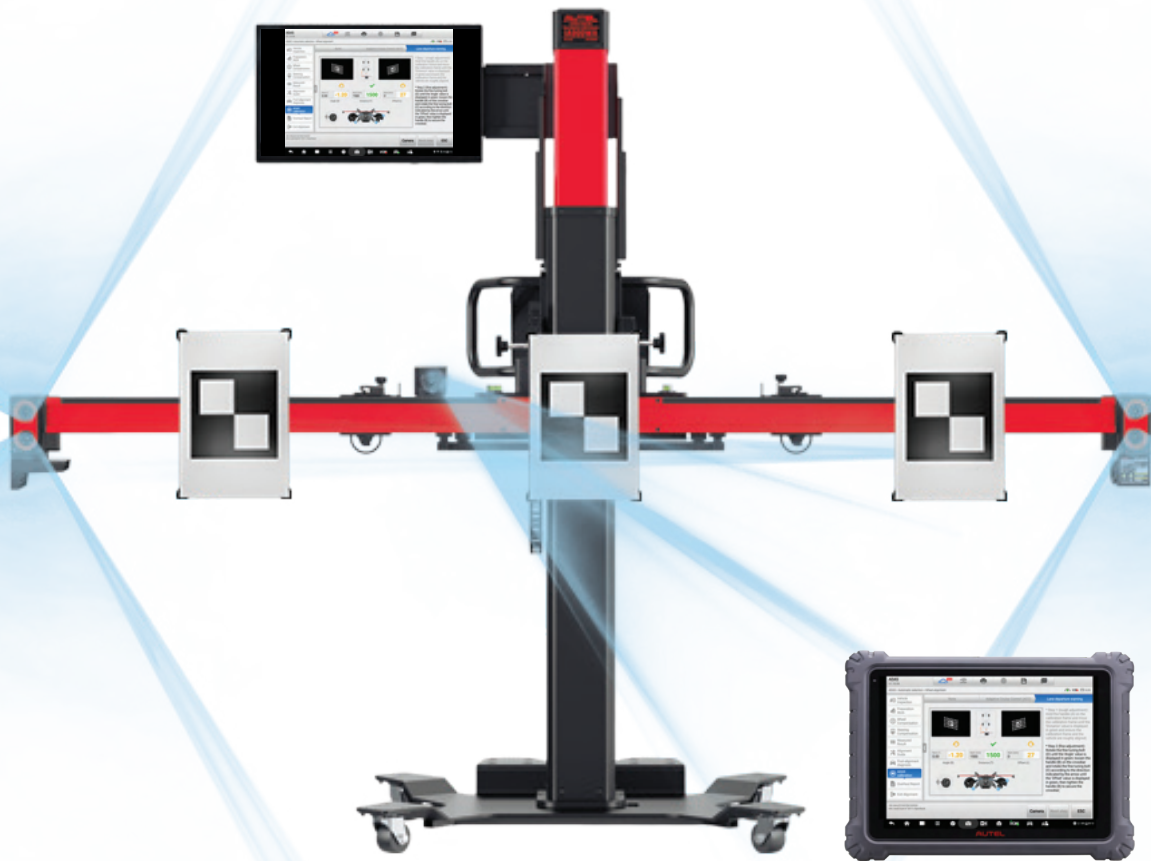


AUTEL®

# CAPITALIZING ON THE ADAS OPPORTUNITY

HOW YOUR SHOP CAN DOMINATE THE ADAS CALIBRATION MARKET



**A**dvanced Driver Assistance Systems (ADAS) has made the automotive repair business increasingly complex. Technicians must learn these new technologies and processes to ensure safe and complete repairs, while shop owners and operators must consider multiple factors when navigating this impactful change.

In-house ADAS calibrations means safety, efficiency, and profitability for collision shops. Control the process and reap the benefits. Learn more in this three-part series.

**A**dvanced Driver Assistance Systems (ADAS) is an umbrella term for the multiple vehicle safety and convenience systems becoming increasingly common on today's vehicles.

Blind Spot Warning (BSW), Lane Departure Warning (LDW), Automatic Emergency Braking (AEB), and Rear Collision Warning (RCW) are the core systems. This year, more than 60% of registered vehicles in North America will be equipped with ADAS, according to the Insurance Institute for Highway Safety estimates. That's 180 million vehicles.

