Hodson P.I.
Investigative Solutions

TALI '26 · TECHNOLOGY DRIVEN INVESTIGATIONS

Event Data Recorders

THE VEHICLE AS A WITNESS

The Bosch CDR tool, what it takes to run one, and whether this belongs in your practice.

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& Jordan Payton

Saturday, September 26, 2026 · 2:00 – 3:30 pm · The Monarch, San Antonio

WHERE THIS STARTS

What if the vehicle could tell you what happened?

Not what your client remembers. Not what the other driver needs to be true. What the vehicle itself recorded in the seconds surrounding the event.

The evidence you already collect

Six sources you already know how to gather. There may be a seventh sitting in a tow yard.

- Driver statements
- Witness statements
- Physical evidence
- Photographs
- Video
- Vehicle damage

Vehicle data

A modern vehicle may hold electronic information about what it was doing around a qualifying event. Every source above is somebody's account of the collision. This one was inside the car while it happened.

Why this belongs in a PI practice

You are already doing four-fifths of this job on other assignments.

Who hires it

Where the assignments come from

- Plaintiff and defense counsel in collision litigation
- Insurers, SIU units and independent adjusters
- Reconstruction engineers who want the retrieval done cleanly
- Fleet, trucking and transportation risk
- Criminal defense

Why it fits us

What you already do

- You already get physical access to vehicles
- You already document condition and chain of custody
- You already write reports that get read by lawyers
- You already testify to what you did and what you found
- Almost nobody else in the file can do all four

What we will cover

Five parts, ending with the question you actually came to answer.

1

EDR fundamentals

What the data is, what it isn't, and why no two vehicles are the same.

2

The Bosch CDR tool

What it is, how a download actually works, and what comes out the other end.

3

What you need to start

The kit, the cost, the coverage question, and the training.

4

Doing the job right

Authority, documentation, originals and chain of custody.

5

The work itself

Five cases from the news, escalating — and the buy-or-refer question.

01

Part One · EDR Fundamentals

What the Vehicle May Be Recording

Short, because it's the vocabulary for everything after it — not the point of the afternoon.

What is an Event Data Recorder?

A vehicle function, not an aftermarket add-on — and not a black box in the aviation sense.

The device

What it is, in plain terms

- A recording function within a vehicle system — commonly associated with the airbag / restraint control module
- Capture is triggered by a qualifying event, not running continuously
- Records a limited, pre-defined set of parameters
- Built for crash-safety engineering purposes, not for us

Why we care

What it changes about a file

- It may be an objective record of what the vehicle was doing
- It exists independently of memory, loyalty and interest
- It can support, contradict or clarify a statement
- It is only useful while the vehicle is still available

How crash data is recorded

A qualifying event is the trigger. Around that trigger, a limited window may be captured.

Pre-crash

Some vehicles may retain a short record of what the vehicle was doing in the moments leading up to the event.

Event / impact

The trigger itself. What the system regards as a qualifying event — and how it classifies it — are vehicle-specific.

Post-event

Information associated with what the restraint system did, and whether the record was completed and locked.

VERIFY

Recording windows, sample rates and parameter lists are vehicle-specific. Quote them from that vehicle's documentation.

What an EDR is — and is not

The right-hand column is what keeps you credible in a deposition.

An EDR is

What it can legitimately be

- A potential source of objective vehicle data
- Electronic evidence, subject to the same care as any other
- Useful in collision analysis and statement testing
- Dependent on the vehicle, the manufacturer and the event

An EDR is not

What it will never be

- A continuous surveillance system or a trip history
- An automatic determination of fault or causation
- Identical from one vehicle to the next
- A replacement for a complete investigation

What information may be available?

Categories, not guarantees. What is actually present depends on the vehicle in front of you.

Vehicle speed

What the vehicle recorded about its own speed in the moments up to an event.

Braking

Whether the system recorded brake application — and where in the window it appears.

Throttle

Accelerator input, which speaks to what the driver was doing rather than what the car was doing.

Delta-V

Change in velocity through the impact. Related to severity — and not the same thing as speed.

Seatbelts

What the system recorded about restraint status for the positions it monitors.

Airbags

Deployment and timing information associated with the restraint system.

SAY IT TWICE

Data availability varies by year, manufacturer, and model.

Pre-crash speed, braking & throttle

Throttle, brake, engine speed and vehicle speed, second by second. The story is in how the columns line up.

