
- All recommendations provided by the manufacturer should be followed.

CLASSROOM NOTES:

FMVSS

- Federal Motor Vehicle Safety Standards
- 208
- 209
- 210
- 213
- 222
- 225

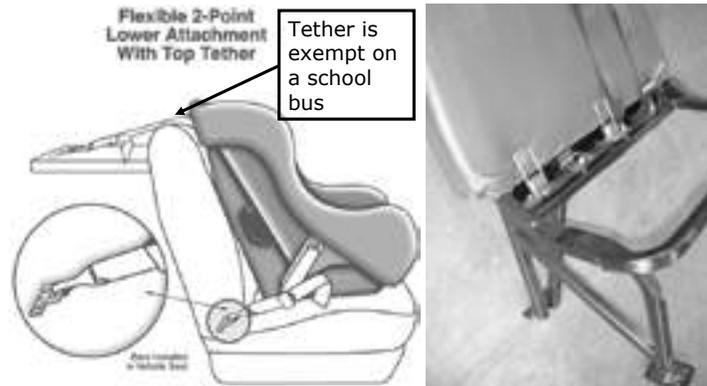
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2-11

There are many FMVSS that affect school buses – six of which directly apply to CSRS in school buses.

CLASSROOM NOTES:

FMVSS 225 (cont'd)



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On a small school bus only the two lower anchorages will be used

- In a school bus, a CSRS can be properly secured without the upper anchorage (a tether strap)
- Only two seating positions in small school buses will be required to have the lower anchorage system
- The anchorage system will be optional for large school buses

CLASSROOM NOTES:

Chapter Review

- Federal Motor Vehicle Safety Standards set out how to safely transport pre-school age children
- NHTSA also provides guidelines and recommendations
- School buses can be retrofitted or manufactured to meet those requirements/recommendations

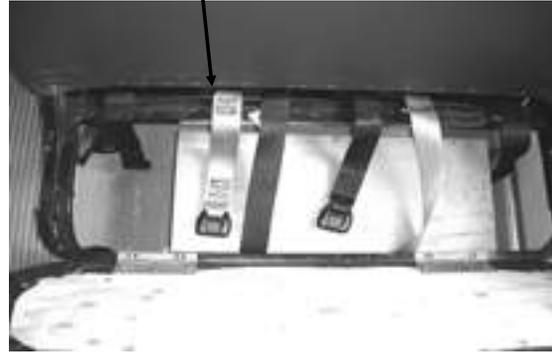
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2-23

1. All school buses must meet certain requirements
2. These requirements are set out in Federal Motor Vehicle Safety Standards
3. NHTSA also has other recommendations for the safe transportation of pre-school age children
4. The Multifunction School Activity Bus (MFSAB) is a sub category of a school bus
5. References
 - a. Federal Motor Vehicle Safety Standards
 - b. The National Highway Traffic Safety Administration
 - c. Lower Anchors and Tethers for CHildren (LATCH), NHTSA
 - d. Safety Seat Registration Form
 - e. Recall and Defects Form
 - f. Child Safety Seat Questionnaire
 - g. Transporting Children with Special Health Care Needs, American Academy of Pediatrics

CLASSROOM NOTES:

Anchor Points



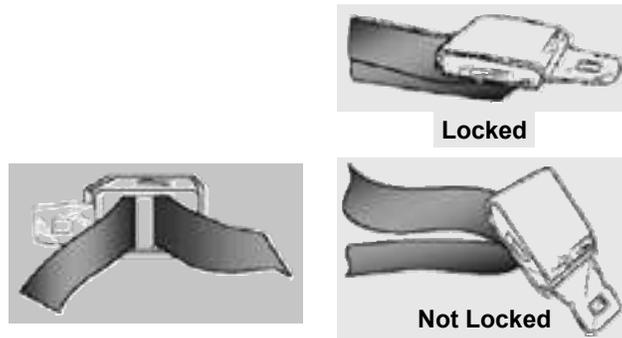
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3-5

- Anchor points are the places where seat belts or tethers are attached, generally at the factory, to a strong location.

CLASSROOM NOTES:

Seat Belt Systems With Pre-Crash Locking Features: Locking Latchplate



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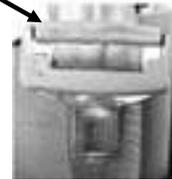
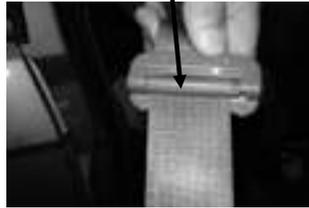
3-7

- This type of pre-crash locking latchplate on the seat belt can be found in school buses.
- This type of seat belt is generally good for a CSRS installation.
- This latchplate has a locking bar found on the bottom or back.
- If the seat belt and latchplate lie flat, the latchplate will lock.
- If they are tilted, the latchplate will remain unlocked. This is important when the seat belt is placed around a CSRS because the seat belt and latchplate must lay flat at all times to restrain the CSRS.
- This type of latchplate locks when the seat belt webbing is parallel or side by side to the latchplate.
- This type of latchplate will not lock when the seat belt webbing and the latchplate are perpendicular—up and down to each other.
- To check to see if the latchplate locks:
 - Buckle the seat belt.

CLASSROOM NOTES:

Seat Belt Systems With Pre-Crash Locking Features: More Locking Latchplates

Locking Part



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- This type of seat belt system is not a typical system for a school bus.
- On school buses not all pre-crash locking latchplates look the same. Some have a bar like you saw on the first slide; others have a sliding or rotating metal or plastic piece.
- The locking piece clamps down on the lap part of the seat belt when buckled. When pulled slightly up and forward, much as if a body were moving in a sudden stop, it locks.
- To test to see if the latchplate locks:
 - Buckle the seat belt.
 - Give a firm tug on the lap portion of the seat belt while pulling up on it (makes the seat belt and latchplate parallel).
 - Remember: The seat belt should not slide through the latchplate with a moderate tug.

CLASSROOM NOTES:

When Do You Twist the Buckle Stalk?

- Helpful when the buckle does not lie flat, is in the belt path, or does not allow the lockoff to be secured
- Twisting the buckle will make the webbing shorter
- This will make the buckle lower
- 3 twists maximum



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Twist webbing on the buckle portion one to three times to shorten the lap belt so the latch plate is placed lower and away from the CSRS belt path.

Do NOT use a locking clip with a manually adjusting lap belt

CLASSROOM NOTES:

Comparison of non-adjustable ends



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This example of the two seat belts side-by-side demonstrates the need to be exact in the school bus specifications. The correct amount of webbing out of the bight of the seat is 1-2 inches. But the specifications would need to be approximately seven inches of webbing on the non-adjustable side to accommodate the distance from anchor points on the frame of the school bus seat.

An easier way to determine the correct length needed is to measure from the center of the anchorage hole following the belt path and read the measurement when it is 2 inches out of the seat bight.

CLASSROOM NOTES:

CSRS Parts & Functions

Registration Card

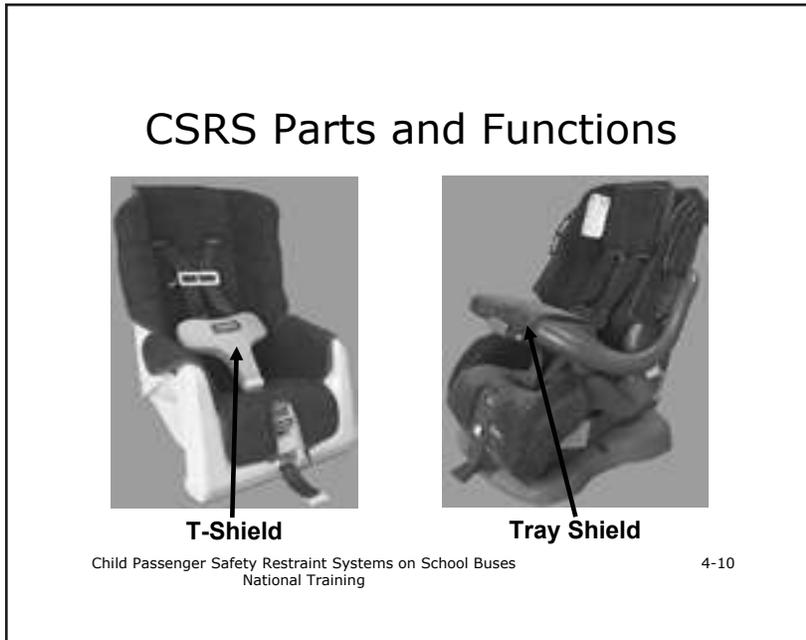


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- All CSRS manufacturers must provide a label on the seat with their contact information.
- All CSRS owners are encouraged to register the CSRS with the manufacturer either online or by mailing in the registration card.
- Manufacturers use this information to contact owners about safety issues, including recalls, and are not allowed to use owner data for other purposes.

CLASSROOM NOTES:



There are several harness types that meet FMVSS 213:

- **Five-point:** A harness that has five points of contact; over each shoulder, one on each side of the pelvis, and one between the legs, with all five coming together at a common buckle.
- **Three-point:** A harness that has three points of contact; shoulder straps coming together at a buckle in the shell or on a crotch strap; not to be confused with three-point (lap-shoulder) vehicle belt.
- **T-shield:** A triangular or “T”-shaped pad that is attached to the shoulder harness, fits over the child’s abdomen and hips, and buckles between the legs. This type of seat is no longer manufactured, although you may still see them.
- **Tray shield:** A wide, curved padded surface that swings down around the child’s body and is attached to the shoulder harness and crotch buckle. It looks like a padded armrest, but is a basic part of the harness system. It’s also called an overhead shield.

CLASSROOM NOTES:

CSRS Parts and Functions

- Padding/cover
 - Shell/frame (behind cover)
 - Labels
 - Harness slots
 - Harness straps
 - Retainer clip
 - Buckle
- 
- A black and white photograph of a child passenger safety seat (CSRS) with several arrows pointing to specific parts. The arrows originate from a list of parts on the left and point to the corresponding parts on the seat. The parts listed are: Padding/cover, Shell/frame (behind cover), Labels, Harness slots, Harness straps, Retainer clip, and Buckle.

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- Throughout the course you will have access to different kinds of CSRS.
- There are changes to new models, so what you see here may not be available next year or next month. Pay attention to labels and become familiar with how different seats look and adjust.
- Parts may be called different things by different manufacturers, such as a lock-off/built-in locking clip or splitter plate/connector.

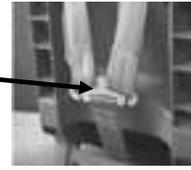
Following are definitions we will be using for the different parts. We will go into more detail about them later.

- Buckle: Where the harness locks.
- Harness: The straps that keep the child in the CSRS and spread out the crash forces.
- Retainer clip: The plastic tie or clasp that holds the shoulder straps together over the child's chest at armpit level.
- Harness Adjuster: This part is used to tighten or loosen the harness.
- Harness Slots: The part of the CSRS where the harnesses go through.

CLASSROOM NOTES:

CSRS Parts and Functions

- Splitter plate
- Belt path
- Recline adjustment



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- **Belt Path:** The place on the CSRS where the seat belt or lower anchor strap is placed to secure the CSRS in the vehicle.
- **Recline adjuster:** This allows convertible child restraints to be reclined for rear-facing and semi-reclined or upright for forward-facing use.
- **Splitter Plate:** The metal plate that connects the two ends of the shoulder harnesses to a single piece of webbing used for adjustment.

CLASSROOM NOTES:

CSRS Parts and Functions

- Locking clip



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4-14

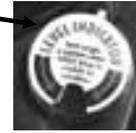
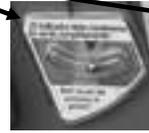
A locking clip comes with every new car seat. It is designed to work with a lap/shoulder belt system that locks on impact. This system is an Emergency Locking Retractor (ELR) and is mostly seen in passenger vehicles not on school buses.

- Locking Clip: A pre-crash positioning device that holds the CSRS in the proper position during normal driving.
- During a crash, the retractor will lock the seat belt and keep the CSRS in place.
- The clip is provided with each new CSRS that has a harness, unless the seat has a built-in lock-off.

CLASSROOM NOTES:

CSRS Parts and Functions

- Detachable base
- Adjustment foot
- Level indicator



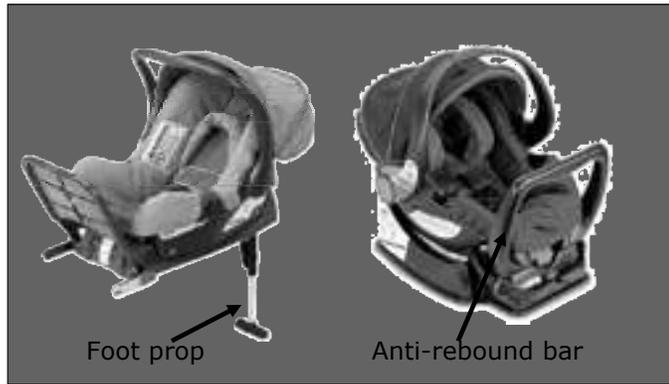
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- **Adjustment foot:** Part of the detachable base that raises or lowers to allow a rear facing CR to be installed with the correct recline angle.
- **Detachable Base:** A separate base for a CR that can be installed in a school bus. The restraint (car seat) portion can be removed from the base, and used as an infant carrier.
- **Level Indicator:** The part of a rear-facing CR that helps to identify correct angle.

CLASSROOM NOTES:

CSRS Parts and Functions



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- **Foot prop:** Rod or pole that extends from the base of a rear facing CR to the floor of the vehicle. Used to prevent or reduce excessive forward and downward rotation in a crash.
- **Anti-rebound bar:** Hard plastic bar on the base of some rear facing restraints that helps to reduce movement of the restraint towards the rear of the vehicle seat (rebound) in the event of a crash.

CLASSROOM NOTES:

After a Crash

- CSRS, seat belts, and air bags are in most cases, made to withstand one crash
- CSRS replacement is not always required:
 - Review NHTSA criteria for assessing crash severity and CSRS replacement
 - Check with CSRS manufacturer for guidelines to replace the product

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NHTSA position after a bus crash

- NHTSA recommends that CSRS be replaced following a moderate or severe crash in order to ensure a continued high level of crash protection for child passengers.
- NHTSA recommends that CSRS on school buses do not automatically need to be replaced following a minor crash.
 - Minor crashes are those that meet ALL of the following criteria
 - The school bus was able to be driven away from the crash site
 - The occupant space inside the school bus near the CSRS was undamaged
 - There were no injuries to any children in CSRS, or serious injury to any other school bus occupant
 - There is no visible damage to the CSRS

CLASSROOM NOTES:

CSRS Cleaning and Maintenance

- Always follow the CSRS manufacturer’s instructions
- Use only mild soap and water and rinse with clean water
- Never use any chemicals such as starch, bleach, or spray-on fabric care/wrinkle guard products
- Never iron the harness
- Never lubricate the buckle

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4-23

Cleaning and Maintenance

- ALWAYS follow the manufacturer’s cleaning instructions
- Use only mild soap and water and rinse with clean water and air dry
- NEVER use any chemicals such as starch, bleach, or spray-on “fabric care” products
- NEVER use industrial cleaners
- DO NOT iron the harness
- DO NOT lubricate the buckle
- DO NOT immerse the buckle
- Avoid wetting the labels
- NEVER place the shell under extremely high heat
- Replace the padding if it is torn or soiled
- Replace the harness if it is frayed or heavily soiled
 - Padding and harness replacements must be purchased from the CSRS manufacturer and the instructions should be followed.

CLASSROOM NOTES:

Think about how you would answer these questions:

- Can I use this CSRS after a crash?
- This seat was purchased at a garage sale. Is it safe for the school district to use?
- I don't know why my kids have to ride in car seats. Why should they use them?
- Can I use this head padding? It came with the seat.
- My child has autism. Can I put tape over the retainer clip so he doesn't get out?
- Why aren't there seat belts on some school buses?

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4-24

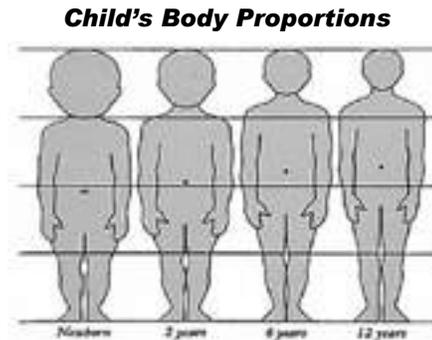
Things to consider:

- Can I use a CSRS after a crash?
 - What is NHTSA recommendation?
 - What does the CSRS manufacturer say?
- Who should provide the CSRS?
- This seat was purchased at a garage sale. Is it safe for the school district to use?
 - Does transporter know the crash history?
 - If so, how has it been stored?
 - Are all the parts in good working order?
- I don't know why my kids have to ride in car seats. Why should they use them?
 - How do CSRS provide protection?
 - How effective are CSRS?
 - What does NHTSA "Guideline for the Safe Transportation of Pre-school Age Children" say?
 - What did the crash testing done with pre-school size dummies show?

CLASSROOM NOTES:

Why Children Should Travel Rear-Facing

- Physical Development
 - Babies have big heads
 - Bones, tendons, and muscles are not fully developed



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5-3

- This slide shows how a child's body changes as the child grows. Different types of CSRS are made to support the child's growth.
- The infant's head is larger and heavier in proportion to its body than that of an older child. The shoulders of an infant are narrow and flexible. This is important to know for proper placement and snugness of the CSRS harness straps.
- The child's pelvis is small, rounded, and not fully developed until puberty. This is important to know because the lap belt does not always stay below the hip bones on pre-school or elementary school age children.

CLASSROOM NOTES:

Rear-Facing Infant-Only CSRS

- This CSRS is rear facing only
- Use rear-facing CSRS to the highest weight or height allowed by the manufacturer's instructions
- Note head should be 1 inch below the top of the shell
- Use in semi-reclined position
- Use harness straps at or below shoulder level
- Use ONLY for transport



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- The infant seat is designed to be used rear facing only.
- Many drivers may be tempted to place the infant seat forward facing to allow them to view their child more easily. This is a serious error and places the child at a significant risk of injury/death in the event of a crash.
- Drivers need to understand why it is important for infants to always ride facing the rear.
- Some CSRS manufacturers recommend that infants under 5 pounds not be placed in their products. Always check the CSRS label for the starting weight. Some CSRS say birth; others state a specific number of pounds.
- Do not use the rear-facing seat above the weight or height limits designated by the manufacturer. Once child outgrows seat move to a rear-facing convertible seat with a higher weight rating.
- The top of the child's head should be well contained within the shell (unless the manufacturer's instructions state otherwise) not less than 1 inch from top of shell.

CLASSROOM NOTES:

Rear-Facing Convertible CSRS

- Use when babies outgrow infant-only CSRS
- Use rear-facing position to the highest weight/height allowed by the CSRS manufacturer's instructions
- Use in semi-reclined position
- Use harness slots at or below shoulder level
- Use ONLY for transport



3 harness slots

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- Most new convertible CSRS are approved for rear-facing use with up to 30- to 35-pound children and should be considered for infants whose weight and/or height have exceeded the limits of the rear-facing-only CSRS.
- Always check the CSRS manufacturer's instructions for upper and lower weight/ height limits.
- Drivers may wonder if legs are at risk for injury. Children commonly sit with their legs crossed or resting on the back of the vehicle seat. Risk of injury to legs in a crash is low, and injuries to the lower extremity are usually less severe with fewer long-term complications than injuries to the head, neck, or spine, which occur more commonly when a child is seated in the forward-facing position.
- Because the rear-facing position is safest, children should ride rear facing as long as possible (but never exceed the manufacturer's weight and height limits).
- Older children with poor head control who are within height and weight requirements of a CSRS benefit from staying rear facing longer.