Consumers and regulators alike cite safety as the primary reason for soaring adoption. Studies show that in the 30 years from 2021 through 2050, ADAS technologies currently available to U.S. consumers could prevent approximately 37 million crashes, 14 million injuries, and nearly 250,000 deaths—that's 22% of deaths that would otherwise occur on U.S. roads without these technologies. This AAA study estimated that Canada alone would save 500 lives annually if these systems were adopted.

Always on the front-line of servicing vehicles with the latest technologies, collision shops are aware of the growing popularity of ADAS-equipped vehicles. And though it might have been standard or even best practice to sublet ADAS work to dealers or to mobile solutions when ADAS-equipped vehicles started

to trickle into collision shops, more body shops are realizing that performing ADAS calibrations in-house optimizes their key-to-key cycle time—giving them greater control of the shop operations and the quality of the vehicle repair—and can drastically increase profitability.

A recent AAA study found that ADAS repair and calibration account for 36.7 percent of collision repair. Given that percentage and the number of ADAS-equipped vehicles that collision shops repair today and will repair in the future, keeping those calibrations in-house is a significant financial opportunity.

This series aims to illustrate that this reward is within reach, and we would like to show you how to get it.

But first, let's briefly examine the ADAS industry environment and the challenges therein.

Automakers have marketed these systems with unique names and often have bundled systems into suites. Honda, for example,

trademarked its AEB system as the Collision Mitigation Braking System and called its suite of seven systems HondaSensing. Meanwhile, the Mercedes-Benz Intelligent Drive suite offers up to 23 systems, with variations of AEB dubbed Active Brake Assist / Active Brake Assist with Cross-Traffic Function, Collision Prevention Assist Plus, and Active Emergency Stop Assist.

And indeed, when technicians calibrate these systems, they should familiarize themselves with how they are intended to behave and confirm this correct behavior in the post-calibration test drive. But, regardless of what the automakers call them, when it comes to calibrations, we are speaking about the sensor components, such as cameras, radar, and lidar.

Depending on the system design, these sensors act independently or together (the technical term is sensor fusion) as input devices to prompt "action" in these systems. That action, whether passive or active,



## ADAS CAN PREVENT:

**37M**

VEHICLE  
CRASHES

**14M**

VEHICULAR  
INJURIES

**250,000**

VEHICULAR  
DEATHS

\*In the years 2021-2050, according to a recent study conducted by the AAA Foundation.

depends on that system's design for that vehicle make, model, and year. Simply put, Passive systems "alert" and Active systems "act."

Let's take a look at the typical Lane Departure Warning system. These systems use a camera near the rear-view mirror that detects lane markings. Suppose the vehicle moves out of its lane without the driver activating the turn signal. In that case, the system will "passively" alert the driver with visual, audible, or haptic feedback (the steering wheel vibrates). Similar to LDW is Lane Keep Assist (LKA). This system uses the same rear-view mirror-situated camera to detect lane markings. But with an LKA system, if the vehicle crosses the lane markers, it will act to center the vehicle within the lane. How the vehicle does that—what other vehicle systems it enlists to perform this operation—depends on the system design. Some systems apply torque to the steering wheel, while others apply pressure to the brake. Most new vehicles use LDW and LKA.

Next, let's take a look at Automatic Emergency Braking (AEB). Quick history lesson: AEB is the second ADAS function to be required on new vehicles in the United States. Canada and the U.S. mandated in 2018 that all new vehicles be equipped with rear cameras. And in the United States, AEB will be required on 95 percent of all brands' light vehicles starting September 1, 2024, and across all brands' products, including 8,000 to 10,000-pound



# ADAS NOW **36.7%** OF THE TOTAL COST OF REPAIR

\*On ADAS equipped vehicles, according to a recent study conducted by the AAA Foundation.

vehicles beginning September 1, 2025. Canadian regulators are considering a mandate as well. AEB systems have evolved from being radar or camera-based to combining both. Yaw rates and latitude and longitude monitoring of the vehicle traveling in front influence how this system works. But simply stated, the typical AEB system detects an imminent collision, alerts the driver and acts to avoid the collision by applying the brakes. AEB elicits the help of the Anti-lock Braking System (ABS) and wheel speed sensors to avoid collisions.

We will revisit this topic later in the series, but it's essential when discussing taking on ADAS calibrations to adjust our approach to vehicle repair, from blinders-on parts and component replacement to an all-vehicle, all-systems mentality. No man is an island, and no vehicle system is one, either. The electrical system on today's vehicles features multiple communication

networks with well over 100 control modules with multiple sensors and actuators within. The designs are interconnected and rely on each other to complete the job.