Pre-Crash Data -5.0 to -0.5 sec (Event Record 1)

Times (sec)	Accelerator Pedal, % Full (Accelerator Pedal Position)	Service Brake (Brake Switch Circuit State)	Engine RPM (Engine Speed)	Engine Throttle, % Full (Throttle Position)	Speed, Vehicle Indicated (Vehicle Speed) (MPH [km/h])
-5.0	0	Off	1408	9	37 [59]
-4.5	0	Off	1408	10	36 [58]
-4.0	0	Off	1280	10	35 [57]
-3.5	8	Off	1344	16	35 [57]
-3.0	8	Off	1344	16	35 [56]
-2.5	8	Off	1344	16	35 [56]
-2.0	8	Off	1344	15	35 [56]
-1.5	8	Off	1344	15	35 [56]
-1.0	8	Off	1344	15	35 [56]
-0.5	1	Off	1344	12	35 [56]

Pre-crash table from a real retrieval — identifying detail redacted.

What to look at

- The trend, not one value
- Where brake first appears
- Whether throttle releases
- How the three agree

- Read the columns together. One value on its own is trivia.

Delta-V, seatbelts & airbags

Three categories that get misread more than anything else in this material.

Delta-V

Change in velocity

A measure of how much the vehicle's velocity changed through the impact. It speaks to severity and to how the collision unfolded.

Seatbelts

Restraint status

What the system recorded about restraint status for the positions it monitors. Positions covered vary by vehicle.

Airbags

Deployment & timing

Information associated with what the restraint system did and when — often the clearest confirmation an event occurred at all.

DO NOT SAY

"Delta-V is how fast the car was going." It is not. Get this right before a client repeats it back to you.

PART 1 · THE CAVEAT THAT MATTERS MOST

Manufacturer matters.
Model matters.
Year matters.
Event matters.

Which parameters exist, whether an event was recorded at all, and whether your tool can retrieve it from this particular vehicle — all of it varies. This is also the first question to ask before you quote a job.

02

Part Two · The Tool

The Bosch CDR Tool and How It Works

What is actually in the case, what happens when you connect it, and what comes out the other end.

What the Bosch CDR tool actually is

Three parts. Take any one away and you have nothing.

The three parts

CDR software

Runs on your laptop under an annual license. It knows how to talk to each supported module, and it renders the report.

Vehicle communication interface

The box between the laptop and the car. Current kits are built around the Bosch CDR 900 VCI.

A cable that fits this vehicle

Either a DLC adapter for the diagnostic port, or a module-specific cable for a direct connection.

What it actually does

- Speaks the manufacturer's protocol to a supported module
- Copies the data the module is holding
- Writes an original retrieval file — the evidence
- Translates the binary data into a readable report
- What it does not do: interpret the result, or tell you what it means for your case.

How a download works, end to end

Six steps. Only one of them involves the software.

1 Identify

VIN, vehicle, and whether a tool you own actually supports it.

2 Authorize

Who owns it, who is granting access, and in writing before you travel.

3 Document

Condition, damage and connection point — before anything is plugged in.

4 Connect

Diagnostic port or direct to the module, with power where it's needed.

5 Retrieve

The software reads the module and writes the original retrieval file.

6 Report

The .CDRX is the protected original — encrypted, readable only in the software. A PDF is a convenience copy.

NOTICE

Steps one and two happen before you leave the office. Most failed jobs fail there.

Two ways into the vehicle

The condition of the vehicle usually decides which one is available to you.

The vehicle

1

Through the diagnostic port (DLC)

One adapter, most supported vehicles, quickest path. The default when the vehicle and its systems can support the connection.

2

Direct to the module (D2M)

A module-specific cable, often with the module removed. Slower, more equipment, and the reason the cable catalog is as long as it is.

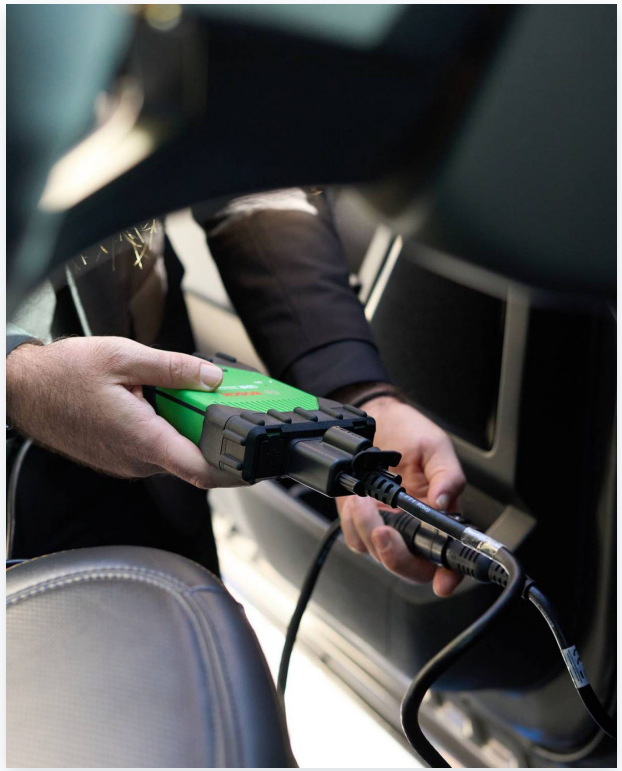
The DLC download

Vehicle → diagnostic port → interface → laptop. Simple to draw; not always simple to do.

