

THE COLLISION REPAIR RISK MANAGEMENT GUIDE

**An Executive Guide to OEM-Compliant Diagnostics,
Documentation & ADAS Calibration**

**Published by
ADVANCED ADAS TECHNOLOGIES OF TEXAS LLC.**

First Edition • 2026

**“KEEPING ALL ROADS SAFE, ONE CALIBRATION AT A
TIME.”™**

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This publication is provided for educational and informational purposes and is intended to promote greater understanding of Advanced Driver Assistance Systems (ADAS), diagnostics, programming, calibration, documentation, repair verification and risk management within the collision repair industry.

The information in this publication is not a substitute for current Original Equipment Manufacturer (OEM) service information, repair procedures, position statements, technical publications, calibration instructions, diagnostic procedures, specifications or other manufacturer-authorized information applicable to a specific vehicle.

Vehicle technology, software, repair procedures, calibration requirements, specifications, tools, equipment and manufacturer recommendations change continually. Procedures may differ by manufacturer, model, model year, vehicle configuration, installed equipment, software level, repair operation and other conditions.

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Nothing in this publication should be interpreted as authorization to deviate from an OEM procedure or as a universal repair or calibration procedure applicable to every vehicle.

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This publication does not replace the training, experience, professional judgment, inspection, measurement, diagnosis or verification required of qualified automotive and collision repair professionals. Every vehicle must be evaluated individually.

LEGAL AND INSURANCE INFORMATION

Discussions involving liability, documentation, insurance practices, risk management or repair responsibility are provided for general educational purposes. Nothing in this publication constitutes legal advice, insurance coverage advice or a legal opinion.

PURPOSE OF THIS GUIDE

The purpose of this guide is not to tell collision professionals how to perform every aspect of a collision repair. Its purpose is to help collision repair facilities better understand where modern vehicle technology, diagnostics, programming, ADAS calibration, documentation and repair verification intersect with the collision repair process.

ADVANCED ADAS TECHNOLOGIES OF TEXAS LLC. believes that effective communication, current OEM research, accurate diagnostics, proper calibration procedures, repair verification and meaningful documentation can help collision repair professionals make better-informed decisions and return properly repaired vehicles to their customers.

This publication should be used as an educational and risk-management resource - not as a replacement for the vehicle manufacturer's procedures.

WHY THIS GUIDE WAS WRITTEN

Every day, collision repair professionals make decisions that extend far beyond repairing damaged vehicles. Those decisions affect customer safety, business reputation, repair quality and the confidence families place in the vehicles they drive.

Today's vehicles require collision professionals to think beyond structural and cosmetic restoration. Cameras, radar sensors, software, electronic control modules and Advanced Driver Assistance Systems have changed the repair process.

This guide was written to help collision repair professionals understand how diagnostics, programming, documentation and ADAS calibration fit into today's repair process. It is intended to educate - not replace OEM procedures or manufacturer service information.

Our goal is simple: help collision repair facilities reduce technical uncertainty, strengthen documentation and return properly repaired vehicles to the road.

Respectfully,

Hiro Morita

Founder & Lead ADAS Diagnostic Specialist

ADVANCED ADAS TECHNOLOGIES OF TEXAS LLC.

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RESPONSIBILITY.

THE EVOLUTION OF COLLISION REPAIR

Collision repair has always required craftsmanship, precision, and accountability. While those principles remain unchanged, the vehicles entering today's repair facilities are dramatically different.

Modern vehicles contain cameras, radar sensors, ultrasonic sensors, advanced software, and interconnected electronic control modules. Repairs that once involved replacing damaged parts may now require OEM research, diagnostic scans, module programming, documentation, and calibration verification.

This evolution has transformed collision repair from simply restoring damaged components into managing the performance of an integrated vehicle system.

At ADVANCED ADAS TECHNOLOGIES OF TEXAS LLC., we believe our role is to become a Risk Management Partner for collision repair facilities. Through OEM-focused diagnostics, programming support, documentation, calibration, and technical collaboration, we help shops confidently navigate one of the most technically demanding aspects of modern vehicle repair.

RISK MANAGEMENT INSIGHT

The strongest repair process begins with preparation—not assumptions. Research, documentation, diagnostics, and communication create the foundation for informed repair decisions.

UNDERSTANDING LIABILITY

THE REPAIR IS NOT FINISHED JUST BECAUSE THE VEHICLE LOOKS FINISHED

There was a time when the completion of a collision repair was relatively easy to recognize.

The body lines were correct. The paint matched. The gaps were right. The vehicle drove properly. There were no warning lights on the dash. The keys could be handed back to the customer.

That definition of a completed repair no longer works.

Today's vehicle can look perfect, drive straight, have no warning lights, and still leave the repair facility with an Advanced Driver Assistance System that has not been properly restored, verified, programmed, initialized, or calibrated.

That changes the meaning of liability. It also changes the meaning of responsibility.

Modern collision repair is no longer only about repairing what can be seen. It is about restoring a vehicle in a way that allows its mechanical, structural, electrical, software, and driver-assistance systems to function together as the manufacturer intended.

That responsibility is shared by everyone involved in the repair process. The collision center. The mechanical technician. The glass installer. The alignment provider. The programmer. The diagnostic technician. And the ADAS calibration provider.

Each person touches a different part of the repair. But the customer receives only one vehicle back.

LIABILITY STARTS WITH THE REPAIR DECISION

Liability does not begin when something goes wrong. It begins when a repair decision is made.

Every time a technician chooses a repair method, installs a component, removes a sensor, replaces a windshield, performs an

alignment, programs a module, or decides that a calibration is—or is not—necessary, that decision becomes part of the final repair.

That is why OEM repair information matters.

The question is not simply: “Can this part be repaired?” The question is: “What does the manufacturer require after this operation?”

The question is not: “The vehicle has no codes, so are we done?” The question is: “What verification procedures are required before this vehicle is returned to the customer?”

Those distinctions matter because modern vehicles often cannot tell us when a physical relationship has changed. A radar can communicate normally and still be aimed incorrectly. A camera can produce no diagnostic trouble codes and still require calibration. A module can be functioning and still require programming or configuration after replacement.

Electronic communication does not automatically mean the system is operating as intended. That is why a repair decision must be supported by more than the absence of a warning light.

OEM PROCEDURES ARE NOT OPTIONAL READING

Modern repair information is part of the repair itself. Technicians cannot depend exclusively on experience, memory, or what was done on the last vehicle.

The vehicle sitting in the repair bay is what matters. Its model year matters. Its equipment matters. Its options matter. Its repair history matters. And the manufacturer's requirements for that specific operation matter.

This does not diminish technician experience. Experience is extremely valuable. But experience should guide the technician toward the correct information—not replace it.

A highly experienced technician who verifies the repair procedure is stronger than a technician who says: “I’ve done a hundred of these.” Because number 101 may be different.

ADAS has made those differences increasingly important. A procedure that was acceptable on one model year may change on

the next. A sensor may move locations. A calibration process may change. Software may change. A replacement component may require initialization that the previous generation did not.

Assumption creates risk. Research reduces it.

THE COLLISION CENTER IS UNDER REAL PRESSURE

It is also important to acknowledge the environment collision centers work in.

Collision shops are not repairing vehicles in a vacuum. They are dealing with customers, technicians, parts delays, rental expenses, cycle-time expectations, supplements, insurer approvals, documentation requirements, and constant pressure to move vehicles through production.

Those pressures are real. Insurance carriers may question procedures. They may challenge labor. They may dispute diagnostic operations. They may question calibrations. They may refuse or reduce payment for operations that the repairer believes are necessary.

That creates a difficult position for the collision center. The shop is responsible for the repair, yet it may simultaneously be pressured to reduce the time and cost required to perform it. Those two objectives do not always align.

This guide is not written to criticize collision centers for operating within that reality. Quite the opposite. It is written because shops need stronger technical information and documentation to support the decisions they are already being forced to make.

A repair facility should not have to choose between proper repair procedures and defending why those procedures were necessary. The documentation should help tell that story.

THE INSURANCE ESTIMATE DOES NOT REPAIR THE VEHICLE

An insurance estimate is part of the financial process. It is not the manufacturer's repair procedure. Those are two separate things.

An insurer may establish what it is willing to pay. The manufacturer establishes how the vehicle is designed to be repaired and what procedures may be required after certain operations. Those responsibilities should not be confused.

The repair professional still has to determine what the vehicle needs. If research identifies a required operation, the shop should document it.

If an insurer questions that operation, the answer should not be based on opinion. It should be based on the repair information.

