

ACCIDENT RECONSTRUCTION

BY PETER R. THOM

The purpose of an Accident Reconstruction is to determine what actually happened in the moments preceding, during and after an accident. It must recreate a little piece of history. Accident reconstruction answers questions regarding:

- **Vehicle Speed** - Excessive speed can be a primary cause or a secondary contributing factor.
- **Time and Motion Studies** -
 - * At an intersection to document the “choreography” of the vehicles.
 - * In pedestrian accidents to establish whether or not the vehicle driver had enough time to avoid the pedestrian.
- **The exact point of impact** -
 - * To establish who crossed over the center line or had the right of way.
- **Visibility** - Of participants and witnesses, especially impairments to sight lines. Visibility at night.
- Explain what role **roadway design factors** or **environmental conditions** like rain, snow or fog may have had in the accident.
- Differentiate between **mechanical failure** and accident damage; or explain how mechanical failure affected vehicle movement.
- Explain to what degree **human error** or **impairment** played a role.
- **Occupant location** before, during and after the accident.
 - * **Seatbelt defenses** - where injuries would be less severe if a seatbelt and/or shoulder harness had been used.
 - * Debates over **who was the driver** and who was the passenger.
 - * **Medical analysis** of the precise injury mechanism.
- In **low speed impacts** where **“soft tissue” injuries** are claimed:
 - * Quantify vehicle speeds and accelerations and relate them to occupant accelerations that correlate to known bodily injury thresholds.

A good automotive accident reconstruction should show which vehicles were where at each 10th of a second preceding, during and after an accident, what direction they were traveling and how fast. It presents a factual scenario that gives the reader the same information as if a video camera had recorded the actual accident.

The engineer collects all data pertaining to the vehicles, their condition before the accident and accident damage to the exterior, mechanical components and the interior compartment. He measures the roadway, skid or gouge marks, sight or visibility lines, coefficient of friction, points of impact, and points of rest of vehicles. He analyzes participant and witness statements to make sense out of sometimes seemingly contradictory impressions. All these pieces of information must be evaluated to recreate the sequence of events, and a mathematical vehicle dynamics analysis of the translational and rotational motions and accelerations of a vehicle as a result of the forces upon it must support the conclusions.

Common sense and technical expertise are equally important. The most rigorous intellectual integrity must be exercised. The engineer must be scrupulously honest with himself first and not allow any client bias to influence his judgment. Data that inconveniences a working hypothesis cannot be discarded.

THE LOGIC OF OUR METHODOLOGY

A thorough and honest Accident Reconstruction is **a very cost effective tool** providing a rational and factual understanding of the accident to:

- **Deny A Claim - If** the employee, product or insured was not at fault - then the truth is the best weapon in defending spurious claims or lawsuits.
- **Pay A Claim - If** the insured was at fault - paying a claim is far less expensive than the legal expenses and bad faith awards risked by arguing.
- **Convince Or Persuade Another Party - If** there is some liability - but not as much as the claimant's attorney would like to think - use the strength of the knowledge to negotiate the best possible settlement.
- **Avoid Litigation - Or - Win if you must litigate.**
- **Remember It is always cheaper to do the job right the first time.**