

Consumer Reports Child Passenger Safety Testing:

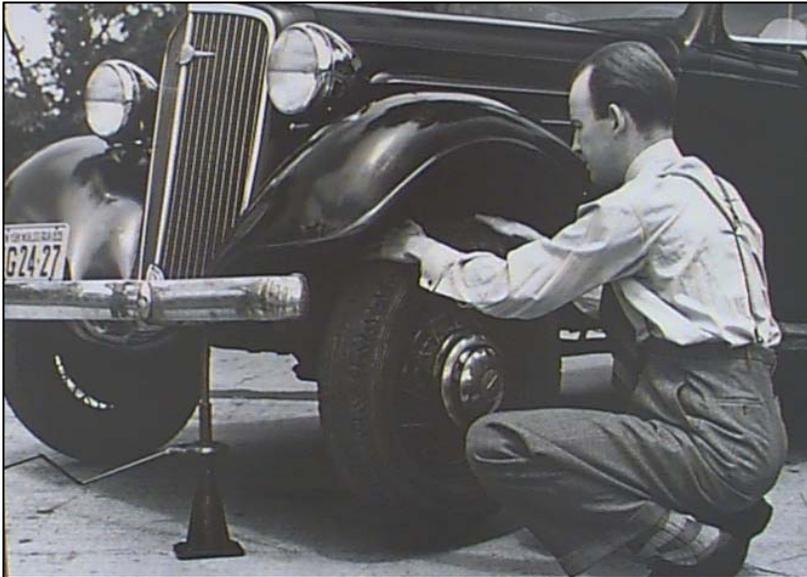
Bringing Two Worlds Together



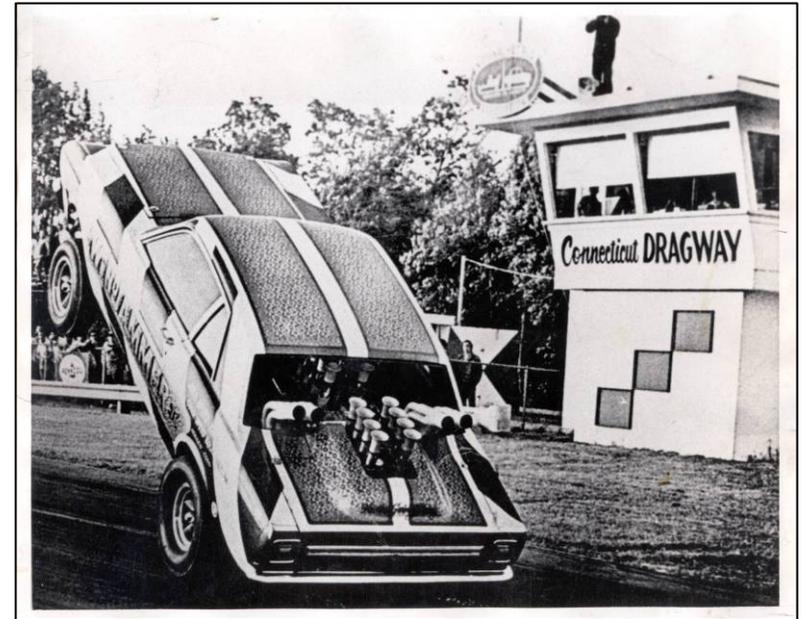


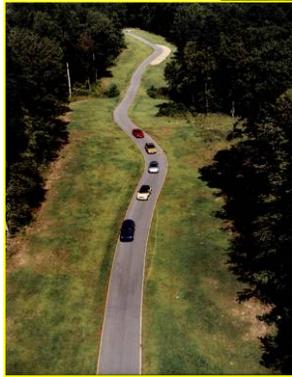
World #1 – CARS!





Automotive Testing since 1936!





Vehicle Safety Evaluation

- Belt Comfort (small, medium, tall testers)
- Front and Rear restraint systems
- Head restraints
- **Child Safety**



Child Safety

- How friendly is a car to accepting child restraints and child passengers?

- A “handful” of child seats installed in each passenger position of each vehicle.

- Child safety related features and accommodations.

- Summarized in monthly “driving with kids” section.



Common Vehicle / Child Seat Issues:

-Rear Facing seat tilt – 3-point belts.