That places the conversation where it belongs. Not: “We always charge for this.” But: “This procedure is required because this repair operation was performed.”

That is a much stronger position.

DOCUMENTATION IS PART OF THE REPAIR

Documentation is sometimes treated as paperwork that happens after the real work is finished. On modern vehicles, documentation is part of the real work.

A properly documented repair file may contain pre-repair diagnostic scans, post-repair diagnostic scans, OEM procedures, repair planning information, calibration requirements, alignment results, programming records, calibration reports, photos, diagnostic notes, measurements, parts information, technician observations, and documentation of failed procedures and corrective actions.

Those records create a timeline. They show what was identified. They show what was repaired. They show what was verified. And they show why certain decisions were made.

The repair file becomes the memory of the repair.

LIABILITY IS NOT ABOUT FINDING SOMEONE TO BLAME

One of the worst habits in this industry is waiting until something fails and then trying to determine who owns the problem.

The body shop blames the calibration company. The calibration company blames the alignment shop. The alignment shop blames the suspension repair. The glass company blames the camera.

Everyone protects their invoice. Nobody solves the vehicle.

That mindset has to change.

Risk management is not about deciding who to blame. It is about identifying problems before the customer becomes the person who discovers them.

If an ADAS calibration fails, the goal should be to identify why. If alignment is out of specification, correct it. If a radar bracket is distorted, address it. If programming is incomplete, finish it. If the wrong part was installed, identify it. If the calibration technician made an error, correct it.

The responsible professional does not hide the problem. The responsible professional solves it.

THE ADAS PROVIDER ALSO OWNS PART OF THE RISK

Collision centers should expect accountability from their ADAS providers.

The ADAS provider should not be treated as someone who arrives with a scan tool, presses buttons, prints a calibration sheet, and leaves. That is not enough.

The provider needs to understand the conditions required for the procedure being performed. The provider should identify obvious problems when they exist. The provider should communicate when the vehicle is not ready. The provider should be able to explain why a calibration failed. The provider should document the procedure. And the provider should refuse to perform a procedure when required conditions cannot be met.

There are technicians in the ADAS industry who know how to operate calibration equipment but do not fully understand collision repair, vehicle geometry, programming, or diagnostics. That creates risk for the shop.

A calibration provider who simply says “It passed” without understanding the conditions under which it passed may be giving the repair facility false confidence.

A successful screen is useful. Understanding why that result can be trusted is more important.

WE CANNOT EXPECT THE COLLISION SHOP TO KNOW EVERYTHING

Collision repairers already carry an enormous technical workload. Structural procedures are changing. Materials are changing. Welding requirements are changing. Scanning requirements are changing. Electronics are becoming more complex. OEM procedures are expanding. ADAS systems are increasing every year.

It is unrealistic to expect every estimator, technician, production manager, and shop owner to also become an expert in every ADAS platform.

That is exactly why outside technical partners exist.

The calibration provider should bring specialized knowledge into the repair process. Not to tell the collision technician how to do body work. Not to criticize the shop. Not to take control of the repair. But to help identify where the repair intersects with the vehicle's electronic and driver-assistance systems.

That is the partnership.

RISK MANAGEMENT MEANS ASKING THE NEXT QUESTION

Suppose a calibration fails. A vendor may say: “It won't calibrate.” A risk-management partner asks: “Why won't it calibrate?”

Suppose a radar requires aiming after a repair. A vendor performs the aiming. A risk-management partner asks: “Were the prerequisites met before we started?”

Suppose the vehicle shows no diagnostic trouble codes. A vendor may assume the system is fine. A risk-management partner asks: “Does the OEM procedure require anything else after this repair?”

That extra question is where risk begins to decrease. It is also where technical value increases.

A DEFENSIBLE REPAIR FILE

There is a phrase worth remembering throughout this entire guide: A defensible repair file.

That does not mean creating paperwork because everyone is afraid of being sued. It means creating enough evidence to show that reasonable, technically supported decisions were made during the repair.

What information was available? What did the manufacturer require? What procedures were performed? What conditions were verified? What problems were identified? What corrective actions were taken? What final documentation supports the vehicle's return to service?

If those questions can be answered, the repair file becomes much stronger. And when a question arises later, the shop does not have to rely on memory. The evidence is already there.

THE CUSTOMER NEVER SEES MOST OF THIS

The customer usually never sees the complexity behind the repair.

They do not see the hours spent researching procedures. They do not see the scan tool. They do not see the alignment rack. They do not see the calibration target. They do not see the programming session.

They do not see the supplement discussions. They do not see technicians verifying bracket positions or checking repair information.

They see their vehicle. They assume that when the keys are handed back, the vehicle is ready.

That trust creates the ultimate responsibility. The customer should not have to understand ADAS calibration to receive a properly repaired vehicle. That is our job.

OUR ROLE AT ADVANCED ADAS TECHNOLOGIES OF TEXAS LLC.

At ADVANCED ADAS TECHNOLOGIES OF TEXAS LLC., our objective is not to replace the collision center's expertise.

Our objective is to strengthen the repair process where diagnostics, programming, calibration, repair verification, and ADAS technology intersect.

We want the shop to be able to call before the problem happens. We want to help identify calibration requirements. We want to help determine whether the vehicle is ready. We want to diagnose why procedures fail. We want to provide documentation that supports the repair. And when something does not look right, we want to communicate it before the vehicle leaves the facility.

That is why we use the term: Repair-Verification and Risk-Management Partner.

The calibration itself is important. But our value cannot end when the scan tool says successful. Our responsibility is to understand how that result fits into the complete repair.

RESPONSIBILITY BEFORE LIABILITY

The word liability tends to make people uncomfortable. It sounds like lawyers. Lawsuits. Courtrooms. Finger-pointing.

That is not the purpose of this chapter. The better word is responsibility.

If everyone involved in the repair accepts responsibility for their part of the process, liability becomes much easier to manage.

The collision center performs and documents the repair. The alignment provider verifies the geometry. The programmer correctly configures the modules. The ADAS technician verifies prerequisites and performs the required procedure. Each person communicates when something is wrong. Each person documents what was done. And nobody assumes that somebody else probably checked it.

That is the culture modern collision repair requires.

Because the technology is only becoming more complex. The next generation of vehicles will not reduce that responsibility. It will increase it.

And before we can understand where those responsibilities intersect, we need to understand the technology itself.

That takes us to Chapter Three: UNDERSTANDING ADAS — IT'S NOT JUST A CAMERA AND A RADAR.

UNDERSTANDING ADAS — IT'S NOT JUST A CAMERA AND A RADAR

A bumper can fit perfectly.

The body lines can be correct.

The paint can match.

The warning lights can be off.

And the vehicle can still leave the shop with an Advanced Driver Assistance System that is not operating as the manufacturer intended.

That is what makes ADAS different from almost every other system collision repair has dealt with.

These systems do not simply react to whether a component is connected or disconnected. They depend on position, geometry, communication, programming, environmental conditions, and the accuracy of the repairs surrounding them.

A radar mounted behind a bumper may only be several inches wide, but what that radar sees hundreds of feet down the road can be affected by a very small change in its mounting position.

A forward-facing camera may appear untouched after a collision, but changes to ride height, suspension geometry, windshield position, alignment, or structural dimensions can change the information that camera provides to the vehicle.

That is why ADAS cannot be treated as the final checkbox on a repair order.

CALIBRATION IS THE RESULT — NOT ALWAYS THE SOLUTION

One of the biggest misunderstandings surrounding ADAS is the belief that a technician simply connects a scan tool, performs a calibration, receives a successful result, and the vehicle is finished.

That is not how this works.

A calibration procedure assumes that the conditions surrounding the system are correct.

If those conditions are wrong, the technician must determine why before continuing.

This is where diagnostics and repair verification become inseparable from calibration.

A vehicle that refuses to calibrate may be telling us something.

The problem could involve:

Vehicle alignment or thrust angle.

Ride height.

Tire size or tire pressure.

Structural dimensions.

Sensor mounting position.

Brackets that are bent, distorted, or incorrectly installed.

Incorrect replacement parts.

Module programming or configuration.

Communication faults between vehicle networks.

Windshield installation.

Bumper or grille fitment.

Previous repairs that were never properly corrected.

Simply attempting the calibration again does not repair any of those conditions.

Sometimes the most important thing an ADAS technician can do is stop.

Stop attempting the calibration.

Stop clearing codes.

Stop assuming the equipment is the problem.

And start determining what the vehicle is trying to tell us.