In the next part we will examine what a shop needs to get started with ADAS calibrations, shop size, layout, and how the Autel website-based Return-on-Investment calculator can help determine what calibration system best suits your shop.

**By: Allison A. Whitney**

*Allison has researched and written on a wide range of automotive technologies and the software and tools used in diagnosing, servicing, and repairing such systems. Before working for Autel, Allison was the director of communications at two software developers and has worked as a journalist for national and regional publications covering a wide range of topics including legislation and judicial issues concerning manufacturers.*



In the previous article, we discussed why technicians are adding ADAS calibrations to an increasing number of repair and service orders. This includes the simple reality that so many vehicles now come standard with these safety and convenience systems, and the sophisticated design of modern vehicles. Focusing directly on the numbers, the Insurance Institute for Highway Safety estimates that this year, more than 60% of registered vehicles in North America will be equipped with ADAS—that's 180 million vehicles.

When we speak about complexity and interdependent systems, remember that services such as common alignment often require a forward-facing camera calibration, and any front-end work that requires removing the bumper calls for calibrating the radar sensor of the Autonomous Emergency Braking System. If you are a collision shop, consider this recent AAA study that found ADAS repair and calibration account for 36.7% of collision repair.

ADAS will continue to grow, whether prompted by government mandates or consumer interest. If it's not here right now, there will come a time when every vehicle you touch will have ADAS. How you deal with that fact will be integral to the success of your business.

There is undoubtedly a great deal of apprehension regarding ADAS repair and calibration in automobile repair businesses. But there really shouldn't be. With the correct shop setup, equipment, and trained technicians, performing ADAS calibrations on your customers' vehicles and for other shops in your community, if you wish, is a tremendous opportunity for revenue growth.

After realizing the need to perform

ADAS calibrations, the next consideration before investing in ADAS calibration equipment is often the size and layout of one's shop. It's important to realize that 88% of the most popular and, therefore, the most often calibrated systems, forward-facing and blind spot monitoring calibrations, can be executed in a typical 16-by-30-foot repair bay. Autel introduced the ADAS Bay Max 12K and Bay Max 14K lifts for shops looking to maximize the capabilities of a bay. These North American-made, flush-mounted hydraulic scissor lifts with Floor Lift tables allow the technician to safely stand under the entire length of the raised vehicle to make repairs.

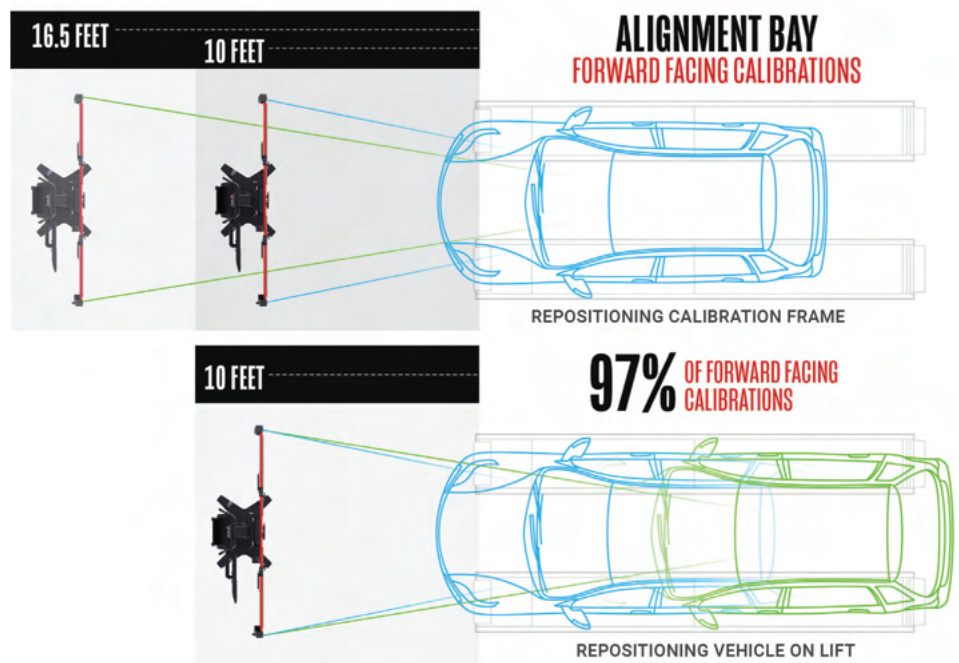
The lifts were designed to take advantage of the multiple capabilities of the Autel MaxiSYS IA900 system, which offers comprehensive services, from diagnostics to four-wheel alignment to calibration, and the innovative design of the lift enables a single bay to be the stage for all of it.

