



COLLISION INDUSTRY
CONFERENCE



Emerging Technologies

Scanning & Diagnostics

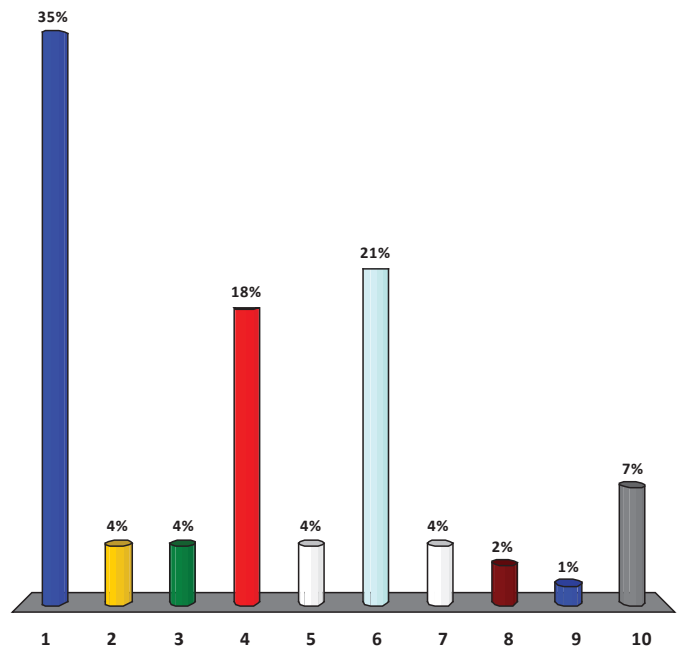
Presented by:
Jack Rozint
Jake Rodenroth
Chuck Olsen
Sean Guthrie

AUDIENCE RESPONSE QUESTION:



Please indicate which stakeholder group you represent:

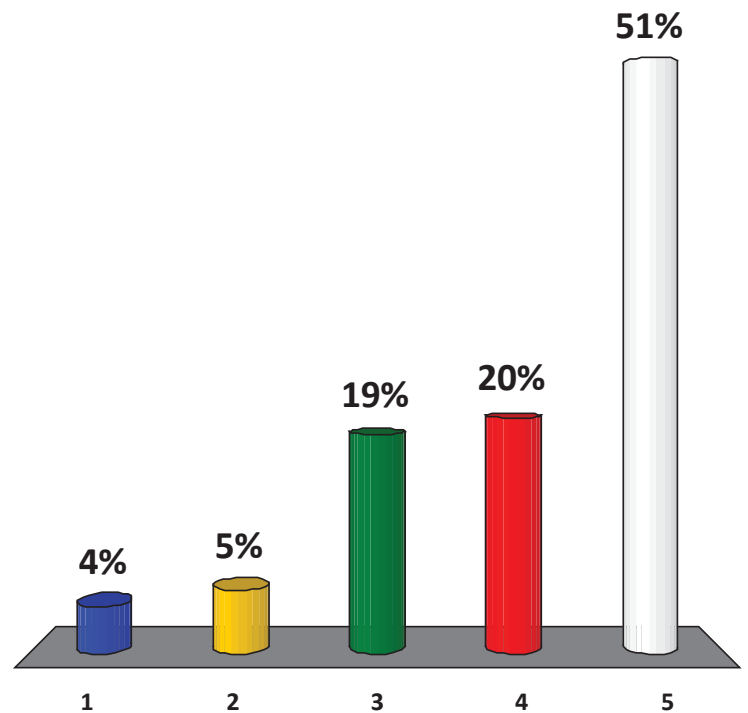
1. Repairer
2. Insurance
3. OEM
4. Supplier
5. Salvage
6. Consultant
7. Education
8. Associations
9. Trade Press
10. Other



AUDIENCE RESPONSE QUESTION:

What percentage of repairs or claims today require a scan tool or diagnostic procedure?

