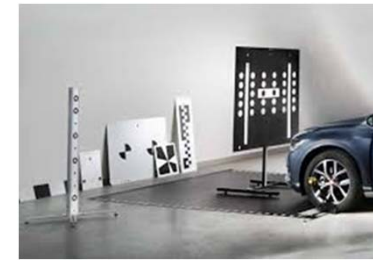
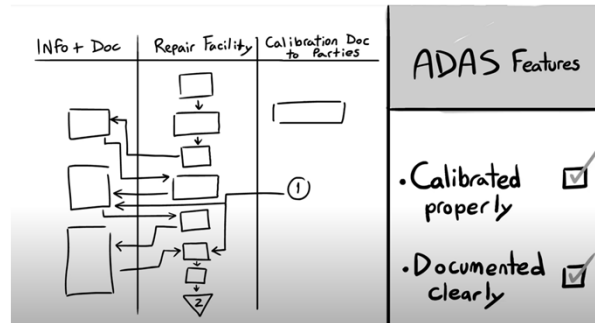
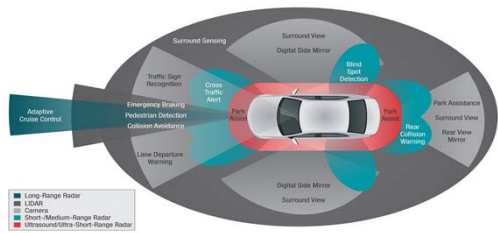




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ADAS Calibrations Workflow



Presented by: Emerging Technologies Committee

Chuck Olsen
Darrell Amberson
Gene Lopez

ADAS Calibrations Workflow

- Introduction Video to promote a best practices ADAS calibration workflow and documentation
- Enhanced printable version workflow is complete for approval
- Workflow electronic product is in Process to combine supporting documentation steps with chart
- This feature will add the function of clicking on a step to view “Matching Workflow Documentation”
- Keep workflow consistent with CIECA-developed Business Message Suite (BMS)

Workflow Introduction Video





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DRAFT IN-PROCESS

Calibration Process Workflow

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Executive Summary Calibration Process Workflow Matching Calibration Document (Word)

- What we started with
- What we found
- What parts we replaced
- What parts we repaired
- What we flashed/reset/programmed
- What parts we removed and re-installed
- OEM service information documentation
- Diagnostic procedures performed
- Calibrations performed
- Functional QC test results
- What we did not do (pre-existing and non-related)

It is recognized documentation noted below will vary for each OEM.

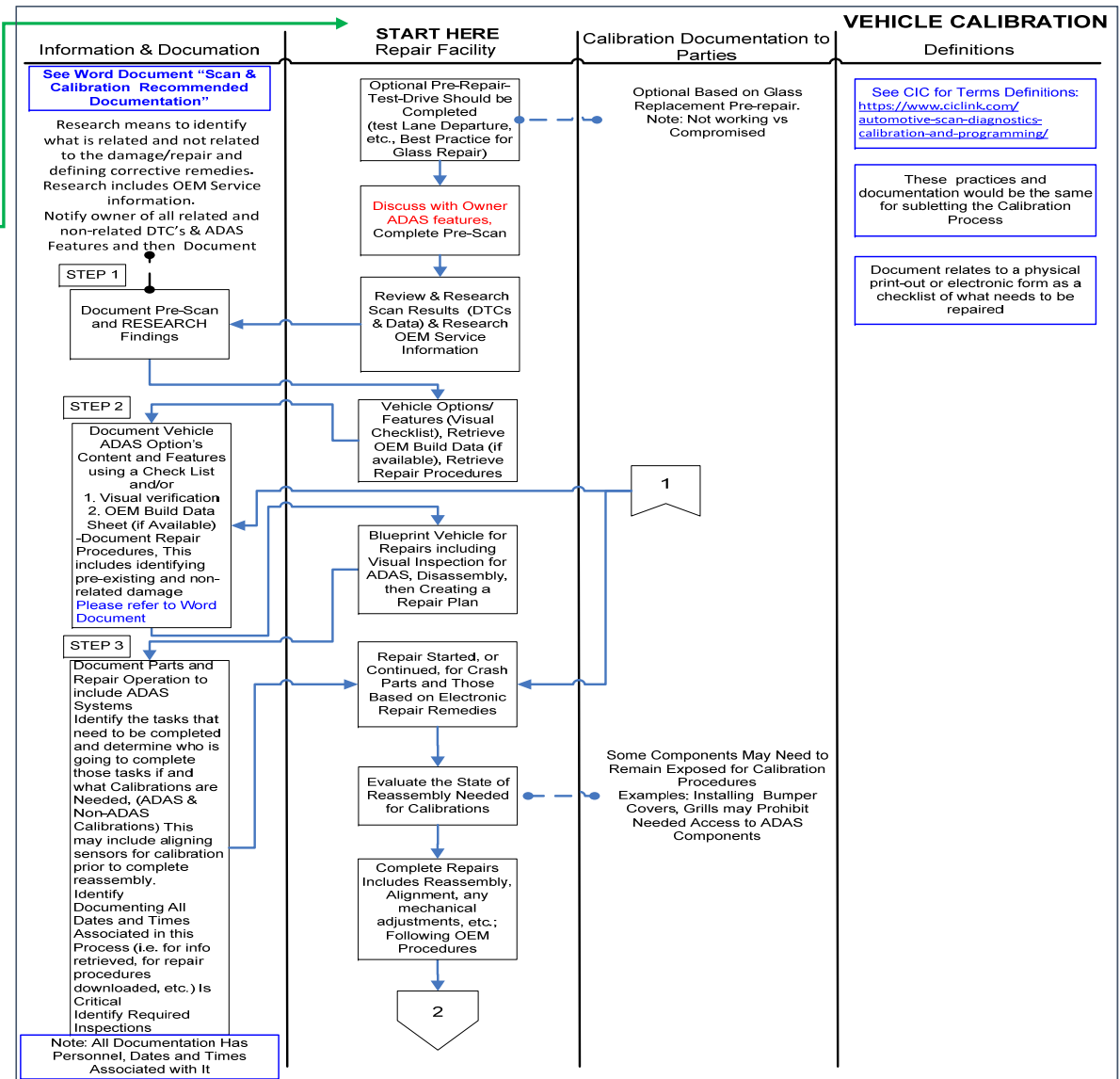
It is important to note: Other repair, servicing or maintenance tasks may also affect the functions of the vehicle's ADAS sensors. These calibration procedures should then be followed to ensure a safe vehicle's operation.