Selection – Fits The Child

- Appropriate for weight and height of child according to CSRS instructions
- Infant's back and bottom are flat in CSRS
- Harness straps at or below the shoulders
- Harness snug (pinch test)
- Harness retainer clip at the armpit level
- Crotch strap that fits best



7 days old, 9 pounds

Child Passenger Safety Restraint Systems on School Buses
National Training

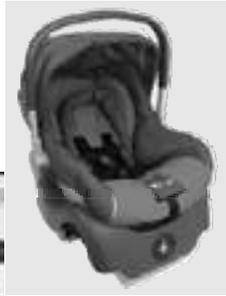
5-7

CLASSROOM NOTES:

- Select the CSRS that is right for the child's weight, height, physical development and behavioral needs.
- Select a CSRS with multiple harness slots and a short crotch strap to offer many options for a small but rapidly growing infant.
- Securing the infant in the CSRS:
 - Place the infant in the CSRS. Put harness straps over shoulders and buckle at the crotch. The harness holds the infant down low in the CSRS so he/she does not slide up and out of the CSRS in a crash. The crotch strap keeps the infant from moving forward.
 - The harness straps should be at or below the shoulders.
 - Tighten harness straps snugly. NHTSA requires CSRS manufacturers to state in the instructions: "A snug strap should not allow any slack. It lies in a relatively straight line without sagging. It does not press on the child's flesh or push the child's body into an un-natural position." You should not be able to pinch excess webbing at the shoulder once the harness is buckled. This is called the "pinch" test.

Selection – Easy to Use

- Front versus back harness adjustment
- Seat belt versus lower anchors



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5-10

CLASSROOM NOTES:

- Selection based on age, weight, height, physical development, and behavioral needs of the child.
- Convenience factors:
 - Number and position of harness strap slots—Is there “room to grow”?
 - Automatic or one-step harness adjustment mechanisms: Is it easy to tighten and loosen the harness straps?
 - Infant-only CSRS versus rear-facing convertible CSRS? Although it may be more economical to purchase a convertible CSRS, it may be more difficult to install on a school bus.
 - Detachable base options on infant-only seats: Extra bases can be purchased for every vehicle transporting the infant.

CLASSROOM NOTES:

Rear-Facing Harness Adjusters



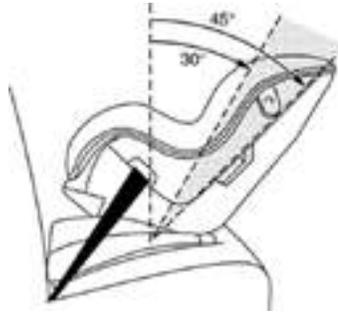
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- Harness hardware can include manual adjusters, “A-lock” (adjuster device on front of many seats), metal harness adjuster, or rod/slot systems (a rod is inserted in appropriate fabric loops at the end of the harness).
- Air bag warning label: A permanent label must be visibly affixed on rear-facing or convertible CSRS.

CLASSROOM NOTES:

Installation – Angle



Courtesy of Kathleen Weber
Child Passenger Protection Research Program
University of Michigan Medical School

- The driver should use angle given in CSRS manufacturer's instructions (30 to 45 degrees)
- CSRS spreads crash forces along the entire head, neck, and back
- Correct position helps keep airway open
- CSRS may be moved more upright as child grows & ages

Child Passenger Safety Restraint Systems on School Buses
National Training

5-15

Correct recline angle:

- Follow CSRS manufacturer's instruction for acceptable rear-facing recline angle.
- Not all manufacturers recommend the same angle.
- As baby ages and obtains better head control, he/she may sit more upright. This can actually provide for improved crash protection.

CSRS recline indicator:

- The recline angle indicator is part of the CSRS and should be used as indicated by the manufacturer.

Seat slope

- Steep angle may cause infant to ride too upright. Maintain correct recline angle.

Installation Angle

- Use recline adjuster as needed
- Use a firm lightweight object to help recline the CSRS
- Do not allow firm lightweight object to get in the way of seat belt or lower anchors
- Avoid too much recline
- Follow CSRS manufacturer's instructions



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CLASSROOM NOTES:

- Many rear-facing CSRS have an adjustable base (foot) that is used to correct the angle.
- For CSRS that do not have an adjustable base, a firm lightweight object (i.e., a tightly rolled towel or pool noodle cut to the width of the CSRS) can be placed at the bus seat crack or bight.
- Use as few as possible.
- Then the CSRS can rest on the firm lightweight object to maintain the correct angle. This is helpful when CSRS are used on vehicle seats that are not flat like those used in the testing laboratory.
- Always consult CSRS manufacturer's instructions for how to obtain proper angle.
- Unless the CSRS manufacturer indicates otherwise, a rule of thumb is to use either the adjustable base (foot) or firm lightweight object—but not both (unless allowed by CSRS manufacturer). The CSRS is not tested this way.
- Remember that the school bus must be on a level surface.

CLASSROOM NOTES:

Common Selection Errors

- Using outgrown CSRS
- Child too small/young for CSRS
- Using non-FMVSS 213-certified device
- Using a CSRS that is too old
- Using a CSRS with unknown history
- Using a CSRS that has been involved in a moderate to severe crash
- Using a CSRS under current recall

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Common Selection Errors

- Using a CSRS the child has outgrown.
- Using a household carrier (or other device that does not meet FMVSS 213) as a CSRS.
- Using a CSRS beyond its usable life. (JPMA recommends a 6-year life for CSRS. Some CSRS manufacturers allow their product to be used longer. Check instructions.)
- Using a second-hand CSRS that is missing instructions and parts and/or has an unknown history.
- Using a CSRS that has been involved in a moderate or severe crash. Using an un-repaired recalled CSRS. (Note: This is especially dangerous if recall is related to the crash-worthiness of the CSRS).

Harnessing Errors

- Not used
- Too loose
- Routed through wrong slots
- Not doubled back, if needed
- Knotted, pinned, or otherwise incorrectly secured
- Not placed on child correctly
- Frayed or damaged

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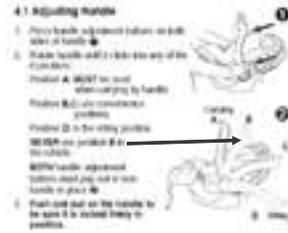
5-19

CLASSROOM NOTES:

- When inspecting a CSRS, it is important to take the CSRS out of the vehicle and look it over thoroughly inside and out. It may look and feel correct, but without taking the CSRS out to check it, you might miss something critical.
- Harnessing errors can be hidden behind padding or under the seat, etc.
- Some common problems:
 - Child not using harness (just sitting in the CSRS).
 - Harness too loose.
 - Retainer clip not at armpit level.
 - Harness routed through the wrong slots (Note: A harness may look as though it is properly routed through the pad, but it may not be routed correctly through the shell.)
 - Harness not doubled-back through the metal adjuster, if needed.
 - Harness knotted, pinned or incorrectly routed.
 - Harness not placed on the child correctly.

CLASSROOM NOTES:

Always look in the manuals



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- Using carrying handle position as an example (above), there are a number of acceptable positions. Always look in the owner's manuals

CLASSROOM NOTES:

Chapter Review

- Describe an infant's physical traits that require special attention during travel
- Describe ways that rear-facing CSRS provide additional protection during travel
- Identify all parts on a:
 - Rear-facing infant CSRS (with and without a base)
 - Rear-facing convertible CSRS
- Identify correct CSRS installation techniques
- Describe correct placement of harness straps, harness retainer clip, carrying handle, etc.

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On the basis of this chapter, please answer the following questions:

1. How do you determine which harness slots to use for a rear-facing child?
2. What is the correct way to secure a child in a rear-facing infant or convertible seat?
3. What steps must be taken to install a rear-facing CSRS?
4. How do you find the correct belt path?
5. How tightly should a rear-facing CSRS be installed?
6. What is the lowest weight and youngest age for turning a child forward facing?
7. What type of CSRS may be considered for a small or premature infant who cannot travel in a standard CSRS?

CLASSROOM NOTES:

Conventional CSRS

- Meets child's needs
- Cheaper
- Easier to find, use, and install
- Appropriate for children with special health care needs

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6-3

- A conventional seat is a CSRS that is readily available to the public—usually from a retailer. The manufacturer's instruction manual should be read and followed carefully. Conventional CSRSs are different from special needs CSRSs.
- Many children with special needs can use a conventional CSRS (not a special CSRS).
- Correct CSRS selection should be made by the child's medical team (therapist, doctor, parent/caregiver, and CPST)
- It is best if the medical teams have received transportation-specific special needs training.

Forward-Facing Convertible Seat

Forward-facing:

- CSRS in upright position
- Some manufacturers allow a semi-reclined position



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6-6

CLASSROOM NOTES:

- The manufacturer's instructions for many CSRSs recommend that they be in the upright position when forward facing.
- Some manufacturers meet testing standards with their seat in a forward-facing, semi-reclined position, as well as fully upright. Consider this position if child has special needs (discussed later in this chapter) or if seat belts cannot be made tight when the CSRS is upright.
- Always follow the manufacturer's instructions.

CLASSROOM NOTES:

Identify Reinforced Harness Slots

Harness:

- Can be five-point or Tray Shield
- In reinforced slots at or above shoulders
- Some CSRS must use top slots when turned to face forward
- Reinforcement is not always visible



Only top harness slot is reinforced



Top two harness slots are reinforced

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6-7

- Reinforcement may not be visible and structures that look like reinforcement may not be.
- The only way to know for sure is to read the manufacturer instructions.

CLASSROOM NOTES:

Seats With Higher Harness Weight Limits

- Forward-facing-only CSRS:
- Weight limits vary



Label stating weight limit



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- These seats are sometimes used for children with special health care needs on a school bus or for those heavier than 40 pounds.
- The harnesses on these CSRSs serve children to higher weight limits.
- CSRS with higher weight limits may require tethering to the safety belt directly behind the installed CSRS.
- Always follow the manufacturer's installation instructions.

CLASSROOM NOTES:

Harness Adjustments

- Child's back and bottom flat in CSRS
- Correct harness slots and crotch strap slot
- Harness snug (pinch test)
- Retainer clip at armpit level
- Use to highest weight and height limits



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6-10

- Bulky clothing can interfere with proper harness fit. Avoid bulky clothing or padding behind child. Bulky jackets can be put on backwards (over child's arms and torso) after harness is secured. Place blankets over and around child after harness is snug.
- Children should sit with:
 - Back and bottom flat against CSRS seat back.
 - Harness placed through proper slots.
 - Harness straps placed over shoulders and buckled at the crotch.
 - A snug harness lies flat and passes the pinch test. Tighten harness straps snugly.

CLASSROOM NOTES:

Correct Forward Facing Seat

- Fits the child
- Fits the school bus
- Easy to use



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National Training

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- The seat should be correct for the child's age, size, physical development, and behavioral needs. Try before you buy is always a good plan.
- Fits the child:
 - Appropriate for weight and height of child.
 - Harness straps at or above the shoulders.
- Once school district personnel have selected a CR that fits the child, it should be tried in the school bus to make sure that it can be installed properly and securely.

Check:

- Whether it works with seat belt or LATCH system.
- The seat should be easy to use with respect to:
 - Front versus back harness adjustment.
 - Ease of use with seat belt or LATCH system if available.

Location: Other Factors in School Buses

- Position of other occupants
- Width of bus seat
- Size of CSRS
- Seat belt or LATCH system
- Emergency exits



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CLASSROOM NOTES:

- Consider the needs of each child and how they relate to the needs of other children or adult occupants on the bus.
- Although there may be many seating positions on a school bus, not all will necessarily be suitable for installation of a CSRS.
- Never place CSRS in an emergency exit.
- Drivers may have to install certain CSRS on the bus because of a special behavioral or postural need.
- Weight limits on lower anchors and the need to tether a special needs CSRS to the seat behind can affect the seating position choice. Check the manufacturer's instructions on the special needs CSRS to determine if the CSRS must be tethered due to the upper weights.
- Consider how many other children are usually transported to determine the safest seating positions for all occupants.

CLASSROOM NOTES:

Seat Belt or Lower Anchors: Demonstration

- Tightly securing the CSRS
- Install tightly using seat belt or lower anchor system
- Grip CSRS at belt path to check
- Keep in mind that CSRS should not move forward or side-to-side more than 1 inch



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When installing the CSRS in a school bus:

- Place the CSRS on the selected bus seat in the proper direction and at the correct recline angle.
- Place the seat belt or lower anchors through the CSRS belt path as directed by the manufacturer.
- Buckle the seat belt or secure lower anchors.
- Place hand in the CSRS and use leverage to compress the bus seat cushion while tightening the seat belt or lower anchors.
- Tighten as much as possible to allow for secure placement without causing damage to the bus or CSRS. How tight is tight enough? Use information from the last chapter to answer this.
- Test the installation, grip the CSRS at or near the belt path, and pull on the seat. There should be no more than 1 inch of side-to-side or forward movement at the belt path.
- CSRS must be installed with one seat belt or with lower anchors. A CSRS is designed to be installed with one seat belt or with lower anchors. Check both the vehicle and CSRS instructions.
- Never place noodles or towels under a forward facing CSRS.

CLASSROOM NOTES:

Special Considerations



22-105 pounds and 56 inches or less



22-102 pounds and 36-60 inches



65-130 pounds and 54-66 inches

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- In some ways, the approach for selecting the best restraint for a child with special needs is the same as for any child.
- Sometimes a specially adapted CSRS is needed when a conventional CSRS does not meet all needs.
- In some cases a special-needs CSRS may be physician prescribed and may need to be ordered from a medical supply company.
- These seats may have higher weight limits for the internal harness or other special features to help the child sit in a certain way. Additional head or trunk control may be the reason to select one of these seats.
- Manufacturer's instructions should be read and followed carefully.

Special Considerations: Casts and Other Conditions

- Follow weight limits using casted weight
- Specialized CSRS for children



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CLASSROOM NOTES:

- Hip casts can affect children's ability to sit up. Other restraints may be necessary.
- Never transport a child with special needs on a reclined vehicle seat.
- Some children may require professional transport.
- Other conditions such as cerebral palsy may make selecting a conventional CSRS difficult because breathing or another life-threatening factor may be involved.
- Use the resources found in this course to help the caregiver make an informed decision about using a special needs CSRS.
- Go to www.aap.org or www.preventinjury.org for specific product recommendations.

CLASSROOM NOTES:

Selection Errors

- CSRS not appropriate for child
- CSRS that child has outgrown
- CSRS that is more than 6 years old
- CSRS with unknown history
- CSRS under current recall

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These common errors are a problem for children's safety:

- CSRS is not appropriate for the child.
- Sometimes transporters may not know to look for weight and height requirements; they may choose the wrong seat for a toddler or even an infant.
- School districts may use a car seat that is too old. Transporters may not always be aware of the 6-year suggested lifespan of a CSRS. Some manufacturers place a stamped expiration date on their CSRSs.
- The CSRS may have no known history. Perhaps it was obtained through a yard sale, flea market, or other method. Do not use!
- The CSRS could be under current recall. The school district may not have received information about a current recall.

CLASSROOM NOTES:

Harnessing Errors Wrong Slots

- Frontal impact 38 mph into tree
- 16-month old secured FF in rear-center seat
- Harness in lowest slots contributed to injury severity
- Spinal cord injury resulting in quadraplegia



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CLASSROOM NOTES:

Selection (Optional) and Installation Outside Practice - Hands-On

- Using the information on "your child":
- Set up the CSRS so it is correct for the child, (harness, angle, lower anchors, etc.)
- Install a forward-facing convertible CSRS and forward-facing-only CSRS in the school bus seats provided

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Selection and Installation

- Selection activity is optional
- Installation activity is required

Instructions:

- Your instructor team will demonstrate this activity first.
- Team members will select a CSRS, adjust it properly, and then install it on a school bus seat correctly.
- Working in student teams, you will become school bus drivers of a child with a specific age, weight, height, or special need.
- You will select the correct CSRS for the child, adjust the harness straps and angle, and determine the belt path.
- Then your team will work together to install your CSRS.

CLASSROOM NOTES:

Installation Errors Wrong Belt Path



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CLASSROOM NOTES:

Activity: Selection and Installation Hands-On

- Using information known about “your child”:
- Select the correct CSRS for child, including the harness
- Install on available school bus seats:

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Selection and Installation

Instructions: In small groups, you will select and install CSRS by children’s age/weight/height:

- Select the appropriate CSRS for your child.
- Adjust harnesses to fit your child.
- Install in school bus a rear-facing infant CSRS with or without a base and a rear-facing convertible CSRS in a school bus.
- Look for a child (card with age, weight/height) to be assigned to your team
 - L/S belt
 - Lap belt only
 - Lower anchors
- Repeat for rear-facing infant CSRS or rear-facing convertible CSRS.

Reasons for Using a Safety Vest

- Child is too big for a CSRS (must be at least 20 lbs.)
- No lap belts available on school bus; no other school bus available
- Behavioral problems or when a child's actions cause safety concerns.
- Child needs positioning assistance
- Other medical problems

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CLASSROOM NOTES:

- Some school systems might not have a car seat that is the appropriate size for some children
- Since the safety vests rely on a portable seat mount/ Cam wrap, safety vests can be used on a non FMVSS 210 bus seat where there would be no lap belts.
- Other reasons to use a safety vest:
 - Behavioral problems or when a child's actions cause safety concerns.
 - Need positioning assistance, i.e. too small to sit on school bus seat without support.
- Other medical problems, i.e. trunk muscles too weak to sit without support

Safety Vests



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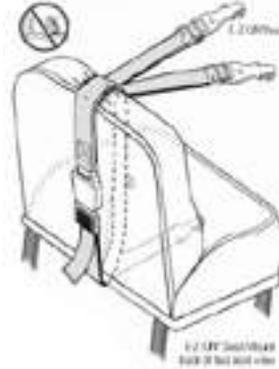
7-6

CLASSROOM NOTES:

- Some vest systems are comprised of two parts: the portable seat mount or Cam wrap and the vest.
- Portable seat mount or Cam wrap
 - Long wide strip of webbing that wraps around the bus seat back
 - Fastens with buckle
 - Hip straps are sewn on to portable seat mount/Cam wrap
 - Shoulder straps are attached to portable seat mount/Cam wrap
- Vest
 - Vest system with hooks at the shoulders and hips
 - Crotch strap must be used with children under 65 lbs
 - Zipper adjustments

CLASSROOM NOTES:

E-Z-ON Seat Mount



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- Always follow Manufacturer's instructions for the E-Z-ON Vest.
- Comes in 4 sizes from ages 2 yrs – 4 yrs to adult
- Weight range of 20-168 lbs
- Crotch straps are standard on XXS – S
- Portable or sewn on crotch straps are available to order M-L and meets FMVSS 213
- Procedure for Correct Installation of Safety Vest Portable Seat Mount
 - Unbuckle safety release on the school bus seat
 - Lift bench seat
 - Wrap portable seat mount around the bus seat back and buckle it. The push button closure faces the seat back
 - Leave hooks for hip anchor on the seat – The upper hooks should face the front side of the backrest.

CLASSROOM NOTES:

Q'Vest



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- Q'Vest consists of:
 - The main vest assembly
 - The “Y” belt
 - The lower pelvic support (crotch strap)
 - The seat strap
- Installation Instructions:
 - Disconnect the seat cushion securement brackets so the seat is free to be raised slightly.
 - Place the seat strap around the seat back only with the Velcro overlap on the front face of the seat back.
 - Hand-tighten the seat strap until there is a slight indentation on the top edge of the seat back cover and foam.
 - Adjust the location of the two webbing guides with one as near the top of the seat back as possible and the other several inches below the top of the backside.

CLASSROOM NOTES:

Installation



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Installation

- Place the STAR restraint on the bus seat.
- Place the three (gray, tan and black) cam wrap straps around the school bus seat back.
- Insert the short gray and tan straps connected to the rear of the STAR seat base through the opening at the right of the seat.
- Connect the gray cam wrap to the gray seat base strap. Connect the tan cam wrap to the tan seat base strap. Pull the adjuster straps to tighten the gray and tan cam wrap straps.
- Once the gray and tan cam wrap straps are tight, use the two Velcro strips or plastic keepers on each strap to secure the free ends of each strap.
- Now take the black strap that is attached to the front of the seat – bring it under the bus seat and attach to the black strap hanging at the seat back
- Pull tight and use the two Velcro strips or plastic keeps to secure the free ends of the black strap.