THE ADAS TECHNICIAN HAS RESPONSIBILITY TOO

Responsibility does not belong solely to the collision center.

The ADAS industry has its own problem.

There are technicians performing calibrations who understand how to operate equipment but do not understand the vehicle they are calibrating.

Knowing how to position a target does not automatically make someone an ADAS technician.

Neither does owning an expensive calibration frame.

A qualified technician needs to understand how collision repairs, structural movement, suspension geometry, module communication, programming, and vehicle setup can affect the calibration process.

When a calibration fails, the technician should be capable of investigating the reason instead of immediately telling the shop:

“Your car won't calibrate.”

That statement solves nothing.

The collision center needs information it can act on.

What condition prevented the calibration?

What specification was outside the manufacturer's requirement?

What fault was discovered?

What needs to be inspected or corrected before another calibration attempt?

That communication is part of the job.

And when an ADAS provider performs a calibration without verifying the conditions required by the manufacturer, that provider accepts responsibility as well.

The collision shop should expect more from its calibration partner.

THIS IS WHERE THE PARTNERSHIP MATTERS

The purpose of an ADAS provider should not be to arrive at the end of the repair, perform a procedure, collect an invoice, and leave.

The real value is helping determine whether the vehicle is actually ready for that procedure in the first place.

That requires communication between the collision repairer and the ADAS technician.

When something does not make sense, both sides need to be able to ask questions without immediately pointing fingers.

The shop understands what happened during the repair.

The ADAS technician understands what the vehicle's systems are reporting.

Put those two pieces of information together, and problems can often be identified before they become comebacks—or something much worse.

That is the role ADVANCED ADAS TECHNOLOGIES OF TEXAS LLC. is built to provide.

Not simply a calibration vendor.

Not someone standing at the end of the repair process waiting for a work order.

But a repair-verification and risk-management partner working alongside the collision center.

Because the final question should never be:

“Did the calibration complete?”

The question should be:

“Do we have enough evidence to confidently return this vehicle to the customer?”

That distinction is going to become increasingly important as vehicle technology continues to evolve.

KNOWING WHERE THE RESPONSIBILITY INTERSECTS

This guide is not intended to teach a collision repair professional how to repair a vehicle.

That is not our role.

Collision professionals understand body repair, structural repair, refinishing, estimating, and the repair processes required to rebuild a damaged vehicle.

Our responsibility begins where those repairs intersect with the technology that depends on them.

That intersection is becoming larger with every new generation of vehicles.

A technician repairing a quarter panel may be working only inches away from sensors or wiring that support an ADAS function.

A bumper replacement may change the environment through which radar signals must travel.

A suspension repair can change vehicle geometry that a camera or radar system depends upon.

A windshield replacement can directly affect the position of a forward-facing camera.

A structural repair can change the relationship between multiple sensors even when every individual component appears undamaged.

None of this means the collision repair was performed incorrectly.

It means modern vehicles have created a level of interdependence that did not exist twenty years ago.

That is why communication between the collision center and the ADAS provider matters.

The ADAS technician needs to understand what was repaired.

The collision center needs to understand which systems may have been affected by those repairs.

Neither side should be guessing.

And neither side should be expected to carry the entire responsibility alone.

THE DOCUMENTATION HAS TO SUPPORT THE DECISION

A successful calibration report is important.

But it is only one piece of the repair record.

The real objective is to create documentation showing why the vehicle was considered ready to return to the customer.

That may include pre- and post-repair scans, OEM repair information, calibration requirements, alignment information, programming records, diagnostic results, calibration reports, and documentation of conditions that prevented or delayed a calibration.

That documentation protects more than the ADAS company.

It protects the collision center.

It protects the technician.

It helps support the repair decisions made during the process.

Most importantly, it helps protect the person who gets behind the wheel after everyone else is finished.

That is why ADVANCED ADAS TECHNOLOGIES OF TEXAS LLC. approaches ADAS as more than a procedure.

We are looking at the vehicle from the perspective of repair verification, system integrity, and risk management.

Calibration is part of that responsibility.

Diagnostics are part of it.

Programming is part of it.

Communication is part of it.

Documentation is part of it.

And knowing when not to calibrate a vehicle is sometimes just as important as knowing how to calibrate one.

Because before we can ask whether a calibration was completed correctly, we first have to answer another question:

“Was calibration required in the first place—and what repair operation triggered it?”

That takes us directly into Chapter Four.

WHEN CALIBRATION IS REQUIRED

One of the most expensive assumptions in modern collision repair is this:

“Nothing happened to the sensor, so it shouldn't need calibration.”

Unfortunately, that is not how manufacturers determine calibration requirements.

A camera does not necessarily have to be replaced.

A radar does not necessarily have to be damaged.

A warning light does not necessarily have to appear.

And a diagnostic trouble code does not necessarily have to be stored.

Calibration requirements are often triggered by the repair operation itself.

That distinction changes everything.

A windshield replacement.

A bumper removal.

An alignment.

Suspension work.

Structural repairs.

Ride-height changes.

Sensor removal and installation.

Module replacement or programming.

Even repairs performed somewhere else on the vehicle may create a manufacturer requirement to inspect, aim, initialize, learn, or calibrate an ADAS system.

The question therefore cannot simply be:

“Did we replace an ADAS component?”

The better question is:

“What did we do to this vehicle, and what does the manufacturer require because we did it?”

THE REPAIR PROCEDURE IS THE STARTING POINT

The calibration decision should not begin with a scan tool.

It should begin with the repair plan and the manufacturer's service information.

Every vehicle is different.

Every manufacturer establishes its own requirements, terminology, procedures, tolerances, and prerequisites.

Even two vehicles from the same manufacturer may have different requirements depending on model year, equipment, trim level, software configuration, and the ADAS systems installed.

That is why assumptions are dangerous.

We cannot say:

“We didn't calibrate the last one, so this one doesn't need it.”

The last vehicle is irrelevant.

The vehicle sitting in front of us is the one that matters.

The technician must identify the equipment installed on that specific vehicle and research the procedures associated with the repairs being performed.

That research should happen before the vehicle reaches the end of the repair.

WINDSHIELD REPLACEMENT

The windshield is one of the easiest examples.

Many modern vehicles have forward-facing cameras mounted to or positioned directly behind the windshield.

That camera may support systems such as:

Lane departure warning.

Lane keeping assistance.

Forward collision warning.

Automatic emergency braking.

Traffic sign recognition.

Adaptive cruise control.

Automatic high beams.

Replace the windshield and the camera's relationship to the road can change.

The new glass may be installed correctly and the camera may never have been physically damaged, but that does not automatically mean its aiming relationship remains within specification.

Depending on the manufacturer, windshield replacement may require a static calibration, dynamic calibration, initialization, aiming procedure, or a combination of procedures.

The requirement must be researched.

It cannot be guessed.

BUMPER AND GRILLE REPAIRS

This is another area where appearances can be misleading.

A radar sensor may sit behind a bumper cover, grille, emblem, or other exterior component.

To the technician looking at the finished vehicle, everything may appear perfect.

But radar does not care how good the paint looks.

It cares about what is in front of it and the angle at which it is mounted.

Material thickness, repair materials, paint buildup, incorrect parts, mounting distortion, brackets, emblems, and the position of the bumper or grille can affect radar performance.

In some applications, simply removing and reinstalling a radar sensor or a component supporting that sensor can create a calibration requirement.

This is why an ADAS technician must understand collision repair.

We cannot evaluate the radar system while ignoring the repairs surrounding it.

WHEEL ALIGNMENT AND SUSPENSION REPAIRS

This is one of the most important relationships in ADAS.

The vehicle's cameras and radar systems do not operate independently from vehicle geometry.

They need to understand where the vehicle is traveling.

That means alignment conditions—particularly the relationship between the wheels, steering system, and vehicle centerline—can matter tremendously.

A vehicle can drive down the road while the steering wheel appears reasonably straight and still have geometry that affects an ADAS calibration.

Suspension repairs can also change ride height or vehicle attitude.

Replace a control arm.

Replace a strut.

Repair steering components.

Correct collision damage to a suspension mounting point.

Perform an alignment.

Any of those operations may affect systems that depend on the vehicle's directional relationship to the road.

This is why the sequence of operations matters.

If the manufacturer requires the vehicle alignment to be within specification before calibration, calibrating first and aligning afterward defeats the purpose.

The calibration is only as reliable as the conditions under which it was performed.

STRUCTURAL REPAIRS

Structural repairs deserve special attention because the ADAS sensor itself may be nowhere near the visible collision damage.

Modern sensors rely on their relationship to the vehicle's centerline and surrounding structure.

