

# The Future of Collision Repair Your guide to ADAS



# As vehicles become more complex, repairs will too. Are you ready?

Right now, close to 60 million vehicles in the U.S. are equipped with some sort of ADAS (advanced driver-assistance systems) technology, like parking assistance, adaptive cruise control or collision-avoidance systems. By 2022, the majority of all new vehicles on the market will have at least an automatic emergency braking system. In order to return a damaged vehicle to OEM specifications, an understanding of ADAS is critical.



# Section 1: What is ADAS?

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# What is ADAS?

# Let's cover the basics.

ADAS is technology (cameras and sensors) incorporated into a vehicle in order to automate, adapt and enhance the driver's experience with features that increase safety. When an ADAS feature is engaged, it might light up a symbol on the dashboard, alert the driver through sound or momentarily take control of the vehicle.





# What is ADAS?

# The two types of **ADAS technology:**

Vision systems recognize and track potential hazards on the road using onboard cameras and complex algorithms.

Radar systems work to calculate the distance, velocity and positioning of approaching vehicles or obstacles.



# What is ADAS?

# Some ADAS systems and symbols to know:

### Symbols will differ with each vehicle manufacturer.



## **Traffic Sign Recognition**

Video cameras detect types of road signs and display them on a dashboard.



## **Emergency Brake Assist (EBA)**

Forces an emergency stop when the brake pedal is engaged but not fully.





### **Blind Spot Monitor**

Sensors in the rear bumper and warning icons in both side mirrors.



## **Pedestrian Detection**

Detects an imminent collision and autonomously applies the brakes or alerts the driver.

## Lane Change Assist

Detects obstacles while changing lanes, then alerts the driver through lights, vibration or resistance in the steering wheel.



### Adaptive Cruise Control

A cruise control setting that will slow down and pace a vehicle with the one in front of it.

# Section 2: Making repairs with ADAS





# **ADAS repairs**

# Rethink the repair process.

It used to be that when a vehicle was involved in a front-end collision, you could just repair the structural damage and move on. Now, it's not so simple. If that vehicle has radar in the front bumper, it's likely that the ADAS sensors were damaged and will need to be recalibrated. This changes the repair workflow—and there's a good reason why.

# The new workflow.

### Structural alignment



- Prescan for damage.
- Initial structural measurement. 2.
- Repair using OEM procedures. 3.

### Wheel alignment



ADAS calibration cannot be performed until the wheels have been properly aligned and inspected for damage. Make any necessary repairs before moving on.

### **ADAS calibration and alignment**



1. Prep the vehicle.

- Fill gas tank
- Check tire pressure and size
- Clean windshield
- Determine ride heights
- 2. Calibrate using an ADAS calibration system.

# **ADAS repairs**

# Accuracy is all that matters.

Historically, shorter cycle times have been the measure of a successful, profitable shop. Not anymore. With more vehicle autonomy than ever, drivers are relying on powerful technology to stay safe. If that technology isn't repaired correctly, it could spell disaster.

## Example #1.

Say a vehicle comes into the shop with a damaged windshield that's equipped with a front-facing camera. The windshield is replaced but an ADAS calibration is not performed, so the car goes back on the road with a camera that's off by a millimeter. Now the driver is going down the freeway. The misaligned camera sees an object on the side of the road and thinks it's in front of the vehicle. The car automatically brakes while doing 60 miles per hour.



# **ADAS repairs**





# Example #2.

Say a vehicle equipped with emergency braking leaves the shop without a proper calibration, so the camera is pointing up a few degrees higher than normal instead of straight ahead. As the vehicle moves toward an overpass, the camera thinks it's heading toward a vehicle and the brakes engage, putting the driver in danger in the middle of the interstate.

# Example #3.

ADAS calibration also programs the sensors to accurately measure distances. Say a vehicle with lane departure warning has sensors that think one foot is the same as one millimeter. Now, anytime the driver moves slightly out of their lane, the vehicle reacts as though they're dangerously over the line. The warning might startle the driver without reason or even correct the steering wheel into an accident.

With ADAS, even small errors can have dangerous implications.

# Section 3: Buying ADAS



# Equipment guide

# What to look for in ADAS calibration equipment.

When accuracy is so critical, you need a calibration system that delivers reliable results every time. Systems involving tape measures or plumb bobs leave room for potentially dangerous human error. It's important to choose a system wisely.

# Things to consider when choosing a calibration system:

- Does the system use ma measures, or is it automa
- Is there any training incl
- How much physical space take up?
- Are there checks in place accuracy of the repair?
- Is the technology easy t
- How long does the recal generally take?



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libration process	Do alic

system support readily available?

es the system require the use of an OEM scan ol for the latest data?

ill the system include current vehicle data en a new model is released?

es the system automatically check to make sure e correct target is placed in front of the vehicle?

ill the calibration results be captured and stored future reference?

es the system document measuring and wheel gnment?

# Section 4: Featured product

# MPSAICTM





# Featured product

# The only automated ADAS calibration system.

There is one system currently on the market that checks off every box and then some: Mosaic ADT from Chief Collision Technology and Burke Porter Group. Here's why Mosaic is different.

## It reduces the risk of liability.

The Mosaic ADT system captures and the full calibration process and repair of a vehicle to document that the OE procedure was followed.

### It's future-proof.

The state-of-the-art software automa updates with the latest OEM repair procedures for new vehicle models. No reverse engineering repair proced are required.

### It's accurate and trusted.

Mosaic uses the same end-of-line technology trusted to calibrate vehicles on the OEM factory floor.



### It's easy to use.

l records r history	Each technician using the Mosaic A through training and certification t
EM repair	the system using a repeatable, ste process. Once the OEM scan tool i in, an ASE-certified technician ope facilitate remote diagnostics.
atically	It's automated.

ADT goes to operate ep-by-step is plugged erates it to

sensor and laser manual required.







# Let's build the future of your shop together.

There's so much more to know about ADAS calibration and Mosaic ADT—this e-book is just the beginning.

Ready to invest in your future?

Let's go