Vehicle › Diagnostic port › CDR interface › Laptop & software

What actually takes the time

- Confirming the vehicle and its condition before anything is connected
- Power, access and workspace in a yard rather than a shop



Making the connection at the vehicle

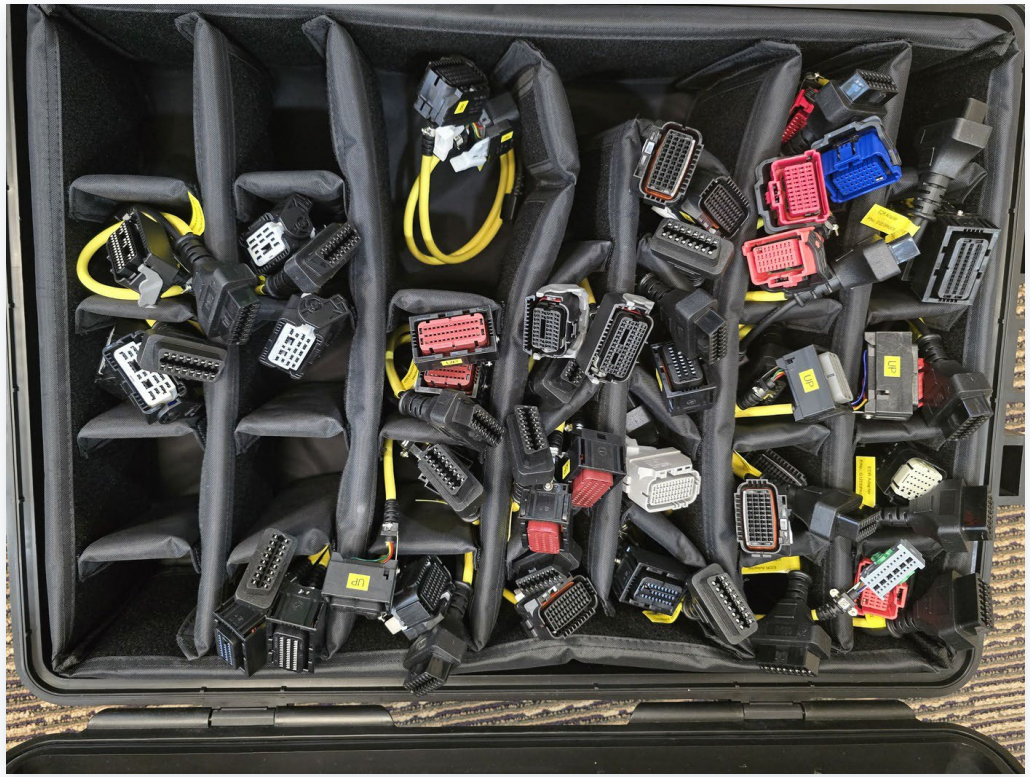
Direct-to-module download

When the vehicle cannot support a port connection, the module itself may still be able to.

Why it may be necessary

- Severe damage affecting the vehicle's systems or wiring
- Loss of power, or an electrical system that cannot be safely restored
- Fire, submersion or intrusion affecting the vehicle
- Vehicle no longer in a condition to be connected in the ordinary way

SCOPE Procedure belongs in a class, not on a slide.