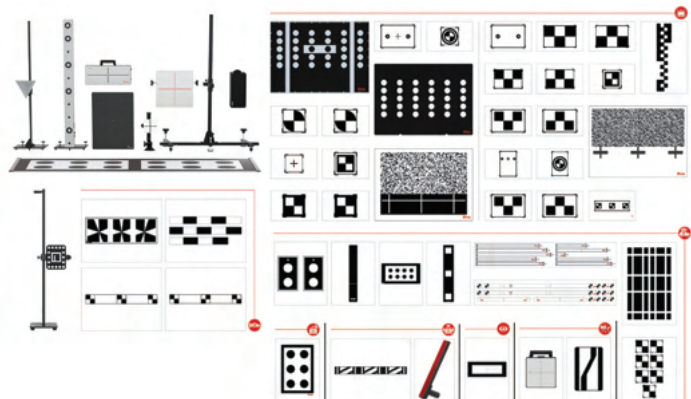
The IA900 comes in three packages, and each caters to your shop's evolving needs. Choose from the Alignment-

only unit package, Alignment with Lane Departure Warning targets and patterns, or Alignment with All (ADAS) Systems calibration capability. Each package is available with the Ultra ADAS tablet.

Autel's 20-year track record of developing automotive aftermarket solutions and its ADAS expertise make it a good choice. Autel is not new to ADAS; it has been making All Systems (ADAS) calibration systems for six years. It has regularly led the industry in systems (camera, radar, lidar, night vision, HUD) and vehicle brand coverage. Throughout its history, the company has consistently introduced innovative products, and it has found a loyal following among professional technicians because of its commitment to software development and efficiency and user support.

Mike Ambrosino of Fuller's Collision Center and ADAS Diagnostic Solutions LLC. said they took about four months to research calibration systems, considering two others before going with Autel. He said feedback from other shops solidified his choice.





The Autel MaxiSYS ADAS IA900AST Package Includes the IA900 frame system, MaxiSYS Ultra tablet and OE-specific calibration targets and accessories.

"Every time we reached out to a shop that we had a good relationship with that was already doing [calibrations] and asked what vendor, what system they would recommend, Autel always came up," said Ambrosino, the ADAS Calibration and Diagnostics Director for the Massachusetts-based Collision and Calibration Centers. System capabilities and vehicle coverage were the Autel advantages these shops referenced, Ambrosino said.

In addition to the coverage, shops choose Autel because it has created and continues to perfect a comprehensive process that assures shops (and P & C insurers) that a customer's vehicle is restored completely and that every needed repair, service, and calibration is executed to OE-specifications. Autel employs forty percent of its staff as research and development engineers and is committed to getting the software, specifications, and procedures right.

The IA900 unit is at the heart of the Autel process. The industry's first all-in-one 4-wheel alignment and ADAS calibration unit, the IA900, guides users from Pre-Scan, digital inspection, advanced diagnostics, coding and resets to alignment and multi-component calibration. The IA900WA offers alignment coverage from the 1960s to today and ADAS

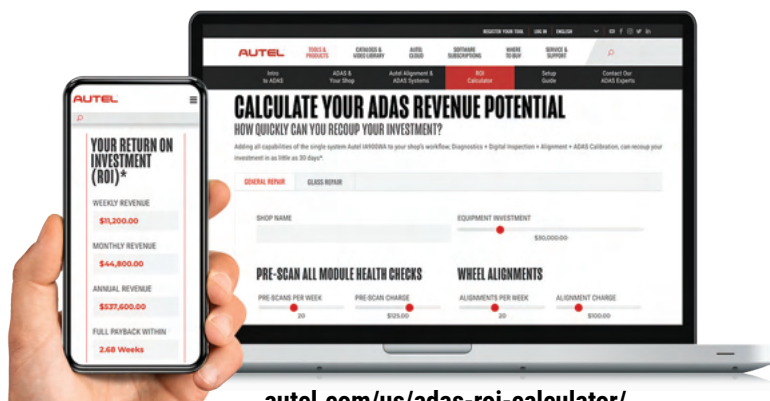
calibration coverage for U.S., Asian, and European vehicles. The unit features six high-resolution positioning and tracking cameras in the frame to monitor vehicle height on the shop lift automatically. The IA900 is compatible with any standard alignment lift.