Securing Students in STAR Restraint

Student Transportation Add-on Restraint STAR



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CLASSROOM NOTES:

- Release the harness clip and metal latches from the buckle, allowing the child to sit in the seat.
- Make sure the child is sitting as far back in the seat as possible
- If additional length is needed in the restraint for a larger child do the following: While holding the left shoulder strap, press the adjuster button located on the left side of the seat base, pull up on the strap to lengthen. Repeat this step for the right shoulder strap
- Adjust the two comfort slides to the shoulder height of the child. These slides should be just at the level of the shoulder
- Use the buckle loop to pull the buckle away from the child before latching.
- Insert the two metal latches into the buckle. Be sure you hear an audible click.
- To tighten the harness straps snugly around the child pull up together on the two straps located on the side of the seat base.
 - A snug strap should not allow any slack. It lies in a relatively straight line without

STAR Chest Strap



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CLASSROOM NOTES:

- The STAR chest strap is designed to provide a method to assist in positioning for special needs children.
- To use the chest strap: Once the STAR restraint has been properly installed around the child, extend the orange chest strap **UNDER** the shoulder straps and around the child's chest. Fasten the buckle and adjust the strap snugly.
- Adjust the harness clip and optional chest strap on the child as close to the arm pit level as possible

CLASSROOM NOTES:

Pro Tech II & III



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- Pro-Tech II
- Pro-Tech III

CLASSROOM NOTES:

Integrated Seat (CE White)

- Forward-facing CSRS with a 5-point harness built into the bus seat



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- Fits students 20-60 lbs
- Seat folds down and there is a 5 point integrated harness system
- Child sits on the folded out seat
- Lengthen the shoulder straps
- Position the child in the seat. Place the shoulder straps over the child's shoulders
- Fasten the 2 metal buckles into the buckle. Make sure you hear a click
- Tighten shoulder straps
- Make sure retainer clip is at armpit level.

CLASSROOM NOTES:

Integrated Seat (Safe Guard)

- Forward-facing CSRS with a 5-point harness built into the bus seat



SafeGuard Integrated Child Seat

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- Fits up to 22 – 85 lbs
- Up to 49 inches tall
- Used only over 1 year of age
- Full features of compartmentalization
- Child's shoulder height must be lower than the shoulder belt slots and they must be capable of sitting upright without any assistance

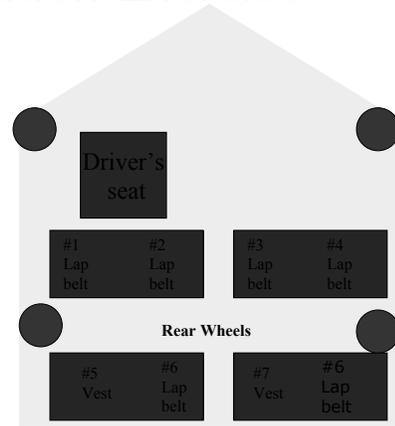
Putting a child in an Integrated Child Restraint (Safe Guard)

- Lower the two piece seat cushion. Fold the top cushion under to create a seat cushion for child to sit on.
- Release the metal latches from the buckle. Lengthen the straps by the release button on the adjusters. Pull the shoulder strap out to lengthen restraint shoulder straps
- Position child in the seat. Place the shoulder straps over the child's shoulders and fasten the two metal latches into the buckle. Make sure you hear an

CLASSROOM NOTES:

Safe Location Exercise

- A. Adult aide
- B. 7 mos., 24 lbs.
- C. 3½ yrs., 50 lbs.
behavior problem
- D. 2 yrs., 30 lbs.
- E. 4 yrs., 45 lbs.
- F. 4½ yrs., 65 lbs.
- G. 3 yrs., 35 lbs.
brittle bones



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Assign students to a seating position based on the need for:

- the type of CSRS needed for each student
- safe seating location for each student
- need for emergency evacuation

CLASSROOM NOTES:

Safety Vest with Portable Seat Mount

*** Cut below the buckle**



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When evacuating the student in a safety vest the vest webbing is never cut. One cut of the portable seat mount webbing below the buckle will allow the child to evacuate the bus wearing the safety vest.

CLASSROOM NOTES:

Child is lead out of the bus using the strap.



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- With a two-part vest the vest and the attached top strap of the portable seat mount can be used to guide the student from the bus and secure them outside the bus.

One Piece Safety Vest



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CLASSROOM NOTES:

- With a one part vest the quickest way to evacuate from the school bus is to release:
 - The two crotch strap buckles simultaneously
 - Then the two lap belt buckles simultaneously
 - And lift the vest over the child's head
- You will find this method is probably quicker than cutting the straps
- If you choose to cut the belts, cut the two crotch straps and only one side of the lap belt, as the remainder of the lap belt will slide through the vest when it is lifted over the child's head.
- REMEMBER to always cut the webbing on a 45 degree angle for ease of cutting.

CLASSROOM NOTES:

School Bus Specific Child Safety Restraint Systems



Child Passenger Safety Restraint Systems on School Buses
National Training

8-18

- As with the integrated seat, in the essence of time, the first option is to release the buckle, slide retainer clip down and pull straps over child's head to remove the child.
- If the belt cutter is used, 2 cuts will be necessary to remove the child. Cut both straps below the harness clip. This will allow the harness clip to slide off the end of the harness and the harnesses to pull through the buckles.

Appendix

Guideline for the Safe Transportation of Pre-school Age Children in School Buses

National Highway Traffic Safety Administration
February 1999

Introduction

School age children transported in school buses are safer than children transported in motor vehicles of any other type. Large school buses provide protection because of their size and weight. Further, they must meet minimum Federal motor vehicle safety standards (FMVSSs) mandating compartmentalized seating, improved emergency exits, stronger roof structures and fuel systems, and better bus body joint strength.

As more pre-school age children are transported to school programs, often in school buses, the public is increasingly asking the National Highway Traffic Safety Administration (NHTSA) about how to safely transport them. To help answer these questions, NHTSA conducted crash testing of pre-school age size dummies in school bus seats. The test results showed that pre-school age children in school buses are safest when transported in child safety restraint systems (CSRSs) that meets FMVSS 213, Child Restraint Systems, and are correctly attached to the seats.

Based on its research, NHTSA recommends pre-school age children transported in school buses always be transported in properly secured CSRSs. In partial response to questions from school (and child care) transportation offices, this Guideline seeks to assist school and other transportation managers in developing and implementing policies and procedures for the transportation of pre-school age children in school buses.

Note: The proper installation of CSRSs necessitates that a school bus seat have safety belts or other means of securing the CSRS to the seat. NHTSA recommends that lap belts or anchorages designed to meet FMVSS 225, Tether Anchorages and Child Restraint Anchorage Systems, be voluntarily installed to secure CSRSs in large school buses.

RECOMMENDATIONS FOR THE TRANSPORTATION OF PRE-SCHOOL AGE CHILDREN IN SCHOOL BUSES

When pre-school age children are transported in a school bus, NHTSA recommends these guidelines be followed:

- (1) Each child should be transported in a Child Safety Restraint System (suitable for the child's weight and age) that meets applicable Federal Motor Vehicle Safety Standards (FMVSSs).

(2) Each child should be properly secured in the Child Safety Restraint System.

(3) The Child Safety Restraint System should be properly secured to the school bus seat, using anchorages that meet FMVSSs.

Child Safety Restraint System Defined

A Child Safety Restraint System is any device (except a passenger system lap seat belt or lap/shoulder seat belt), designed for use in a motor vehicle to restrain, seat, or position a child who weighs less than 50 pounds.

Child Safety Restraint Systems Guideline

1. Child Safety Restraint System Specifications

The provider of the CSRS should ensure:

Each pre-school age child to be transported has a CSRS appropriate for the child's weight, height, and age.

Each CSRS meets all applicable FMVSSs (look for the manufacturer's certification on the label attached to the system).

Each CSRS has been registered with the CSRS's manufacturer to facilitate any recalls the manufacturer might conduct.

If the CSRS is the subject of a recall, any necessary repairs or modifications have been made to the manufacturer's specifications.

Each CSRS is maintained as recommended by its manufacturer, including disposal of any CSRS that has been involved in a crash.

2. Proper Securement

The transportation provider should ensure:

The CSRS is used and secured correctly in the school bus.

Each child is secured in CSRSs according to manufacturer's instructions.

All CSRS attachment hardware and anchorage systems meet FMVSS 210, Seat Belt Assembly Anchorages or FMVSS 225, Tether Anchorages and Child Restraint Anchorage Systems.

School bus seats designated for CSRSs meet FMVSS 225, or include lap belts that meet FMVSS 209, Seat Belt Assemblies, and anchors that meet FMVSS 210 (designed to secure adult passengers or CSRS).

Personnel responsible for securing CSRSs onto school bus seats and children into CSRSs are properly trained and all personnel involved with CSRSs are provided up-to-date information and training.

When transported in the school bus, pre-school age children are supervised according to their developmental and functioning level.

3. School Bus Seats Designated for Child Safety Restraint Systems

The transportation provider should ensure:

School-bus seats designated for CSRSs are located starting at the front of the vehicle to provide drivers with quick access to and a clear view of the CSRS occupants.

CSRS anchorages on school bus seats should meet all applicable FMVSSs.

When ordering new school buses, the maximum spacing specified under FMVSS No. 222, School Bus Passenger Seating and Crash Protection, (within 24 inches from the seating reference point) is recommended for seats designated for CSRSs to provide adequate space for the CSRSs.

The combined width of CSRS and/or other passengers on a single seat does not exceed the width of the seat.

If other students share seats with the CSRSs, the CSRSs are placed in window seating position.

4. Retrofitting School Buses

The transportation provider should ensure:

Existing school bus seats should only be retrofitted with lap belts or child restraint anchorages as instructed by the school bus manufacturer.

When a school bus is retrofitted with a seat to allow for proper securement of a CSRS, instructions obtained from the school bus or seat manufacturer on how to install the seat and restraint systems should be followed.

When a school bus is retrofitted, the bus owner should ensure that seat spacing is sufficient for the CSRS to be used.

5. Evacuation

The transportation provider should ensure:

The establishment of a written plan on evacuating pre-school age children and other passengers in CSRSs in the event of an emergency. This written plan should be provided to drivers, monitors, and emergency response personnel. The plan should explicitly state how children (both in and out of the CSRS) should be evacuated from the school bus.

Evacuation drills are practiced on a scheduled basis, at least as often as that required for the school system's school-aged children.

All personnel involved in transporting children are trained in evacuation and emergency procedures, including those in the written school bus evacuation plan.

All school buses carrying children in CSRSs carry safety belt cutters that are accessible only to the driver and any monitors.

CSRSs are not placed in school bus seats adjacent to emergency exits.

Local emergency response teams are provided copies of the written school bus evacuation plan, including evacuation of pre-school age children. Emergency response personnel should be invited to participate in evacuation drills.

6. Other Recommendations

The school transportation provider should establish a policy on whether they or the child's guardian must supply a CSRS to be used on a school bus. School bus purchases should be based on the needs of a projected student population, taking into consideration projected ages, sizes, and other characteristics of the students, including any special needs, and whether pre-school age children or medically fragile students will be transported.

Specified procedures should be established for loading and unloading children in CSRSs.

Procedures should be established for the periodic maintenance, cleaning, and inspection for damage of CSRSs. Procedures should be established to train personnel involved in direct service delivery of infants, toddlers, and pre-school children on the physical day-to-day handling of these young children and means to handle potential exposure to contagious and communicable diseases.

When school bus procedures are established, it should be noted that some children in CSRSs may have special needs, including medical fragility, that must be addressed on a child-by-child basis.

Child Restraint and Vehicle Manufacturer Contacts

Child Restraint Manufacturer Contacts

Angel Guard Products Inc.

c/o Mercury Distributing
7001 Wooster Pike
Medina, OH 44256
800-815-6330
www.angel-guard.com

Baby Trend Inc.

1567 S. Campus Avenue
Ontario, CA 91761
800-328-7363
www.babytrend.com

Basic Comfort

445 Lincoln Street
Denver, CO 80203
800-456-8687
www.basiccomfort.com

BESI, Inc.

9445 Sutton Place
Hamilton, OH 45011
800-543-8222 / 513-874-0232
www.besi-inc.com

Britax Child Safety Inc.

13501 South Ridge Drive
Charlotte, NC 28273
888-427-4829
www.britaxusa.com

Car Seat Specialty

(Nania, Safety Baby)
P.O. Box 3194
Rock Hill, SC 29732
877-912-1313
www.team-tex.com

Chicco USA, Inc.

1835 Freedom Road
Lancaster, PA 17601
877-424-4226
www.chiccousa.com

Columbia Medical Mfg.

PO Box 633
Pacific Palisades, CA 90272
800-454-6612
www.columbiamedical.com

Combi International Corporation

199 Easy St.
Carol Stream, IL 60188
630-871-0404
www.combi-intl.com

Dorel Juvenile Group

(Cosco, Eddie Bauer and Safety 1st)
2525 State Street
Columbus, IN 47201
800-457-5276 / 800-544-1108
www.djgusa.com

Evenflo Company Inc.

707 Crossroads Court
Vandalia, OH 45377
800-233-5921
www.evenflo.com

E-Z-ON Products

605 Commerce Way West
Jupiter, FL 33458
800-323-6598
www.ezonpro.com

Fisher-Price

(Discontinued production)
636 Girard Avenue
East Aurora, NY 14052
800-432-5437
www.fisher-price.com

Graco Children's Products

(Graco, Century)
150 Oaklands Boulevard
Exton, PA 19341
888-224-6549
www.gracobaby.com

Jupiter Industries

1399 Kennedy Road, Unit #22
Scarborough, Ontario
M1P 2L6 Canada
800-465-5795
www.jupiterindustries.com

IMMI

(SafeGuard)
18881 US 31 North
PO BOX 408
Westfield, Indiana 46074
877-447-2305
www.safeguardseat.com

Kolcraft Enterprises Inc.

(Discontinued production)
3455 West 31st Place
Chicago, IL 60623
800-453-9393
www.kolcraft.com

LaRoche Brothers, Inc.

P.O. Box 95
Gardner, MA 01440
978-632-8638
www.boosterkids.com

Mercedes-Benz

manufactured by Britax

Mia Moda

1966 Hwy. 160 West
Suite 101
Fort Mill, SC 29708
866-642-6632
www.miamodainc.com

Peg Perego U.S.A. Inc.

3625 Independence Drive
Fort Wayne, IN 46808
800-671-1701
www.perego.com

Child Restraint Manufacturer Contacts

ProRider

Children-N-Safety Program
1620 Industry Drive SW #C
Auburn, WA 98001
800-642-3123
www.prorider.com

Porsche Cars of North America

manufactured by Britax

Q'Straint USA

5553 Ravenswood Rd, Bldg
110
Fort Lauderdale, FL 33312
800-987-9987 / 954-986-6665
www.qstraint.com

Recaro

3275 Lapeer Road West
Auburn Hills, MI 48326
800-328-7363 (Baby Trend)
www.recaro-nao.com
www.babytrend.com

Safeline Kids, Inc.

14881 S. Concord Park Dr,
#2
Bluffdale, UT 84065
800-829-1625
www.safelinekids.com

Safety Angel International Inc.

P.O. Box 740151
Boynton Beach, FL 33474-
0151
888-743-3798
www.safetyangel.com

Snug Seat

12801 E. Independence
Blvd.
Stallings, NC 28105
800-336-7684
www.snugseat.com

Tumble Forms - Sammons Preston

4 Sammons Court
Bolingbrook, IL 60440
800-323-5547
www.tumbleforms.com

Volvo Cars of North America

Seven Volvo Drive
Rockleigh, NJ 07647
800-458-1552
new.volvocars.com

Xportation Safety Concepts Inc.

(Discontinued production)

School Bus Manufacturers

Blue Bird Corporation
PO Box 937
Fort Valley, GA 31030
478-822-2174

Collins Bus Corporation
PO Box 2946
Hutchinson, KS 67504-2946
620-662-9000

Corbeil Bus
830 12e Avenue
Saint-Lin-Laurentides,
Quebec, Canada J5M 2V9
450-439-3577

IC Corporation
4201 Winfield Road
Warrenville, Illinois 60555
1.800.892.7761

Mid Bus
PO Box 2946
Hutchinson, KS 67504-2946
620-662-9000

Thomas Built Buses, Inc.
1408 Courtesy Road
High Point, NC 27260
336-889-4871

US Bus Corporation
(see Trans Tech Bus)

Trans Tech Bus
7 Lake Station Road
Warwick, NY 10990
845-988-2333

Federal Laws Guiding Special Education

U.S. Constitution-Fourteenth Amendment

The U.S. Constitution provides that no state may deny any person within its jurisdiction the equal protection of the laws. A state must treat all persons alike. Therefore, disabled individuals are provided this “equal protection” of access to school bus transportation services.

Individuals with Disabilities Education Act 1990 (IDEA) (formerly the Education for all Handicapped Children Act of 1975)

The individuals with Disabilities Education Act requires public schools to make available to all eligible students with disabilities a free appropriate public education (FAPE) in the least restrictive environment (LRE) appropriate to their individual needs. This changed the terminology of “handicapped children” to “children with disabilities” and broadened the definition of the terms “assistive technology device” and “assistive technology service.”

IDEA mandates public school systems to develop an Individual Education Program (IEP) for each child. The specific special education and related services outlined in each IEP reflects the individualized needs of each student.

The language for training and personnel development for can be found below in Section 662 (b) (1) (A) of IDEA:

Section 602(26) Related services.--

(A) In general.--The term ‘related services’ means transportation, and such developmental, corrective, and other supportive services (including speech-language pathology and audiology services, interpreting services, psychological services, physical and occupational therapy, recreation, including therapeutic recreation, social work services, school nurse services designed to enable a child with a disability to receive a free appropriate public education as described in the individualized education program of the child, counseling services, including rehabilitation counseling, orientation and mobility services, and medical services, except that such medical services shall be for diagnostic and evaluation purposes only) as may be required to assist a child with a disability to benefit from special education, and includes the early identification and assessment of disabling conditions in children.

(B) Exception.--The term does not include a medical device that is surgically implanted, or the replacement of such device.

Sec. 662. Personnel development to improve services and results for children with disabilities.

(b) Personnel Development; Enhanced Support for Beginning Special Educators.--

(1) In general.--In carrying out this section, the Secretary shall support activities--

(A) for personnel development, including activities for the preparation of personnel who will serve children with high incidence and low incidence disabilities, to prepare special education and general education teachers, principals, administrators, and related services personnel (and school board members, when appropriate) to meet the diverse and individualized instructional needs of children with disabilities and improve early intervention, educational, and transitional services and results for children with disabilities, consistent with the objectives described in subsection (a);

**Individuals with Disabilities Education Act (IDEA); Federal register/Vol. 64, No. 48/
Friday, March 12, 1999/Rules and Regulations 34 CFR Part 303 Early Intervention
Program for Infants and Toddlers with Disabilities (Part C of the Individual with
Disabilities Act)**

This section encourages states to maintain and implement a statewide comprehensive, coordinated, multidisciplinary, interagency system of early intervention services for infants and toddlers with disabilities and their families. Early intervention services also include transportation and related cost of travel that are necessary to enable eligible children under this part and their families to receive early intervention services. Therefore, districts may provide transportation services to infants and toddlers with disabilities as part of a local program or part of an interagency program.

The Education of All Handicapped Children’s Act Amendments of 1986 (EHCA) Part H

Part H addressed the need for early intervention for infants and toddlers. States were offered financial incentives to establish an extensive, statewide service among numerous agencies that would be provided to children from birth through two years of age. In addition, it lowered the age of eligibility for special education and related services for all children with disabilities to age three and required that all eligible children receive early intervention services. This law also required that services be specified in the Individualized Family Service Plan (IFSP). The responsibilities of transportation services are defined as the cost of travel that is necessary to enable an eligible child and the child’s family to receive early intervention services.

The Handicapped Children’s Protection Act of 1986 (P.L. 99-372)

This law amended EHA to authorize the award of reasonable attorney’s fees to parents who prevail in due process hearings and judicial proceedings in dispute over special education and related services.