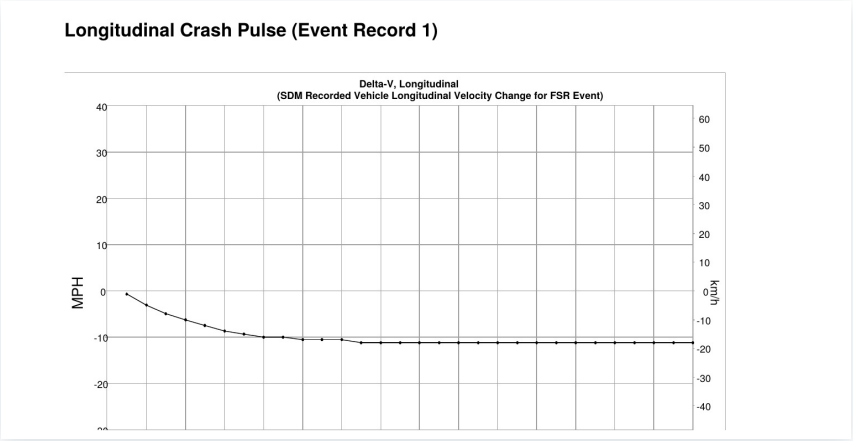


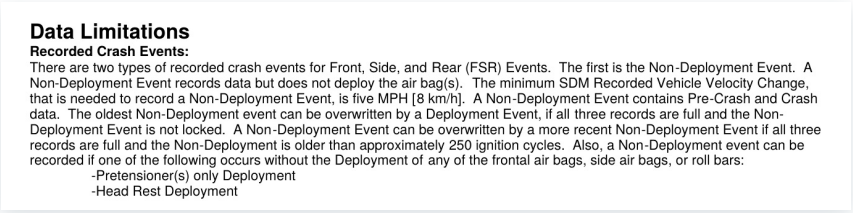
The module-specific harnesses this path depends on.

What comes out: the CDR report

Know the anatomy before you hand one to a client — especially the part everybody skips.

Header & identification	The vehicle, the VIN, the tool and software used, and when the retrieval was performed.
Pre-crash table	Recorded values across the window, where the vehicle supports them.
Event & deployment data	The event record itself, and information associated with the restraint system.
Data limitations & notes	What the manufacturer says about how this data should and should not be read.





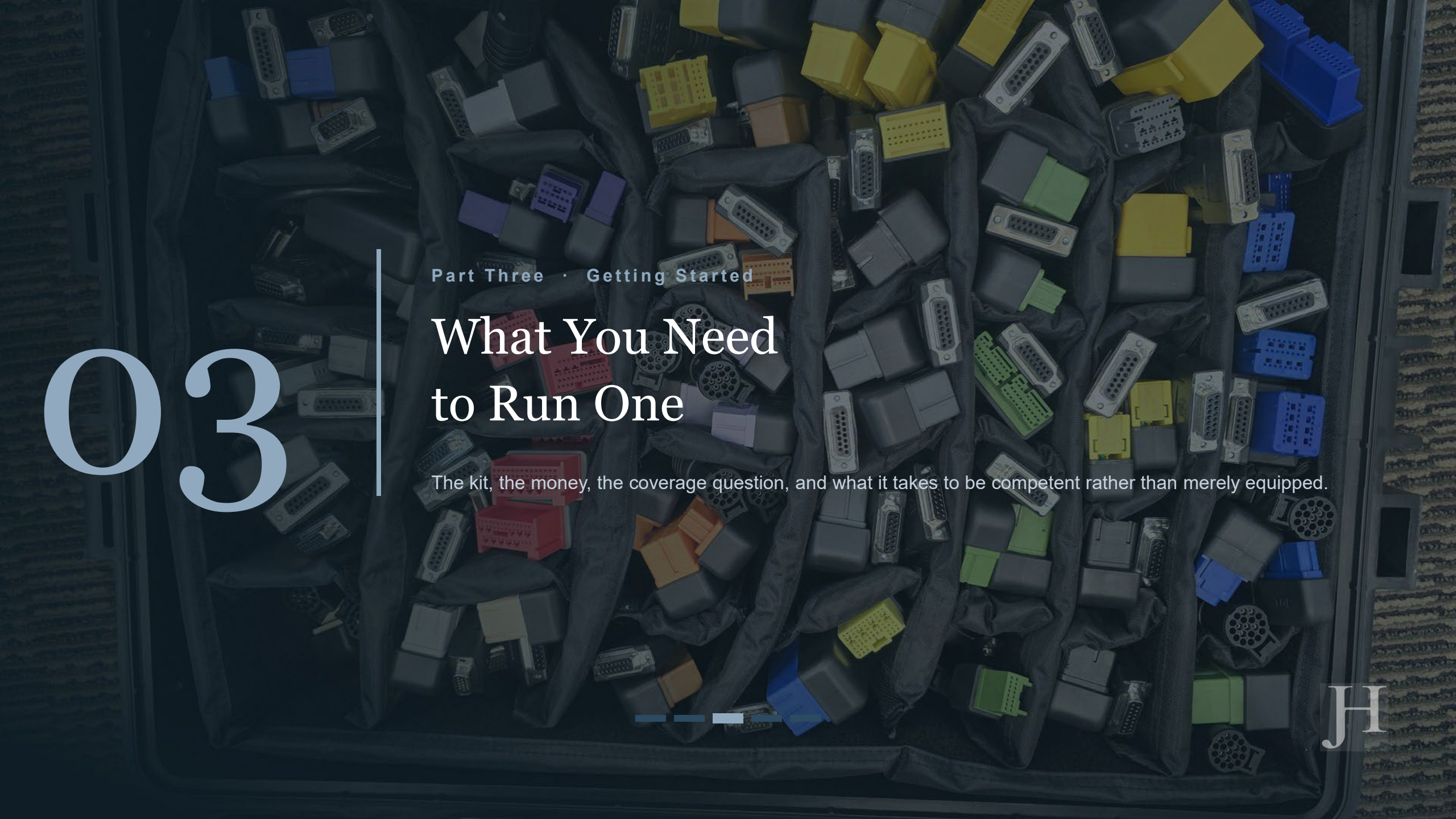
Data Limitations

Recorded Crash Events:

There are two types of recorded crash events for Front, Side, and Rear (FSR) Events. The first is the Non-Deployment Event. A Non-Deployment Event records data but does not deploy the air bag(s). The minimum SDM Recorded Vehicle Velocity Change, that is needed to record a Non-Deployment Event, is five MPH [8 km/h]. A Non-Deployment Event contains Pre-Crash and Crash data. The oldest Non-Deployment event can be overwritten by a Deployment Event, if all three records are full and the Non-Deployment Event is not locked. A Non-Deployment Event can be overwritten by a more recent Non-Deployment Event if all three records are full and the Non-Deployment is older than approximately 250 ignition cycles. Also, a Non-Deployment event can be recorded if one of the following occurs without the Deployment of any of the frontal air bags, side air bags, or roll bars:

-Pretensioner(s) only Deployment
-Head Rest Deployment

Real report pages — identifying detail redacted.



Part Three · Getting Started

03

What You Need to Run One

The kit, the money, the coverage question, and what it takes to be competent rather than merely equipped.

Inside the cases

What turns up at the vehicle: two interfaces, the power to run them, and the harnesses that set your coverage.

The CDR 500 case

The older interface. Still the answer on some older vehicles — not what most jobs run on.

CDR 900 and CANplus

The green CDR 900 and the CANplus module, side by side in foam. This is the primary tool.

Power supply and leads

The power brick, the cables and the laptop bag. The half that ends a job when something is missing.

Direct-to-module harnesses

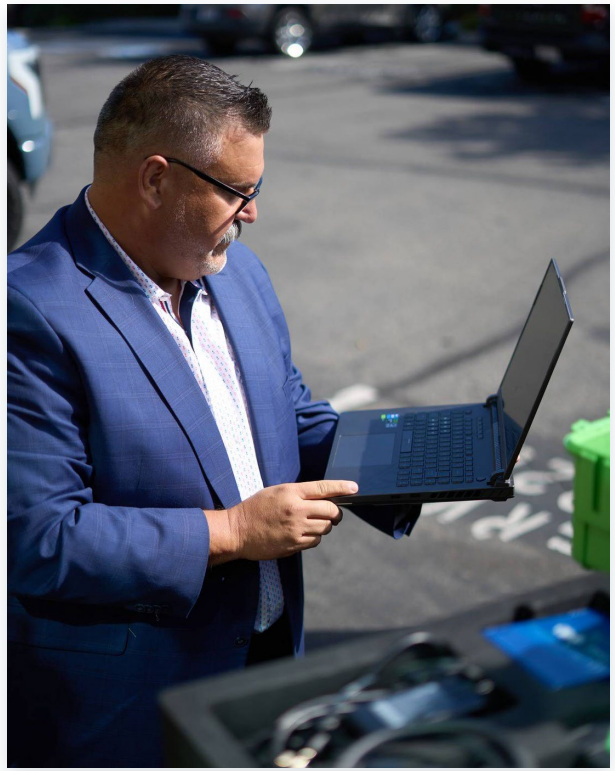
Bought one at a time, over years. This case is your coverage in physical form.

THE MONEY

The interface is bought once. The fourth case is bought one harness at a time, for as long as you do this work.

The kit, piece by piece

Eight things. Two of them are not sold with the tool, and both are essential.



The kit as it travels — and the laptop it runs on.

A laptop

Yours, meeting the software's requirements. Kept charged and kept working.

Software license

An annual subscription. New or renewal — it lapses if you don't renew.

Vehicle interface

The CDR 900 VCI in current kits. The one-time hardware purchase.

DLC adapter

The diagnostic-port connection. Cheapest thing in the case, used most often.

Direct-to-module cables

Module-specific, bought individually. This is where coverage is really decided.

Power supply

Yards and salvage lots don't come with an outlet.

A case

It travels, it gets handled, and it lives in a vehicle. Buy the case.

Camera & documentation kit

Not sold with the tool. Needed on every single job.

What it costs to get in

Ranges, not quotes — this moves. Get a current number before you budget.

The interface

Low four figures

One-time. The hardware you buy once and keep.

The software

Four figures, annually

A recurring line item, not a purchase. Budget it every year.

