Federal Motor Vehicle Safety Standard (FMVSS) 208 governs safety restraint systems in all passenger vehicles. The history of FMVSS 208 has largely determined the installation of the common restraints we know today, such as shoulder/lap seat belts and frontal airbags. As technology goes further, and manufacturers continue to design safer vehicles, the standards that administer to restraint systems will change to incorporate a safer environment.

The National Highway Traffic Safety Administration (NHTSA) estimates that airbags have helped save over 8,000 lives as of January 2002. Unfortunately, airbags have also been linked to over 200 deaths, most of whom were children. In May 2000, the NHTSA "raised the bar" for airbag requirements in passenger cars and light trucks. The upgraded requirements were created to improve the protection for occupants of all sizes, belted and unbelted, in moderate-to-high speed crashes, and to minimize the risks posed by airbags to infants, children, and other occupants, especially in low speed crashes.

FMVSS 208 addresses the latter of these goals with two testing options for manufacturers. One option is to perform Out-of-Position (OOP) testing. For this, dummies are placed in positions resulting in a worst-case crash scenario for the front passenger compartment. For example, a portion of the passenger side testing is conducted with either a 3-year-old or 6-year-old dummy, positioned with either the chin or the chest placed directly on the airbag module. The airbag is then deployed, and head/neck data is recorded.

An alternative to OOP, is Suppression testing. In order to pass the suppression test guidelines, the passenger side airbags are required to become inactive (not deploy) if the front passenger seat weight sensor measures a value below a certain pre-defined weight criterion. Four types of dummies are used: newborn, 12-month-old, 3-year-old, and 6-year-old. Forward and rearward facing Child Restraint Systems (CRS) are used for 3 of the dummies. The testing aspects are numerous for this option. Each seat must be tested in 3 positions; full forward, middle, and full rearward. Each CRS is tested in all optional positions, including handle up or down, the sunshield full open or full close, and with or without a 1 kg blanket in one of two positions. For each CRS, there are 144 configurations per dummy. Multiplied by the number of CRS, and the different seat restraint systems, tests per vehicles can run well into the thousands.

MGA is currently providing Suppression evaluations at both our Michigan and Wisconsin facilities. Several MGA associates have been certified for child seat installation through the NHTSA. MGA will continue to be at the forefront of developing new test methodologies and equipment as future designs reflect new technology. For further information, contact David Gotwals at our Michigan Facility at (248) 577-5001, or Wisconsin's Chad Gadberry at (262) 763-2705.
KidsRideSafe Formed To Serve the Child Safety Industry

Shefalika Agarwal - Burlington

KidsRideSafe (KRS) is an exclusive group within MGA Research Corporation dedicated to serving the needs of the child safety industry. KRS was born at MGA in January 2003 and was formed in response to demands from the child safety industry to help them respond to consumer needs and regulatory agency requirements. KRS consists of experienced MGA staff and is supported by MGA’s testing and manufacturing facilities.

Its mission is to provide commercial services such as testing and evaluation of products and to further promote child safety. Group members are National Highway Traffic Safety Administration (NHTSA) certified to install child restraint systems and will participate in child restraint fitting and inspection stations. They will also be familiar with tips for minimizing children's transportation-related risks.

Chad Gadberry, KRS group leader, has been working with the child restraint industry in dynamic sled testing for the past five years. "I am excited about what this group can do to serve the child restraint industry," says Chad. He is supported by a group with a variety of experiences in the testing industry and child care.

KRS is currently conducting child restraint system compliance tests for the NHTSA to Federal Motor Vehicle Safety Standard (FMVSS) 213. This involves performing dynamic sled tests and inversion tests using a variety of child restraint and occupant configurations. Occupant injuries, dummy excursion, and structural performance are evaluated. This follows up completion of a dynamic sled test program for the NHTSA New Car Assessment Program in 2001.

KRS will continue to build on its experiences to offer the industry the services it needs. Please visit our website at www.kidsridesafe.com for more information.

NHTSA Plans Child Seat Rating System

David Winkelbauer - Burlington

The National Highway Traffic Safety Administration (NHTSA) announced in October 2002 that it will begin an ease-of-use rating system for child safety seats in 2003. The system will give an overall rating and individual ratings in each of the following categories:

- Whether the seat is pre-assembled or requires assembly after purchase.
- Clarity of labeling attached to the seat.
- Clarity of written instructions on the seat's proper use.
- Ease of installation of the seat in the vehicle.
- Ease of securing a child correctly in the vehicle.

In addition to this rating system, the NHTSA will begin a pilot testing program in simulated crash situations (sled testing) to evaluate child safety seat performance and begin pilot testing in the New Car Assessment Program (NCAP) to evaluate the vehicle’s protection of children. These results will provide more information about child passenger safety.

MGA is currently participating in the NCAP portion of this program. Child safety seats are positioned in the rear outboard seating positions for the frontal tests. In addition, MGA is performing FMVSS 213 compliance tests of child safety seats for the NHTSA this year. These sled tests are similar to the simulated crash program proposed to gather additional child safety information. Check future editions of the MGA News for updates regarding the child seat rating system.
Plastic Sheets, Duct Tape, and Home Safety

Recently, as a result of potential terrorist attacks, government officials recommended that people obtain plastic sheets and duct tape. These items would be used to seal a room in the home where people could go during a chemical or radiation attack. According to media accounts, many people rushed to local stores to purchase plastic sheets and duct tape. In fact, it was reported that manufacturers of duct tape increased production by 40% in an attempt to meet demand.