- Belts Anchored forward of seatbacks – rear facing seats.

-Top tether accessibility.

-Lack of top tether anchors – 3rd rows.

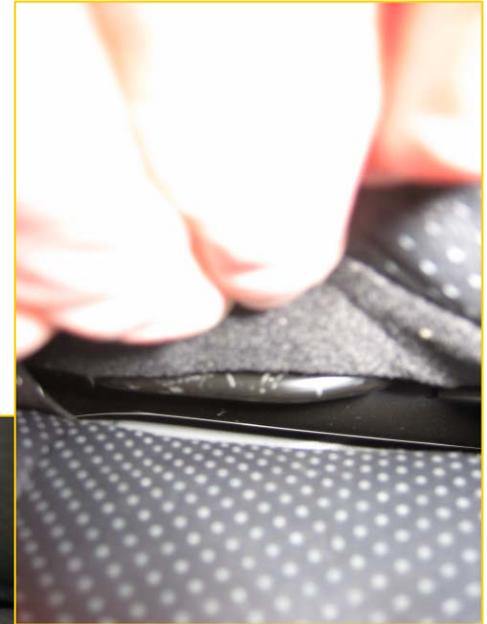
- Difficult to access lower LATCH anchors.

- LATCH limitations for other seating positions.



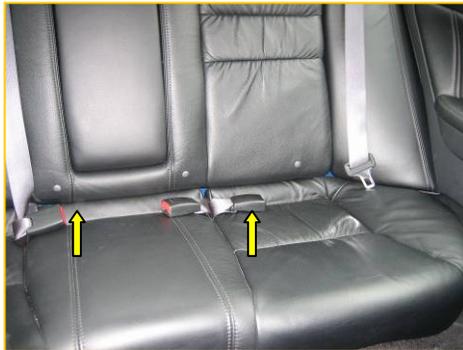
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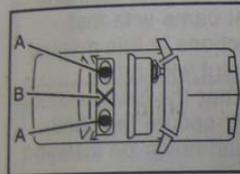


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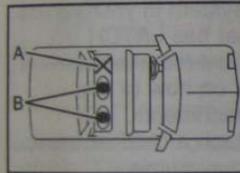
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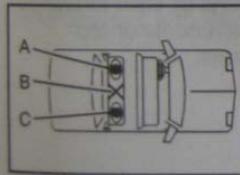
Configurations for Use of Two Child Restraints



- A. Child restraint using LATCH
- B. Occupant prohibited

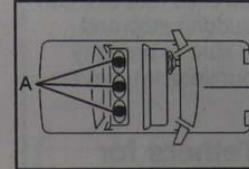


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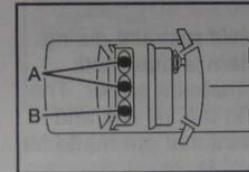


- A. Child restraint using LATCH
- B. No occupant recommended
- C. Child restraint or occupant using safety belt

Configurations for Use of Three Child Restraints



- A. Child restraint or occupant using safety belt

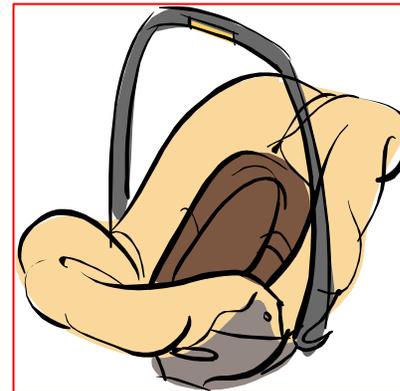


- A. Child restraint or occupant using safety belt
- B. Child restraint using LATCH



World #2 – Child Seats

- **May 2007 – Two worlds come together.**
- **Child Seat testing moves to Auto Test**
- **Brings child passenger safety “under one roof”.**



Three Tier Approach:

-Crash Performance / Sled Test Performance



- Ease-of-Use



Fit-to-Vehicle

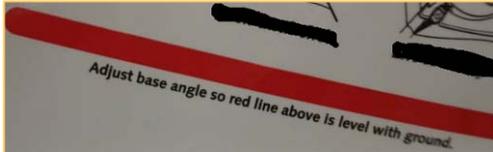


Sled Testing

- Ensures compliance to minimum standards.
- Allows differentiation among seats for injury criteria and excursion:
 - Head Injury Criteria (HIC)
 - Chest Injury (Chest acceleration / g)
 - Back Angle (rear facing)
 - Head Excursion (forward facing)
 - Knee Excursion (forward facing)



Ease-of-Use Factors:



- Assembly / Instructions / labels.
- Lock-offs and belt paths
- LATCH connections and adjustments.
- Transition rear to forward facing.
- Adjusting and viewing recline angle
- Harness height adjustment and chest clips.
- Harness tension adjustment
- Carrier connection and removal.
- Handle Adjustments.
- Buckles and clips.