If structural dimensions change, that relationship can change.

A repaired rail, apron, radiator support, rear body structure, mounting location, or other structural component can affect where a sensor is positioned relative to the vehicle.

The repair may be dimensionally correct.

But when the manufacturer's procedure calls for calibration following that repair, the calibration is part of verifying the completed repair.

This is not an accusation that the structural technician did something wrong.

It is verification that the electronic systems agree with the physical repair.

That distinction matters.

MODULE REPLACEMENT, PROGRAMMING AND CONFIGURATION

Not every ADAS-related procedure involves putting a target in front of a vehicle.

Modern vehicles contain modules that must communicate with one another correctly.

Replacing a module may require programming.

Programming may require configuration.

Configuration may require initialization.

And initialization may lead to an aiming or calibration procedure.

This is where terminology can create confusion.

Manufacturers use words such as:

Calibration.

Aiming.

Initialization.

Learn.

Setup.

Configuration.

Relearn.

These terms are not automatically interchangeable.

The technician must understand what the manufacturer is asking the vehicle to do.

A scan tool displaying “procedure successful” only proves that the procedure being performed reported success.

It does not prove that every required procedure was identified and completed.

NO WARNING LIGHT DOES NOT MEAN NO CALIBRATION

This deserves to stand by itself.

The absence of a warning light is not proof that an ADAS system is properly calibrated.

The vehicle may not know that its physical relationship to the road has changed.

A camera can communicate.

A radar can communicate.

A module can communicate.

The network can be completely functional.

And the sensor can still be aimed incorrectly.

From the module's perspective, nothing may be electronically wrong.

That is exactly why manufacturer repair procedures matter.

We cannot rely exclusively on diagnostic trouble codes to tell us whether calibration is required.

THE ESTIMATE SHOULD IDENTIFY ADAS EARLY

Waiting until the vehicle is assembled to start thinking about ADAS creates unnecessary problems.

ADAS should be considered during damage analysis and repair planning.

Identify the systems.

Identify the affected components.

Research the repair procedures.

Determine which operations trigger calibration.

Determine prerequisites.

Determine whether programming or initialization is required.

And determine when those procedures need to occur within the repair sequence.

This gives the collision center an opportunity to plan the repair instead of discovering requirements after everything has been assembled.

It also gives the ADAS provider an opportunity to communicate with the shop before a problem becomes a delay.

That is where the relationship changes.

Instead of receiving a phone call saying:

“The car is done. Come calibrate it.”

The conversation becomes:

“Here's what we're repairing. What do we need to account for before calibration?”

That second conversation can save everyone time.

DON'T CALIBRATE JUST TO CALIBRATE

There is another side to this responsibility.

We should not perform unnecessary calibrations either.

ADAS is not an excuse to add procedures to every repair order.

If the manufacturer does not require a calibration, we need to be able to explain why.

If it does require one, we need to be able to document why.

The objective is not to generate the largest invoice.

The objective is to perform the procedures necessary to properly return the vehicle to service.

That philosophy protects the collision center.

It protects the customer.

It protects the ADAS provider.

And it strengthens the credibility of our industry.

THE QUESTION THAT CHANGES THE REPAIR

The ADAS conversation should begin with one simple question:

What operation was performed on this vehicle?

Then we research what that operation requires.

Not what another shop normally does.

Not what happened on the last vehicle.

Not what an insurer believes should be necessary.

Not what a scan tool happens to offer in its menu.

What does the manufacturer require for this vehicle, with this equipment, after this repair?

That answer establishes the procedure.

The repair condition determines whether the vehicle is ready.

The technician verifies the prerequisites.

The calibration documents the result.

And the repair file tells the story.

That is how ADAS becomes part of the repair process instead of an afterthought at the end of it.

Because identifying that a calibration is required is only the beginning.

The next challenge is determining whether the vehicle is actually ready to be calibrated.

IS THE VEHICLE READY FOR CALIBRATION?

Knowing that a vehicle requires calibration is only half of the equation.

The next question is more important:

Is the vehicle actually ready to be calibrated?

This is where many problems begin.

The collision center has completed the repairs. The vehicle is assembled. The paint looks good. The warning lights may be off. The ADAS provider receives the call, arrives at the shop, sets up the equipment—and the calibration fails.

Now everyone is looking at the calibration technician.

The shop wants to know why it will not calibrate.

The technician may believe something is wrong with the vehicle.

Production is waiting.

The estimator wants the file closed.

The customer may already be expecting the vehicle.

And suddenly a technical problem becomes a production problem.

That situation can often be avoided.

The solution begins long before the first target is placed in front of the vehicle.

CALIBRATION HAS PREREQUISITES

OEM calibration procedures contain prerequisites for a reason.

Depending on the manufacturer and system, those requirements may include:

Correct tire size and inflation.

Proper ride height.

Correct wheel alignment.

Steering wheel centered.

Suspension in proper condition.

No excessive vehicle load.

Fuel level within a specified range.

Proper battery voltage.

Correct sensor mounting.

Undamaged brackets.

Correct bumper, grille, emblem, or windshield.

Required programming or configuration completed.

Relevant diagnostic trouble codes resolved.

Vehicle positioned on an appropriate surface.

Required distance and space around the vehicle.

Proper lighting conditions.

Clean camera and sensor viewing areas.

These are not suggestions.

They are conditions under which the manufacturer expects the procedure to be performed.

If the procedure requires those conditions, we need to verify them.

A SUCCESSFUL CALIBRATION DOES NOT EXCUSE BAD PREPARATION

This is an important distinction.

Sometimes a vehicle will complete a calibration even when something about the vehicle is questionable.

That does not mean we should ignore the condition.

The goal should never be:

“Can I make the scan tool say successful?”

The goal is:

“Can I verify that this procedure was performed under the conditions required by the manufacturer?”

Those are two very different standards.

A calibration report should be evidence supporting the repair—not a substitute for proper repair verification.

START WITH THE VEHICLE, NOT THE EQUIPMENT

When a calibration fails, there is a natural tendency to look at the calibration equipment first.

Is the target positioned correctly?

Is the frame level?

Is the scan tool communicating?

Is the software current?

Those are legitimate questions.

But the vehicle itself must also be investigated.

Before repeatedly attempting the same procedure, the technician should look for the reason the system is refusing to complete it.

Check the basics.

Look at the repair.

Review the scan.

Verify the prerequisites.

Understand what happened to the vehicle.

A failed calibration is not always a calibration problem.

Sometimes it is a diagnostic clue.

THE REPAIR HISTORY MATTERS

One of the first questions I want answered when approaching a difficult calibration is:

What was repaired?

That information can completely change the diagnostic direction.

If the vehicle received suspension repairs, I want to know that.

If the windshield was replaced, I want to know that.

If a radar bracket was repaired or replaced, I want to know that.

If structural work was performed, I want to know that.

If the bumper was repaired instead of replaced, I want to know that.

If modules were replaced or programmed, I want to know that.

This is not about second-guessing the collision technician.

It is about understanding the vehicle in front of us.

The calibration technician cannot effectively verify the final system while working blind to the repairs that came before it.

ALIGNMENT IS MORE THAN A PIECE OF PAPER

Wheel alignment deserves particular attention because of how closely it can interact with ADAS.

Seeing an alignment printout does not automatically answer every question.

What matters is whether the required specifications were achieved and whether the conditions important to the ADAS procedure are correct.

A technician needs to understand what the numbers mean.

Thrust angle matters.

Steering position matters.

Suspension geometry matters.

Ride height can matter.

The relationship between where the vehicle is physically pointed and where the electronic systems believe it is traveling matters.

This is why ADAS technicians need more than calibration equipment.

They need an understanding of the vehicle.

THE FLOOR CAN BECOME PART OF THE CALIBRATION

Static calibrations introduce another condition that collision centers may not immediately consider:

The environment becomes part of the procedure.

Floor condition can matter.

Space can matter.

Lighting can matter.

Target distance can matter.

Vehicle positioning can matter.

Metallic objects or reflective surfaces may matter for certain systems.

A calibration area does not become acceptable simply because a target fits in front of the vehicle.

The technician must determine whether the environment meets the requirements of the procedure being performed.

This is particularly important for mobile ADAS providers.

Being mobile does not eliminate OEM requirements.

It makes verifying the environment even more important.

If the location cannot support the required procedure, the correct answer is not to force the calibration.

The correct answer is to explain the limitation and determine the proper next step.

KNOWING WHEN TO SAY NO

This may be one of the most important responsibilities of an ADAS technician.