The benefits of the unit's optical positioning system cannot be overstated. It enables frame and target-to-vehicle setup in as little as a minute, compared to the mechanical setup with plumb bob, lasers, and reflectors, which can take upwards of 45 minutes.

How about the cost of the investment, and how long might it take for my shop to see a return? Shops using the IA900

have realized a return on investment in as little as a month. Considering the national average for a four-wheel alignment is \$134, and the average calibration cost is \$350, depending on your shop's volume, your shop could realize the same return. Visit the ADAS page on Autel.com and work the numbers out for your shop with our Return-on-Investment calculator.

Watch for the final part of this series, where we will discuss technician training and the importance of blueprinting and documentation of ADAS calibrations to ensure comprehensive vehicle repair and commensurate insurance reimbursement.



[autel.com/us/adas-roi-calculator/](http://autel.com/us/adas-roi-calculator/)



**T**he first two articles of our three-part series on simplifying the ADAS opportunity discussed the urgent need for auto repair shops to establish a strategy for servicing ADAS-equipped vehicles.

The need for such a strategy is twofold: the sheer number of vehicles on the road with ADAS (180 million in North America) and the increasing array of mechanical and collision repairs and services often affecting those systems, requiring ADAS servicing or calibration.

The strategy a shop chooses whether to perform the work in-house or sublet calibration work to another shop, calibration center, or mobile provider, depends on multiple factors, including its size and layout, the training and current workload of its technicians, and quite simply, its business plan.

Ideally, if a shop has the space, the technicians, the funds for equipment investment, and the desire, they should consider bringing ADAS calibrations in-house. In addition to the simple financial rewards, which can be significant, in-house calibrations allow a shop to operate more efficiently, recouping the time associated with scheduling and moving the vehicle and ensuring the quality care that comes with key-to-key, in-shop service control.

### ADAS Blueprinting

Mechanical shops need to check out the service data for their repairs. Increasingly standard repairs and services such as wheel alignments, suspension modifications, ride height adjustment, and front-end work requiring bumper removal often require ADAS camera or radar calibrations.

All of the Autel tablets identify the ADAS systems on the vehicle for the technician during the Pre-Scan, so that's an excellent place to start for mechanical technicians. This is followed by a visual inspection of the vehicle to identify camera, radar, and

### The Autel Solution

We discussed the comprehensive calibration solution offered by Autel that enables a shop to perform 88% of the most popular and, therefore, most often calibrated ADAS—front camera-dependent systems such as Lane Departure Warning and Automatic Emergency Braking, and radar-dependent Blind Spot Monitoring, can be executed in a typical 16-by-30-foot repair bay. Further, we invited those considering bringing ADAS in-house to use the Return-on-Investment calculator on Autel.com to estimate how quickly a system purchase would pay for itself based on workload and labor rates.

This final article will focus on three significant concerns shop owners have when considering bringing ADAS calibrations in-house.

- **Developing a workflow to ensure that the entire vehicle is restored to pre-collision condition based on OE-sourced information and a repair blueprint**
- **Providing comprehensive invoicing to substantiate the need for the repairs, services, and calibrations**
- **Finding the right technicians for this specialty work**



lidar components that may need to be calibrated.

But the software platform, adasThink has proved to be a vital tool for collision shops. adasThink uses the collision estimate to produce a report identifying the safety and convenience systems on the vehicle, as well as the OE-required ADAS calibrations and procedures to repair that vehicle. Gary Machiros, the owner of Angie's Service Inc. in Newbury, Massachusetts, uses the service at his shop, where he performs about 50 calibrations weekly. The software uses a collision estimate report, such as one generated by CCC, to identify the safety systems that need

service based on the repair plan. The adasThink report links to ALLDATA for detailed procedures and the OE position statements documenting under what conditions the manufacturer requires these additional services.

### Invoicing Based on OE-Requirements

Machiros said that just as adasThink is valuable for blueprinting the repair, it is equally helpful in drafting the repair invoice and working with insurance adjusters.