FIT-TO-VEHICLE

- Fit-to-vehicle includes ease-of-use factors that apply to installation of seat in the vehicle.
- Installation assessments for both vehicle belt and LATCH.
- Conducted in 5 real vehicles of various types.



How We Differ?



-NHTSA (National Highway Traffic Safety Administration) provides Ease-of-Use Ratings for all child seats.

-Heavy focus on instructions and labeling of seats and ease-of-use features.

What the ratings don't cover:

-No sled/crash testing.

-No assessment of how the seats actually fit in a vehicle or if the features actually work or work well.



How We Differ?



- **IIHS (Insurance Institute for Highway Safety) recently assessed Booster seats for Fit-to-Child.**
- **Seats shown from “best bets” to “not recommended” based on their ability to correctly position the shoulder and lap belts on a test dummy.**

What the ratings don't cover:

- **No sled/crash testing.**
- **No fit-to-vehicle assessments**



Belt to Bone!
Clavicle and Hips!



Courtesy: IIHS.org

Convertible Seat Ratings



- First “auto test” independent ratings of child seats.
- “Web only” content.

Expert • Independent • Nonprofit

ConsumerReports.org[®]

-Due to post any day !!

-Ratings – paid content \$\$

-Advice is free !



Convertible Seat Ratings

ConsumerReports.org - Convertible car seats Page 1 of 1

Ratings CONVERTIBLE CAR SEATS

See a summary of test findings and Quick Picks—the choices that merit first consideration including any CR Best Buys.

Click for more information.

Excellent
 Very good
 Good
 Fair
 Poor

Brand and model	Price	Weight	Height	CR Overall	CR Best Buy	Features
Small type * Indicates merit CR Overall Excellent						
key number						
8						
9						
10						
11						
12	The First Year	\$190				
13	Britax Marathon	\$280	61	47	20719358	
14	Orbit Toddler Car		59	19	21	
15	Sunshine Kids Radian80		40	<53	23	
16	Recaro Signo		70	<50	23	

<http://mimas.consumer.org:180/media/content/ProdSelect/38/13122/rolling.html> 4/22/2009



Convertible Seat Ratings – Sneak Preview

ConsumerReports® Quick & Easy Shopping Guide

May 2009

SHOPSMART;

NO HYPE+NO ADS+JUST GREAT BUYS!

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family

About face

The best seats and tips for buckling up

You carefully strap your child into the car safety seat every time you go for a ride. And from his first trip home from the hospital, he sees the world from the rear-window view, facing backward in his safety seat. That's how infants are best protected—and bigger kids too, it turns out. New research shows that children under age 2 are 75 percent less likely to be seriously or fatally injured when they ride facing the rear. Our experts now recommend that children ride in that position until they're at least 23 months old.

PLUS p. 76 Car-seat safety tips • p. 77 How to avoid potentially deadly children's products

family car seats

and longer if they are still within the seat's height and weight limits. (Earlier guidelines said you were safe to switch to a forward-facing seat when a baby reached age 1 and weighed at least 20 pounds, that's still the absolute minimum.)

Some new convertible seats will hold a toddler up to 25 pounds in a rear-facing position. Our engineers, who are also Certified Child Passenger Safety Technicians, tested 15 models. We examined the seats (forward- and rear-facing) to see how well they held up and protected kids in a simulated crash, how easy they were to use, and how easy it was to install the seats securely in different vehicles. That's important because even the best-designed seat won't keep your child safe if it doesn't fit your car or isn't installed properly.

Our top picks are a big price, so we also recommend lower-cost models that rated well in our tests. Seats can be purchased at major retailers such as Babies "R" Us and Target, or online.

