

ADVANTAGES TO USING NEDERVELD'S LOW VELOCITY IMPACT CENTERS



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Abstract

The National Highway Traffic Safety Administration (DOT HS 812 860) estimated more than 6.7 million police-reported car crashes occurred in the United States in 2018 alone. These collisions resulted in 36,560 fatalities, approximately 1.9 million vehicle occupants reporting injuries of all severity levels, and approximately 4.8 million incidents reported as property-damage-only (PDO) events.

Individuals involved in many minor damage incidents may initially report to law enforcement as non-injurious PDO events, with passengers later reporting or claiming injury. While incidents that result in fatalities or significant injury at the scene provide clear insight into the potential for tort exposure or a claim, incidents of a minor nature may not have such obvious signs that a claim or lawsuit is imminent. Often, by the time an insurance company receives notice that a potential claim exists, the valuable evidence from the incident may no longer exist. Additionally, an attorney may have a client that seeks representation, but the incident data may not be at hand to properly evaluate the legitimacy of the claim. In response, Nederveld has developed Low Velocity Impact (LVI) Centers, to provide Vehicle Event Evaluations. This high-quality examination documentation product is an affordable solution that preserves evidence and valuable collision-related data for incidents of a minor to more severe (drive-away) nature.

Keywords

Airbag Control Module (ACM), Crash Data Retrieval (CDR), documentation, drive-away incident, Event Data Recorder (EDR), evidence spoliation, low speed, minor damage, property-damage-only (PDO), velocity change.

Introduction and Background

Minor damage and PDO incidents occur most frequently of all motor vehicle collision-related events. While relative “minor” damage does not necessarily indicate a relative “minor” incident, the presence or absence of certain types of damage on a vehicle can assist the properly trained engineer in determining collision severity.

Collision severity relates to two primary factors: velocity change and peak occupant accelerations. The velocity change a vehicle experiences during an impact event has importance to collision severity, as opposed to the actual impact speed. As an example, one can travel at 30 mph and strike an empty trash bag and have a “30 mph” collision that produces no velocity change to the vehicle and its occupants. However, striking a concrete wall at the same “30 mph impact speed” produces a significantly different occupant and vehicle experience.

The difference simply lies in what engineers call the “velocity change” produced by the event, or the amount of velocity in which a vehicle slows, speeds up or changes its direction due to the impact forces acting equal and opposite between the impacting vehicles (Newton’s Third Law).

When a velocity change occurs, the vehicle and occupants experience acceleration. Acceleration is defined as the time-rate-change in velocity, or simply the velocity change divided by the time over which it occurs. Without acceleration, the occupant cannot

experience collision related motion (Newton’s First Law).

Modern vehicles have sophisticated electronics that can record a collision event utilizing an event data recorder (EDR) device. Skilled technicians must be used to access this information with specialized equipment in order to unlock data that may provide valuable insight into an incident.

Purpose of Vehicle Event Evaluations

Nederveld utilizes accurate and proven analysis methods when reconstructing all types of collision events. However, either detailed vehicle inspections by a Nederveld engineer or detailed photographs that document the damaged condition of the vehicle must be available for an accurate analysis of minor damage events. Without data, a calculation becomes useless.

Early access to vehicles involved in a drive-away incident allows for accessing and imaging of the EDR systems, if supported. The EDR function for most light trucks and passenger vehicles lies in the airbag control module (ACM), which determines airbag deployment criteria, or may record non-deployment events for less severe collisions. Most commonly, the Bosch Crash Data Retrieval (CDR) system can query the ACM and access the data. For some vehicles such as Kia, Hyundai, Tesla, and others, additional equipment and software must be used by the technician to download data from a vehicle. Nederveld technicians and engineers are highly trained in the download of EDR data from passenger vehicles and heavy

commercial vehicles. This provides you, the client, with the assurance that a proper and non-destructive download occurred to preserve valuable collision-related evidence (Figure 1).

Photographic documentation of a vehicle plays a key role in the analysis of a collision event, and provides a crosscheck to EDR data downloaded from a vehicle.