Sometimes the professional answer is:

“I am not calibrating this vehicle yet.”

That can be difficult to say when a shop is waiting.

But if a required condition has not been met, proceeding just to keep production moving transfers unnecessary risk to everyone involved.

The technician should be able to explain specifically what prevents the procedure from being performed.

Not:

“Something is wrong with the car.”

Instead:

“The manufacturer requires this condition before calibration, and that condition has not been verified.”

Now the collision center has useful information.

That is the difference between being a vendor and being a technical partner.

CALIBRATION FAILURE SHOULD CREATE A PROCESS

When a calibration fails, the response should not be random.

There should be a process.

Verify the setup.

Verify the vehicle.

Review diagnostic trouble codes.

Review the repair history.

Verify programming and configuration.

Verify alignment and vehicle geometry when applicable.

Inspect the sensor and its mounting.

Review the OEM procedure again.

Then document what was found.

If the vehicle needs to return to the collision technician, alignment provider, glass installer, mechanical technician, or programmer, explain why.

That prevents the vehicle from bouncing between departments with everyone guessing.

THE SHOP AND ADAS PROVIDER SHOULD NOT BE ADVERSARIES

A failed calibration should not automatically turn into:

“The body shop did something wrong.”

And it should not automatically become:

“The calibration guy doesn't know what he's doing.”

Both reactions destroy the partnership.

The objective is to identify the condition preventing the vehicle from being completed.

Sometimes that condition originates in the collision repair.

Sometimes it originates with the replacement part.

Sometimes it is programming.

Sometimes it is alignment.

Sometimes it is the calibration setup.

And sometimes the ADAS technician made the mistake.

We have to be willing to admit that too.

Competence does not mean never making a mistake.

Competence means having the knowledge and discipline to recognize one, correct it, document it, and learn from it.

OUR RESPONSIBILITY DOES NOT END WITH “SUCCESS”

At ADVANCED ADAS TECHNOLOGIES OF TEXAS LLC., our responsibility is not simply to produce a successful calibration screen.

We need to be able to stand behind the process that produced it.

Was the correct procedure identified?

Were the prerequisites verified?

Was the vehicle properly prepared?

Were relevant faults addressed?

Was the equipment set up correctly?

Was the calibration completed according to the manufacturer's procedure?

And can we document what we did?

Those questions are part of risk management.

Because months after the repair, nobody is going to remember every conversation that happened in the shop.

The documentation will remain.

THE VEHICLE HAS TO EARN THE CALIBRATION

There is a mindset I want collision centers and ADAS technicians to take away from this chapter:

A vehicle should not receive a calibration simply because it reached the end of the repair.

It should reach calibration because the conditions required for calibration have been verified.

That changes the process.

It reduces wasted calibration attempts.

It reduces finger-pointing.

It helps identify repair problems earlier.

It creates better documentation.

And ultimately, it provides stronger evidence that the vehicle was properly prepared before being returned to its owner.

The target, scan tool, and calibration frame are only tools.

The real work is understanding whether the vehicle is ready for us to use them.

And once the vehicle is ready, another responsibility begins:

How do we prove what was done?

That takes us to Chapter Six—Documentation: If You Can't Prove It, You Didn't Do It.

DOCUMENTATION - IF YOU CAN'T PROVE IT, YOU DIDN'T DO IT

There is an old saying in the repair industry: “If it isn't documented, it didn't happen.”

That statement has never been more relevant than it is today.

A technician may know exactly what was done. The estimator may remember the conversations. The ADAS technician may remember why a calibration was required. But months or years later, memories disappear and people change positions. What remains is the repair file.

That file needs to tell the story.

A CALIBRATION REPORT IS NOT THE ENTIRE STORY

A successful calibration report proves an important event occurred, but it does not necessarily explain why the calibration was required, whether every prerequisite was met, what repairs triggered the procedure, whether alignment was relevant, or what programming and diagnostic work occurred before calibration.

The strongest documentation connects the pieces:

Repair operation -> OEM requirement -> prerequisite verification -> procedure performed -> result documented.

Now we have a repair story.

START DOCUMENTING BEFORE THE REPAIR IS FINISHED

Documentation should begin during damage analysis, not when someone is trying to close the repair order.

If OEM research identifies a calibration requirement, save the information. If a procedure contains prerequisites, document them.

If programming will be necessary, plan for it. If alignment must occur before calibration, establish that sequence.

Good documentation should follow the vehicle through the process.

PRE-REPAIR AND POST-REPAIR SCANNING

A pre-repair scan provides a picture of the vehicle's electronic condition before repairs begin. It can identify collision-related faults, communication problems, ADAS faults, offline modules, and conditions requiring further diagnosis.

But a scan report is information. It still requires interpretation.

The post-repair scan asks a different question: What is the electronic condition of the vehicle after repairs and required procedures have been completed?

Were collision-related faults resolved? Are repaired systems communicating? Did programming create additional setup requirements? Are there faults that require explanation rather than simply being erased?

Clearing a code is not the same thing as repairing the condition that created it.

OEM REPAIR INFORMATION

When a calibration or other ADAS procedure is required because of a repair operation, the OEM information supporting that decision should become part of the repair documentation whenever practical.

Instead of saying, "Our calibration company says it needs it," the conversation becomes, "This is the manufacturer's requirement associated with the repair operation."

That removes opinion and gives the collision center technical support for its repair plan.

ALIGNMENT, PROGRAMMING AND CONFIGURATION RECORDS

If alignment is a prerequisite to calibration, the alignment documentation becomes relevant to the ADAS procedure. The printout should not merely exist; it should be reviewed.

Programming records matter too. What module was replaced? Was programming successful? Was configuration required? Was initialization performed? Did programming create another procedure that needed to be completed?

Programming, configuration, initialization and calibration can be interconnected. The documentation should reflect that sequence.

DOCUMENT FAILED CALIBRATIONS TOO

A failed calibration should not disappear simply because the vehicle eventually calibrated successfully.

Sometimes the failure is one of the most valuable pieces of information in the repair. If calibration fails because alignment is outside specification, the vehicle is corrected, and the next calibration passes, that sequence demonstrates process.

Failure is not necessarily something to hide. Properly handled, it shows that a problem was identified and corrected.

TECHNICIAN NOTES STILL MATTER

A scan report cannot explain everything. Clear technician notes provide context.

“Calibration could not be performed because the radar mounting bracket was visibly distorted. Collision center notified before procedure.”

That sentence can be more useful later than pages of raw data.

DO NOT DOCUMENT SOMETHING YOU DID NOT VERIFY

If you did not verify the alignment, do not document that it was correct. If you did not inspect a component, do not state that it was

undamaged. If another provider performed an operation, identify it accurately.

Good documentation is not about making the file look perfect. It is about making it accurate.

DOCUMENTATION SHOULD PROTECT THE SHOP - NOT BURDEN IT

Collision centers already deal with enormous paperwork. The answer is not another pile nobody reads.

Documentation should be relevant, organized, understandable and connected to the repair. An ADAS provider should make this easier for the collision center, not harder.

OUR DOCUMENTATION IS PART OF OUR PRODUCT

At ADVANCED ADAS TECHNOLOGIES OF TEXAS LLC., the service is not complete when the calibration finishes.

The scan report matters. The calibration report matters. The diagnostic explanation matters. The programming record matters. The technician notes matter.

Our collision partners should receive more than an invoice. They should receive evidence supporting the work performed on their customer's vehicle.

Research it. Perform it. Verify it. Document it.

That four-step mindset creates a repair record capable of standing on its own.

WHEN GOOD REPAIRS GO WRONG

COMMON ADAS FAILURES, ASSUMPTIONS AND SHORTCUTS

Most ADAS problems do not begin with someone intentionally doing bad work. They begin with an assumption.

“The sensor wasn't hit.”

“There aren't any codes.”

“The alignment is green.”

“The calibration passed.”

“We've done these before.”

Every one of those statements can lead us in the wrong direction.

THE MOST DANGEROUS WORD MAY BE “ASSUME”

Experience creates efficiency, but two vehicles that look nearly identical can have different equipment and different calibration requirements. Procedures change between model years. The strongest technician knows when to verify.

“THERE ARE NO CODES”

A DTC is not a complete ADAS inspection. A sensor can communicate and still be physically misaligned. A camera can function electronically and still require calibration.

No codes does not automatically mean no problem.

“THE SENSOR WASN'T DAMAGED”

The sensor may be fine while everything around it has changed: bracket, bumper, grille, emblem, windshield, structure, suspension geometry or ride height.

