

Today's Motorcoaches: **Sound Science. Safe Passengers.**



AMERICAN BUS ASSOCIATION

The integral structure design of a motorcoach is a key safety component, requiring advanced computer software and engineering, which protect occupants by absorbing impact energy.

Motorcoaches are the safest vehicles on the road, according to government data.

That distinction is the result of innovative engineering advances that have been integrated into the vehicle's architecture. **Motorcoach manufacturers enhance vehicle safety in many ways** – some of which aren't always apparent. These systems keep passengers and drivers safe using highly calibrated technology, whether visible or not to riders.



Independent studies, statistics and reviews of industry performance by the U.S. Department of Transportation, National Safety Council and other respected safety organizations highlight the industry's consistent, superior safety performance.

This safety record is the result of engineering breakthroughs, technological advances, leading-edge design, visionary science and industry investment in research and development. The result is clear. **But the loss of even one life is still too many.** Motorcoach safety engineers strive for constant improvement, driven always by research and sound science.

The typical new motorcoach is much costlier than a comparably-sized heavy-duty truck largely because of the safety equipment designed into the bus to protect the driver and up to 58 riders.

The motorcoach industry has always been a leader in safety innovations without regulatory mandates. Responsible industry action can bring significant safety improvements into the vehicle fleet faster than that typically achieved through regulation.



“ Buses have long been one of the safest ways to travel, with fatality rates nearly three times lower than passenger cars.”

—Minneapolis Star-Tribune, June 24, 2008.

Visible Safety Innovations

The profile of the motorcoach is the first indication of how safety has been designed into the vehicle. It has a low center of gravity, which makes it stable and resistant to layover.

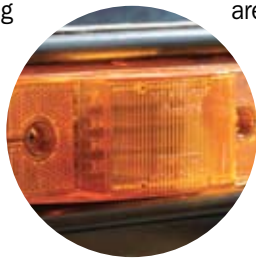
Upper and lower marking lights, interior lighting, high tail lights, and upper brake lights provide a safeguard against other vehicles potentially acting as striking vehicles.

Once aboard a motorcoach, more safety design features are evident. High-back seats with special track mountings protect occupants in crashes, and flame-retardant seat upholstery is constructed to be self-extinguishing in case of fire. Panoramic command seating provides the driver with a complete view of the road and any possible hazards.

Unseen Safety Innovations Safeguarding Passengers

Modern motorcoaches have all-wheel disc brakes for short stopping distances, anti-lock brakes, and hydraulic retarders that allow drivers to use an additional braking system when going down steep inclines.

Advanced air-ride suspension systems are often thought of as a passenger comfort feature, but they provide a safety benefit as well by maintaining coach stability during tight cornering maneuvers. Coaches also have a third axle to enhance braking, load distribution and stability. Coaches can also be equipped with advanced fire suppression systems and Tire Pressure Monitoring Systems (TPMS), which help reduce the risk of blow-out.



Crash-Protection Technologies

Manufacturers are constantly researching and redesigning vehicles to reduce the risk of occupant harm when buses collide with a stationary object (such as a tree, telephone pole, guard rail or bridge abutment), or another vehicle.

Manufacturers are enhancing protection through a range of technologies, improving the management crash energy, to disperse it away from the passenger compartment.

Motorcoaches are designed to protect passengers in the event of a crash through compartmentalization, where seatbacks are engineered to deform at a rate that reduces injury-causing impacts, creating what might be termed a “reverse airbag.” The soft cushion seatback in front of each passenger protects that passenger by creating a “cocoon of safety” in the event of a crash.





The Motorcoach Safety System

Engineering is a vital component of the overall motorcoach safety system, which integrates diverse elements into a holistic approach. The most technologically advanced vehicle safety system combines engineering with driver training and qualification, rigorous maintenance protocols, diligent daily maintenance, regular safety inspections of facilities and equipment, fiscal responsibility for facilities and insurance, equipment and parts necessary for safe operation of the vehicles, the availability of up-to-date scientific research, and the adoption of industry best practices.

Engineering can never replace the human element of safety, which too must be “engineered” – or trained. Every motorcoach operator must be committed to provide a vehicle that is maintained safely to protect against every contingency from brake failures to tire separation.



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Questions Only Scientific Research Answers

While occupant protection in crashes remains the top priority, the industry will continue to emphasize the importance of crash avoidance technology, which may prevent crashes from ever occurring in the first place.

The potential safety benefit of adding seat belts to motorcoaches remains largely unknown, because the scientific research on this question has yet to be concluded. The motorcoach industry staunchly supports comprehensive study on safety belts, roof strength, and window glazing, so engineers can make a determination based on scientific conclusions.

Sound science must guide policy, meaning government-driven rigorous research with adequate funding.

Until the government has adequate data, it won't have the scientific foundation upon which sound public policy is based. The motorcoach industry stands ready to work constructively with regulators to ensure that any safety proposal includes proper scientific review required to produce the most credible and authoritative research to date.

The durability of motorcoaches often results in 20 to 30 years of useful on-road service. Any prospective regulatory changes must be done correctly the first time.

Safety equipment cannot simply be bolted onto a motorcoach. It must be engineered into the vehicle's architecture.

The motorcoach industry will vigorously pursue the safest occupant protection program necessary once the scientific research provides the proper guide.