Tethers are Here

Understanding the Standard

The new universal attachment system for vehicles (FMVSS 225) includes a tether anchorage for the top of the forward-facing restraints and, in the future, rigid bars to anchor the base of child restraints. It was based on a Canadian model and Canada has adopted the same standard.

Forward-facing seats made after 9/1/99 will come with a tether, thanks to the upgrading of FMVSS 213. This requires a tighter head excursion limit than previously. CR manufacturers are most likely to meet that requirement by adding a tether. Tethers for rear-facing CRs are NOT part of the standard.

Some manufacturers may supply some CRs with tether straps in the box, rather than attached. For some time to come, there will be older products on some store shelves that will not include tethers. However, most of those CRs can be upgraded with a tether kit ordered from the manufacturer.

Vehicle manufacturers are now required by FMVSS 225 to install tether hardware in at least 80 percent of their production of passenger vehicles starting in September 1999. In September 2000, all passenger cars, light trucks, vans, and sport-utility vehicles, must have anchors. Convertibles and school buses are excluded from the requirement.

There must be at least three anchors in rear designated seating positions of vehicles unless they only have two passenger positions in the back seat, in which case both must have anchors. For the model year 2001 SUVs, only two anchors will be required for vehicles seating 5 or fewer passengers. In vehicles with no back seat, each front seat passenger seat must have a tether anchor. A built-in child restraint can take the place of a tether anchor.

Tether anchors must be accessible without any tools other than a screwdriver or a coin. If an anchor is beneath a cover, the cover is likely to have a logo on it (right) as required in Canada. Anchors may not look like the typical anchor plate available with add-on tethers or current anchor kits from vehicle manufacturers. Some will look like cargo tie-down brackets. Others will be a loop sewn into the end of a webbing strap.

Look on the NHTSA website for more about the new standard and tethers: *www.nhtsa.dot.gov*. Click on the icon of the child restraint, and then "new."

Questions about tethering

Q. **If a seat has a tether, must it always be used?**

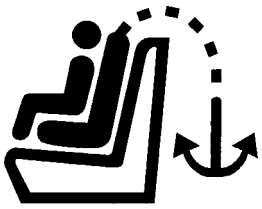
A. In one sense, this is an easy answer: follow manufacturer's instructions. However, manufacturers differ on this: Fisher-Price instructions say always (perhaps to emphasize the benefit and motivate parents to use it) while Britax says that its seats can be anchored very well with a lap/shoulder belt and no tether. Remember that:

1) All CRs meeting the upgraded US standard 213 also must meet the earlier test (before 9/1/99) of a maximum of 32 inches of head excursion with no tether. Therefore, they will continue to provide a "reasonable level" of protection used without the tether, although tethering improves performance.

2) It is very difficult to install a tether in some vehicles; a temporary installation cannot be done on the spot for use in a vehicle not normally used for the child's transportation (a taxi, friend's car, neighbor's car in an emergency situation) unless the vehicle is a van and the restraint can be placed in the second row and tethered to a third-row safety belt.

3) Local vehicle dealers may not understand tethers, so the consumer may have had difficulty finding the correct parts.

Editor: A question for everyone: When is lack of tethering considered misuse? More on this in the Fall issue.

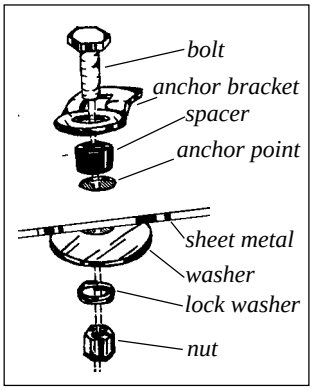


Logo embossed on a tether anchor cover

Q. **Why is it important to use the vehicle manufacturer's tether anchor parts if my child's restraint comes with generic tether anchor hardware?**

A. The vehicle manufacturer's kit or the parts will fit correctly in the anchor point (site) specified for its use. There are several significant reasons:

- The correct diameter and length of tether bolt is very important. Forcing in the wrong diameter bolt will ruin a pre-installed "welded" nut; it may be impossible to replace it.
- The amount of space between the sheet metal of the vehicle and the trim inside the car must be filled with metal "spacers" for a secure connection between the sheet metal and the anchor bracket itself.