We cannot inspect only the sensor. We have to understand the repair surrounding it.

THE GREEN ALIGNMENT SHEET

Green numbers create confidence, but ADAS technicians need to understand the numbers. What specifications were used? What does thrust angle show? Is the steering wheel centered? What does the OEM calibration procedure require?

The printout is evidence. It still needs interpretation.

REPEATING A FAILED CALIBRATION IS NOT DIAGNOSIS

There is a point where repetition stops being troubleshooting.

If setup has been verified and the procedure continues to fail, stop trying to force a successful screen and start asking why the system refuses to calibrate.

Check the vehicle. Check repair history. Check alignment. Check sensor mounting. Check programming. Check configuration. Check DTCs. Check the OEM procedure.

THE “PASS” THAT CREATES FALSE CONFIDENCE

A successful calibration can be dangerous when nobody verified the conditions under which it was performed.

Was the correct procedure used? Were prerequisites met? Was alignment correct when required? Was programming complete? Was the correct target used?

A successful result matters. Success without process is not the standard.

WHEN THE ADAS TECHNICIAN IS THE PROBLEM

Not every failed ADAS repair is the collision center's fault.

There are technicians who know how to operate calibration equipment but do not understand collision repair, geometry, programming or diagnostics. They know how to produce a report, but when something goes wrong they cannot explain why.

Equipment does not create a technician.

A qualified ADAS technician needs working knowledge of electrical systems, networks, DTCs, programming, steering and suspension, alignment geometry, collision repair, sensor mounting, OEM information and calibration prerequisites.

No technician knows everything. The difference is knowing when more information is needed and being willing to find it.

REMOVE THE EGO

The body technician can miss something. The estimator can miss something. The alignment technician can miss something. The ADAS technician can miss something.

The vehicle does not care whose fault it is.

The first question should be: “What is wrong with the vehicle?”

The best catch is the one the customer never knows about.

THE DIFFERENCE BETWEEN A VENDOR AND A PARTNER

A vendor is called to perform a procedure.

A partner helps determine whether the procedure should be performed, whether the vehicle is ready, why it failed, what must happen next, and what documentation supports the final result.

That is the relationship ADVANCED ADAS TECHNOLOGIES OF TEXAS LLC. wants with collision repair facilities.

The goal is not simply to complete another calibration. The goal is to help the collision center confidently return a properly repaired vehicle to its customer.

THE ADAS TECHNICIAN

COMPETENCE, ACCOUNTABILITY AND THE RESPONSIBILITY TO KNOW WHEN YOU DON'T KNOW

The ADAS industry has grown quickly. As calibration demand has increased, equipment has become more accessible and more companies have entered the market.

That growth created opportunity. It also created a problem.

Owning calibration equipment does not make someone an ADAS technician.

FOLLOWING THE SCREEN IS NOT ENOUGH

Modern scan tools can guide a technician step by step. That technology is valuable, but following instructions on a screen is not the same thing as understanding the procedure.

What happens when calibration fails? When a module will not communicate? When programming completes but configuration does not? When the alignment report looks unusual?

That is where the technician begins.

A CALIBRATION TECHNICIAN MUST ALSO BE A DIAGNOSTIC THINKER

The best ADAS technicians begin by asking questions.

What happened to the vehicle? What was repaired? What systems are involved? What does the OEM require? What prerequisites apply? What faults are present? What changed?

A technician does not need to know every answer immediately. They need to know how to find it.

KNOW THE VEHICLE, NOT JUST THE EQUIPMENT

ADAS does not exist in isolation. Cameras depend on glass and mounting. Radar depends on brackets, bumper structures and

geometry. Calibration may depend on alignment. Programming depends on stable voltage and network communication.

The technician needs enough understanding of the surrounding systems to recognize when something does not make sense.

COLLISION REPAIR, ELECTRICAL AND NETWORK KNOWLEDGE MATTER

An ADAS technician working with collision centers should understand how repairs happen. They also need basic electrical and network knowledge.

Modules need power, ground and communication. Modern vehicles are networks on wheels. ADAS modules exchange information with steering, braking, body, powertrain, restraint and chassis systems.

The ADAS technician does not have to be an electrical engineer. But they cannot be afraid of a wiring diagram.

PROGRAMMING IS NOT PLUG-AND-PLAY

Programming is changing the electronic configuration of the vehicle. A successful programming screen may be followed by configuration, initialization, relearn or calibration.

The technician needs to understand the consequences of the operation, not simply the button sequence.

OEM INFORMATION HAS TO OVERRIDE HABIT

If current OEM information conflicts with what we normally do, the current OEM information wins. Period.

Training and certification matter, but there is no finish line in ADAS training. Technology changes too quickly.

KNOWING WHEN YOU DON'T KNOW

A professional technician has to be comfortable saying: "I don't know yet."

That means: I need to research. I need to test. I need more information. I need technical support. I need another technician's opinion.

Pretending to know may protect an ego for ten minutes. It can create a problem that lasts much longer.

DO NOT USE THE CUSTOMER'S VEHICLE AS A TRAINING EXPERIMENT

Every technician has to learn. But there is a difference between learning through proper technical resources and blindly experimenting on a customer's vehicle.

Research it. Study it. Ask for help. Verify it.

THE PAYDAY MENTALITY

ADAS cannot become an arrive-connect-calibrate-print-invoice-leave business.

We are dealing with systems capable of influencing warnings, steering, braking and acceleration. This is not the place for a “good enough” mentality.

DO NOT SELL FEAR

Safety should not be used as a weapon to sell unnecessary work.

If calibration is required, document why. If it is not required, do not invent a reason. If you do not know, research it.

Technical evidence builds credibility.

YOUR REPORT HAS YOUR NAME ON IT

When the name ADVANCED ADAS TECHNOLOGIES OF TEXAS LLC. appears on documentation, it should mean the procedure was researched, the vehicle evaluated, prerequisites considered, the procedure performed and the result documented.

If something prevented proper completion, we said so.

That is professional accountability.

OUR INDUSTRY NEEDS TECHNICIANS - NOT BUTTON PUSHERS

The button will become easier to push. Knowing whether the button should be pushed will become more important.

Collision centers should expect us to research, communicate, document, admit mistakes, correct them, keep learning and never allow ego or an invoice to become more important than the vehicle.

That is professionalism.

FROM VENDOR TO PARTNER

BUILDING THE COLLISION CENTER-ADAS RELATIONSHIP

For years, sublet services followed a simple model: the shop called a vendor, the vendor completed the work, an invoice came back, and production continued.

ADAS changes that.

Calibration can depend on repairs completed earlier. Programming may need to occur at a specific point. Alignment may need to happen before calibration. A failed calibration can send the vehicle backward through production.

The ADAS provider needs to become part of the repair conversation earlier.

TO THE SHOP OWNER

You do not need to become an ADAS technician. But you need to understand the risk ADAS introduces into the business.

Price, cycle time and availability matter. Technical capability matters too.

Ask yourself: Who are we allowing to put their name next to ours on the final repair?

The customer may never know the calibration company existed. They know your shop repaired their vehicle.

TO THE ESTIMATOR AND ADVISOR

You often see the repair before almost anyone else.

You do not need to memorize every calibration requirement. You need the habit of asking: “Could this repair affect an ADAS system?”

If the answer might be yes, research it or involve someone who can.

DAMAGE ANALYSIS IS WHERE THE PARTNERSHIP SHOULD BEGIN

The best time to discover a calibration requirement is not delivery day.

Identify requirements during repair planning. Schedule alignment, programming and calibration in the correct sequence. Planning prevents vehicles from moving backward through production.

GIVE THE ADAS TECHNICIAN INFORMATION

Tell us what happened to the vehicle.

Was the windshield replaced? Suspension repaired? Structural work performed? Bumper repaired or replaced? Radar removed? Modules replaced? Alignment completed? Did another provider already attempt calibration?

Communication saves time.

THE ADAS PROVIDER SHOULD GIVE INFORMATION BACK

If calibration succeeds, document it. If it fails, explain why as far as the evidence allows. If another repair is needed, identify the condition. If the vehicle is not ready, explain the prerequisite.

Do not simply send “FAILED.”

CYCLE TIME MATTERS

Respecting cycle time does not mean cutting corners.

Research before arrival. Confirm prerequisites. Communicate requirements early. Bring the correct equipment. Identify problems quickly. Provide documentation promptly.

That is how a technical partner helps cycle time without sacrificing the repair.

THE CHEAPEST CALIBRATION MAY BECOME THE MOST EXPENSIVE

Price alone cannot determine technical value.