Best convertible car seats

Our safety testers' top picks

15 TESTED
4 SMART PICKS

easy rider

Britax Dualmat (with children 5 to 25 pounds rear-facing; 20 to 40 pounds forward-facing)
Price \$260

Why we like it: This seat was easy to install, its recline and harness adjustments, and iATCH sternum bars are similar to the Dometax's. And this larger model, with its 45-pound weight limit, will accommodate your child well into elementary school. If you're willing to spend an extra \$20, you can buy the Click & Go version that makes an easier clicking sound when the harness straps are tight enough.

Another Smart Pick: **Cosco Scenera**, \$60

heavy duty

Britax Boulevard (with children 5 to 25 pounds rear-facing; 20 to 65 pounds forward-facing)
Price \$310 to \$350

Why we like it: This seat was easy to install, its recline and harness adjustments, and iATCH sternum bars are similar to the Dometax's. And this larger model, with its 45-pound weight limit, will accommodate your child well into elementary school. If you're willing to spend an extra \$20, you can buy the Click & Go version that makes an easier clicking sound when the harness straps are tight enough.

Another Smart Pick: **First Years TrueFit**, \$100

NOT SO HOT

Orbit Toddler, \$360

Not only was this the most expensive car seat we tested (with its "Heat" that allows you to move it to the Orbit stroller and other products), it costs \$560 but it was also one of the more difficult to install rear-facing. It doesn't have some of the better features we found in less-pricey seats. One of its extras: It does have, rear-facing lock-offs designed to help secure the belt, were hard to close. When you switch to forward-facing, you can't use the hub-and-spoke install add-on bases.

THE HOOKUP

Installing a safety seat is tricky, and you must be sure to do it right every time. So it pays to have a pro show you how. Find one at www.seatcheck.org or www.nhtsa.dot.gov/cps/testing/index.cfm.

4 IMPORTANT SAFETY TIPS

- Read your car-seat and vehicle owner's manuals.
- This center rail is the safest spot for a car seat, as long as you can get a secure fit.
- When using the seat facing forward, always use the top tether.
- At 40 to 45 pounds, your child might exceed the weight limit of your vehicle's lower-ANCHOR anchors, so you'll need to install the seat with the safety belt.



Convertible Seat Ratings – Sneak Preview



Seats rated in two groups:

40 lbs. harness capacity



Britax Diplomat \$260

Cosco Scenera \$60

> 40 lbs. harness capacity



Britax Boulevard \$310

First Years True Fit \$190

- All seats pass FVMSS 213 criteria.
- Ease-of-use and rear facing installation are greatest rating differentiators.



:(NOT SO HOT

Orbit Toddler, \$360

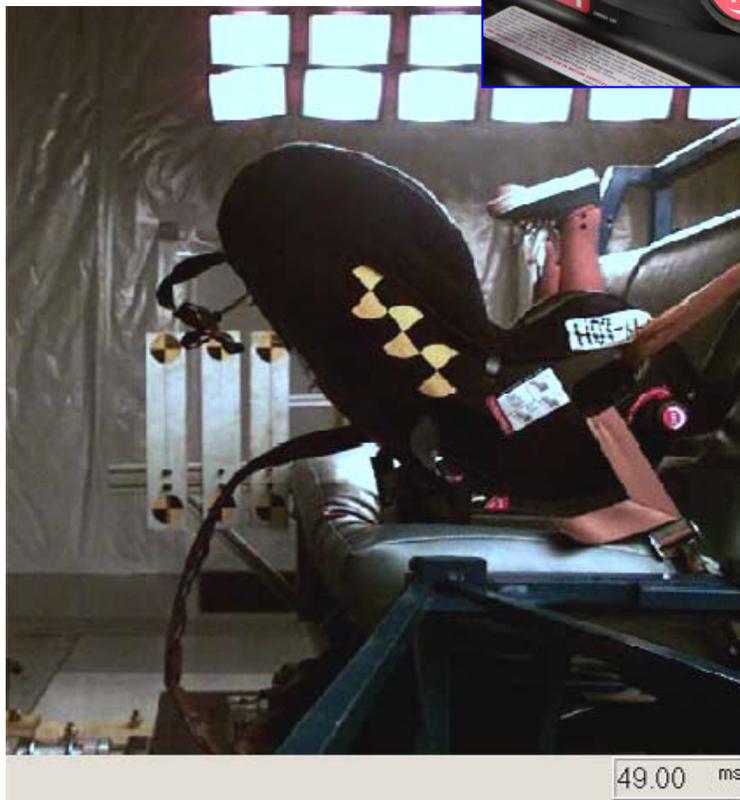
Not only was this the most expensive car seat we tested (with its "hub" that allows you to move it to the Orbit stroller and other products; it costs \$580) but it was also one of the more difficult to install rear-facing. It doesn't have some of the better features we found in less-pricey seats. One of the extras it does have, rear-facing lock-offs designed to help secure the belt, were hard to close. When you switch to forward-facing, you can't use the hub and must install add-on braces.