The Education For All Handicapped Children Act of 1975 (Pub. L. 94-142) (EHCA)

The Education For All Handicapped Children Act guaranteed a “free appropriate public education” (FAPE), including special education and related services, to all handicapped children. It also provides funding to help states bear the additional costs they would incur in educating handicapped students. It provides that they must be educated with other, non disabled students to the extent possible (Least Restrictive Environment) and establishes an elaborate system of procedural safeguards to ensure parental input. Persons involved with the student’s special education program must be appropriately trained. Transportation services may include schools,

travel in and around school buildings, specialized equipment (lift buses), counseling, or social work services.

The Family Education Rights and Privacy Act of 1974 (FERPA)

The privacy rights of students extend to education records maintained by a school district and by a person acting for the school district. Personal notes made by a driver concerning a student for their own use and not available to other persons, except a substitute driver, are not subject to FERPA. Disclosure of “personally identifiable information” about a student to persons other than professional personnel employed in the school district is prohibited without parental consent. Parental consent is the guiding principle regarding the release or exchange of student records and information in those records. Emergency information should be carried on the bus at all times to provide appropriate identification for students in emergency situations.

Section 504 of The Rehabilitation Act of 1973 (Pub. L. 93-112)

The Rehabilitation Act prohibits discrimination against individuals with disabilities by any recipient of federal funding, including public schools. Section 504 covers persons with a disability who would otherwise be qualified to participate in and benefit from programs or other activities receiving federal financial assistance. Section 504 has been used as the foundation for special education complaints involving transportation services, such as access to bus service, length of ride, transportation costs to parents, loss of instructional time, suspension, method of transportation, and specialized needs.

The Civil Rights Act of 1994 and The Education Amendments of 1972 (Title VI, Title VII and Title IX)

These laws protect the civil rights and equal education opportunities of all individuals regardless of race, color, religion, sex, or national origin. Harassment and discriminatory behavior that denies civil rights or access to equal educational opportunities include comments, name calling, physical conduct or other expressive behavior directed at an individual or group that intentionally demeans the race, color, religion, sex, or national origin of the individual(s) or creates an intimidating, hostile, or demeaning environment for education.

The Reauthorization of IDEA 2004 (Individuals with Disabilities Education Improvement Act)

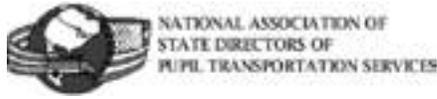
This law, as amended by the 2004 changes, will not provide mandatory full funding. Although the annual amounts now authorized to be spent on IDEA would achieve full funding in six years, that assumes these amounts will actually be appropriated and explains why mandatory funding of IDEA is so important. A new provision in the Act authorizes the Secretary to issue only regulations necessary to secure compliance with the statute. This provision may limit the Secretary’s authority to issue regulations that could be useful in clarifying ambiguities. A new section of the Act also suggests that states minimize the number of rules, regulations and policies to which the school districts are subject.

The No Child Left Behind Act 2001

The No Child Left Behind Act is a plan for comprehensive education reform. This law provides for stronger accountability for results, expanded flexibility and local control, expanded options for parents, and an emphasis on teaching methods that have been proven to work. Public school choice, Charter Schools and supplemental services are some of the issues that will impact transportation for school districts.

Americans with Disabilities Act of 1990.

This law affords legal rights to persons with disabilities by expanding access to facilities. ADA involves access issues and design standards. The American National Standards Institute (ANSI) standards detail how accessibility is to be achieved in new construction and alterations, specifications for various building elements and spaces, including entrances, ramps, parking, restrooms and telephones, among others. ADA is the continuum of Section 504. The Department of Justice enforces ADA.



Information Report

Sharing Student Health and Medical Information with School Transporters

by Peggy A. Burns, Esq.

Background

This Information Report is not intended to be an exhaustive discussion of records disclosure and confidentiality provisions, since there are multiple situations in which school transporters require student information in order to safely and efficiently carry out their responsibilities. Rather, it focuses on communicating to school transporters and special education directors the necessity -- and legitimacy -- of disclosure of student health and medical information. Included in the category of “school transporters” are transportation administrators, drivers, and other appropriate school transportation staff members, as well as bus contractors hired by school districts and educational units to transport students to and from school and school-related activities. School transporters and special education directors are urged to seek legal advice regarding specific applications of this information.

It is critical that school transporters have relevant health and medical information about the students who ride their buses, and in some cases it is legally mandated. Even where there is not a statutory or regulatory mandate to provide this information to school transporters, any reasonable risk management analysis readily leads to the conclusion that the potential harm from failure to share this information far outweighs any risk that a school district or contractor could incur as a result of transporters having this information.

Despite these facts, however, special education and other school personnel are often reluctant to share student health and medical information with school transporters. Many are adamant about their “inability” to provide information about students’ conditions and needs which may impact travel on the school bus. The reason — misinformation about and/or misunderstanding of confidentiality requirements.

Questions

- Can school transporters legally receive health and medical information about students who ride their buses?
- What factors should be considered in determining whether transportation personnel, special education personnel, medical personnel and parents should collaborate to accomplish this sharing of information?

- What are the prerequisites to the sharing of student health information with school transporters?
- How can compliance with these prerequisites be achieved?

Discussion

Application of relevant statutory and regulatory information.

Several clear, guiding principles emerge from an understanding of applicable law, especially the Regulations implementing Part B of the Individuals with Disabilities Education Act (hereafter, “IDEA”), and the Family Educational Rights and Privacy Act of 1974 (hereafter, “FERPA.”)

Principle 1 -- Rationale for Disclosure

When transportation is provided as a related service to a special education student -- that is, because transportation is necessary for the child to access Individualized Education Program (IEP) services -- then transporters are related service providers. [See IDEA Regulations (hereafter “Regs”), Section 300.24.] Under such circumstances, the school district must provide necessary information to school transporters. That information includes setting forth the role of transportation personnel in meeting the unique needs of the child as identified in his/her IEP, and those “accommodations, modifications, and supports” identified in the child’s IEP which relate in any way to the transportation environment. [See Regs., Section 300.342(b) (2) and (3).]

While the IDEA Regulations impose a mandatory duty on school districts when transportation is a related service, FERPA provides for broader permission to disclose information about a child under two situations:

- (1) when a parent consents to the disclosure; or
- (2) when “school officials” have a “legitimate educational interest,” even when the district has not obtained such prior consent.

Who is a school official with a legitimate educational interest?

When FERPA was modified in 1996, a “Model Notification of Rights Under FERPA for Elementary and Secondary Institutions” was included in Appendix B. That Model Notification clearly demonstrates Congressional intent as to who might reasonably be entitled to receive student information:

“A **school official** is a person employed by the District as an administrator, supervisor, instructor or **support staff member**. . .; a person serving on the School Board; a **person or company with whom the District has contracted to perform a special task**. . .”

And, a school official has “a **legitimate educational interest** if the official needs to review an education record in order to fulfill his or her professional responsibility.”

It is clear that school transporters meet this standard when student health and medical information is necessary to enable the safe and efficient transport of a student.

Principle 2 -- Publication of List

Under IDEA, school districts and contractors must publish a notice setting forth those staff members who will have access to student information. [See Regs., Sec. 300.572(d).] FERPA requires that school districts that share information with staff members or contractors, recognized as needing student information, specify “criteria” for determining who will receive such information and under what circumstances.

These requirements are easily met by including in student/parent handbooks a statement like the following, as suggested in Appendix B to FERPA:

“Federal law permits the school district to disclose personally identifiable information in the student’s education records to ‘school officials with legitimate educational interests.’ School officials include persons employed by the district as an administrator, supervisor, teacher, or support staff member (including but not limited to . . . transportation personnel. . .); . . . or a person, agency, or company with whom the District has contracted, or otherwise arranged to perform a special task or service. . . Such individuals have a legitimate educational interest if s/he needs to review an education record in order to fulfill his or her professional and/or official responsibility.

A legitimate educational interest also exists where the staff member or other individual works directly with students and needs to review education records to increase his/her awareness of steps necessary for the safety and welfare of students and staff members.”

Principle 3 – Confidentiality

The IDEA Regulations recognize that confidentiality requirements apply to the provision of necessary student information to school district employees and school transportation contractors. These requirements do not prohibit disclosure, but merely impose on the “agency or institution that collects, maintains or uses personally identifiable information, or from which information is obtained” the duty to protect the confidentiality of such information “at collection, storage, disclosure and destruction stages.” [See Regs., Sec. 300.572 (a).] This duty is further defined by the FERPA requirement that a school district share personally identifiable information from an education record only on the condition that the recipient of the information will not disclose the information to any other party without the prior consent of the parent or eligible student.

Principle 4 -- Training

In order to receive student information which is otherwise confidential, school transporters must receive training -- like all other personnel who receive this information in the course of their job duties.

All related services personnel must be “trained,” and the Official Commentary to Section 300.24 of the Regs specifically includes “bus drivers” among such personnel. The Regs further state that “all persons collecting or using personally identifiable information must receive training or instruction regarding” limitations imposed by IDEA and FERPA and state policies and procedures which implement the disclosure and confidentiality provisions of these federal laws. [See Regs., Section 300.572 (c).]

The Bottom Line: Why Should School Districts Ensure That Pupil Transportation Officials Have Access to Student Information?

Participation in IEP Meetings.

As indicated above, the duty to inform is mandatory under IDEA Regulations when school transportation is provided as a related service. School transporters are essential participants in the decision which must be made as to whether transportation is a related service for a particular child. Section 300.344 of the Regs. provides that a local education agency may include related services personnel as appropriate at the IEP meeting. Appendix A of the IDEA Regulations includes many useful questions and answers on this subject.

- The answer to Question 30 states: “. . . [I]t is appropriate for [related services personnel] to be included if a particular related service is to be discussed as part of the IEP meeting.”
- The answer to Question 33 states: “In determining whether to include transportation in a child’s IEP and whether the child needs to receive transportation as a related service, it would be appropriate to have at the IEP meeting a person with expertise in that area.” That expertise will be most evident -- and most valuable -- when members of the IEP team have necessary information about the needs of the student.

In its *Letter to Smith* (July 12, 1995), and in a number of letters and opinions since then, the Office of Special Education Programs (OSEP) of the U.S. Department of Education stated that the IEP must include more than a “yes” or “no” to the question, “Is transportation a related service?” Rather, it must include accommodation, modifications, and supports which must be provided for the child in accordance with his/her unique needs. Transporters are likely to be more aware of the availability of assistive technology devices applicable to transportation than anyone else on the IEP team, and certainly will have the responsibility to properly use such devices in response to the child’s needs. Health and medical information is essential to this end. OSEP specifically noted in *Letter to Smith*: “In all instances, each student’s need for transportation as a related service and the type of transportation to be provided are issues to be discussed and decided during the evaluation process and individualized education program (IEP) meeting, and the transportation arrangements agreed upon should be included in the disabled student’s IEP.”

“Transportation arrangements” are obvious components of the information transporters must receive. But remember, Section 300.342(b)(3) of the Regulations implementing Part B of the IDEA mandates that each related service provider know what s/he must do *specifically* to implement the IDEA. Consequently, other information, such as behavior intervention plans or

assistive technology details, must be shared with school transporters in order to comply with this provision.

Finally, in order to determine necessary components of training for transporters, it is critical to share student health and medical information with driver trainers, and the occupational therapists, physical therapists, nurses and others who will work with them. How else can drivers and aides be aware of proper responses to the unique medical needs of students?

Supporting the district's proposed transportation plan.

A recent California case shows how driver training and provision of health and medical information can be an invaluable tool to help demonstrate that your chosen method of transportation for a particular student is reasonably calculated to meet his/her needs.

In *Pleasant Valley School District*, (37 IDELR 265, August 21, 2002), parents of a student with short-gut syndrome objected to the district's proposal to provide regular district transportation instead of continuing the door-to-door transportation the boy had received for more than three years.

Among the parents' concerns was the possibility that the student's g-tube would become dislodged or that he would have a seizure. The school nurse had trained the driver on whose bus the student had ridden, and could train other drivers accordingly. An emergency care plan, which would be shared with anyone who drove the student, embodied the proper procedures to employ in the event that the g-tube became dislodged. The plan also included the proper procedures to undertake should the student suffer a seizure. The fact that the driver would be ready if an emergency occurred was instrumental in the Hearing Officer's concluding that proper accommodations could be made on the regular education bus to address the unique needs of the child.

While school districts cannot be insurers of students' safety, they do have an obligation to take reasonable steps to respond to known dangers which may threaten the welfare of students and others. Students who, though not requiring special education, have health or medical challenges, may have a health action plan or other protocol which could have a bearing on school transportation.

Are There Risks to School Districts if Information is Shared With Transporters?

Generally, a single mistake by a school district or contractor will not amount to a violation of FERPA. However, the Family Compliance Office of the U.S. Department of Education, which investigates, processes and reviews complaints and violations under FERPA, may take steps regarding individuals who improperly disclose information from education records. Section 99.33 of the Regulations implementing FERPA provides:

“If this Office determines that a third party improperly re-discloses personally identifiable information from education records in violation of [FERPA], the educational agency or institution may not allow that third party access to personally identifiable information from education records for at least five years.”

The implications of this section are significant. Since a school district makes a commitment when sharing information with a bus driver that the driver will not inappropriately “re-disclose” the information to a third party, there can be strong sanctions if that condition is not met. Since a driver needs certain information in order to do his/her job, a restriction which prevents access to necessary information for at least five years means that the driver cannot do his or her job. That situation would most likely result in termination. Even absent federal agency determination of a breach of confidentiality, or a privately brought action based on invasion of privacy or inaccuracy of the information, a school district might well consider this a sufficiently serious rule violation to impose consequences up to and including termination.

A school district violates FERPA if it has a policy of denying access to records to parents, or it has a policy of wrongly disclosing information to third parties. A parent or student over the age of 18 may file a complaint giving specifics about why that person thinks a school district has violated FERPA. The complaint must be submitted within 180 days of the alleged violation or of the date that the complainant knew of, or reasonably should have known of, the alleged violation. Following an agency investigation in which it is determined that a violation had occurred, the Family Compliance Office may take a number of steps:

- It will give the school district a reasonable period of time to comply with specific steps set out by the Office; and
- If the school district does not comply within that period, the Office may withhold federal monies, and/or issue an order to compel compliance.

Before the extreme sanction of loss of eligibility for federal funds is applied, a school district must not only have a policy and practice of violating FERPA, but also refuse to take steps to comply with FERPA within a reasonable period of time. Therefore, the school district which shares necessary information with drivers risks little. That is especially true in comparison with the potential risks to the safety and welfare of the student if important information is not shared. On the other hand, the driver who does not take that responsibility seriously risks losing his or her job.

Conclusion

School transporters can legally receive information about students’ health and medical conditions when these conditions may impact transportation planning and implementation. Factors to be considered in setting conditions for such disclosure include:

- (1) the determination of legitimate educational interest;
- (2) compliance with FERPA requirements of notice;
- (3) requiring confidentiality of the school transporters to whom the information is disclosed;
and
- (4) training.

It is clear that once school transporters are trained regarding the requirements of confidentiality, school district and medical personnel are well-advised to share this information.

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March 2003

APPENDIX

Relevant Federal Regulations

IDEA Regulations

Sec. 300.342(b)(2) and (3): “Each public agency shall ensure that. . .[t]he child’s IEP is accessible to each. . .related service provider. . .who is responsible for its implementation;” and “Each. . .provider described in paragraph (b)(2) of this section is informed of - (i) His or her specific responsibilities related to implementing the child’s IEP; and (ii) The specific accommodations, modifications, and supports that must be provided for the child in accordance with the IEP.”

Sec. 300.560(c): “Participating agency means any agency or institution that collects, maintains, or uses personally identifiable information, or from which information is obtained, under Part B of the Act.”

Sec. 300.560(b): “Education records means the type of records covered under the definition of ‘education records’ in 34 CFR part 99 (the regulations implementing the Family Educational Rights and Privacy Act of 1974.)”

Sec. 300.563: “Each participating agency shall keep a record of parties obtaining access to education records collected, maintained, or used under Part B of the Act (except access by parents and authorized employees of the participating agency), including the name of the party, the date access was given, and the purpose for which the party is authorized to use the records.”

Sec. 300.572(a): “Each participating agency shall protect the confidentiality of personally identifiable information at collection, storage, disclosure and destruction stages.”

Sec. 300.572(c): “All persons collecting or using personally identifiable information must receive training or instruction regarding the State’s policies and procedures under Sec. 300.127 and 34 CFR part 99.”

Sec. 300.572(d): “Each participating agency shall maintain, for public inspection, a current listing of the names and positions of those employees within the agency who may have access to personally identifiable information.”

FERPA Regulations

Sec. 99.3: “Education Records’ . . . means those records that are: (1) Directly related to a student; and (2) Maintained by an educational agency or institution or by a party acting for the agency or institution.”

Sec. 99.7(3): “The notice [which must be provided annually to parents concerning their rights under FERPA] . . . must include. . . if the educational agency or institution has a policy of disclosing education records under Sec. 9.31(a)(1), a specification of criteria for determining who constitutes a school official and what constitutes a legitimate educational interest.”

Sec. 99.31(a)(1): “An educational agency or institution may disclose personally identifiable information from an education record of a student without the consent required by Sec. 99.30 if the disclosure meets one or more of the following conditions: (1) The disclosure is to other school officials, including teachers, within the agency or institution whom the agency or institution has determined to have a legitimate educational interest.”

Biographical Information

Peggy A. Burns, Esq., is in-house counsel with Adams Twelve Star Schools, a large suburban school district in Colorado. She is also founder of Education Compliance Group, Inc., an organization committed to addressing legal compliance issues in education. A former high school English and forensics teacher, and licensed attorney for twenty-one years, Peggy has devoted the past fifteen years specifically to legal issues affecting public education.

In the last several years, Peggy has focused significantly on issues related to pupil transportation. She has trained, and served as a consultant to, transportation personnel in school districts in a number of states, and has presented on legal matters which concern school transporters at many state, regional and national conferences. Peggy has served on the National Board of Advisors of the National Conference and Exhibition on Transporting Students with Disabilities for the past four years, and is a Tenured Faculty Member. She is also a contributing editor for *School Transportation News*, a member of the Colorado School Pupil Transportation Association, and the Special Education Committee of the National Association for Pupil Transportation. Peggy has been an adjunct professor with Colorado State University and is currently an adjunct professor with the University of Denver.

Peggy is the author of “Putting the Brakes on Sexual Harassment: A Training Program for School Bus Drivers;” several pamphlets on “Special Needs Transportation;” and a training video program, “Confidential Records: Training for School Bus Drivers.” The training video program is available from Education Compliance Group, Inc., P.O. Box 221, Lafayette, CO 80026, or by calling (303) 604-6141, or faxing a request for information to (303) 604-6143.

**CHILD SAFETY SEAT REGISTRATION FORM
FOR YOUR CHILD'S CONTINUED SAFETY**

Although child safety seats undergo testing and evaluation, it is possible that your child seat could be recalled. In case of a recall it is important that the manufacturer be able to contact you as soon as possible so that your seat can be corrected.

All child safety seats manufactured since March 1993 have a registration form so that owners can provide their names/addresses to the manufacturer. In case of a safety recall, the manufacturer can use that information to send recall letters to owners. Also, child safety seat manufacturers have agreed to maintain owner names/addresses for child safety seats manufactured before March 1993, so they can notify those consumers in the event of a future safety recall. However, in order for the manufacturer to know which child safety seat you own, all of the information on the lower half of this page must be provided.

If you would like the National Highway Traffic Safety Administration (NHTSA) to give your name and address to the manufacturer of your child safety seat, so that you can be notified of any future safety recalls regarding your child safety seat, fill out this form. Please type or print clearly, sign and mail this postage-paid, pre-addressed form.

If you have any questions, or need help with any child safety seat or motor vehicle safety issue, call the U.S. Department of Transportation's toll-free Auto Safety Hotline at 1-800-424-9393 (Washington DC AREA RESIDENTS, 202-366-0123).

Your Name: _____ Telephone _____

Your Street Address _____

City: _____, State: _____ Zip Code: _____

IMPORTANT: The following information is essential and can be found on labels on your child seat.