Cables & adapters

A few hundred each

Bought by coverage. The port adapter is cheap; module cables are not.

Everything around it

Hundreds to low four figures

Power supply, case, laptop, camera, replacement parts.

- Plan for a high four-figure commitment before your first job — and a recurring four-figure line every year after it.

Coverage is the real question

There is no single tool that images every vehicle. Owning one tool is not owning the capability.

Bosch CDR

The broad one

The tool most of this work runs on, covering a wide range of makes. What it supports is published — check the coverage list against the VIN before you commit to a job.

GIT EDR tool

Hyundai · Kia · Genesis

A separate tool and license, retrieving through the diagnostic port on most supported 2012-and-newer Hyundai, Kia and Genesis vehicles.

Tesla EDR tool

A world of its own

Its own kit again — Tesla cables, a PCAN-USB adapter, power supply and case — covering Model S, 3, X, Y and Cybertruck.

THE QUESTION

Never “can EDR data be retrieved?” Always “is this vehicle supported by a tool I actually have?”

Training and competence

Two different things, and the second one is what your reputation rests on.

What training gets you

Retrieval competence

- How to set the tool up and keep it current
- How to identify the module and the right connection
- How to perform a retrieval without damaging anything
- How to produce and preserve a clean report

What it does not get you

Interpretation is a different job

- Qualification to give an opinion on causation or fault
- Reconstruction expertise you didn't already have
- The standing to explain what a value means for the case
- A defense against being cross-examined beyond your competence

Where we buy: Crash Data Group

Where our kit comes from. Not a sponsor — just an answer to the question I always get asked.

Hardware & bundles

Interfaces, kits and periodic cable-release bundles.

Licenses & renewals

New software licenses and the annual renewal.

Cables & adapters

The module cable library, listed by part number.

Cases & spare parts

Replacement components and equipment cases.

Rentals

Equipment rental — the way to try before you commit.

Training & docs

Online classes, tool documentation, webinars and case studies.

GET A QUOTE

crashdatagroup.com — coverage, bundles and pricing all change. Price it yourself; don't quote a slide from a conference.

Part Four · Doing It Properly

04

Authority, Documentation and the Original File

The difference between a data file and evidence — and it has nothing to do with the tool.

Authority and access

Settle this before you connect anything. It is not a question to work out in a salvage yard.

Get it in writing, before you go

- Who owns the vehicle right now — it may not be who owned it at the collision
- Who is in possession of it, and what their release process is
- Who is instructing you, and what they are authorized to instruct
- What you are authorized to do — inspect, connect, remove, retain
- Whether any other party has asked to be present or notified

Texas has a statute on this

Transportation Code § 547.615

Recorded data “may not be retrieved by a person other than the owner” — except:

- By court order
- With the owner's consent, for any purpose
- For vehicle-safety research, identity withheld
- To facilitate emergency medical response

PLAIN RULE

Possession is not ownership. Your authority comes off that list — not from the yard, and not from you.

Document the vehicle first

Everything on this list happens before anything is plugged into the vehicle.

The inspection record

- Vehicle identification
- VIN — recorded and photographed
- Overall condition on arrival
- Collision damage, all quadrants
- Interior condition, where relevant
- Module and connection location
- Photographs throughout
- Condition before data is accessed

The connection point, photographed as part of the record.

> If it wasn't photographed, you will be asked to describe it from memory.

PART 4 · THE ORIGINALS

Download it. Document it. Preserve it.

The .CDRX retrieval file is the evidence — encrypted, and readable only in the CDR software. A PDF export is a convenience copy with none of those protections. Keep the original, and know the difference.

Chain of custody

The same discipline you already apply to surveillance video. Practical, not legalistic.

1 — Vehicle

Identified by VIN, photographed, condition recorded before access.

2 — Investigator

Who performed the retrieval, under what authority, on what date.

3 — Retrieval

Method used, equipment and software used, conditions at the time.

4 — Original file

The .CDRX, kept unaltered and readable only in the software. Copies made from it, never over it.

5 — Report

The PDF export, for people without the software. Kept with the original, never in place of it.

6 — Storage

Retrievable years later, with a record of who has touched it.

IN PRACTICE

One question: can you account for this file, from the vehicle to the courtroom?

05

Part Five · The Work

Where It Shows Up and Whether to Buy In

Five cases you have read about, in the order of how much the data actually decided — then the buy-or-refer question.

Bachman v. General Motors

Illinois, 2002. The case that first got this evidence through the courtroom door — and the number that did it.