These activities caused me to wonder just how safe we are in our homes. Most of us likely believe that our home provides our most safe and secure environment. But is it really a safe place? After checking National Safety Council data, I was somewhat astonished to find that during 2001, over 30,000 people died and over 8,000,000 people were injured, as a result of unintentional incidents in their homes.

To put this in perspective, about 40,000 people were killed in motor vehicle accidents and about 5,000 in workplace incidents during 2001. Furthermore, during the last two decades, traffic and workplace deaths have decreased, while unintentional deaths in homes have increased by about 50% (rising from 21,700 in 1981 to 33,200 in 2001). Clearly, in addition to a potential terrorist attack, more attention should be given to dangers which may exist in our homes.

It may be of interest to examine the categories where unintentional deaths occurred in homes during 2001, as shown below:

<table>
<thead>
<tr>
<th>Injury Type</th>
<th>Estimated Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poisoning</td>
<td>11,500</td>
</tr>
<tr>
<td>Falls</td>
<td>9,000</td>
</tr>
<tr>
<td>Fires and Burns</td>
<td>3,500</td>
</tr>
<tr>
<td>Suffocation (Ingested Object)</td>
<td>2,200</td>
</tr>
<tr>
<td>Suffocation (Mechanical)</td>
<td>1,000</td>
</tr>
<tr>
<td>Drowning</td>
<td>900</td>
</tr>
<tr>
<td>Firearms</td>
<td>600</td>
</tr>
<tr>
<td>Natural Heat or Cold</td>
<td>600</td>
</tr>
<tr>
<td>Other*</td>
<td>3,900</td>
</tr>
<tr>
<td>TOTAL</td>
<td>33,200</td>
</tr>
</tbody>
</table>

*includes struck by object, machinery, electric current, etc.

This listing provides a reasonable checklist that might be used to evaluate our home safety. For example: Are medicines, cleaning agents, and other potential poisons kept in secure locations? Do we have and use appropriate stepladders, stair handrails, etc. in the home? Are fire extinguishers readily available and periodically checked to determine their usefulness? Other similar questions could be raised to evaluate and change home safety practices.

It is appropriate to take precautions against a potential terrorist attack. But, it seems to me that we likely already have a greater risk of injury and death in our home than from a possible attack. So, as we prepare to make our homes more secure, perhaps our overall home safety should also be considered. This will be the approach taken in my home.

Second Sled Installation Complete

MGA-Michigan's second accelerator sled system is now operational. Work has been ongoing for the past eight months installing the new sled and preparing for the transfer of the original sled system from the Madison Heights facility. The new system features a twelve-inch diameter thrust column and is fully compatible with all existing sled carriages and metering pins. Construction will continue through the summer to complete installation of the side by side sleds, which will feature a state-of-the-art touch screen control system and a new 64-channel data acquisition system. These upgrades will help make testing and scheduling more efficient and allow for multiple test setups simultaneously. Stay tuned for more updates on the new sled facility during the next few months.
“Peace” of Mind

Joseph Kubiniec - Akron

Whether war is waged here in the states or in the gulf region, the technicians here at MGA’s test laboratory in Akron, New York, can rest at ease knowing they took part in durability testing that helps our military perform to the max.

Our qualified staff implemented numerous tests that were performed on lifting ropes that are designed for military use. Helicopters use these large ropes simultaneously to lift and move HMMWV®, artillery, containers, etc. from nearly any location to another. The purpose of these tests was to verify that the ropes met both static and durability cycle loads. In use, static loads are generated in the ropes due to the rotating helicopter rotor blades.

Just for a moment, let’s visualize a tug of war, but being played by two cylinders. A large cylinder applies a proof load to one end of this rope, with a second cylinder placed twelve feet away at the opposite end. This second cylinder is used to cycle ultimate loads of 13,200 lbs, far in excess of their intended usage. Meanwhile, temperature readings are being monitored at various locations on the rope.

Yes, even items as simple as ropes are put through rigorous tests to ensure they meet the requirements our military demands. If you have a unique test, let MGA’s associates develop a way to get the max out of your product. Call (716) 542-5515 and talk to Rudy Arendt, or email myself at joseph.kubiniec@mgaresearch.com.

Together At Last!

Helen A. Kaleto, Troy

As of March 31, 2003, the MGA-Madison Heights, Michigan facility officially re-located to our new laboratory in Troy, Michigan. The Madison Heights facility, located at 900 E. Mandoline, had served as MGA’s dynamic test center since 1994. It provided test services such as accelerator sled testing, FMVSS 201U head impact testing, and extreme temperature airbag deployment.

Now, all of MGA-Michigan testing services are available at one location, 446 Executive Drive in Troy, Michigan. This facility consists of 50,000 sq. ft of laboratory and office space covering a wide array of testing services. The test capabilities available include FMVSS 200 series testing, dynamic sled testing, vibration, durability, extreme temperature, airbag deployment, just to name a few! MGA-Michigan associates are proud of our new facility. Please stop by or call to set up a tour! Contact Mike Miller at (248) 577-5001 or email to mike.miller@mgaresearch.com.