Typical tether anchor parts as installed
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- Instructions for finding the correct anchor point and installing the hardware may be found only in the anchor kit.
- The ease of installation of some kits means that the family will not have to locate someone willing to handle it or take the time and effort to get it done, as would very likely be necessary using generic hardware.
- In pickups, the tether hardware and method are often significantly different than the generic version due to lack of space behind the passenger seat in which to attach the tether.
- In some vehicles, it is necessary to have a mechanic do the installation. Dealerships generally will only install their own parts for liability reasons, unless the manufacturer has specified that generic parts are to be used.

Working with local dealers is the best way to make sure they will be able to supply the necessary parts and service for their customers!

Child Passenger Safety TECH REPORT

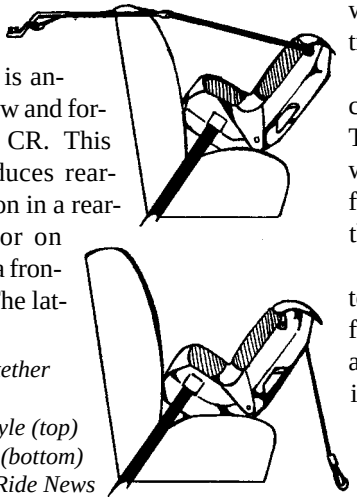
Q. **What is the benefit of tethering a rear-facing child restraint?**

A. The short answer is that a tether on a rear-facing seat can provide a more secure installation and mean less movement of the CR in a crash.

The tethering of a rear-facing seat is not covered by the federal standard. Because the most beneficial effect of a tether is for a **forward-facing CR**, that is the focus of standard 213. The goal is to reduce forward head motion in a severe crash, reducing the likelihood of the child's exposed head being injured by impact with the back of the seat ahead or another part of the vehicle. As children get taller, their center of gravity gets higher and puts more stress on the upper part of the seat frame to restrain them in a frontal crash. The tether provides a direct method to restrain the top of the CR and spreads the force over three anchors.

A rear-facing baby is restrained primarily by the shell of the CR. Because of lower weight and shorter height, there is less motion of the CR in a crash. Rear-facing seats used without tethers provide good protection. Tethering a rear-facing restraint does provide additional stability and reduces certain types of motion in a crash. **It is not advisable, however, to tether a CR in the rear-facing position unless that use is specified in its directions.**

The Australian-style tether is anchored to the same anchor as the forward-facing CR. This reduces the forward rotation of the rear-facing restraint in a frontal crash. The Swedish-style tether is anchored below and forward of the CR. This method reduces rearward rotation in a rear-end crash or on rebound in a frontal crash. The latter method also helps create a very secure installation in the vehicle during normal travel. Many years of experience in both countries indicate that their methods work well.



Rear-facing tether methods: Australian style (top) and Swedish (bottom)
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The Britax company, with experience in both Sweden and Australia, has chosen to offer both options on three products: the Britax Roundabout, Handle With Care and Elite (discontinued). Handle With Care is a new infant-only CR, the only infant seat with a tether. No other US products should be tethered rearward facing at this time.

In the experience of the US and Canada, where neither method has been used widely, rear-facing infants fare very well without tethers. Forward rotation is seldom an issue in a rear-facing restraint. This is because CRs installed in the back seat very often contact the back of the front seat, reducing any forward/downward movement. Rebound toward the seat back following a severe frontal crash, which would be more pronounced with heavier, taller babies, has not been found to cause injury and does not seem to be necessary for crash protection.