When drafting his invoice, he refers to the language on the adasThink report



and includes the OE position statement when needed. This information is the perfect backup if an adjuster questions a calibration or service. "The OEM requires a procedure based on the knowledge of the people who built the car and the engineers who designed it... I need to do what the OEM wants me to do. I am not going to take on any of the liability because I didn't do a procedure. This has to be done. This is a safety issue," Machiros said.

## Read, Comprehend, Execute

Finding automotive technicians is a widespread industry challenge. Indeed, a recent study found that the U.S. will need over 100,000 new automotive technicians per year through 2026 just to keep up with demand.


Machiros says the technician skillset needed to perform ADAS calibrations differs from that of a collision and mechanical technician. In his hiring, he looks for someone who is motivated and likes to learn. "Today, you really

don't need to be a technician to calibrate cars. Can you read, comprehend, and execute? Do you have some computer skills? I would really like to see them be lifelong learners. I could find someone with no automotive experience and teach him or her to perform a complete ADAS calibration," said Machiros.

Stewart Peregrine, a Senior Executive of ADAS Sales at Autel, says the software and tooling Autel offers have been optimized to make performing calibrations systematic and easy for the less experienced technician to pick up. "Part of that optimization was introducing an optical positioning system that enables the technician to quickly and accurately place the frame to the vehicle. The user adjusts the frame distance, offset, and angle according to the displayed values on the tablet. A process that would take 45 minutes on average and necessitate using a laser, reflectors, chalk, and a plumb bob can now be done in minutes. In addition, Autel simplified the calibration

instructions, moving away from the language used by engineers at the OEM level to one that is easier to understand. This change enables an inexperienced technician to get up and running quickly and nearly eliminates the possibility of mistakes. I also recommended our two-day ADAS training class to anyone considering or already performing ADAS calibrations. It offers classroom theory and hands-on experience. The response has been exceptional," Peregrine said.

We appreciate you taking the time to read our series. From the start, we intended not just to define this opportunity but also to offer practical, user-based insight into setting up your shop for optimized workflow, including calibrations, buying the right software and tooling, and hiring the best technicians. We hope we have given you insight into all the choices available, and we invite you to continue your research by visiting the ADAS pages on Autel.com for complete system offers and to schedule a conversation with one of our ADAS experts.



Customer Support  
1-888-486-1166  
customerservice@asTech.com

adasThink Vehicle Report August 15, 2022

Customer Information	Vehicle Information
ABC Collision Attn: John Smith 11740 Menchaca Rd. Austin, Texas, 78748 (888) 567-1234	Work Order: 5114974 Repair Order: 735069 Vehicle: 2019 Volkswagen Tiguan VIN: 3VV4B7AX3KM015786

**Summary**

**2 Required ADAS Operations      1 Required Steering Operation**

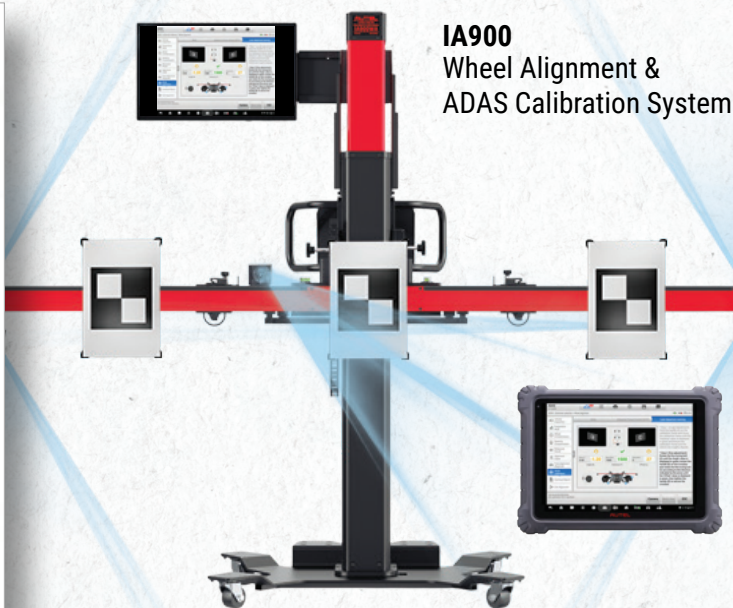
**2 Required Safety Operations**

There are 2 ADAS, 1 Steering, and 2 Safety that Volkswagen requires because of operations you are performing, as identified in your estimate.