Figure 1: Nederveld technician performing imaging of vehicle ACM.

Nederveld technicians and engineers receive extensive training in the proper documentation of vehicles involved in drive-away incidents, as well as more catastrophic collision events. The importance of documenting damage, or in some cases, the lack of damage, provides analytical data for determining the severity of a collision event (Figure 2).



Figure 2: Photographic documentation of minor damage.

By using our 360°-photographic method, we capture the entire exterior of the vehicle, focusing on the impacted areas (Figure 3). Additionally, we capture the inside of the engine compartment, trunk well and underside to document whether structural damage resulted from the incident.



Figure 3: 360°-photographic documentation.

Nederveld's Low Velocity Impact Centers provide significant cost savings when compared to traditional vehicle inspections where the engineer must travel to the vehicle to complete an inspection. By eliminating the costs in time associated with loading and unloading equipment, travel, and inspection coordination, Nederveld can provide the same high-quality service and product, but at a substantially lower

overall cost, allowing you to document more incidents without fear of budget overruns. Additionally, you can coordinate with Nederveld to bring the service to a salvage liquidation or major auto property claim center near your location for multiple scheduled inspections. Contact [Nederveld](#) for more information on pricing and availability in your area.

By having the vehicle owner schedule to bring the subject vehicle to one of our LVI Centers, the owner hands the keys to one of our highly qualified and friendly technicians, signs an EDR download permission form, and Nederveld does the rest in less than one hour in most cases.



Figure 4: Greeting, key exchange, and signing EDR permission form.



Figure 5: Technician places seat covers and floor mats to protect vehicle interior.



Figure 6: Technician checks vehicle VIN and completes examination.

What are the Deliverables?

Nederveld Vehicle Event Evaluations provide the following:

- A detailed exterior inspection of the vehicle.
- Measurable photographic documentation of the vehicle exterior.
- Documentation of trunk and/or engine compartment for evidence of structural damage.
- Documentation of bumper brackets and reinforcement bars for evidence of damage.

- Documentation of seatbelt operation and emergency locking capabilities.
- Documentation of occupant seating positions.
- Download of the vehicle ACM (if supported; not all vehicles supported, feel free to call ahead at no obligation to check on download support).
- Avoid major legal issues related to **EVIDENCE SPOILIATION!**

Nederveld provides the following to you via email within 48 hours of completing a Vehicle Event Evaluation:

- PDF version of photographs (raw photographs maintained by Nederveld for 3 years or as arranged with client).
- PDF version of the CDR Report or other format of ACM download report (raw files maintained by Nederveld for 3 years or as arranged with client).
- Access the Nederveld Client Portal where you can view and download the information as needed.

A Vehicle Event Evaluation (VEE) does not provide interpretation of data, nor opinions regarding the event. However, with the evidence secured, Nederveld can complete a preliminary to full analysis on those cases that warrant such action at any time requested in the future (raw files maintained by Nederveld for 3 years or as arranged with client). And, you will have the confidence of having the right information documented to handle the job.

Other Add-on Services Available

At any time following a VEE, you can request Nederveld to complete the following add-on collision analysis services at normal hourly rates:

- MDA (Minor Damage Analysis with impact speeds, velocity change, and occupant accelerations, comparisons to similar daily levels).
- OKA (Occupant Kinematic Analysis using MADYMO to demonstrate occupant motion and loading, helpful in determining occupant interior impacts).

Nederveld's Accident Reconstruction Service does not stop at Vehicle Event Evaluations. By having some of the nation's leading collision analysis experts in motor vehicles, commercial vehicles, motorcycles, bicycles, pedestrians, ATV/UTV, traffic signal operation, highway design and construction zones, as well as animation services, we can do a lot more for you.

Conclusions

Nederveld has tailored these evaluations to provide a high-quality examination and documentation product at an affordable price. While not every case will see the light of day in a lawsuit or courtroom, rest assured that the data obtained will provide you with the information critical to making informed case decisions regarding minor to more severe drive-away incidents.