Q. **How do I find a place to anchor the Swedish-style rear-facing tether?**

A. US vehicle manufacturers do not specify locations for anchoring a rear-facing tether. Their focus has been on the forward-facing tethers required in the Canadian standard and now in the US. Dealers are even less likely to be familiar with this type of tether than forward-facing ones. Tether kits are intended for use with forward-facing CRs (and work for the Australian method of rear-facing installation).

In a few vehicles, there is a tether anchor point designated on the base of a seat. This point, while intended to anchor a forward-facing CR on that seat, can be used for a rear-facing CR placed on a seat to the rear (such as the third seat of a van).

The rear-facing tether does not need to absorb the severe forces that a forward-facing tether must withstand. To find an appropriate spot for the rear tether, Britax instructs users to find for a"suitably strong," non-movable part of the seat base. Britax offers a connector strap to loop around a part of the seat structure so the tether hook can be attached. Not all seats have structural parts that can be used easily. Contact Britax if you have further questions at 888/427-4829.

Q. **Can special needs seats be tethered to built-in vehicle anchors?**

A. The weight of the child and the restraint are the issue here. The required vehicle anchors (and anchor kits provided for current and pre-2000 vehicles) have been designed with the more common child restraint in mind. Most anchors are intended to hold up to about 60 pounds including the weight of the child and the restraint.

Many children using specialty restraints, such as the E-Z-On Vest, Columbia, Snug Seat, and Gorilla models, are heavier than 40 pounds and the restraints are also very heavy. Together, they might exceed the strength of the standard tether hooks and anchors. Therefore, manufacturers of most of these seats provide special hardware with a larger diameter bolt that does not fit into most pre-drilled holes and cannot be screwed into a smaller welded nut. While conventional tether anchor points use 8 mm or 5/16 inch bolts, many seats for heavier children use 7/16 inch bolts. This means that the tether hole would have to be enlarged to install the bolt. In addition, the large, flat washer that fits under the hole might have to be rectangular to fit into the space available. In the case of a predrilled hole with a welded nut, the designated anchor point location probably would not be usable at all, especially if the back side of the hole, where the larger washer and nut must be placed, were inaccessible.

Parents of children over 50 pounds who use larger, tethered seats may need assistance to get their tether anchors installed. The manufacturers and vendors of these specialty products may be able to provide help with installation. Finding a mechanic who is knowledgeable regarding tethers and is willing to modify the vehicle can be difficult. The manual, *Tethering Child Restraints*, includes a section intended to help a mechanic select a suitable location for an anchor point if none is provided or usable. This should only be done as a last resort.

Child Passenger Safety TECH REPORT

Other Tether Notes:

E-Z-On Vest, Harness with Tether Hook

E-Z-On Products will provide its vest in small sizes with a tether hook that fits the regular vehicle anchor. This will enable use of the vest by a child under 60 pounds who otherwise would have to use a lap belt. The 86-Y Harness may also be available with a hook for children's use. Request the tether hook version when ordering. **Contact:** E-Z-On Products, 800-323-6598.

Did You Know?

Toyota supplies a kit in the US that does not include the anchor bracket. The use of the bracket from the CR manufacturer is specified by the company.

Britax does not include an anchor bracket with its tethered seats. To obtain one, order it from the company.

GM Service Bulletin Informs Dealers of Tether Anchor Parts Identification Numbers

General Motors issued a service bulletin for dealerships in August 1997 that describes how to find part numbers for anchor kits. If your dealership is perplexed, suggest that they refer to GM Service Bulletin #73-16-11.

Update on *Tethering Child Restraints* Manual

The Geo Metro was listed by General Motors as having no tether anchor kit available. However, it has recently been determined by the company that those made in 1990 and later do indeed have anchor points with welded nuts. The part number is 96061907.

The Volkswagen Fox (89-93) is incorrectly listed under Audi. It is a Volkeswagen product

Teaching About Tethers: Overheads and PowerPoint File Available from SRN

In order to simplify the task of advocates and technical specialists to teach others in their communities about tethers, Safe Ride News Publications has created a series of 25 overheads and a PowerPoint presentation.