Child Seat Manufacturer: _____

Child Seat Model Name & Number: _____

Child Seat Date of Manufacture: _____

I AUTHORIZE NHTSA TO PROVIDE A COPY OF THIS REPORT TO THE CHILD SAFETY SEAT MANUFACTURER.

SIGNATURE: _____ **DATE:** _____

The Privacy Act of 1974 - Public Law 93-579, As Amended: This information is requested pursuant to the authority vested in the National Highway Traffic Safety Act and subsequent amendments. You are under no obligation to respond to this questionnaire. Your response may be used to assist the NHTSA in determining whether a manufacturer should take appropriate action to correct a safety defect. If the NHTSA proceeds with administration enforcement or litigation against a manufacturer, your response, or statistical summary thereof, may be used in support of the agency's action.

Send this form to:
NHTSA
Auto Safety Hotline, NAD-40
Room 2318
400 Seventh Street, SW
Washington, DC 20590

 <p>U.S. Department of Transportation National Highway Traffic Safety Administration</p>	Child Safety Seat Questionnaire To report a complaint, defect or incident		FOR AGENCY USE ONLY	
	VEHICLE SAFETY HOTLINE Nationwide: 1-888-327-4236 / DC Metro area: 202-366-0123 To submit by Fax: 202-366-3171		Date Received	od-or ____ rt-dt ____ od-rt ____ up-ltr ____
OWNER INFORMATION (Type or Print)			Reference No.	
NAME and ADDRESS			DAY TIME TELEPHONE NO. (AREA CODE)	
Do you authorize NHTSA to provide a copy of this information to the manufacturer of your Child Safety Seat? <input type="checkbox"/> YES <input type="checkbox"/> NO In the absence of an authorization, NHTSA WILL NOT provide your name and address to the vehicle manufacturer.				
CHILD INFORMATION				
Any Special Information		Age	Height/Length	Weight
CHILD SAFETY SEAT INFORMATION (As identified on the manufacturing label on the seat)				
Seat Manufacturer		Date Manufactured	Seat Name and Model Number	
Type of Child Safety Seat <input type="checkbox"/> Infant <input type="checkbox"/> Booster <input type="checkbox"/> Integrated <input type="checkbox"/> Convertible <input type="checkbox"/> Other				
Failed Part. Describe Failure Below. <input type="checkbox"/> Base <input type="checkbox"/> Harness/Buckle <input type="checkbox"/> Shell <input type="checkbox"/> Handle <input type="checkbox"/> Material Padding <input type="checkbox"/> LATCH Connector <input type="checkbox"/> Tether <input type="checkbox"/> Other				
Seat Was: <input type="checkbox"/> Purchased <input type="checkbox"/> New <input type="checkbox"/> Used <input type="checkbox"/> Obtained through loaner program <input type="checkbox"/> Gift <input type="checkbox"/> Borrowed Date ____/____/____		Purchased From: _____ City _____ State _____		Installed in Vehicle by the: <input type="checkbox"/> Vehicle Safety Belt <input type="checkbox"/> LATCH System (vehicle information required)
VEHICLE INFORMATION				
Make of Vehicle		Model of Vehicle	Year of Vehicle	
INCIDENT INFORMATION (If applicable)				
Crash? <input type="checkbox"/> Yes <input type="checkbox"/> No	Number of Injured		Number of Fatalities	Police Report Filed <input type="checkbox"/> Yes <input type="checkbox"/> No
Child Seat Location: <input type="checkbox"/> Front <input type="checkbox"/> Right <input type="checkbox"/> Rear <input type="checkbox"/> Left <input type="checkbox"/> Center		Safety Belt System Used <input type="checkbox"/> Lap <input type="checkbox"/> Shoulder <input type="checkbox"/> Both		Facing Direction: <input type="checkbox"/> Forward <input type="checkbox"/> Rear
DESCRIBE INCIDENT/DEFECT IN DETAIL (Please explain how the Child Seat failed)				
CONTINUE ON BACK IF NEEDED				
The Privacy Act of 1974—Public Law 93-579 This information is requested pursuant to authority vested in Chapter 301 of Title 49 of the United States Code. You are under no obligation to respond to this questionnaire. Your response may be used to assist the NHTSA in determining whether a manufacturer should take appropriate action to correct a safety defect. If the NHTSA proceeds with administrative enforcement or litigation against a manufacturer, your response, or a statistical summary thereof, may be used in support of the agency's action.				

HS Form 350C (April 2005)

Fold to show Return Address (no stamp needed). Fasten with tape or staple and mail.

Narrative Description (Continued):

[Large empty rectangular box for narrative description]

Fold here

U.S. Department of Transportation

National Highway Traffic Safety Administration

400 Seventh St., S.W.
Washington, D.C. 20590

Official Business
Penalty for Private Use \$300

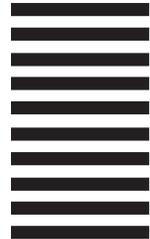


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**U.S. Department of Transportation
National Highway Traffic Safety Administration
Office of Defects Investigation (NVS-216)
400 7th Street, S.W.
Washington, DC 20590**



Tape or Staple here

Quick Reference Guide to Federal Motor Vehicle Safety Standards and Regulations

DOT HS 805 878 - Revised March 2004

Foreword

The National Highway Traffic Safety Administration (NHTSA) has a legislative mandate under Title 49 of the United States Code, Chapter 301, Motor Vehicle Safety, to issue Federal Motor Vehicle Safety Standards (FMVSS) and Regulations to which manufacturers of motor vehicles and items of motor vehicle equipment must conform and certify compliance. FMVSS 209, Seat Belt Assemblies, was the first standard to become effective on March 1, 1967. A number of FMVSS became effective for vehicles manufactured on and after January 1, 1968. Subsequently, other FMVSS have been issued. For instance, NHTSA has issued seven new FMVSS and has amended six FMVSS and two consumer information regulations and requirements since this booklet was revised in March 1999. New standards and amendments to existing standards are published in the Federal Register.

These Federal safety standards are regulations written in terms of minimum safety performance requirements for motor vehicles or items of motor vehicle equipment. These requirements are specified in such a manner that the public is protected against unreasonable risk of crashes occurring as a result of the design, construction, or performance of motor vehicles and is also protected against unreasonable risk of death or injury in the event crashes do occur.

This booklet lists the Federal Motor Vehicle Safety Standards that were in effect as of October 2003, and provides a brief summary of each safety standard. It also provides similar information on other Federal consumer information regulations and requirements.

Title 49: Chapter V - National Highway Traffic Safety Administration, Department of Transportation

Part 571 Federal Motor Vehicle Safety Standards	
Subpart B	Federal Motor Vehicle Safety Standards 571.101– 571.500
Standard No. 101:	Controls and Displays
Standard No. 102:	Transmission Shift Lever Sequence, Starter Interlock, and Transmission Braking Effect
Standard No. 103:	Windshield Defrosting and Defogging Systems
Standard No. 104:	Windshield Wiping and Washing Systems
Standard No. 105:	Hydraulic and Electric Brake Systems
Standard No. 106:	Brake Hoses
Standard No. 107:	[Reserved]
Standard No. 108:	Lamps, Reflective Devices, and Associated Equipment
Standard No. 109:	New Pneumatic Bias Ply and Certain Specialty Tires*
Standard No. 110:	Tire Selection and Rims for Motor Vehicles*
Standard No. 111:	Rearview Mirrors
Standard No. 112:	[Reserved]
Standard No. 113:	Hood Latch System
Standard No. 114:	Theft Protection
Standard No. 115:	[Reserved] Requirements moved to Part 565—Vehicle Identification Number

Part 571 Federal Motor Vehicle Safety Standards	
Subpart B	Federal Motor Vehicle Safety Standards 571.101– 571.500
Standard No. 116:	Motor Vehicle Brake Fluids
Standard No. 117:	Retreaded Pneumatic Tires
Standard No. 118:	Power-Operated Window, Partition, and Roof Panel Systems
Standard No. 119:	New Pneumatic Tires for Vehicles Other Than Passenger Cars*
Standard No. 120:	Tire Selection and Rims for Motor Vehicles Other Than Passenger Cars
Standard No. 121:	Air Brake Systems
Standard No. 122:	Motorcycle Brake Systems
Standard No. 123:	Motorcycle Controls and Displays
Standard No. 124:	Accelerator Control Systems
Standard No. 125:	Warning Devices
Standard No. 129:	New Non-Pneumatic Tires for Passenger Cars—New Temporary Spare Non-Pneumatic Tires for Use on Passenger Cars
Standard No. 131:	School Bus Pedestrian Safety Devices
Standard No. 135:	Light Vehicle Brake Systems*
Standard No. 138:	Tire Pressure Monitoring Systems**
Standard No. 139:	New Pneumatic Radial Tires for Light Vehicles**
Standard No. 201:	Occupant Protection in Interior Impact
Standard No. 202:	Head Restraints
Standard No. 203:	Impact Protection for the Driver from the Steering Control System
Standard No. 204:	Steering Control Rearward Displacement
Standard No. 205:	Glazing Materials
Standard No. 206:	Door Locks and Door Retention Components
Standard No. 207:	Seating Systems
Standard No. 208:	Occupant Crash Protection*
Standard No. 209:	Seat Belt Assemblies
Standard No. 210:	Seat Belt Assembly Anchorages
Standard No. 211:	[Reserved]
Standard No. 212:	Windshield Mounting
Standard No. 213:	Child Restraint Systems
Standard No. 214:	Side Impact Protection
Standard No. 215:	[Reserved]
Standard No. 216:	Roof Crush Resistance
Standard No. 217:	Bus Emergency Exits and Window Retention and Release
Standard No. 218:	Motorcycle Helmets

Part 571 Federal Motor Vehicle Safety Standards	
Subpart B	Federal Motor Vehicle Safety Standards 571.101– 571.500
Standard No. 219:	Windshield Zone Intrusion
Standard No. 220:	School Bus Rollover Protection
Standard No. 221:	School Bus Body Joint Strength
Standard No. 222:	School Bus Passenger Seating and Crash Protection
Standard No. 223:	Rear Impact Guards
Standard No. 224:	Rear Impact Protection
Standard No. 225:	Child Restraint Anchorage Systems**
Standard No. 301:	Fuel System Integrity
Standard No. 302:	Flammability of Interior Materials
Standard No. 303:	Fuel System Integrity of Compressed Natural Gas Vehicles
Standard No. 304:	Compressed Natural Gas Fuel Container Integrity
Standard No. 305:	Electric-Powered Vehicles: Electrolyte Spillage and Electric Shock Protection**
Standard No. 401:	Interior Trunk Release**
Standard No. 402:	(Reserved)
Standard No. 403:	Platform Lift Systems for Motor Vehicles**
Standard No. 404:	Platform Lift Installations in Motor Vehicles**
Standard No. 500:	Low Speed Vehicles

Part 531 - Part 595	
Subpart B -	Other Regulations Relating To Transportation
Part 531:	Passenger Automobile Average Fuel Economy Standards
Part 533:	Light Truck Fuel Economy Standards
Part 541:	Federal Motor Vehicle Theft Prevention Standard
Part 555:	Temporary Exemptions from Motor Vehicle Safety and Bumper Standards
Part 557:	Petitions for Hearings on Notification and Remedy of Defects
Part 564:	Replaceable Light Source Information
Part 565:	Vehicle Identification Number Requirements
Part 566:	Manufacturer Identification
Part 567:	Certification
Part 568:	Vehicles Manufactured in Two or More Stages
Part 569:	Regrooved Tires
Part 570:	Vehicle In Use Inspection Standards
Part 572:	Anthropomorphic Test Devices
Part 573:	Defect and Noncompliance Reports
Part 574:	Tire Identification and Record Keeping
Part 575:	Consumer Information Regulations
Part 577:	Defect and Noncompliance Notification
Part 579:	Defect and Noncompliance Responsibility
Part 580:	Odometer Disclosure Requirements
Part 581:	Bumper Standard
Part 582:	Insurance Cost Information Regulation
Part 583:	Automobile Parts Content Labeling
Part 591:	Importation of Vehicles and Equipment Subject to Federal Safety, Bumper, and Theft Prevention Standards
Part 595:	Retrofit On-Off Switches for Air Bags Subpart B —Retrofit On-Off Switches for Air Bags Subpart C —Vehicle Modifications to Accommodate People With Disabilities

Federal Motor Vehicle Safety Standard No. 213

Highlights of the Regulation for Child Restraint Systems

- Covers all types of systems (infant carriers, child seats, harnesses, and car beds) that restrain children under 65 pounds in motor vehicles.
- Requires that child restraint systems pass a 30 mph frontal sled test, which simulates a crash.
- Specifies maximum rotation during crash test for rear-facing child restraints.
- Specifies limits on child dummy measurements for forward-facing child restraints:
 - Head injury criteria (potential brain injury resulting from abrupt deceleration)
 - Head excursion (distance dummy head travels forward)
 - Force on chest
 - Knee excursion
- Requires that restraints not break during dynamic tests.
- Requires that child restraints retain a child dummy within the confines of the restraint during crash tests.
- Specifies padding requirements around the head of child restraints for use by children weighing 22 pounds or less. Flame-retardant fabric required.
- Requires that safety seats pass the 30 mph test secured with vehicle lap belt or lower LATCH attachments only as well as a more stringent test for forward-facing restraints with a tether anchored. Exceptions: child harnesses and products for children with special needs may be tested with top tether straps anchored. Boosters are tested with a vehicle lap-shoulder belt.
- Specifies the amount of force needed to open buckles on child restraints, so that toddlers cannot unbuckle themselves but adults can easily open the buckle. (Before crash test, minimum force is nine lbs. and maximum is 14 lbs.; after crash test, maximum is 16 lbs.)
- Requires permanent, visible labels on the restraint with the following information: certification that it conforms to standards for use in motor vehicles, basic instructions for correct installation, name and address of manufacturer/distributor, and date made. Air bag warning label required for rear-facing restraints. The restraint must have a designated location for storing the instruction booklet or sheet. An additional label may be present to state certification for use in aircraft.
- Permits child restraint systems to be designed as an integral part of motor vehicle seats.
- Requires that the manufacturer include a registration card with the child restraint and notify consumers of product recalls.
- As of September 1, 2002, child restraints and vehicle were required to provide LATCH attachments (FMVSS 213) and anchors (FMVSS 225). Refer to #622 for a summary of these requirements.

SafetyBeltSafe U.S.A. P.O. Box 553, Altadena, CA 91003 www.carseat.org 310/222-6860, 800/745-SAFE (English) 310/222-6862, 800/747-SANO (Spanish)

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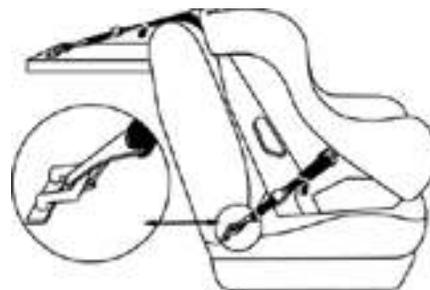
#91 (8-17-05)

LATCH* Requirements

Summary of Changes to Federal Regulations (FMVSS 213 and 225)

Vehicle Requirements:

- ◆ User-ready top tether strap anchorage hardware (such as a ring, bar, bracket, or webbing loop) for three rear seating positions were available in most passenger vehicles beginning with model year 2000 and were required in all cars, minivans, and pick-up trucks by model year 2001.
- ◆ Lower anchors for child restraints, each consisting of two rigid bars 6 mm in diameter and 25-50 mm long, are present in the vehicle seat bight (the crack between the seat back and seat cushion) in specified seating positions in all cars, minivans, and pick-up trucks made after September 1, 2002 (model year 2003), and in many made before that date.
- ◆ Requirements apply to all passenger cars, trucks, and multipurpose passenger vehicles under 8500 lbs.; also apply to buses under 10,000 lbs.
- ◆ Current belt lockability requirement remains effective until September 1, 2012, so child restraints without new hardware can be attached with regular vehicle belts. After that date, only vehicle belts in seating positions without lower anchorage systems must meet lockability requirement (capable of securing a child restraint without added equipment, such as a locking clip).



Vehicle Exceptions:

- ◆ No tether anchorage hardware is required for convertible cars or school buses.
- ◆ A built-in child restraint can replace the required anchorage system in one rear seating position.
- ◆ At least one front seating position must have the required anchorage system if the vehicle has an air bag cut-off switch and has either no rear seat or a rear seat too small for a rear-facing child restraint.

Child Restraint Requirements:

- ◆ The head excursion limit (maximum distance the head can travel forward in crash tests) has been reduced by nearly four inches to 28 inches. In order to meet the new requirement, most forward-facing child restraints made after September 1, 1999, are equipped with a top tether strap. They also must meet the previous head excursion requirement without using the tether strap.
- ◆ Lower attachment hardware (a hook, buckle, or other type of connector) is required on new child restraints made since September 1, 2002, and is available on many models made before then. Webbing-based attachments must be adjustable.

Child Restraint Exceptions:

- ◆ Belt-positioning boosters, car beds, and harnesses are not required to have a tether strap or lower attachment hardware. However, lower attachment hardware is required on combination seats (forward-facing restraints with a removable harness that convert to boosters).
- ◆ Rear-facing child restraints are not required to have a tether strap. If a rear-facing restraint has a detachable base, only the base must have lower attachment hardware.

***LATCH (Lower Anchors and Tethers for Children)**

SafetyBeltSafe U.S.A. P.O. Box 553, Altadena, CA 91003 www.carseat.org
310/222-6860, 800/745-SAFE (English) 310/222-6862, 800/747-SANO (Spanish)

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#622 (8-17-05)

FMVSS FOR SCHOOL BUSES

AMERICAN ACADEMY OF PEDIATRICS

Committee on Injury and Poison Prevention

Transporting Children With Special Health Care Needs

ABSTRACT. Children with special health care needs should have access to proper resources for safe transportation. This statement reviews important considerations for transporting children with special health care needs and provides current guidelines for the protection of children with specific health care needs, including those with a tracheostomy, a spica cast, challenging behaviors, or muscle tone abnormalities as well as those transported in wheelchairs.

ABBREVIATION. FMVSS, Federal Motor Vehicle Safety Standard.

All children, including those with special health care needs, should have access to proper resources for safe transportation. Families and health care professionals should be informed of basic guidelines for selecting restraints, positioning children into them, and securing these restraints in all types of vehicles, primarily the family vehicle and school bus.¹ Parents should be informed of the resources available for proper restraint of children with special health care needs during travel² and thereby avoid use of substandard products, makeshift restraint systems, or unsafe methods of securement in motor vehicles.

Federal Motor Vehicle Safety Standard (FMVSS) 213, which regulates design and performance of child restraint systems, does not recognize that children with special needs may require the use of special occupant restraint systems.³ The standard also does not regulate specific design and performance criteria for occupant protection devices that can provide safe seating for children with disabilities. Crash testing of car safety seats that meet FMVSS 213 has been done with test dummies representing children without special medical problems that would affect restraint use in motor vehicles. The biomechanical effects of a crash on test dummies representative of children with special medical needs in any restraint system have not been studied. Further research is needed, including development of such test dummies by the National Highway Traffic Safety Administration to address these concerns.

Children with special needs should not be exempt from the requirements of each state's laws regarding child restraint and seat belt use. Pediatricians can serve as resources for information to legislators, policy makers, and law enforcement professionals, as

well as school officials who may be unaware of the importance and availability of occupant protection systems for children with special needs.

IMPORTANT CONSIDERATIONS

1. The rear seat is the safest place for all children, and rear-facing car safety seats must never be placed in the front seat of a vehicle that has a front passenger air bag. The impact of a deploying air bag can severely injure or kill an infant or small child. Children may also be at risk of injury if they are out of position or lie against the door of a vehicle with a side air bag.
2. For a child with special health care needs who requires frequent observation during travel and for whom no adult is available to accompany the child in the back seat, an air bag on/off switch should be considered for the vehicle.
3. Instructions provided by the manufacturer of the vehicle and the manufacturer of the car safety seat must be followed.
4. Plans for procurement of the most appropriate restraint and training for the proper use of the device and its installation in the vehicle should be incorporated into hospital discharge planning for all children with special needs.⁴ Any child with a medical problem should have a special care plan that includes what to do during transport if a medical emergency occurs.
5. Parents, health care professionals, and educators should be encouraged to incorporate a child's special transportation needs into the individual education plan developed with the school.
6. There have been rapid changes in development and availability of resources for safer transportation of children with special needs. The current version of the American Academy of Pediatrics' "Car Seat Shopping Guide for Children With Special Needs" should be a helpful reference for health care professionals, parents, and school transportation providers.⁵
7. For additional information on transporting newborns or premature infants and children with special needs on school buses, refer to the appropriate policy statements by the American Academy of Pediatrics.^{6,7}

GUIDELINES FOR PROTECTION

Although research has been limited, current information suggests the following guidelines be adhered to when selecting an appropriate occupant protection system and positioning a child with special needs properly.