The claim

A defect case against the manufacturer

- Her airbag deployed unexpectedly while she was driving
- She lost control and struck another vehicle
- Alleged: a defective system that fired on its own

What the module showed

GM's Sensing & Diagnostic Module

- A recorded Delta-V of roughly 16 mph at deployment
- GM's engineers: an inadvertent deployment shows 1–3 mph
- Admitted under the general-acceptance standard of the day; the jury found for GM

WHY IT MATTERS

332 Ill. App. 3d 760. A state decision, not a national rule — but the foundation GM laid is the template ever since.

Commonwealth v. Safka

Pennsylvania, 2014. The same question, on the criminal side.

The argument

What the defense said

- EDR speed data is novel scientific evidence
- It should have to clear the Frye threshold first
- Without that, a jury should not hear it

The ruling

Pennsylvania Superior Court, 2014

- Determining a vehicle's speed is not novel science
- No special threshold showing was required
- The speed evidence was admissible; conviction upheld

READ IT NARROWLY

Pennsylvania law. Persuasive elsewhere, binding nowhere else — Texas included. Admissibility is still a local question.

The Toyota unintended-acceleration litigation

2009–2011. What happens when the same question is asked of a whole fleet at once.

The allegation

A national panic, and billions in claims

- Vehicles accelerating uncontrollably, drivers unable to stop them
- Alleged: a defect in the electronic throttle control system
- Personal injury and class actions on an enormous scale

What the investigation found

NHTSA with NASA engineers

- No evidence that an electronics malfunction caused the large accelerations
- Two mechanical causes confirmed — sticky pedals and floor-mat entrapment
- Recorded vehicle data informed NHTSA's follow-on work on pedal misapplication

THE SCALE POINT

One retrieval answers one collision. Enough of them answered a question about an entire fleet.

Commonwealth v. Read

THE STATE'S THEORY

“She reversed into him and drove away.”

THE MATTER	Canton, Massachusetts, January 2022. The death of Boston police officer John O'Keefe. The Commonwealth alleged Read's Lexus SUV struck him in reverse.
THE DATA	Vehicle and telematics data were contested by experts on both sides — much of the fight was over what the recorded data did, and did not, show for a strike at the alleged moment.
THE OUTCOME	Mistrial on a hung jury, July 2024. On retrial, June 2025: acquitted of murder, of manslaughter-OUI and of leaving the scene; convicted of OUI alone, probation.
WHAT IT TEACHES	An absent or unexpected record is not proof that nothing happened — and it is not nothing, either. It is a question that needs a qualified expert to answer.

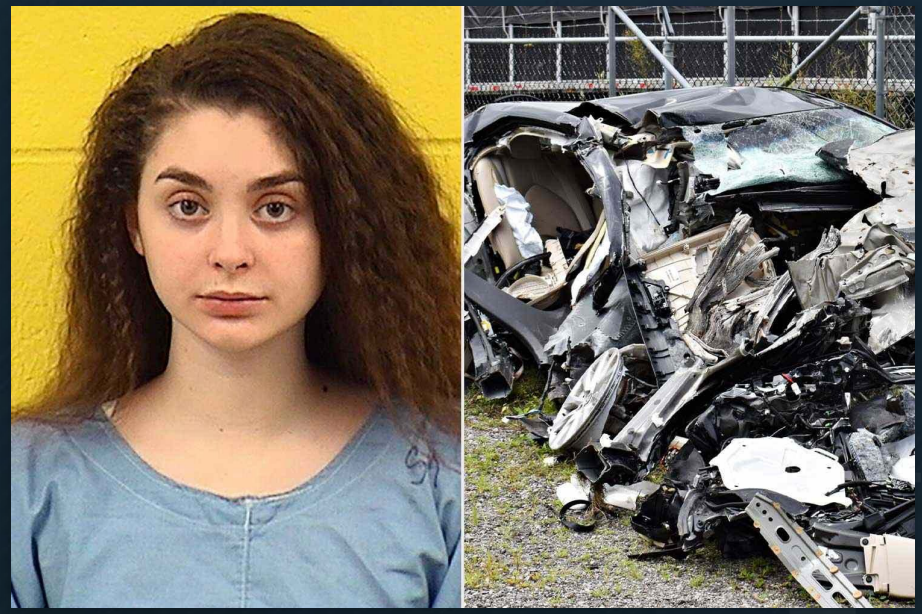
The Lexus SUV at the center of the case.

State v. Shirilla

THE DEFENSE

“A medical episode — she blacked out.”

THE MATTER	Strongsville, Ohio, July 2022. A 2018 Toyota Camry driven into the wall of a commercial building. Two passengers killed.
THE DATA	Vehicle data placed the accelerator applied and no braking through the final seconds — and the car tracked a dogleg at speed, which is steering input.
THE FINDING	Convicted of murder and aggravated vehicular homicide, August 2023. Sentenced to 15 years to life.
WHAT IT TEACHES	The data did not prove intent on its own. It removed the explanation the defense depended on — which is a different, and stronger, thing.