Used in conjunction with the manual, *Tethering Child Restraints*, trainers can make the most of limited time for teaching technical materials. Ideally, a training session on tethers also should include hands-on sessions on 1) installing tethers on existing child restraints and 2) installing tether anchor kits in existing vehicles.

The newest format to be offered is CD-ROM for IBM or Macintosh.

For a faxed order form for the overhead transparencies ($24.95) or presentation ($60, PowerPoint 7.0 on zip disk or CD-ROM), contact SRN at 206/364-5696 or e-mail your fax number to *saferide@twbc.com*.

Recalls:

Cosco: Arriva / Turnabout Handle Problem

A joint recall of the US Consumer Product Safety Commission and NHTSA is due to concerns of handles releasing and dumping babies out during use outside the vehicle. Almost 700,000 seats made between March 1, 1995, and September 10, 1997, are involved. A redesigned handle was used after that date.

The handle should not be used to carry a baby in the seat until the repair has been made. It can continue to be used as a child restraint.

Model numbers for the Arriva all begin with 02-. Digits following are: 665, 729, 731, 732, 733, 751, 756, 757.

Numbers for the Turnabout also begin with 02-. Digits following are: 758, 759, 760, 761, 762, 763, 764, 765, 667.

To order the free repair kit, contact Cosco: 800-221-6736 (8-4:30 Eastern Time, M-F) or write Cosco: 2525 State St., Columbus, IN 47201. Information on the Cosco web site: www.coscoinc.com, or the NHTSA Hotline: 888-DASH-2-DOT.

Canadian Recall: Cosco/Dorel Arrivas, Turnabouts

The same Cosco recall (left) also has been issued by the Canadian Automobile Association and Transport Canada. Almost 50,000 seats are involved. Manufacture dates are the same, but model numbers are different there. For the Arriva, numbers (beginning with 02-) are H29, H33, H34, H50, H51. For the Turnabout, numbers (beginning with 02-) are H58, H59, H60. **Contact:** Cosco/Dorel at 1-800-387-2229.

Mercedes-Benz USA: Baby Smart Infant and Booster Seats

A recall of about 6000 "BabySmart" seats that have a sensor to switch off the air bag was announced August 3rd. The BabySmart Toddler seat is not included. All known owners of these seats are being notified.

The problem is potentially very serious. When the vehicle seatback is pushed past vertical toward the dashboard, the infant or booster seat is pushed forward and the air bag sensor may not be activated to turn off the air bag. The "air bag off" indicator light would then not be lit; however, a parent may not notice this. Children should not be transported in the front seat in this type of restraint until the seat is replaced.

Contact: Mercedes-Benz USA at 800-367-6372, *cacinternet@mbusa.com*.

Upcoming Conferences

California Childhood Injury Control Conference, Oct. 25-27, 1999, San Diego, CA. **Contact:** CA Center for Childhood Injury Prevention, 619/594-3691.

Transporting Students with Disabilities and the Preschool Population, March 3-8, Orlando, FL. Contact Serif Press at 800-221-4272 or *conference@serifpress.com*.

Lifesavers 18, March 12-14, 2000, Atlanta. National highway safety conference. **Contact:** 703/922-7780.

NOTE: Lifesavers 19 will be in Denver, June 9-12, 2001 and in Orlando in 2002.

Third National Child Passenger Safety Technical Conference, June 11-14, 2000, Arlington, TX (near Dallas). **Contact:** The Center for Injury Prevention, 1-800-344-7580 to be put on the mailing list if you did not get information or attend in 1999.

Revisions of Standardized CPS Curriculum Underway

by Nancy Lang, Chair, Curriculum Committee of the National CPS Board

The process of revising the current NHTSA Standardized CPS Technical Training Program curriculum is in high gear with a projected completion date of mid-fall, 1999. Course structure and content modifications have been generated from two core concepts recommended during the first year of teaching the standardized CPS course.