The recommendations in this statement do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.
PEDIATRICS (ISSN 0031 4005). Copyright © 1999 by the American Academy of Pediatrics.

General: Infants and Young Children

1. The child restraint system should meet FMVSS 213.³ Standard child restraint devices may be used for many children with special health care needs, and, whenever possible, a standard child restraint is the preferable choice. Use of a "special" child restraint system for a child with health care needs often may be postponed until a child exceeds the physical limitations of a car safety seat.
2. Car restraint systems should not be modified or used in a manner other than that specified by the manufacturer unless the modified restraint system has been crash tested and has met all applicable Federal Motor Vehicle Safety Standards approved by the National Highway Traffic Safety Administration.
3. Infant-only car safety seats with capacity to recline are useful for infants with many medical problems, especially respiratory conditions. Some convertible car safety seats also can be used in the rear-facing position for children up to a weight of 13.5 kg (30 lb). These restraints may be especially useful for children with poor head and neck control.
4. If the child's head drops forward while in a rear-facing car safety seat because the position of the seat is too upright, a roll of cloth can be wedged in the vehicle seat crease and under the car safety seat base at the child's feet, so that the child reclines at no more than a 45° angle or as specified in the manufacturer's instructions (Fig 1).
5. Premature and small infants should not be placed in car safety seats with a harness-tray/shield combination or an armrest that could directly contact the infant's neck or face during an impact.^{4,7,8}
6. Car safety seats with five-point harnesses anchored at both shoulders, both hips, and between the legs, can be adjusted to provide good upper torso support for many children with special needs.

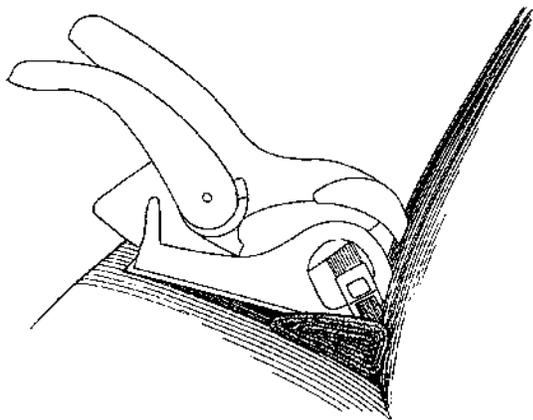


Fig 1. Rear-facing seat with wedge to recline seat at a 45° tilt.

General: Older Children and Adolescents

1. When a child has outgrown a car safety seat, other choices are available for proper and secure occupant restraint. Some systems provide for full support for the child's head, neck, and back and accommodate children up to 47.2 kg (105 lb). Others, such as the conventional E-Z-On Vest (E-Z-On Products, Jupiter, FL), can be used to provide additional trunk support for a child who already has stable neck control. Tethers, additional lap seat belts, or appropriate tie-down systems are required for some of these devices and should be a consideration for selection and proper use (Fig 2).
2. Some older children with disabilities can be transported in a special needs belt-positioning booster or a conventional belt-positioning booster for trunk support. The booster seats help to position the shoulder and lap belt across the child's chest and pelvis.
3. Conventional lap-shoulder belt systems may also be useful in providing for chest restraint of some children with special needs. Lap-shoulder belts should be used properly. Lap belts should be low and flat across the child's hips, and the shoulder belt should be snug across the chest. If a lap belt lies on the child's abdomen or if a shoulder belt rests on a child's neck, use of a belt-positioning booster seat will help assure proper placement of the belts. The shoulder belt should never be placed underneath the child's arm(s) or behind the child's back.

TRACHEOSTOMIES

Infants and children with a tracheostomy should not use child restraint systems with a harness-tray/shield combination or an armrest. On sudden impact, the child could fall forward causing the tracheostomy to contact the shield or armrest, possibly resulting in injury and a blocked airway.⁹ A rear-facing car safety seat with a three-point harness or a

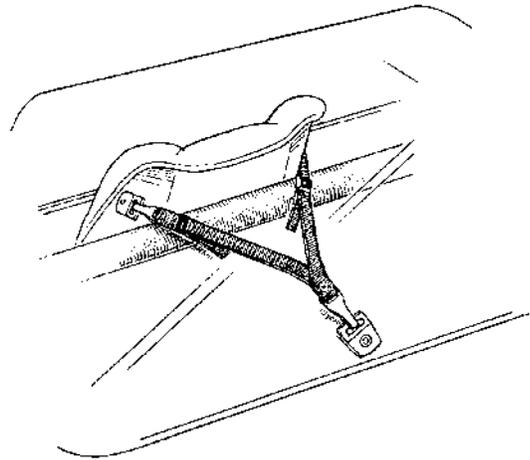


Fig 2. Large child forward-facing safety seat with tether anchored to vehicle.

car safety seat with a five-point harness should be selected for children with a tracheostomy.

MUSCLE TONE ABNORMALITIES

1. For toddlers with poor head control, a convertible car safety seat approved by the manufacturer for use in a semireclining position when facing forward may be beneficial.
2. Crotch rolls, made with a rolled towel or a diaper, may be added between the child's legs and the crotch strap to keep the hips against the back of the seat and prevent the child from slumping forward in the seat. This modification should be used for any child who cannot maintain appropriate posture.
3. Lateral support may be provided with rolled blankets, towels, or foam rolls (Fig 3).
4. Soft padding that does not alter the function of the harness may be positioned behind the neck and on either side of the head to promote anatomic alignment. However, padding should never be placed behind or under the child in the seat.¹⁰ Soft padding (such as blankets, pillows, or soft foam) compresses on impact and can prevent harness straps from maintaining a secure, tight fit on a child's body (Fig 3).
5. A foam roll or rolled blanket may be placed under a child's knees to inhibit hypertonicity or opisthotonic posturing (Fig 3).

PRONE AND SUPINE POSITIONING OF INFANTS

Infants who must lie prone after surgical repair of myelomeningocele or infants who must lie prone to maintain an open airway, such as those with Pierre Robin sequence, may require a restraint that allows prone positioning.^{5,11,12}

SPICA CASTS

1. For children with spica casts, a specially modified convertible car safety seat, the Spelcast (Snug Seat, Inc, Matthews, NC), has cut-away sides and seat

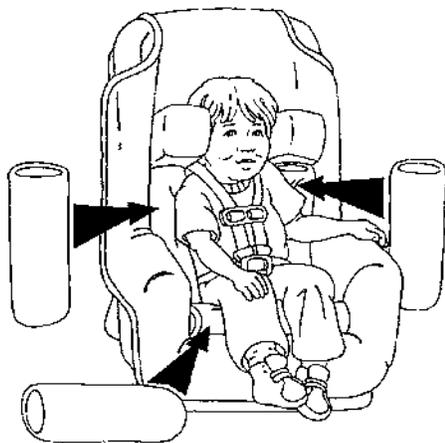


Fig 3. Child in convertible car seat with soft padding behind the neck, on either side of the head and along the sides to promote anatomic alignment. Foam roll or rolled blanket may be placed under knees to inhibit hypertonicity.



Fig 4. Child with spica cast seated in modified seat with cut-away sides and seat bottom.

bottom that provide room for a comfortable and snug fit into the restraint system (Fig 4). This seat fits infants up to a weight of 9.0 kg (20 lb) (rear-facing position) and toddlers who weigh up to 18.0 kg (40 lb) (front-facing position).

2. Many older toddlers and preschool and school-aged children in body or hip spica casts have limited resources available for safe transport in motor vehicles. One resource, the modified E-Z-On Vest, has performed satisfactorily during dynamic crash testing with a test dummy weighted to 47.2 kg (105 lb) and is available commercially. Two sets of seat belts routed through the vest are used to secure the child at the child's side against the vehicle seat. An ancillary belt loops around the casted leg or legs at the knees and is routed through the other seat belt (Fig 5). When it is not possible to fit a child onto a vehicle seat, use of an ambulance for transport is recommended. For lateral positioning on the vehicle seat (eg, as required by a car bed restraint or the modified E-Z-On Vest), position the child's head as far as possible from the side of the vehicle (Fig 6).

CHALLENGING BEHAVIOR

1. Older children with hyperactivity, autism, or emotional problems may require a safety restraint

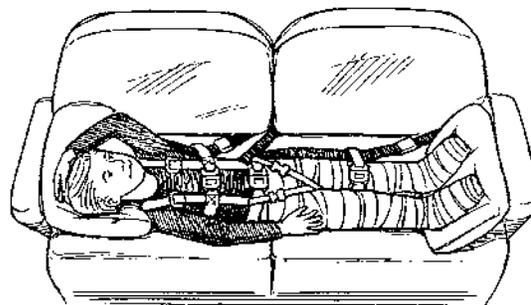


Fig 5. Child with modified E-Z-On Vest (E-Z-On Products, Inc, Jupiter, FL).

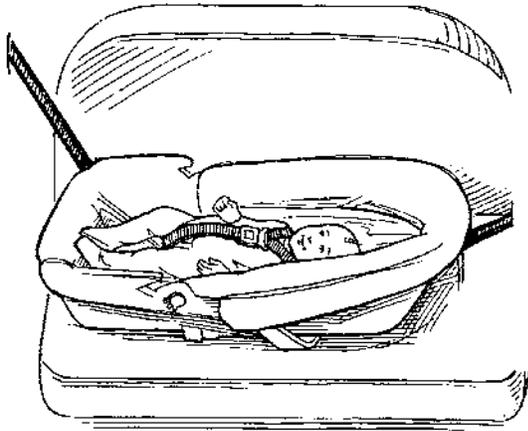


Fig 6. Infant positioned supine in the Ultra Dream Ride car bed (Cosco, Columbus, IN).

that is less likely to be unbuckled by the child. High back booster seats with internal harnesses that have seat belts routed underneath the seat base may be helpful in reducing the child's likelihood of unbuckling the restraint during travel. Large child car safety seats with a 5-point harness may be required for children weighing over 40 lb who cannot be restrained in a belt positioning booster seat with only a lap/shoulder harness.

2. Vests with rear back closure also may be helpful for use with children who have behavioral problems that may interfere with safe travel.⁵

WHEELCHAIR TRANSPORTATION

Any child who can assist with transfer or be "reasonably" moved from a wheelchair, stroller, or special seating device to the original manufacturer's forward-facing vehicle seat equipped with dynamically-tested occupant restraints or be "reasonably" moved to a child restraint system complying with FMVSS 213 requirement should be so transferred for transportation. The unoccupied wheelchair also should be secured adequately in the vehicle to prevent it from becoming a dangerous projectile in the event of a sudden stop or crash.¹³

Occupied wheelchair(s) should be secured in a forward-facing position. Any occupied wheelchair should be secured with four-point tie-down devices. Lap boards or metal or plastic trays attached to the wheelchair or to adaptive equipment should be removed and secured separately for transport. An occupant restraint system that has been tested at 30 mph and 20G force conditions and that includes upper torso restraint (ie, shoulder harness) and lower torso restraint (ie, a lap belt over the pelvis) should be provided for each wheelchair-seated occupant.¹⁴ Head bands should not be used to restrain the child's head separately from the torso.

EQUIPMENT TRANSPORTATION

1. When a child with special needs is in transit, ancillary pieces of medical equipment (eg, walkers, crutches, oxygen tanks, monitors) should be

secured on the vehicle floor; underneath a vehicle seat or wheelchair; or to the bus seat, bus floor, or bus wall below the window line so that they do not become a projectile during a crash and strike an occupant.

2. Electrical equipment for use during transit should have portable self-contained power for twice the expected duration of the trip. For improved safety, lead acid batteries or electrically powered wheelchairs or other mobile seating devices and respiratory systems should be converted, when possible, to gel-cell or dry-cell batteries. To house and protect batteries during everyday use, transportation, and collision, the use of external battery boxes is recommended.

RESOURCE AVAILABILITY

The National Easter Seal Society (800-221-6827) can assist identifying local community resources for procurement of specific restraint systems.⁵

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Effective School Bus Occupant Restraints for Students with Special Needs

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Following are some specific concerns/problems often encountered when choosing occupant restraint systems for students with special needs. Equipment options that may provide assistance are given. Whenever possible, suggested equipment options are ranked from least restrictive (appropriate for children needing mild intervention) to most restrictive (for children needing more support or intervention). Important procedural considerations are noted for some problems. It is vital that these are given special attention by the team designing the student's individual transportation plan.

Problem/ CHALLENGE	EQUIPMENT OPTIONS	PROCEDURAL CONSIDERATIONS
1.Poor Head Control	<p>Child safety seat that is certified to be used rear facing (many are available for larger children)</p> <p>Child safety seat which allows recline in a forward facing position</p> <p>Neck collar –made of soft and light material and must be free floating</p> <p>Child safety seat designed for a child with special needs which incorporates a wedge</p> <p>Wheelchair or stroller which can be reclined with or without use of a collar</p>	<p>No straps or other positioning aids which secure the head or neck to the child safety seat separate from the torso should be used during transportation</p> <p>Most require use of a tether.</p> <p>Recline exceeding 30 degrees should be avoided. Shoulder belt anchor of WTOR may need to be moved rearward</p>

2. Poor Trunk Control	Child safety seat with towel rolls placed along the child's torso to facilitate proper alignment	Positioning aids should be made of firm materials and cannot interfere with the working parts of the occupant restraint/child safety seat. No padding should be placed beneath or behind the child.
	Integrated child safety seat	
	Bus seat with shoulder/lap belt or four point harness system	
	Bus Specific Add-On Child Safety Restraint System (i.e. STAR, Protech, etc.)	Entire seat behind must be unoccupied or seat a student also in CSRS
	Safety vest with crotch strap	Entire seat behind must be unoccupied or seat a student also in CSRS
	Modified E-Z-On Vest	Child must be able to fit lengthwise on the vehicle seat. Vehicle floor space should be filled in with padding. Child's head must face towards aisle.
	Child safety seat designed for a child with special needs which incorporates positioning pads	Most require use of a tether.

3. Increased Leg Length/ower Extremity ulk Bulky LE Bracing Or Casting

Forward-facing only or combination child seat/booster used with internal harness

Integrated child safety seat

Bus seat with shoulder/lap belt or four point harness system

Bus Specific Add-On Child Safety Restraint System (i.e. STAR, Protech, etc.)

Safety vest with crotch strap

Spelcast/Hippo

Modified E-Z-On Vest

Wheelchair or stroller which can be reclined with or without use of wheelchair mounted safety vest

Caution must be exercised to assure that the seating area has adequate room for feet and legs. Feet should not be crammed against the seat back. Seat size must allow for the child to be placed easily in the seat (not forced). Children who wear bulky LE bracing or casting often experience sensory deficits, which make them prone to skin breakdown. In addition, their bones may be more brittle and prone to injury. The weight of the cast/braces must be accounted for when considering seat weight limits

Entire seat behind must be unoccupied or seat a student also in CSRS

Entire seat behind must be unoccupied or seat a student also in CSRS

Must have some hip flexion

Child must be able to fit lengthwise on the vehicle seat. Vehicle floor space should be filled in with padding. Child's head should face towards aisle.

Recline exceeding 30 degrees should be avoided. Shoulder belt anchor of WTOR may need to be moved rearward.

Vest may need additional crotch straps

<p>4. Need for Additional Lower Extremity Support</p>	<p>Positioning over the wheel well Child safety seat designed for a child with special needs, which incorporates a footplate</p>	<p>Most require use of a tether.</p>
<p>5. Child with Behavioral Problems Who has Difficulty Staying Seated</p>	<p>Window seating with peer in aisle to cue proper behavior Child Safety Restraint System Safety vest with crotch strap</p>	<p>IEP team to assure proper supervision and/or assistance must carefully analyze boarding procedures. Pictures of proper bus behavior mounted with Velcro or social stories may prompt compliance Allowing child to use headphones, books, or soft lightweight toys may help them stay seated and in compartment. If the vest is necessary primarily because of problem behavior, a behavior intervention plan designed by the IEP Team should be in place that addresses the transportation environment. Entire seat behind must be unoccupied or seat a student also in CSRS</p>

<p>6. Child with a Shunt</p>	<p>Integrated child safety seat</p> <p>Bus seat with shoulder/lap belt or four point harness system which lacks buckles/hardware near shunt site</p> <p>Bus Specific Add-On Child Safety Restraint System (i.e. STAR, Protech, etc.)</p> <p>Safety vest without buckles/hardware near shunt site</p>	<p>All equipment must provide support to the head and neck area.</p> <p>Seat placement must not allow the child's head to bump the wall of the bus.</p> <p>Entire seat behind must be unoccupied or seat a student also in CSRS</p> <p>Entire seat behind must be unoccupied or seat a student also in CSRS</p>
<p>7. Child with Tracheotomy</p>	<p>Child safety restraint system without a shield</p>	<p>Seat placement in the front for maximum amount of adult supervision. Student should be positioned away from the lift door or open windows at the rear of the bus to avoid increased exposure to dust and fumes and/or frequent changes of temperature</p> <p>Oxygen if carried must be secured and mounted appropriately in the bus with guidance from the oxygen supplier.</p> <p>Emergency procedures to be followed in the event of respiratory distress should be clearly stated in the IEP with proper training and inservice given.</p>

8. Child with Feeding Tube or ostomy bag	Child safety restraint systems which allow for adjustment in waist/pelvic area	All harness belts on equipment must avoid contact with the tube/ostomy site If child has difficulty swallowing and may “pocket” food, a mouth check before boarding bus and seating in the front of the bus are recommended.
9. Child with Brittle Bones, Spinal Rods or Other Orthopedic Concerns for a Rough Ride	Seat placement in the front of the bus to allow for smoother ride. Avoid wheel well positions Transport on bus with air-ride	Additional padding may be necessary. The IEP team should meet to decide how to proceed. It is vital that all harness straps are properly positioned.
10. Child of Small Stature Who has Difficulty Getting Into and Out of the Bus	Step stool with non-slip step surface available at home and school if allowable. Bus with additional steps	Children should not be carried onto or off of the bus.

All equipment recommended should be installed and used in accordance with manufacturer instructions. Some of the CSRS above can be installed on traditionally designed school buses and therefore may allow for an overall less restrictive transportation plan. All procedures followed for preschool transportation should be consistent with the National Highway Traffic Safety Administration “Guideline for the Safe Transportation of Pre-school Age Children in School Buses”. Any additional medical equipment or items accompanying the child should be secured appropriately in the vehicle.

This handout was originally prepared in conjunction with Kentin Gearhart, who was the project manager at Riley Hospital For Children. Riley’s Automotive Safety For Children program continues to be a great resource and inspiration for this author.

Kentin's work and that of his coworkers at Riley is gratefully acknowledged. They include:

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IMMI CHILD RESTRAINTS

SUBJECT:

Determine the effect of twist (rotation) on the strength of vehicle restraint seat belt webbing.

INTRODUCTION:

There are times that the vehicle restraint buckle is twisted (rotated) to shorten its length in order to achieve an improved installation of a child restraint seat. A concern has been expressed that the twist may adversely effect the strength of the webbing.

PURPOSE:

Conduct a series of tests to determine the strength of the vehicle webbing in the twisted condition.

REQUIREMENTS:

FMVSS - S4.4 (b) 3 indicates that the structure's components in the seat belt assembly (Type 2) which are common to pelvic and upper torso restraints shall withstand a force not less that 3000 pounds (1360 kgs).

ECE R16 Section 7.5.2 indicates that a buckle or the adjusting device used as a common part of a three-point belt shall be tested to 1470 daN (3304 pounds).