**Equipped ADAS Features**

- Active Blind Spot System
- Adaptive Cruise Control with Stop and Go
- Forward Collision Warning with Automatic Emergency Braking
- Front Mounted Camera
- Lane Assist
- Park Distance Control - Front and Rear Parking Sensors
- Pedestrian Monitoring
- Rear Camera
- Rear Collision Mitigation
- Right-Side Camera
- Surround-View Monitor

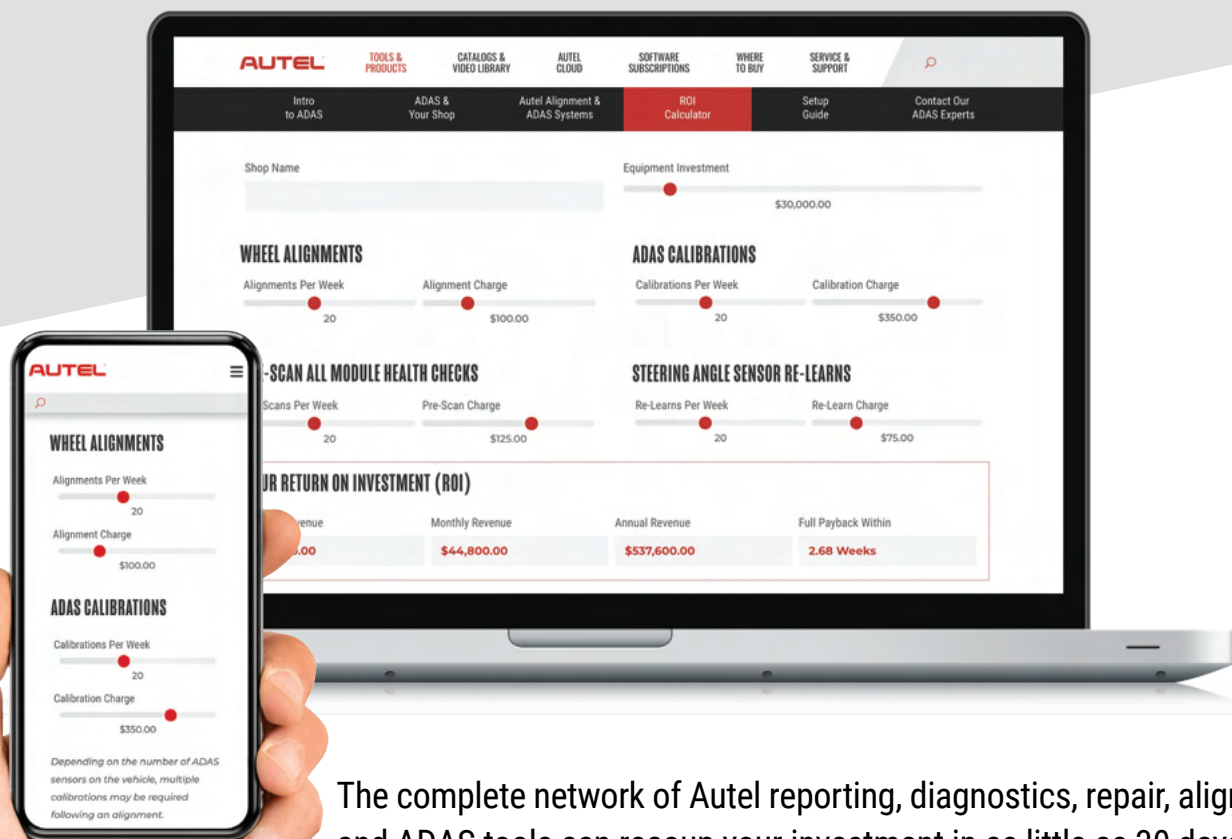
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# HOW QUICKLY CAN YOU RECOUP YOUR INVESTMENT?

## CALCULATE YOUR ADAS REVENUE POTENTIAL ON OUR WEBSITE



The complete network of Autel reporting, diagnostics, repair, alignment, and ADAS tools can recoup your investment in as little as 30 days\*.

*\*Return on investment varies based on service volume.*

## RECOUP YOUR INVESTMENT IN AS LITTLE AS 30 DAYS\*

VISIT [AUTEL.CC/ADAS-ROI](https://autel.cc/ADAS-ROI)

## CONNECT WITH AN AUTEL ADAS EXPERT

Schedule a one-on-one ADAS business consultation with one of our experts today.

SCAN OR VISIT: [AUTEL.CC/ADASCONTACT](https://autel.cc/ADASCONTACT)