A low-cost calibration that creates repeated attempts, diagnostic delays, missing documentation or a comeback is no longer inexpensive.

The question is: Who consistently helps us complete the repair correctly and efficiently?

MOBILE ADAS REQUIRES DISCIPLINE

Mobile service offers major advantages, but not every environment supports every calibration.

Space, floor condition, lighting, weather, traffic and vehicle positioning matter. Mobility should increase convenience. It should not lower the technical standard.

INSURANCE PRESSURE SHOULD NOT DIVIDE THE REPAIR TEAM

Required procedures and reimbursement are not always aligned.

Our responsibility is to accurately identify what the vehicle requires and document why. The technical requirement does not change simply because payment is disputed.

CREATE A PROCESS BEFORE YOU HAVE A PROBLEM

Decide how scheduling, research, failed calibrations, documentation, authorization and communication will work before the difficult vehicle arrives.

Good habits create predictable results.

THE ADAS PROVIDER SHOULD HELP YOU SAY “NOT YET”

Sometimes the correct answer is: Not yet.

Not yet - alignment still needs to be completed.

Not yet - final assembly is incomplete.

Not yet - programming has not been performed.

Not yet - the sensor mounting needs inspection.

Those words can prevent the vehicle from coming backward through production later.

FROM TRANSACTION TO TRUST

Trust develops when the difficult vehicle arrives.

The goal should not be for a collision center to think, “That's our calibration company.”

The goal should be: “That's who we call when we need help figuring this out.”

At ADVANCED ADAS TECHNOLOGIES OF TEXAS LLC., we want to become part of the shop's technical support structure - a repair-verification and risk-management partner, not a replacement for the collision center.

THE FINAL VERIFICATION

BEFORE THE VEHICLE GOES HOME

There is a moment in every collision repair when the vehicle stops being a vehicle under repair and becomes a vehicle ready for its owner.

Before the keys go back, somebody needs to ask:

“What evidence do we have that this vehicle is ready?”

QUALITY CONTROL IS NOT A WALK-AROUND

Paint, gaps, lights, interior and cleanliness matter. But modern quality control has to go deeper.

A vehicle can pass a visual inspection and still have an incomplete electronic repair.

GO BACK TO THE REPAIR PLAN

What was damaged? What was repaired? What modules were involved? What ADAS systems were affected? What calibrations, programming, alignment or mechanical work was required?

Now compare the plan to the completed repair.

Did everything identified actually get completed?

REVIEW THE SUPPLEMENTS

Repairs evolve. Additional structural damage, suspension work, bumper replacement, module replacement or windshield work can create new ADAS requirements.

The final vehicle - not the original estimate - is what must be verified.

VERIFY CALIBRATIONS, PROGRAMMING AND ALIGNMENT

Do not assume the calibration was completed. Find the report. Review it. Put it in the repair file.

If a module was replaced, confirm the entire procedure: programming, configuration, setup, initialization, relearn and calibration as required.

If alignment was relevant, review the results rather than simply confirming that an invoice exists.

PERFORM THE FINAL SCAN

The final scan is one of the last opportunities to hear what the vehicle has to say before delivery.

The objective is not a pretty report. The objective is to understand the electronic condition of the vehicle.

Do not clear evidence before understanding it.

THE DASHBOARD IS NOT A DIAGNOSTIC TOOL

No warning lights is good. It is not final verification.

Many calibration requirements exist without a warning indicator. Many physical conditions will not immediately create a DTC.

ROAD TEST WITH A PURPOSE

When appropriate, listen, feel and observe. Does the steering wheel sit correctly? Does the vehicle track normally? Are warning indicators present? Are repaired systems behaving as expected?

A road test does not replace calibration, but it can identify something requiring attention before delivery.

VERIFY THE VEHICLE - NOT JUST YOUR PART

The body technician sees the body repair. The programmer sees the module. The ADAS technician sees the calibration. The estimator sees the repair plan.

The customer receives all of it.

Final verification is where those pieces become one vehicle again.

SOMEONE HAS TO OWN THE LAST QUESTION

The shop needs a defined point where someone confirms that required documentation and verification steps have been completed.

Without that accountability, everyone may reasonably assume somebody else checked.

DON'T LET DELIVERY TIME MAKE THE DECISION

The customer is in the lobby. The rental is due. It is Friday afternoon.

That is exactly when discipline matters most.

A delivery promise cannot determine whether a technical requirement is necessary.

A FAILED FINAL CHECK IS A SUCCESSFUL PROCESS

If final verification finds a missed calibration, returned fault, loose connector or alignment issue, the process caught the problem before delivery.

Correct it. Document it. Learn from it.

The failure would have been allowing the customer to discover it.

PUT YOUR NAME BEHIND IT

Before returning the vehicle, ask yourself:

Would I put my name on this repair?

Would I be comfortable explaining the decisions? Showing the documentation? Putting someone I care about in the vehicle?

If yes, deliver it with confidence. If not, find out why.

At ADVANCED ADAS TECHNOLOGIES OF TEXAS LLC., our calibration, diagnostics, programming and repair-verification documentation becomes part of the collision center's final repair record.

The repair is complete when the evidence supports it.

BEYOND ADAS

THE VEHICLE IS BECOMING A SOFTWARE-DEFINED MACHINE

For most of automotive history, a vehicle was primarily a mechanical machine.

That world still exists. But another vehicle has been developing underneath it - a vehicle built around software, sensors, networks, electronic control modules, data, configuration and communication.

ADAS is one of the most visible examples of that transformation. It is not the end of it.

THE VEHICLE IS BECOMING A NETWORK

Modern vehicles contain numerous electronic control modules communicating constantly.

The camera does not work alone. The radar does not work alone. The braking system does not work alone. The steering system does not work alone.

The diagnostic question increasingly becomes: What information does this system need from the rest of the vehicle, and is it receiving it?

SOFTWARE IS NOW PART OF THE REPAIR

A replacement component may need programming, configuration, coding, initialization, security authorization or calibration.

The physical component can be installed perfectly and the repair can still be incomplete.

Software has entered the repair bay.

OVER-THE-AIR UPDATES CHANGE THE VEHICLE

The vehicle repaired today may not electronically behave exactly like the same model repaired a year ago.

Software can change. Features can change. Diagnostic behavior can change. System strategies can change.

That makes current service information increasingly important.

ARTIFICIAL INTELLIGENCE HAS ALREADY ENTERED THE REPAIR PROCESS

Artificial intelligence is no longer something coming to automotive repair. It is already here.

Technicians, estimators, shop owners, equipment manufacturers, software providers and technical support systems are already using AI in different parts of the repair process.

AI can assist with interpreting diagnostic information, searching service information, identifying patterns across DTCs, analyzing vehicle data, assisting repair planning, researching calibration requirements, comparing pre- and post-repair conditions, organizing documentation and helping technicians work through unfamiliar diagnostic situations.

But there is an important distinction:

AI can provide knowledge. The technician still owns the decision.

Artificial intelligence can analyze information quickly, but it does not automatically know that a bracket is slightly distorted, that a connector was damaged, or that a vehicle has previous collision damage unless that information is provided.

And AI can produce an answer that sounds completely confident and still be wrong.

Use it. Question it. Verify it.

If AI identifies a possible calibration requirement, verify it against current OEM information. If it suggests a diagnostic direction, test it. If it helps interpret a DTC, confirm that interpretation using the actual vehicle and applicable service information.

AI DOES NOT REPLACE EXPERIENCE - IT AMPLIFIES IT

An experienced technician knows when an answer does not make sense. They understand which information to provide, which tests

can confirm the diagnosis, and the difference between a possibility and a verified condition.

AI should make a good technician better. It should never become an excuse to stop learning.

THE TOOL WILL GET SMARTER

Calibration equipment will become more automated. Vehicle identification will improve. Target positioning may become easier. Diagnostic platforms may guide technicians through increasingly complex procedures.

If equipment performs more of the procedure, what makes the technician valuable?

Judgment.

Understanding whether the vehicle is ready. Understanding why something failed. Recognizing when information does not make sense. Knowing what changed during the repair.

SELF-CALIBRATING DOES NOT MEAN SELF-VERIFYING

Automation changes the procedure. It does not eliminate verification.

If alignment is wrong, software does not straighten the vehicle. If a mounting location is wrong, self-learning does not automatically make it correct.

THE ADAS PROVIDER WILL CHANGE TOO

An ADAS company built only around performing calibration procedures may eventually struggle.

Long-term value is broader: diagnostics, programming, vehicle networking, repair verification, technical research, software configuration, problem solving, documentation and technical support.