TEST PROCEDURE:

A typical vehicle restraint webbing meeting the specifications of FMVSS 209 S4.2 was used in the test. The webbing is rated at 6000 pounds strength. Three samples were tested at each condition in accordance with FMVSS 209 S5.1 (b). Tests were conducted on plain and treated webbing. The treated samples were soaked in apple juice or Coca Cola for 6 hours, then dried for 24 hours.

TEST RESULTS:

The values recorded are the average of three tests at each condition.

TENSILE STRENGTH OF WEBBING IN POUNDS

	No Twist	½ Twist	1 Twist	1 ½ Twists	2 Twists
PLAIN	6496	6466	6343	6168	5944
APPLE JUICE	6685	6442	6118	5989	5942
COCA COLA	6690	6364	6255	6018	5855

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CONCLUSIONS:

The test results show some reduction in strength when twisted. Treated webbing showed slightly more reduction in strength on a % basis than untreated webbing. The average reduction in strength (plain and treated) with one twist was 5.8% and at two twists was 10.7%.

The tensile strength of the plain and treated webbing at the worst condition of two twists is still well above the requirements in FMVSS 209 and ECE 16. In fact, the average tensile strength of the two twist samples (plain and treated) of 5913 pounds is nearly twice the requirements of FMVSS 209.

Since the expected loading on the vehicle belts when used with child restraint seats is even lower, the strength factor of safety for the webbing will be even higher than twice the regulation requirements.

Based on the test results, there should not be a concern about the strength of the vehicle webbing when the buckles are twisted to improve the fit of a child restraint seat.

JERRY THOMPSON

Jerry Thompson
Engineering Manager
IMMI Child Division
September 28, 1998

After review and analysis of the IMMI data by the SAE Child Restraint Sub-Committee, an agreement of no more than 3 complete (360 degree) twists of the safety belt buckle as the maximum allowed was reached in 2006.

Cleaning and Maintenance of Child Safety Restraint Systems (CSRS)

With regular use, all CSRS become soiled and must be properly cleaned before returning them to your inventory for future use. The most practical advice for the care and maintenance of a CSRS begins with the CSRS instructions. **Always follow the CSRS manufacturer's cleaning instructions.** Here are some additional tips to make the process more manageable.



Tips and Techniques for the Proper Care and Maintenance of Child Safety Restraint Systems

- Read the CSRS instructions and follow the step-by-step directions for disassembling and re-assembling all of the parts.
- Brush or vacuum all of the crumbs or “leftovers” from the padding.
- Remove the harness and padding being careful to remember how they will need to be re-attached.
- Replace the padding if it is torn or too soiled. Follow the washing instructions for the padding. Many pads may be machine washable on a gentle cycle. Read and follow the manufacturer's instructions. Never use dry cleaning solution on the padding.
- Replace the harness if it is frayed or heavily soiled. The harness may be spot cleaned or surface cleaned with a mild soap. Do not immerse totally in water unless directed by the CSRS instructions.

- Wipe the plastic shell with a damp cloth or sponge and a mild soap. Never use bleach, harsh chemicals or household detergents. They can weaken the plastic.
- Avoid wetting the labels.
- Never place the shell under extremely high temperatures. This will cause deformation and deterioration of the plastic.
- The buckle may be cleaned with a damp cloth. Do not lubricate or immerse the buckle in water.
- When all of the parts are cleaned and dried, reassemble the CSRS following the manufacturer's instructions.



Lifespan of a CSRS

- Most manufacturers recommend replacing a CSRS after five to six years. Manufacturers of school bus restraints and add-on seats also recommend a lifespan of five to six years.
- If the CSRS has any broken or missing parts that cannot be replaced or if the CSRS has been recalled, contact the manufacturer to determine if the seat should be repaired or destroyed.
- Read and follow the manufacturer's instructions if the CSRS has been involved in a crash.

Additional Information

For additional information on the proper care and maintenance of CSRS, contact the manufacturer.



SAMPLE

Child Passenger Safety Log

Name of School District _____

Address of School District _____

Name of Contractor _____

Address of
Contractor _____

Vehicle Type _____

Vehicle License # _____

Vehicle Number _____

Type of Child Restraint: Circle one

Infant Convertible Forward Facing Booster Vest Special Needs Seat

Manufacturer of Child Restraint _____

Make and Model Number _____

Date of Manufacture _____

Date Purchased _____

SAMPLE

CARE and MAINTENANCE

Recall List checked:

Dates _____

Recalled: Circle one YES NO

Recall Repaired: Circle one YES NO

Parts Replaced Circle one YES NO

List Replacement Parts and Date of Replacement _____

Copy of Manufacturer's instructions _____

Vehicle involved in crash: Circle one YES NO

Child Restraint involved in crash: Circle one YES NO

Child Restraint replaced: Circle one YES NO

Reason _____

Print Name _____

Signature _____

AMERICAN ACADEMY OF PEDIATRICS

Committee on Injury and Poison Prevention

Selecting and Using the Most Appropriate Car Safety Seats for Growing Children: Guidelines for Counseling Parents

ABSTRACT. Despite the existence of laws in all 50 states requiring the use of car safety seats or child restraint devices for young children, more children are still killed as passengers in car crashes than from any other type of injury. Pediatricians and other health care professionals need to provide up-to-date, appropriate information for parents regarding car safety seat choices and proper use. Although the American Academy of Pediatrics is not a testing or standard-setting organization, this policy statement discusses the Academy's current recommendations based on the peer-reviewed literature available at the time of publication and sets forth some of the factors that parents should consider before selecting and using a car safety seat.

ABBREVIATIONS. AAP, American Academy of Pediatrics, NHTSA, National Highway Traffic Safety Administration.

INTRODUCTION

In 2000, 539 children younger than 5 years died while riding in motor vehicles; almost half were unrestrained,¹ and many others were restrained improperly.² Many parents want to know which car safety seat is best for their child. An appropriate car safety seat is the right size for the child, fits the vehicle's seats and seat belt systems, and is easy for parents to use properly. In addition, it must meet all applicable federal safety standards.

Pediatricians also need to be aware that the child occupant protection laws in their states may not reflect the safest way to transport a child. Parents should be counseled to follow the American Academy of Pediatrics (AAP) recommendations for best child passenger restraint, and pediatricians should advocate to improve their state laws to provide better child protection.

AAP RECOMMENDATIONS

Seat Selection

1. Children should face the rear of the vehicle until they are at least 1 year of age **and** weigh at least 20 lb to decrease the risk of cervical spine injury in the event of a crash. Infants who weigh 20 lb before 1 year of age should ride rear facing in a convertible seat or infant seat approved for higher weights until at least 1 year of age.^{3,4} If a car safety seat accommodates children rear facing to higher

weights, for optimal protection, the child should remain rear facing until reaching the maximum weight for the car safety seat, as long as the top of the head is below the top of the seat back.³

2. Premature and small infants should not be placed in car safety seats with shields, abdominal pads, or arm rests that could directly contact an infant's face or neck during an impact and injure the child.⁵
3. For optimal protection, pediatricians should counsel parents of most children (those who weigh more than 12 lb at 4 months of age) to encourage use of a convertible car safety seat that will accommodate them rear facing at higher weights.
4. A convertible car safety seat is positioned semi-reclined and rear facing for a child until at least 1 year of age **and** at least 20 lb. The seat is positioned upright and forward facing for an older and heavier child who weighs up to 40 lb and may be used as long as the child fits well (eg, tops of ears below the top of the car safety seat back and shoulders below the seat strap slots).⁶
5. A forward-facing seat, a combination seat, or a belt-positioning booster seat should be used when the child has outgrown a convertible safety seat but is too small to use the vehicle's safety belts. Vehicle safety belts should not be used until the shoulder belt can be positioned across the chest with the lap belt low and snug across the thighs^{7,8}; the child should fit against the vehicle's seat back with his or her feet hanging down when the legs are bent at the knees. A belt-positioning booster seat should be used until the vehicle safety belt fits well.
6. Many new vehicles are equipped with integrated (built-in) car safety seats that are designed for forward-facing riders who are at least 1 year of age **and** weigh at least 20 lb. All younger infants should be positioned rear facing in separate car safety seats until they are at least 1 year of age **and** weigh at least 20 lb. When purchasing a new vehicle, parents should consider selecting a vehicle with an optional integrated car safety seat. Some integrated seats convert to booster seats for older children.⁹
7. On the basis of Federal Motor Vehicle Safety Standards established by the National Highway Traffic Safety Administration (NHTSA), shield boosters have not been certified by their manufacturers for use by children who weigh more than 40 lb.^{3,10} In current models, the shield can be removed and the restraint can be used with a lap and shoulder

The recommendations in this statement do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.
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belt as a belt-positioning booster seat for children who are too heavy or tall to fit in a seat with a full harness.

Children who weigh 40 lb or less are best protected in a seat with a full harness.^{3,11} Significant injuries to the head, spine, abdomen, and extremities of children in shield boosters have been documented in crash investigations resulting from ejection, excessive head excursion, and shield contact.¹¹⁻¹⁴ Although boosters with shields may meet current Federal Motor Vehicle Safety Standards for use by children who weigh 30 to 40 lb, on the basis of current published peer-reviewed literature, the AAP does not recommend their use.

8. A number of aftermarket add-on devices claim to solve the problem of poorly fitting seat belts; however, these products may actually interfere with proper lap and shoulder harness fit by positioning the lap belt too high on the abdomen and allowing too much slack in the shoulder harness, placing it too low across the shoulder.¹⁵ Until performance requirements are developed by the NHTSA for aftermarket devices, these products should not be used.
9. Children with special health care needs should have access to appropriate restraint systems.^{16,17} Specific information is available in the AAP policy statement "Transporting Children with Special Health Care Needs"¹⁷ and "Safe Transportation of Children With Special Needs: A Guide for Families."¹⁸

Installation in Vehicle

1. A rear-facing car safety seat must not be placed in the front passenger seat of any vehicle equipped with an air bag on the front passenger side. Death or serious injury to an infant can occur from the impact of the air bag against the back of the car safety seat.^{3,19}
2. Parents should be advised that the rear vehicle seat is the safest place for children of any age to ride. Any front-seat, front-facing passengers should ride properly restrained and positioned as far back as possible from the front air bag on the passenger side.¹⁹
3. Parents should be instructed to read the vehicle owner's manual and child restraint device instructions carefully. When the car safety seat is installed in the car, it should be tested for a safe, snug fit in the vehicle to avoid potentially life-threatening incompatibility problems between the design of the car safety seat, vehicle seat, and seat belt system.

Lower Anchors and Tethers for Children (LATCH) is a new standardized car safety seat attachment system that will simplify car safety seat installation and enhance safety. Most new vehicles and car safety seats will be equipped with this system by September 2002.

4. Infants should ride at approximately a 45° angle to prevent slumping and airway obstruction. If the vehicle seat slopes so that the infant's head flops forward, the car safety seat should be positioned back at an approximately 45° tilt according

to the manufacturer's instructions. Some car safety seats have built-in features that allow adjustment of the angle. For car safety seats that do not adjust, a firm roll of cloth, a solid-core Styrofoam roll, or a tightly-rolled newspaper can be wedged under the car safety seat below the infant's feet to achieve this angle.²⁰

5. Experience with the interaction of vehicle side air bags and car safety seats is limited. To date, no crash studies have established that a child properly restrained in a car safety seat is at risk from current side air bag impact.³ Laboratory simulations have indicated, however, that unrestrained and out-of-position children are at risk of serious injury from a deploying side air bag.²¹ Because children cannot be depended on to remain in position at all times and until additional research and experience is acquired, parents should be counseled about the potential risks and benefits of having side air bags. Parents should consider placing children and car safety seats away from all air bags, choosing a vehicle without side air bags in the rear seat, or deactivating side air bags in rear seats if children are transported in adjacent positions. They may also refer to the vehicle owner's manual for recommendations specific to their vehicle.

Placement of Child in Seat

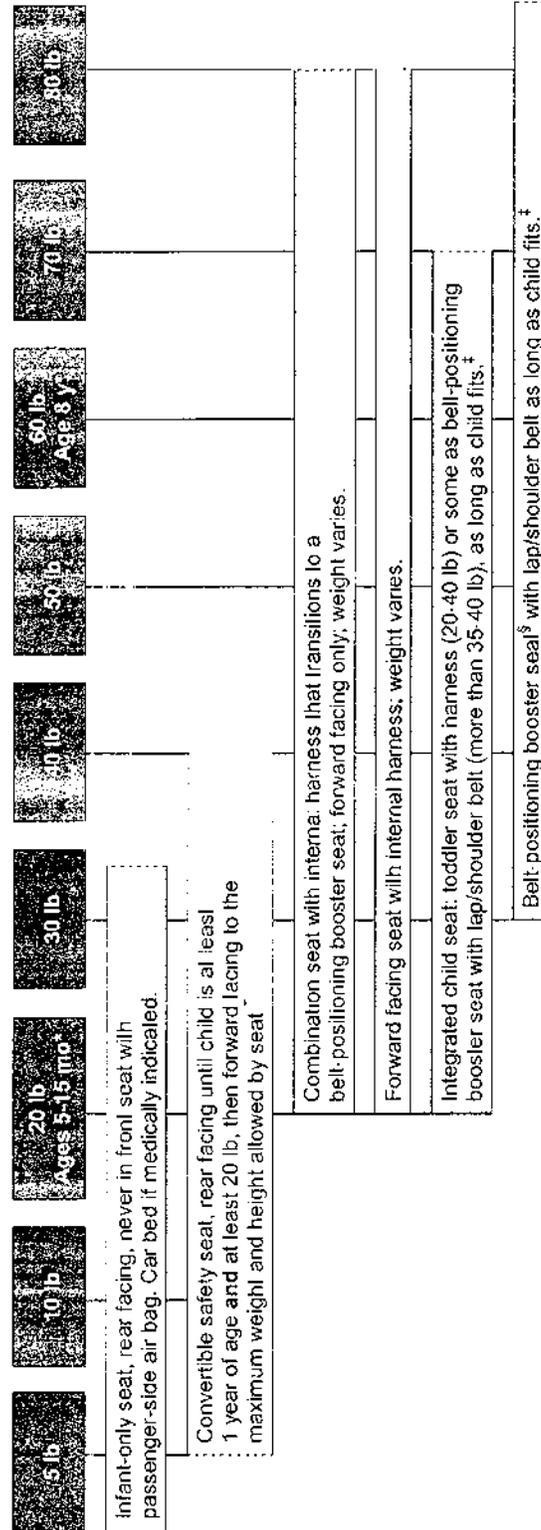
1. In rear-facing car safety seats for infants, shoulder harnesses usually should be placed in the slots at or below the infant's shoulders, the harness should be snug, and the car safety seat's retainer clip should be positioned at the level of the infant's armpit, not on the abdomen or in the neck area (see manufacturers' instructions for details).
2. In forward-facing car safety seats for older children, the shoulder strap should be at or above the child's shoulders, the harness should be snug, and the retainer clip should be positioned level with the child's armpits. This seat should be used until the child reaches the top weight limit of the seat or the tops of his or her ears reach the top of the car safety seat back (see manufacturers' instructions for details).
3. A child should never be left unattended in a car safety seat in or out of the car.

SUMMARY

Existing products provide effective restraint for children riding in motor vehicles and minimize risk of death and injury during car crashes if used appropriately. Parents look to pediatricians for up-to-date, accurate information on selecting and properly using car safety seats. New products that address gaps in restraint protection are continually being developed. Manufacturers should be encouraged to develop car safety seats that accommodate children rear facing to 4 years of age (45 lb). It is important that pediatricians keep abreast of innovations in child passenger safety.²¹ The use of the AAP materials, including "Car Safety Seats: A Guide for Families,"⁹ the "One-Minute Car Seat Safety Check-Up,"²³ and "Safe Transportation of Children With Special Needs: A

Fig 1. Car safety seats: selecting the appropriate type.

The safest place in a vehicle for all children is the rear seat. Never place a rear-facing infant seat in the front seat of a vehicle with an activated passenger-side air bag.



Weight limits on specific products vary, and this is indicated by dashed lines at ends of bars. Always read and follow manufacturer's and vehicle instructions. Use of safety belts varies with vehicle belt system and height of child. For additional information on the use of car beds, see the AAP policy statement "Safe Transportation of Premature and Low Birth Weight Infants."[¶] For more information, or to locate a local child passenger safety technician, visit www.nhtsa.dot.gov/people/injury/childps

[¶] Usual age range for this weight; individual children's ages will vary widely.

[†] If car safety seat accommodates children rear facing to higher weights, for optimal protection, the child should remain rear facing to the maximum weight for the seat as long as the head is below the top of the seat back.²

[‡] Very tall children may require a combination seat or belt-positioning booster seat before 40 lb.

[§] Crash injury data for children in this age group indicate that child safety seats provide more protection than seat belts.⁴

The lap/shoulder belt fits when:

- Shoulder belt fits across mid chest and shoulder
- Lap belt fits snug across thighs
- Child can sit at the way back against vehicle seat and knees bend at edge of vehicle seat

Additional considerations:

- Lap/shoulder belt is more protective than a lap only belt. Restrained is safer than unrestrained.
- Lap/shoulder belts can be retrofit in some vehicles

Source: American Academy of Pediatrics, 2002

Guide for Families¹⁸ can assist the physician in providing specific advice for patients. The information in Fig 1 in this statement will also aid in selecting the appropriate type of restraint. Additional consultation for detailed technical information can be obtained from certified child passenger safety technicians identified by state on the NHTSA Web site (<http://www.nhtsa.dot.gov/people/injury/childps/contacts/index.cfm>). This information will help parents ensure that their children are transported as safely as possible.

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Child Passenger Safety

A PARENT'S PRIMER

When you're an expectant mother, it's important to always wear your seat belt to protect you and your unborn child. Wear the lap belt across your hips and below your belly with the shoulder belt across your chest (between your breasts). Once your baby is born, follow these important safety steps.

GROWING UP SAFE: It's a four-step process.

As children grow, how they sit in your car, truck or SUV should change.

Save your child from injury or death by observing all four steps:

- 1 REAR-FACING SEATS**  For the best possible protection keep infants in the back seat, in rear-facing child safety seats, as long as possible up to the height or weight limit of the particular seat. At a minimum, keep infants rear-facing until a minimum of age 1 **and** at least 20 pounds.
- 2 FORWARD-FACING SEATS**  When children outgrow their rear-facing seats (at a minimum age 1 **and** at least 20 pounds) they should ride in forward-facing child safety seats, in the back seat, until they reach the upper weight or height limit of the particular seat (usually around age 4 and 40 pounds).
- 3 BOOSTER SEATS**  Once children outgrow their forward-facing seats (usually around age 4 and 40 pounds), they should ride in booster seats, in the back seat, until the vehicle seat belts fit properly. Seat belts fit properly when the lap belt lays across the upper thighs and the shoulder belt fits across the chest (usually at age 8 or when they are 4'9" tall).
- 4 SEAT BELTS**  When children outgrow their booster seats, (usually at age 8 or when they are 4'9" tall) they can use the adult seat belt in the back seat, if it fits properly (lap belt lays across the upper thighs and the shoulder belt fits across the chest).

Get Help!

ON THE WEB

Go to www.nhtsa.gov and choose Child Safety Seat Information from the menu or click on the child passenger safety icon. The site includes child safety seat installation tips, product ratings, recalls, and other useful information.

BY PHONE

For more information about child safety seats, booster seats, inspection/fitting stations in your area, seat belts, air bags, and

other highway safety issues, call the DOT Vehicle Safety Hotline at: 1-888-327-4236.

NEAR YOU

A certified child passenger safety technician can check your installation and answer questions. To find a technician or an inspection station near you, go to www.nhtsa.gov, click on the child passenger safety icon, and then click on the Fitting/Inspection Station link or go to www.seatcheck.org.

REMEMBER: All children under 13 should ride in the back seat.

Always read the child restraint instructions and the vehicle owner's manual.