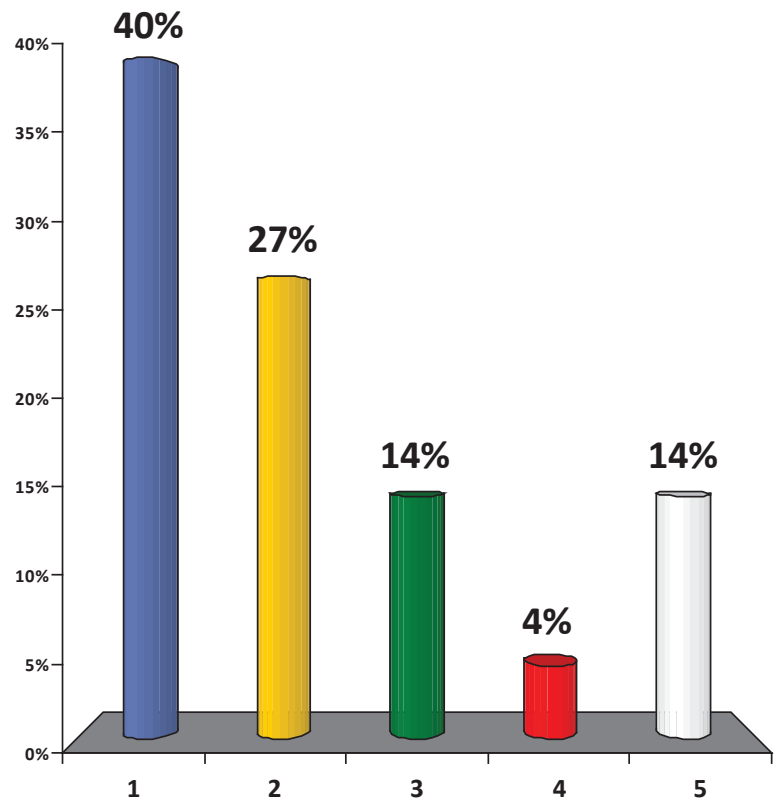
1. 0-20%
2. 21-40%
3. 41-60%
4. 61-80%
5. 81-100%



AUDIENCE RESPONSE QUESTION:

What percentage of repairs or claims today include payment for scanning or diagnostic procedures?

1. 0-20%
2. 21-40%
3. 41-60%
4. 61-80%
5. 81-100%





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When to Scan
Use of OEM Procedures

OEM Service Information Integration

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Resources:

- OEM Service Information sites
- ALLDATA Collision®
- Audatex Tech Focus®
- Mitchell Tech Advisor®
- CCC Repair Methods®

Others:

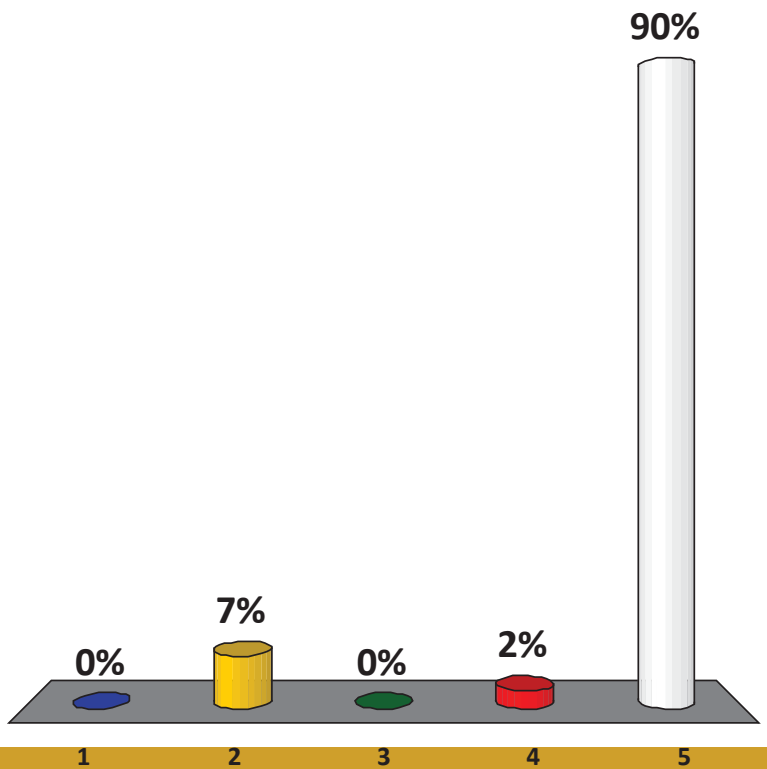
I-CAR RTS (Repairability Technical Support)- Ask I-CAR
OEM1Stop.com
OEM parts E-stores (identifying correct modules and sensors)

AUDIENCE RESPONSE QUESTION: OEM Service Information Integration

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Most important : What's the SOP around usage of OEM service information?

