

Office Locations

Burlington, MA
(781) 229-0855

Ballwin, MO
(866) 645-6499

Cedar Knolls, NJ
(800) 695-3139

Cherry Hill, NJ
(800) 883-1976

Clifton Park, NY
(800) 706-6542

Mineola, NY
(516) 742-6288

Columbus, OH
(800) 654-4344

Cranberry Twp., PA
(800) 813-6735

354 North Prince Street
Lancaster, PA 17603
(800) 813-6736

RESORTED
FIRST-CLASS MAIL
U.S. POSTAGE
PAID
LANCASTER, PA
PERMIT NO. 472

56 COTIRE

ROBSON FORENSIC PRESENTS

Tires

AND VEHICLE CASES

The Robson Forensic, Inc. Vehicle Crash Group includes reconstruction, vehicle and highway engineers supported by specialists in areas that impact vehicle-related incidents such as materials science, meteorology, human factors, products and biomechanical engineering. Our experts have in-depth knowledge of vehicle design and maintenance, highway operations as well as specialized skills in road conditions and construction work zones.

Call us at **800-813-6736** or visit our website at www.robsonforensic.com for further details or to speak to a member of the Robson Forensic Crash Group in your area.

Robson Forensic

Engineers, Architects, Scientists & Fire Investigators

Tires

AND VEHICLE CASES

Factors in Tire Cases

- ◆ Underinflation/overloading
- ◆ Appropriate use of nylon cap plies
- ◆ Tire failure – Cause or result?
- ◆ Failure of rubber-to-wire/
rubber-to-rubber adhesion
- ◆ Installation
- ◆ Tire failure effects on vehicle handling
- ◆ Vehicle design defects
- ◆ Appropriate truck & car tire application
- ◆ Retread/re-groove quality & application
- ◆ Tire mounting explosions
- ◆ Vehicle and tire maintenance

Related Considerations May Include:

- ◆ Crash reconstruction
- ◆ Vehicle dynamics analysis
- ◆ Vehicle Safety Components (airbags,
seat belts, crash energy management)
- ◆ Highway design issues
- ◆ Roadway condition
- ◆ Visibility
- ◆ Conspicuity
- ◆ Driver actions

Robson Forensic

Engineers, Architects, Scientists & Fire Investigators

Case Examples

Design & Manufacturing Defects

Rear tire tread detachment on an SUV caused the driver to lose control and run off the road resulting in a crash, rollover, and fatal occupant ejection. We determined that a rear tire tread had detached, causing the crash. The tire lacked nylon cap plies and this was a design defect. The tire also had manufacturing defects including poor belt placement, and poor rubber-to-rubber and rubber-to-wire adhesion. The design and manufacturing defects caused the tire to develop a belt separation thousands of miles before the crash. The separation caused localized high wear on a portion of the tread. This high wear region would be visible during the tire and brake service and safety inspection by a repair facility immediately prior to the crash. Based on our analysis, the repair facility was brought into the case in addition to the tire manufacturer.

Tire Installation

A vehicle hydroplaned and spun out during a heavy rain storm resulting in a crash and injury to its occupants. The owner had recently purchased two new tires. The tire shop mounted the tires on the front wheels and kept the worn tires on the rear. The worn rear tires hydroplaned and were the proximate cause of the driver losing control. The tire dealer was brought into the case.

Rubber-to-Rubber Adhesion

A tour bus was fitted with a new front tire. The new tire failed 150 miles after it was installed. It was alleged that the tire dealer improperly mounted the tire causing it to fail. Our inspection of the tire revealed a serious manufacturing defect in the rubber-to-rubber adhesion within the tire which caused the failure. We presented our findings and the tire shop was let out of the case.

Retread

A truck tire tread became detached on a highway and crashed through the windshield of a nearby car. Analysis of the detached tread revealed that the failure was caused by a retread that was inappropriate for use on a truck trailer and was the cause of its failure.

Tire Application

A driver of a sports car lost control while passing a truck and crashed. An inspection of the vehicle revealed that the car was inappropriately fitted with snow tires on its rear wheels. The snow tire fitment caused the vehicle to exhibit oversteer handling characteristics which caused the driver to lose control.

Tire Failure

A driver of a car lost control on a rural highway and crashed. During the investigation it was discovered that two of the tires were flat. Tire failure was blamed for the crash. Our inspection of the tires revealed that the tires actually had been cut during the course of the crash and did not cause the crash.

Vehicle Design Defect

A family rented a minivan for a trip. A rear tire became punctured, ran flat and caused a fatal crash. The van was not equipped with any form of a Tire Pressure Monitoring System (TPMS). Such a system was feasible and practical at the time the van was manufactured. The lack of a TPMS caused the driver to continue driving on the tire while it was deflating, causing the crash. The vehicle manufacturer was brought into the case.

Gary A. Derian, P.E.

Gary Derian is a mechanical engineer with over 30 years of vehicle engineering and related experience. Gary's tire experience includes:

- ◆ Design of tires and tire components
- ◆ Laboratory, highway and track testing of tires
- ◆ Wet and dry traction performance
- ◆ Development of tire construction with fail soft characteristics to maintain vehicle control
- ◆ Design of high performance tires for road, track and off-road use
- ◆ Tire manufacturing
- ◆ Tire patents involving the use of nylon cap plies

Gary has experience in design, operation, and production of motor vehicles including motorcycles and light trucks, automotive electronics, vehicle dynamics, safety equipment and restraints, brakes, steering, crash reconstruction, and component defect analysis.

Gary has investigated over 500 cases. Call Gary at 800-654-4344, or any of our crash experts to discuss your case. You will find our office location nearest you on the back of this brochure.