March 2007



School Transportation Safety

Committee on School Health and Committee on Injury and Poison Prevention

ABSTRACT. The following policy statement is a revision of the American Academy of Pediatrics' 1985 statement entitled "School Bus Safety." It provides updated information regarding relevant federal regulations and outlines recommendations that can enhance community systems for addressing school bus safety education, awareness, and practices. Pediatricians can assist in this process by sharing these recommendations at both the community and state levels.

According to Special Report 222 of the Transportation Research Board of the National Research Council, in the United States approximately 400 000 school buses are used to transport 25 million children nearly 4 billion miles to and from school and school activities each year. Approximately 85% of these buses are the large, type 1 school buses that carry more than 16 passengers and are usually not equipped with lap belts. Children riding in small school buses built in accordance with federal safety standards, including lap belts, fared very well in 24 crashes investigated by the National Transportation Safety Board. Children riding in type 1 school buses fared less well; school bus safety records, however, are considerably better than the safety records for private vehicles.¹

Given the high numbers of children transported and miles traveled annually, the levels of deaths and injuries to children as a result of school bus-related crashes are relatively low. Of the approximately 150 persons killed in school bus-related events each year, only 12% are passengers on the buses: 8% student passengers, 2% adult passengers, and 2% drivers. The remaining deaths are of occupants of other motor vehicles (55%), bicyclists (3%), and pedestrians (30%). Of the fatally injured pedestrians, 84% were school aged and 16% were adults. Seventy percent of the victims were struck by school buses. The majority of pedestrians killed were young children who were struck by their own school buses. The number of injuries from school bus-related events is estimated to be 19 000 per year, and most injuries are minor. Half of these injuries are sustained by school bus passengers. An estimated 4% of school bus-related injuries are sustained by pedestrians and are typically more severe.¹

Public outcry and demands for change predictably surface when tragic crashes occur, even though the

frequency of on-board deaths and injuries on school buses remains lower than that of incidents outside of the buses. Expectations for school bus safety should be upheld not as a result of public reactions, but from an ongoing commitment from communities and states to assuring the safest ride possible for children on school buses. Because travel by school bus plays such a consistent and long-term role in the daily lives of children from preschool through high school, pediatricians can help by serving as resources, educators, consultants, and advocates for school bus safety.

The National Traffic and Motor Vehicle Safety Act of 1966 authorizes the Department of Transportation to issue minimum standards for new school buses manufactured for sale in the United States.² This act was amended in 1974,³ and the National Highway Traffic Safety Administration (NHTSA) developed the current minimum performance standards for school buses manufactured after April 1, 1977.⁴ In recent years, school bus safety in the United States again has been closely scrutinized. Although certain topics continue to be controversial, there is a strong consensus regarding most issues. The recommendations below are derived from several recent studies.¹⁻⁹

RECOMMENDATIONS

School Bus Safety

1. Many school systems provide for the transportation of preschool children. The use of child safety seats and other restraint systems on school buses for preschool children is recommended as a necessary practice to keep preschool children secured on the school bus seats. All restraint systems used during school bus transport should meet the requirements of Federal Motor Vehicle Safety Standard 213.⁵ The American Academy of Pediatrics (AAP) recommends that school districts provide appropriate and federally approved child restraint systems for pre-kindergarten-aged children riding in school buses. Children with special needs and who are older than that age and require restraint should be evaluated individually to determine the most appropriate restraint that meets their needs for positioning during travel, regardless of their age, weight, and height. Further recommendations are outlined in the AAP policy statement on transportation of children with special needs.⁹

2. Compartmentalization, or keeping child passengers confined to a padded compartment in a crash, is the major principle by which school bus passengers are currently protected. In general, the higher the

The recommendations in this statement do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.
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seat back and the closer the spacing between rows, the better the compartmentalization of passengers in a crash. Current provisions are for a seat back height of 20 in above a reference point (about 22 in measured from the seat surface). A study committee of the National Transportation Safety Board has issued a recommendation that the NHTSA revise Federal Motor Vehicle Safety Standard 222 (School Bus Safety and Interiors) to require that seat backs be 24 in above the reference point. Seat backs would be slightly more than 26 in from the seat surface.¹ The AAP supports this recommendation.

3. The issue of school bus safety has been linked frequently with concerns about whether school buses should be required to have safety belts for all passengers. It is estimated that the use of seat belts on large, type 1 buses may reduce deaths and injuries by 20%, with an assumption that use rates are only 50%.¹ Belt use rates can be significantly increased through education and monitoring, and, therefore, effectiveness estimates can be enhanced when all students consistently wear the belts correctly. An additional benefit of seat belt use in buses is that it reinforces seat belt use in private vehicles. Although the cost-effectiveness of seat belt use on school buses may remain controversial, the AAP recommends the installation of seat belts on all newly purchased school buses. School districts that provide seat belts on school buses must ensure the appropriate education of administrators, students, teachers, drivers, and parents in their use.

4. All school buses should be equipped with the following to prevent pedestrian injury: eight warning and loading lights (two flashing red and two flashing amber lights on both the front and back of the bus), stop signal arms, and a cross-view mirror system. The bus should meet all current recommendations for mirrors, including two large round mirrors that allow the driver to view more fully the front of the bus. Additionally, districts should consider installing strobe lights for use during reduced-visibility conditions, an external loudspeaker system to enable the driver to communicate with children outside of the bus, and loading and backing alarms or pulsating backup horns.⁶ Electronic sensor systems are available but have not been evaluated adequately.¹

5. It is recommended that school buses be equipped with brake retarder systems, which may be effective in reducing serious injuries and deaths attributable to sudden stops.

6. Mandatory state school bus inspections are recommended.

7. The state highway patrol (or other independent agency) should make detailed, unexpected, random school bus inspections in addition to regular annual school bus inspections.

8. All school buses, including private, for hire, and those for parochial schools, need to be in compliance with all federal regulations. Buses built before 1977 should be retired from use.

9. The use of wheelchairs is common for school bus transportation of children with disabilities. The AAP recommends that states adopt the requirements for

the use of wheelchairs on school buses outlined in the 1995 National Standards for School Buses.⁸

School Bus Driver Selection and Training

School bus drivers should meet the following requirements annually:

1. Maintain a valid commercial driver's license;
2. Be a minimum of 21 years of age;
3. Show proof of a yearly health examination, including vision and hearing assessments, which documents the absence of problems that may compromise driving and child supervision;
4. Maintain a satisfactory driving record as determined by the school district and successfully pass a review for a criminal record, including child sexual abuse and incidents or arrests for driving under the influence of alcohol or other drugs;
5. Attend a minimum of 6 hours of instruction and successfully complete a written or oral test covering driver duties, bus operating procedures, traffic and school bus laws and regulations, record keeping, emergency and crash-related procedures, first aid, basic appreciation of the developmental stages and needs of school-aged children, child supervision responsibilities, and transportation of passengers with special needs;
6. Pass a driving performance test and demonstrate safe loading and unloading procedures; and
7. Pass a test for illicit drugs and alcohol as required by the district; mandatory testing is recommended if it is not already required.

School Bus Passenger Instruction

Passengers of all ages need to be taught safe riding and pedestrian behavior, no matter how infrequently they ride the bus. Instruction should include safe pedestrian practices going to and from the bus stop, safe behavior while waiting at the bus stop, safe practices for boarding and disembarking from the bus, safe behavior on the bus, and procedures for emergency situations.

School Bus Passenger Supervision

Adult supervision on school buses should focus on ensuring that passengers stay seated, use seat belts when available, and keep arms and heads inside windows; assisting in handling emergencies; assisting passengers with special needs; and escorting children across busy roadways. These objectives can best be met by a second adult (other than the driver) serving as a monitor on the school bus.

School Bus Routes and Stops

Bus routes should avoid the need for the bus to back up, should minimize traffic disruptions, should provide good fields of vision at all stops, and should minimize the need for children to board or leave the bus on, or cross, a busy roadway. It is recommended that an adult supervise children who must cross a roadway after leaving a school bus.

The Pediatrician's Role

Pediatricians can play important roles at the community, state, and national levels as child advocates and consultants to schools about transportation safety.

Community Level

1. Inquire about current policies relating to school transportation. Find out mechanisms for proposing needed changes, and serve as a resource to the decision-making body.

2. Inquire about and help develop local training programs for bus drivers. Participate in planning and arranging delivery of local training for bus drivers in areas relating to child development and behavior, child safety seat use and positioning needs, and safety belt use. Provide direction for the development of test materials to evaluate driver competency in these areas.

3. Share and promote the recommendations of this policy statement at local school district meetings.

4. Encourage the development and distribution of educational materials on school bus safety through the local school systems.

5. Serve as consultants to local transportation directors, state directors of school transportation, or school boards on the physical and emotional development of preschool children and assist in developing training materials for transportation providers.

State Level

1. Contact state directors of school transportation and request a copy of current state specifications for school buses. Compare this information with recommendations by National School Bus Safety Standards⁸ and urge revisions of state specifications, if necessary, through appropriate decision-making channels at the state level.

2. Volunteer to serve on a writing committee for state specifications. Share information from AAP policy statements and recommendations by National School Bus Safety Standards.

3. Contact state departments of education and recommend the development of information on school bus safety for statewide distribution to elementary schools.

4. Serve as a resource and consultant to the state department of education regarding training of bus drivers in areas relating to child passenger safety and child development and behavior.

National Level

The AAP recommends that research be directed toward understanding how child restraint systems perform under dynamic conditions when secured on the school bus seat. This research would assist the NHTSA in assessing requirements for the dimensions of school bus seats (depth, height, and recline angles) to provide for the proper and secure restraint of preschool-aged children.

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Child Passenger Safety Glossary of Terms

Active Protection: Protection features that require action by the occupant. These features include lap belts, lap and shoulder belts, and child restraint systems.

Anchor: A common short alternative for anchorage; often used to refer specifically to the hardware installed at the anchorage, either factory-installed or in a retrofit shoulder-belt or tether kit.

Add-on school bus specific seat: A CSRS complying with FMVSS 213 and is designed to be used exclusively on a school bus. It incorporates a seat base, back and a five point harness system. It is secured to the school bus seat with a webbing system.

Allowable alternate vehicle: A vehicle designed for carrying eleven or more people, including the driver, that meets all the Federal Motor Vehicle Safety Standards applicable to school buses except 49 CFR 571.108 and 571.131. (See also *Multifunction School Activity Bus*.)

Anchorage: See anchor.

Belt cutter: See Safety belt cutter

Belt-positioning booster seat (BPB): A crash-tested device that raises the child so that the required lap and shoulder belts fit correctly. All BPBs act as pre-crash positioning devices and must be used with lap and shoulder belts. BPB models may have high backs, or be backless.

Belt sensitive: Refers to a type of emergency locking retractor, which locks when the belt is pulled quickly.

Belt path: The path that the manufacturer is required to create so that the safety belt passes around or through the CSRS. Some seats have multiple belt paths. For example, convertible car seats have one belt path for rear-facing use and a separate one for forward-facing use.

Best practice: The gold standard of protection. It is the most acceptable way to transport a child safely on the basis of the child's age, weight, height, and body development.

Booster seat: See belt-positioning booster seat.

Buckle: The locking mechanism of the vehicle belt or child safety seat. The latchplate fits (clicks) into the buckle, which must have a red button.

Caregiver: A person responsible for a child's well-being and safety.

CPS: Child passenger safety.

Cam wrap: A seat-mounted system for attaching a safety vest to a school bus seat. (See Portable seat mount)

Car seat: See Child Restraint

Child restraint (CR), child restraint system (CRS), child restraint device (CRD) child safety restraint system (CSRS): A crash-tested device or system that is specially designed to provide infant/child crash protection. General term for systems including child safety seats, boosters, vests or car beds that meet FMVSS 213.

Children with special transportation needs: Children whose physical or behavioral conditions make the use of particular, often specially designed, restraint systems necessary for their safety.

Combination seat: A type of forward-facing child restraint that is used with an internal harness system to secure a child. With removal of the internal harness, it is used as a belt-positioning booster (BPB).

Compartmentalization: The occupant protection built into the school bus as specified in FMVSS 222. A protective envelope is created that consists of:

- Closely-spaced seats (maximum of 24 inches from the passenger hip to the seat back in front of the occupant)
- High-backed seats (top of the seats is about 24 inches from the lower cushion) that are flexible and padded on both sides to absorb energy.

CR: See Child Restraint

Convertible seat: A child restraint that “converts” from rear-facing for infants and smaller children to forward-facing for older and larger children.

Crash Dummies: Full-scale replicas of human beings, weighted and articulated to simulate the behavior of a human body in a vehicle mishap, and instrumented to record as much data as possible on numerous variables during a collision.

Detachable Base: A separate base for a child restraint system that can be installed in the vehicle. The restraint (car seat) portion can be removed from the base, and used as an infant carrier.

Emergency locking retractor (ELR): A retractor on a safety belt system that locks in response to rapid deceleration of the vehicle. ELRs respond to rapid extraction of the belt or the sudden deceleration of the vehicle or both.

Excursion: The distance traveled by an occupant or test dummy in the direction of impact during a crash.

Evacuation device: Specially designed device with handles to effectively drag a person or CSRS to an exit and away from the bus.

Fire blanket: Chemically treated blanket used to cut off the oxygen supply to a fire and could also be used to keep a child warm in the case of injury or shock.

FMVSS: Federal Motor Vehicle Safety Standards are regulations to which manufacturers of motor vehicles and items of motor vehicle equipment must conform and certify compliance.

Forward-facing CSRS: A restraint that is intended for use only in the forward-facing position for a child at least age one and at least 20 pounds up to the specified limits of the seat, set by the manufacturer.

Harness: A system of straps that keep the child within the shell, distributes crash forces, and helps the child “ride down” the crash.

Harness retainer clip: A plastic tie or clasp that holds the shoulder straps together over the child’s chest at armpit level; a pre-crash positioning device intended to keep harness straps in position on the shoulders. It can also be referred to as a “chest clip.”

Harness adjuster: Used to tighten or loosen the internal harness of a child restraint system.

Harness slots: The part of the CSRS where the harnesses pass through from the front to the back of the restraint. Seats come with at least one and as many as four sets of slots.

High Back Booster Seats: see Belt Positioning Booster.

IEP: Individualized Education Program, for children 3-21 years. The IEP is the blueprint for the education and related services that the local education agency (LEA) provides for a child with a disability, together with the goals, academic assessment procedures, and placement of the child.

IFSP: Individualized Family Services Plan. For children 0-3 years and their family an IFSP is developed in coordination with his/her teacher, day care center, school, or school district to provide for a particular child’s special needs. Because infants and toddlers are served in a variety of locations (including the home), Part C of IDEIA services (see appendix) are to be provided in “natural environments in which children without disabilities participate” to the maximum extent appropriate.

Infant-only seat: A child restraint system designed for use only by a baby in a semi-reclined rear-facing position.

Integrated child seat: A child-sized forward-facing restraint with a full harness built into a school bus seat.

Labels: These are located on the seat, and indicate the following: 1) NHTSA certification of conformation to all applicable FMVSS 2) Weight and height guidelines for the specific seat 3) Basic outline of the installation procedures 4) Manufacturing date, including data of

manufacture, the manufacturer's name and address, and a model number 5) Air bag warning and 6) FAA certification for use in an aircraft.

LATCH: Lower Anchors and Tethers for Children.

Latch plate: The part of the buckle mechanism that locks or connects into the buckle.

Level Indicator: Helps to identify the manufacturer's recommended correct angle for rear-facing restraints.

Lock-off: A built-in belt-locking feature on the child restraint system that works with certain types of safety belts in a similar fashion as locking clips.

Locking clip: A flat H-shaped metal item intended to clip lap and shoulder belt webbing together at a free-sliding latch plate in order to prevent the webbing from sliding through. A locking clip is a pre-crash positioning device only. It is not to be used as a belt shortening clip.

Lower anchorage attachments: A piece of belt webbing that anchors to the lower anchorage on the vehicle structure. It secures the CSRS to the vehicle. These attachments are used in place of the vehicle safety belt.

Multifunction School Activity Bus (MFSAB): "A school bus whose purposes do not include transporting students to and from home or school bus stops," as defined in 49 CFR 571.3. This subcategory of school bus meets all FMVSS for school buses except the traffic control requirements (alternately flashing signal and stop arm).

NHTSA: National Highway Traffic Safety Administration is the agency within the U.S. Department of Transportation focused on occupant safety. NHTSA is responsible for setting and enforcing FMVSS.

Non-regulated (aftermarket) products: As the name implies there are no federal standards for these products. Some examples are infant head positioning pads, shoulder belt positioning pads and shoulder belt positioning devices. Manufacturer-tested and approved accessories for their own CSRS are acceptable.

Ossification: The natural process of bone formation.

Passive occupant protection: Features of the vehicle that lessen the injury to the occupant without any action taken by the occupant.

Portable seat mount: A long wide strip of webbing that wraps around the school bus seat back. Used with safety vests.

Rear-facing: Refers to the direction the child restraint is facing. The rear-facing CSRS supports the entire head, neck, and back; cradles and moves with the child to reduce stress to the neck and spinal cord in a crash.

Rebound: Reactive motion in the opposite direction after initial impact has occurred.

Recalls: Voluntary or required actions taken to correct problems or deficiencies once products have been distributed or sold. Manufacturers must offer free repairs or replacement for products recalled for violations of safety standards.

Recline Adjustor: Allows convertible restraints to be reclined for rear-facing and semi-reclined or upright for forward-facing use.

Registration card: A postage-paid return card that comes with every child restraint; should be returned to the manufacturer so owners can be notified of any recalls.

Retractor: A mechanism that rolls up the webbing of the safety belt when it is not in use and takes up slack around the user.

Retrofitted: Installing, fitting, or adapting a device or system for use with something older. For example: To furnish a school bus with parts or equipment that was not included at the time the school bus was manufactured.

Ride Down: Ride down is the extension of time when the forces are felt by the occupant during a crash. A quick change in speed is what causes injury.

Safety belt: The webbing, anchor, and buckle system that restrains the occupant in the vehicle. A safety belt is also known as a seat belt.

Safety belt cutter: A device used to cut webbing.

Safety vest: A combination pelvic and upper torso child restraint system that consists primarily of flexible material, such as straps, webbing or similar material, and that does not include a rigid seating structure for the child. A cam wrap must be used for installation on a school bus seat.

School bus: A bus owned, leased, contracted to or operated by a school or school district and regularly used to transport students to and from school or school-related activities, but not including a charter bus or transit bus. A school bus must meet all applicable FMVSSs and is readily identified by alternately flashing lamps, National School Bus Yellow paint, and the legend "School Bus," except as may be provided for the multifunction school activity bus.

Seat Belt Syndrome: Separation of the lumbar vertebrae and associated paralysis, due to the effects of a crash where only a lap belt was used.

Seat bight: The intersection between the bottom vehicle seat cushion and the back cushion.

Seat padding: The cushioning attached to a child restraint, on which the child sits.

Shell/frame: The molded plastic structure of the CSRS. In some models, the shell is attached to or reinforced by a metal frame.

Shield booster: A type of booster, as defined by FMVSS 213, that has a seating platform and a structure in front of the child for restraint, but which is subject to crash testing using only a lap belt and to the head excursion limit of only 813 mm.

Snug safety belt or lower anchors: Tight enough that the child restraint cannot move more than 1 inch in any direction from the belt path.

Snug harness: Harness straps do not allow any slack; It lies in a relatively straight line without sagging yet does not press into the child's shoulders making an indentation. You should not be able to pinch the webbing vertically.

Splitter plate: Metal plate that connects the two ends of the shoulder harnesses to a single piece of webbing used for adjustment.

Submarining: When the hips and legs slide forward out of the harness and the upper body remains restrained.

Technician: A person who successfully completes the National Highway Traffic Safety Administration's (NHTSA) standardized child passenger safety certification program.

Tether: See Tether Strap

Tether anchor: The kit or installed hardware bracket used to secure the tether hook and strap at the designated anchor point in the vehicle. The tether strap and hook attach directly to the anchor bracket.

Tether strap: A piece of belt webbing that anchors the top of the CSRS to the vehicle structure. It keeps the restraint from tipping forward on impact and can provide an extra margin of protection. Can be optional or factory installed.

Webbing: The fabric of the safety belt that holds the occupant or a CSRS in place.