That is one reason ADVANCED ADAS TECHNOLOGIES OF TEXAS LLC. uses the term risk-management partner.

The target is not the business. Knowledge is the business.

THE FUTURE WILL REWARD PEOPLE WHO CAN SOLVE PROBLEMS

Tools change. Software changes. Vehicles change. Procedures change.

Understand the system. Find the information. Test the condition. Interpret the result. Verify the repair. Document the decision.

Those skills survive technological change.

THE TECHNOLOGY WILL CHANGE. THE RESPONSIBILITY WILL NOT.

Twenty years from now, technicians may laugh at some of the calibration equipment we use today. Procedures may become automatic. Diagnostic systems may become dramatically smarter.

But someone will still have to decide:

Is this vehicle ready to return to the road?

That responsibility does not belong to a scan tool, software or artificial intelligence.

It belongs to the professionals entrusted with the repair.

ONE VEHICLE. ONE FAMILY. ONE RESPONSIBILITY.

We started this book talking about technology.

Cameras. Radar. Sensors. Calibration. Diagnostics. Programming.
Vehicle networks. OEM procedures. Documentation.

But after everything we have discussed, this book was never really about technology.

It was about responsibility.

Technology simply changed how much responsibility we carry.

THE VEHICLE DOES NOT KNOW WHO REPAIRED IT

The vehicle does not know which company repaired the body, who performed the alignment, who replaced the windshield, who programmed the module, which company calibrated the camera, or which insurance carrier paid the claim.

The vehicle only knows the condition it is in when it returns to the road.

ONE VEHICLE

The vehicle moves through many hands: estimator, body technician, structural technician, painter, mechanical technician, glass technician, alignment technician, diagnostic technician, programming technician, ADAS technician, production manager and quality-control personnel.

Each person performs a different operation.

The customer receives one vehicle.

ONE FAMILY

We rarely know what happens after the vehicle leaves.

Maybe the customer picks up their children. Maybe a teenager drives it to school. Maybe someone's spouse drives it. Maybe someone begins a thousand-mile road trip.

They will never see the calibration targets. They may never read the scan report. They simply assume the vehicle was repaired correctly. That trust is enormous.

ONE RESPONSIBILITY

Everyone involved in the repair owns a piece of the responsibility. Nobody can know everything. Nobody can personally verify every operation performed by every other professional.

But everyone can refuse to ignore something that does not look right.

THERE IS NOTHING WRONG WITH SAYING “I NEED HELP”

Modern vehicles have become too complex for ego.

One of the strongest sentences a professional can say is:

“I need another set of eyes on this.”

The dangerous technician is not the person who asks for help. It is the person who needs help and refuses to admit it.

THE SHOP DOES NOT NEED ANOTHER VENDOR

Collision centers already have vendors.

What modern collision centers increasingly need are technical partners.

Someone who understands why a calibration is required. Someone who can research the procedure. Someone who understands programming. Someone who can diagnose communication problems. Someone who understands how alignment affects ADAS. Someone who can explain why a calibration failed instead of simply saying, “It won't calibrate.”

THIS IS WHY ADVANCED ADAS TECHNOLOGIES OF TEXAS LLC. EXISTS

ADVANCED ADAS TECHNOLOGIES OF TEXAS LLC. was not built simply to put targets in front of vehicles.

Calibration is part of what we do. It is not the limit of what we do.

Our work exists at the intersection of collision repair and modern vehicle technology:

ADAS calibration.

Advanced diagnostics.

OEM programming.

Module setup and configuration.

Electronic system diagnosis.

Pre-repair and post-repair scanning.

Repair verification.

Calibration failure diagnosis.

Technical research.

Mechanical and electrical problem solving.

And most importantly: helping collision repair facilities determine what needs to happen next.

Sometimes the most valuable thing we can provide is not a calibration.

It is an answer.

WHEN THE CALIBRATION DOESN'T WORK, CALL US

The easy calibration is not where a technical partner proves value.

The difficult vehicle is.

When the camera refuses to calibrate. When the radar repeatedly fails. When programming will not complete. When a module will not communicate. When network faults do not make sense. When alignment looks correct but the procedure still fails.

Call us.

Not because we promise to know every answer immediately.
Nobody does.

Call us because we will work to find the answer.

Research it. Diagnose it. Measure it. Test it. Verify it.

WHEN YOU DON'T KNOW WHETHER A CALIBRATION IS REQUIRED, CALL US

Do not guess.

Give us the vehicle information. Tell us what was repaired. Let us research the requirement.

If the manufacturer requires the procedure, we will help document why. If the procedure is not required, we should tell you that too.

We would rather earn a shop's trust by giving the correct answer than generate an invoice for work the vehicle did not require.

BEFORE THE VEHICLE BECOMES A PROBLEM, CALL US

Do not wait until delivery day. Do not wait until the customer is in the lobby. Do not wait until the calibration has failed five times.

Bring the technical side into the repair conversation earlier.

During damage analysis. During repair planning. When the supplement changes the repair. When a module needs replacement. When structural or suspension damage may affect ADAS. When you simply are not sure.

ADVANCED ADAS TECHNOLOGIES OF TEXAS LLC. wants to be the call you make before the problem becomes expensive.

WE UNDERSTAND THE COLLISION CENTER'S SIDE

Cycle time matters. Rental matters. Parts delays matter. Technician productivity matters. Insurance reimbursement matters. Customer expectations matter. Floor space matters. Delivery dates matter.

Our job is not to add another obstacle.

Our job is to help remove technical uncertainty from the repair.

WE ALSO UNDERSTAND WHEN THE ANSWER HAS TO BE “NO”

Sometimes the vehicle is not ready. Sometimes alignment needs correction. Sometimes programming has to happen first. Sometimes a damaged mounting condition needs repair.

Sometimes the correct decision is:

“We should not calibrate this vehicle yet.”

A technical partner who always says yes is not protecting the shop.

WE PUT OUR NAME NEXT TO YOURS

When ADVANCED ADAS TECHNOLOGIES OF TEXAS LLC. performs work on a collision repair, our documentation becomes part of that repair file.

We want our name to represent research, competence, communication, documentation, accountability, verification and the willingness to stand behind our work.

NOT JUST A CALIBRATION COMPANY

ADVANCED ADAS TECHNOLOGIES OF TEXAS LLC. is not just a calibration company.

We are a technical resource for the collision and repair industry.

We want shops to think of us when they hear:

ADAS.

Diagnostics.

Programming.

Module configuration.

Electronic problems.

Calibration failures.

Repair verification.

Technical questions.

And the sentence every repair facility eventually says:

“We can't figure out what this vehicle is doing.”

That is when we want the phone to ring.

OUR PROMISE IS NOT PERFECTION

No legitimate technician should promise perfection.

Our promise is more useful:

We will take the problem seriously.

We will research before we assume.

We will diagnose before we condemn.

We will verify before we claim.

We will document what we do.

We will communicate when something is wrong.

We will admit when we need more information.

And we will never intentionally put completing an invoice ahead of completing the repair correctly.

ONE VEHICLE. ONE FAMILY. ONE RESPONSIBILITY.

When the repair order closes, the paperwork disappears into a file.

The technicians move to the next vehicle. The calibration equipment gets packed away.

But that vehicle keeps moving.

Down highways. Through intersections. Beside motorcycles. Past pedestrians. Carrying families.

The work we performed continues long after we stop thinking about the repair.

Technology will continue changing. The equipment will change. The procedures will change. ADAS will evolve into systems we have not yet seen.

But responsibility will remain.

One vehicle.

One customer.

One family.

One repair team.

And one question before the keys go back:

“Have we done everything reasonably required to put our name behind this vehicle?”

If the answer is yes -

Return the keys.

Stand behind the repair.

And move to the next vehicle knowing why this work matters.

ADVANCED ADAS TECHNOLOGIES OF TEXAS LLC.

YOUR REPAIR-VERIFICATION AND RISK-MANAGEMENT PARTNER

ADAS CALIBRATION • DIAGNOSTICS • OEM PROGRAMMING •
MODULE CONFIGURATION • ELECTRICAL & MECHANICAL
DIAGNOSIS • REPAIR VERIFICATION • TECHNICAL SUPPORT

When the procedure is clear, we perform it.

When the procedure is questioned, we research it.

When the calibration fails, we diagnose it.

When the technology becomes complicated, we help find the answer.

And when the vehicle is ready to return to the road, we put our name behind our work.

“KEEPING ALL ROADS SAFE, ONE CALIBRATION AT A TIME.”™