1. Mechanical?
2. Structural?
3. SRS/ Airbag deployments?
4. EV/Hybrid vehicles?
5. All of the above?



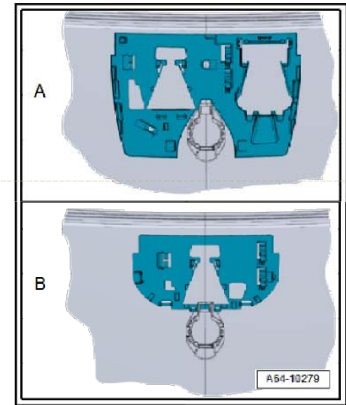
2016 Audi A6 Planning for ADAS



Allocation of the Windshield to the Driver Assistance Systems Front Camera - R242- .

Before ordering a new windshield on vehicle version with a Driver Assistance Systems Front Camera - R242- the version must be determined:

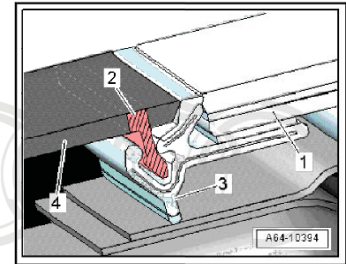
-A-	Retaining plate for the Driver Assistance Systems Front Camera - R242- older version ⇒ windshield older version allocation
-B-	Retaining plate for the Driver Assistance Systems Front Camera - R242- newer version ⇒ windshield newer version allocation



**NOT identified by VIN
visual inspection required.**

Protective Molding, Removing

- With a new windshield -1-, protective piping -2- must be removed from the frame -3- before installing plenum chamber cover -4-.



2.2 Windshield, Removing and Installing

⇒ "2.2.1 Windshield, Removing and Installing", page 302

⇒ "2.2.2 Gap Cover, Replacing", page 306

2.2.1 Windshield, Removing and Installing



Caution

- ◆ *In vehicles with driver assistance systems front camera the camera must be recalibrated. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 44 ; Driver Assistance Systems Front Camera; Driver Assistance Systems Front Camera Calibrating .*
- ◆ *The Windshield Projection Head Up Display Control Module - J898- must be recalibrated if the windshield on a vehicle with windshield projection (head up display) is replaced. Refer to ⇒ Electrical Equipment; Rep. Gr. 90 ; Instrument Cluster; Windshield Projection Head Up Display Control Module Calibrating .*

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BMW X5 Muffler Replacement (F15)



Install actuator drive for exhaust flap.

Tighten down screws (2).

Tightening torque 18 31 5AZ.

Connect connector (1) for actuator drive.



Installation note:

If the actuator drive is over the end stop and cannot be connected with the torsion spring to the exhaust flap, the actuator drive must be moved to the installation position by using the diagnosis system. To do this, connect the connector for the actuator drive before installation.

Connect the vehicle with the BMW diagnosis system:

What is the Cyber Fingerprint and how important is it?



10B101 Outside temperature sensor, electrical: short circuit to B+ 114,268 km.
S 0392 No communication possible with: Engine electronics



All-round Vision Camera:
CAAC0F Interface INSTR. CL. (outside temperature, 0x2CA): signal invalid 114,268 km.

Instrument Panel:
D0142C Instrument panel interface (ambient temperature, 252.1.4): Signal invalid 114,268 km.

Dynamic Stability Control:
D3542C KOMBI interface (outside temperature, ID: 0X2CA): Signal invalid 114,268 km.

Roof Function:
801A4C SINE: undervoltage detected in internal voltage supply 114,268 km.

Integrated Chassis Management:
B7F655 Instrument panel: Outside temperature sensor Short circuit to B+ 114,268 km.