These concepts are:

1) The NHTSA Standardized CPS Training Course is intended and structured in order to impart the basics of child restraint and vehicle installation information. Participants in the standardized course should be able to meet the minimum requirements for application for Certified CPS Technician status at the end of the training.

2) The revised written test and hands-on evaluation processes should encourage participants to demonstrate a more complete reflection of the knowledge and decision-making skills that they have acquired during the workshop training.

The current skills testing tool requires technician candidates to install eleven preselected restraint devices and recognize an air bag and tether anchorage points. Depending upon attendance, weather, and population variables during the final day checkup event, many candidates are completing their field testing experiences by repeating the same thirteen skills that they successfully completed with the same instructors only one day (or a few hours) prior to the checkup event. Not only does the current method of Field Log testing require redundant demonstrations of a limited number of skills, but it also encourages candidates to focus on their own needs for skills testing completion rather than becoming full participants in the checkup experience.

A skills evaluation tool has been developed to allow for a standard and objective evaluation process of the participants' knowledge and decision-making skills. The revised course *Skills Evaluation* involves interactive testing in four of the major skill areas that have been taught and practiced during the initial three days of training:

- Vehicle occupant protection system identification
- Correct selection of child restraints
- Correct securement of children in restraints
- Correct installation of restraints in vehicles

Adaptations have been made to the curriculum in order to spend less time in classroom lecture and more time participating in hands-on exercises and interactive skills evaluation. Sample agendas have been created that allow for the more comprehensive skills testing to be completed prior to the final day checkup event. This more rigorous and interactive skills testing having been satisfactorily completed, technician candidates will then be able to focus on the full checkup event experience that is required during the last afternoon of the program (e.g. rotating through checkup team roles such as scribes, checkers, interacting with parents, becoming familiar with the details of setting up, stocking, and running a checkup).

In order to reduce the redundancy of technical information and to allow for more flexibility in instructor presentation styles, the revised curriculum is organized into ten freestanding teaching modules. Four of those modules (Basics of Injury Prevention, Federal Role and Safety Standards for Occupant Protection, Safety in Other Vehicles, and Other Occupant Protection Programs) are designated as participant self-study modules requiring minimal class lecture and review time.

Two new modules have been included in the Instructor's Guide. The "Planning and Logistics" module includes a course overview with suggestions for workshop planning and timetables, an outline for the pre-course instructor's meeting, contacts and resources, and a list of required workshop equipment and materials. "Setting Up a CSS Checkup Event" has been developed as a teaching module in order to provide participants with recommended tips and techniques for conducting community CSS inspections.

Other major areas of revisions to the Instructor's Guide include:

- An expanded section on communicating with parents
- Larger print in each module's Lesson Plan outline and Instructor Notes
- "Instructor friendly" column format of Audio/Visual Cues, Lesson Plan, and Instructor Notes
- Overhead slides for each module incorporating major points of the Lesson plan, updated photographs and diagrams; also available in color and PowerPoint presentation format
- New written test content and format
- New skills evaluation content /format
- Updated technical information

The revised curriculum will be pilot tested in October and should be published for use by instructors by Winter.

Cosco Convertibles Now Up to 35 lb. Rear-facing

All Cosco convertible seats made on or after September 1, 1999, have an upper weight limit of 35 pounds in the rear-facing position. This is **not** retroactive. Check the date and instructions to be sure of the weight limit when purchasing a seat.

Warning Labels Proposed for Shoulder Belt Adjusters

NHTSA has proposed that all aftermarket seat-belt positioning devices carry a warning label. It would state that the devices could cause greater injury to children under age 6 than would occur with a safety belt.

The main concern is that children below age 6 should use child restraints or boosters. Furthermore, most adjusters could pull the lap belt up onto the abdomen. One product that does not pull up the lap belt adds slack to the webbing in the shoulder belt. In a crash it releases the shoulder belt, causing additional head excursion. Tests in 1994 showed that safety belts were more effective without the four tested devices than with them, particularly with the three-year dummy.