The Camry after the collision — and why the vehicle itself became the witness.

What these cases teach

Five public matters, four lessons you can use on a file next week.

Data removes explanations

Shirilla

It rarely proves a state of mind. It closes off alternatives until one account is left standing.

Absence is its own question

Read

Nothing recorded is not the same as nothing happened. Whether it should have been is an expert question.

It cuts both ways

Bachman · Toyota

The same evidence that convicts also exonerates — a manufacturer, a system, and sometimes your own client.

Admissibility is local

Bachman · Safka

Courts are comfortable with the category. Your matter still turns on your jurisdiction and your foundation.

AND IN ALL FIVE

The retrieval was clean, and the interpretation came from somebody qualified to give it.

The evidence can disappear

A total loss moves through this in weeks. Access gets harder at every step.

1	2	3	4	5	6
Collision	Tow yard	Inspection	Repair	Auction / salvage	Destruction
The vehicle is intact and the record, if any, exists.	Access is possible but the clock has started and storage is accruing.	The natural moment — if somebody thought to ask for it.	Systems may be serviced or replaced. Questions get harder to answer.	The vehicle moves, often out of state, often out of reach.	Whatever was there is gone, and no decision later brings it back.

YOUR PITCH

Nobody decides to destroy evidence. It disappears because the file moved at its ordinary speed.

Should you bring it in-house?

Three honest answers, and two of them are not “buy the tool.”

Bring it in-house

You already work collision files regularly

Attorney or insurer clients who send you vehicle work · enough volume to justify a subscription · appetite for the training · somewhere to store and maintain a kit

Partner or refer

The work is occasional but real

Build a relationship with someone who owns the tool · quote the retrieval into your assignment · remain the investigator of record and own the documentation

Not yet — rent first

You think there's a market but can't prove it

Practice on a rented kit first · take the online class · then price a real assignment properly · decide after three of them, not after this session

EITHER WAY

Knowing the vehicle should be preserved is the valuable part. Owning the tool is optional.

Key takeaways

Five things worth carrying out of this room.

1	Know what the data is — and isn't.	Categories, not guarantees. Delta-V is not speed. It never determines fault by itself.
2	Understand what the tool is.	Software, an interface and the right cable. It retrieves and renders. It does not interpret.
3	Price the whole thing, not the box.	Hardware once, license every year, cables by coverage — and check coverage before you quote.
4	Documentation is the product.	Authority in writing, the vehicle photographed first, the original file preserved.
5	Say it in week one.	Whether or not you own a tool, the call that saves the evidence is free to make.

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Questions?

Justin D. Hodson, CPI · Hodson P.I. — Investigative Solutions

Event Data Recorders · The Vehicle as a Witness

SCAN FOR THE SLIDES

Download the deck at hodsonpi.com

714-646-4545 · Justin@HodsonPI.com

CONNECT

Happy to talk referral work — find me afterwards.

TEXAS ASSN. OF LICENSED INVESTIGATORS · TALI · FOUNDED 1971

Sources & verification

Not for projection. Every factual claim in this deck traces to one of these — and several of them move.

The five cases

- Bachman v. GM, 332 Ill. App. 3d 760 (2002) — SDM Delta-V ~16 mph vs 1–3 mph inadvertent; admitted, verdict for GM.
- Commonwealth v. Safka — Pa. Super. Ct., 2014. EDR speed data not novel science. (Later history unconfirmed.)
- Toyota UA — NHTSA / NASA study, U.S. DOT, 2011. No electronic cause; sticky pedals and floor mats recalled.
- Commonwealth v. Read — Mass. Mistrial Jul 1, 2024; acquitted of all serious counts on retrial, OUI only, Jun 18, 2025.
- State v. Shirilla — Convicted Aug 14, 2023, 15 to life. Post-conviction live at Ohio S.Ct., mid-2026 — RE-CHECK.

Equipment & cost

- Crash Data Group catalog — crashdatagroup.com. Bosch CDR line, CDR 900 VCI, licenses, D2M cables, cases, rentals, class.
- GIT EDR tools (Hyundai · Kia · Genesis) and the Tesla EDR tool — same source, separate ecosystems.
- Slide 24 gives ranges derived from that catalog, not quotes. Re-price before you present.

Deliberately NOT on any slide

- Recording durations, sample rates, parameter counts.
- Delta-V thresholds, units or timing values.
- Model numbers, software versions or coverage claims.
- The “58 EDRs” Toyota figure; Shirilla throttle-duration and steering-angle figures.
- Anything identifying from the two CDR reports — VIN, name, case number, dates, address.