Parking Distance Control:

80322E Front outer left ultrasonic sensor, signal line: short circuit to earth or open circuit (break) 114,268 km.
803234 Ultrasonic sensor, front middle left, signal line: short circuit to earth or open circuit 114,268 km.
80323A Ultrasonic sensor, front middle right, signal line: short circuit to earth or open circuit 114,268 km.
803240 Front outer right ultrasonic sensor, signal line: short circuit to earth or open circuit (break) 114,268 km.
E2170C Interface INSTR. CL. (outside temperature, 0x2CA): signal invalid 114,268 km Information



Footwell Module:

800F3A Front fog lamp, left, faulty 114,268 km.
800F3B Front fog lamp, right, faulty 114,268 km.
800F92 Welcome light, repeat interlock, active 111,011 km.





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Definitions

Definitions



- **Definitions listing is currently finalized and available on CIC's website.**
- **Will continue to evolve as new needs arise.**
- **As Advanced Driver Assist Systems (ADAS) continue to evolve the needs for proper repair will grow in necessity and complexity.**

Calibrating



- **Calibrating/Initialization** is the process of putting a module into “Learn Mode” and assigning predetermined standard set points “Training”.
- Calibrations may need to be done whether a module was replaced or not. (Simple R&I of a bumper may require calibration of multiple systems)
- The process of placing a module into “Learn Mode” may be done with a scan tool and/or during very specific driving conditions.

Two Types of Calibrating



- **Static Calibration** is done by using targets placed at pre-determined locations around a vehicle and using a scan tool or the on-board computer to confirm those targets location.
- **Dynamic Calibration** is done while the vehicle is being driven with or with out a scan tool during very specific conditions.
- **All calibration must be confirmed!**



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**Emerging Technologies
Tools Subcommittee**

**Pre-and Post Scanning
Quick Start Guide**

**Introduction to Diagnostics,
Calibrations and Programming**



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C O N F E R E N C E



Emerging Technologies Tools Subcommittee Members

- Chuck Olsen, AirPro Diagnostics
- Darryl Ambersom, LaMettry's Collision
- Jason "Buck" Zeise, LaMettry's Collision
- Gene Lopez, Seidner's Collision Center
- Michael Quinn, Certified Collision Group
- Aaron Clark, Assured Performance
- Jay Horak, AutoEnginuity
- Aaron Schulenburg, SCRS
- Jaime Lazarus, The Car Whisperer
- Bob Pattengale, Robert Bosch LLC
- Bryan Goodwin, Property Damage Appraisers
- Noel Cogburn, Medco Tools & Equipment
- Robert McBride, ALLDATA
- Kaleb Silver, Hunter Engineering

Getting Started, Pre and Post Repair Scanning



- Research & Evaluate Before You Act
- Review Your Shop's IT infrastructure
- Learn what is required for each manufacturer
- Review Collision Facility Scanning Options
- Service Information
- Review your personnel's training needs
- Review SOPs to Integrate Scanning functions
- Understanding the data
- Intro to Diagnostics, Calibrations and Programming



Intro to Diagnostics, Calibrations and Programming



- Collision industry awareness
- Tools needed for procedures beyond Pre-and Post scanning
- Basic outline for performing diagnostic procedures
- Diagnostic procedures
- Basic calibrations
- Advanced calibrations (ADAS Cameras, Radar)
- Module Programming
- Labor time considerations



Pre- and Post-Repair scanning is only part of the picture
The Rest of the Picture



Diagnostics: The process of determining problems associated with DTCs, scan data or symptoms identified to determine what repairs, calibrations or parts will be necessary for a complete and safe repair. Process may also include service information research, on-vehicle pin-point testing, and inspecting systems or components in damaged areas.

Calibration: The process of putting a module, sensor or system into “learn Mode” with pre-determined standard set points. Calibration requirements are listed in service information and are done with a compatible scan tool. All codes and faults must be cleared and confirmed repaired before a calibration is complete.

Programming: This is a procedure that must be performed to most replacement modules in automotive computer networks and is the first part of setting up a replacement module for most manufactures. Many new replacement modules come with generic base software. This requires a proper identification of the vehicle, downloading of the proper programming file from the manufacturer, and then transfer of the file into the module.