Orbit Toddler \$360 (\$580 w/ hub system)



Evenflo Triumph Advance – Seat structural integrity



-Structural cracking RF, 3-yr.old dummy and 3-point / lap & shoulder belt.

-Not a failure of FMVSS 213 (3-point).

-Injury and dummy retention maintained.

-Notified manufacturer following testing.

-Evenflo modified 1 of 2 molds that exhibited cracking to eliminate issue.

- Production after 12/4/2008 with modified molds exhibits no cracks.

Recaro Signo – Seat structural integrity



- Structural cracking RF, 3-yr.old dummy and LATCH installation at interface with LATCH bar.
- Not a failure of FMVSS 213 (non-contactable surface).
- Injury and dummy retention maintained.
- Notified manufacturer following testing.



Convertible Seat Ratings – Sneak Preview

Consequences of structural issues



- Seats will not appear on  exactly as they appeared in ShopSmart;).

- Reinforces messaging about re-using seats (or not) following a crash.



Concerns from Testing: RF Recline Angle



Evenflo Triumph Advance

Graco ComfortSport

-Recline angles are 'upright' even with 'level' install.

-Concern for newborns.

-Should there be 'dual' recline positions for convertible seats particularly with rear facing longer?



Rear Facing Longer:



Real Life Use / Concerns

- My child's legs are uncomfortably bent against the seatback.
- I can't reach my child to pass him a drink or snack.
- My child is anxious to turn forward facing now that they are 'big'.



Tricks of the Trade: LATCH belt tension



- Better leverage can be achieved on a LATCH strap if you pull it through the belt path hole rather than upward or away from the seat.



Tricks of the Trade: RF seats in smaller cars.



- Removing the bases from seats like the Alpha-Omega Elite and Safety 1st All-in-One can give you more room and provide a more secure RF installation.

- Opting for models with a 40 lb. forward facing harness capacity may be the better bet over larger seats with 50 lbs. or more forward facing harness capacity.



Tricks of the Trade: rear facing tilt



- Rear facing tilt still prevalent !
- Remedy tilt situation with:
 - LATCH **OR**
 - Locking Clip



NHTSA Testing of Child Restraints in NCAP

Vehicles:

- Seats installed in a variety of 2007-2009 NCAP test vehicles in both frontal and side tests.
- 12 Infant seat models.
- Nearly ½ of seats tested were Graco Snugride.
- Combi Centre detaches from base in frontal crash tests (10 of 10 tests). Results in recall of Combi Centre in February 2008.
- Evenflo Discovery detaches from base in side impact tests. Results in recall in February 2008.



The New York Times

March 2008

chicagotribune.com

March 2009



NHTSA Testing of Child Restraints in NCAP Vehicles:



- Stay Tuned !

- New DOT Secretary Ray LaHood announces “top-to-bottom” review of child safety standards. 3/2/2009

- Obama nominates Charles Hurley for NHTSA Administrator – safety focused by environmental opposition.

- MADD CEO since 2005

- National Safety Council

- Insurance Institute for Highway Safety



Moving Forward

- Test Bench Modification:

- 3 pt. belts
- stiffer foam
- revised contour



- Side impact test development:

- Intrusion and forces
- Develop and follow test protocol development.



- New dummy development /use : Booster Seats

- BLITZ of Child Seat content for 2009!

- Infant / Convertible update / Toddler Boosters.
- Boosters for 2010.





**THANK
YOU!**