For term definitions, view the CIC WIKI at:

<https://www.ciclink.com/automotive-scan-diagnostics-calibration-and-programming/>

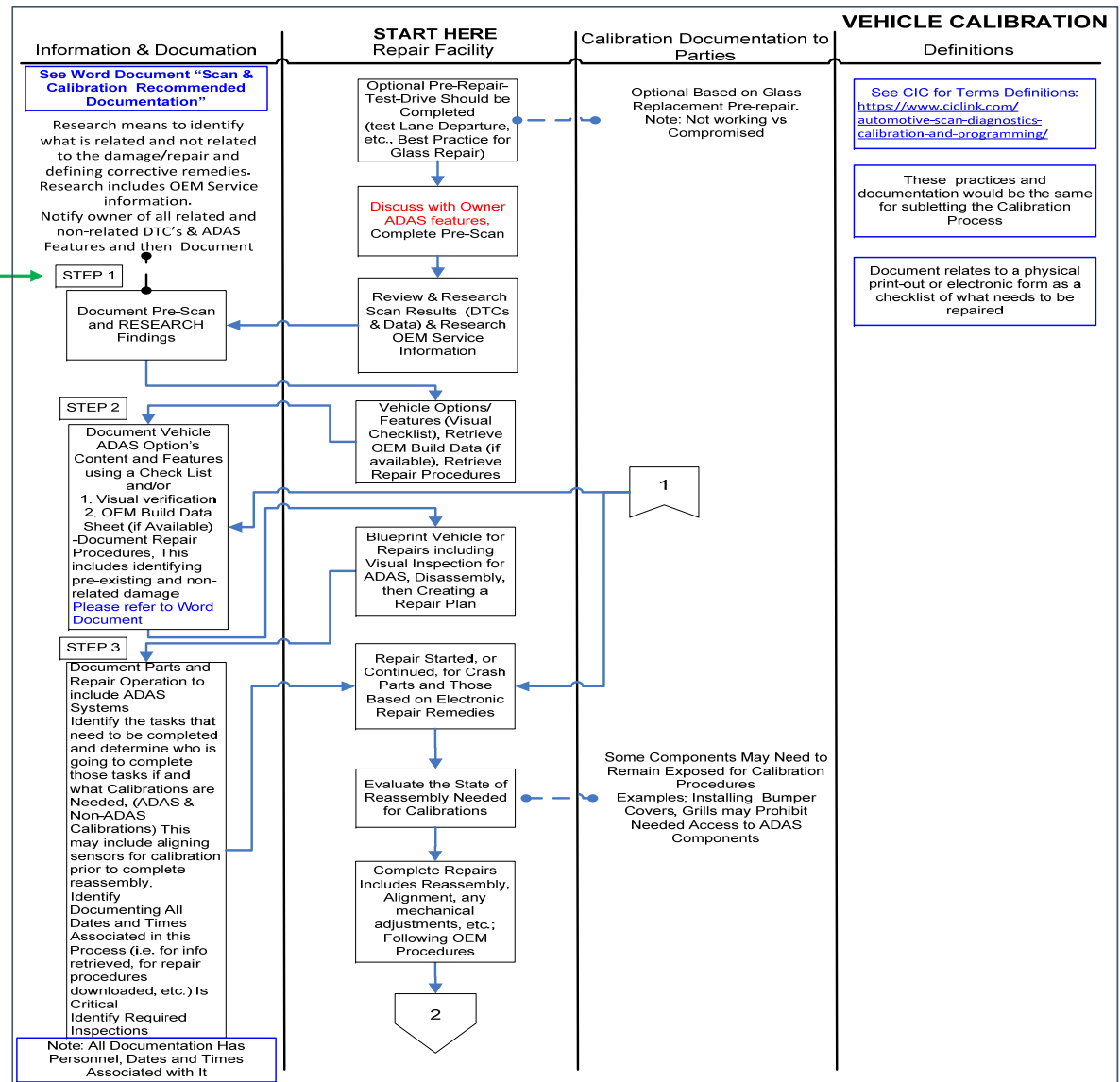
Workflow

- **Start Here:** For ease of understanding, follow **Repair Facility** column
- **Information & Documentation:** column provides information as to what information is recommended and what to document
- **Calibration Documentation to Parties:** Information, options, and tips of what has a high likely hood to be shared or obtained via other parties
- **Definitions:** are found in CIC Glossary of terms section for Automotive Scan, Diagnostics, Calibrations and programming
- www.ciclink.com/automotive-scan-diagnostics-calibration-and-programming/



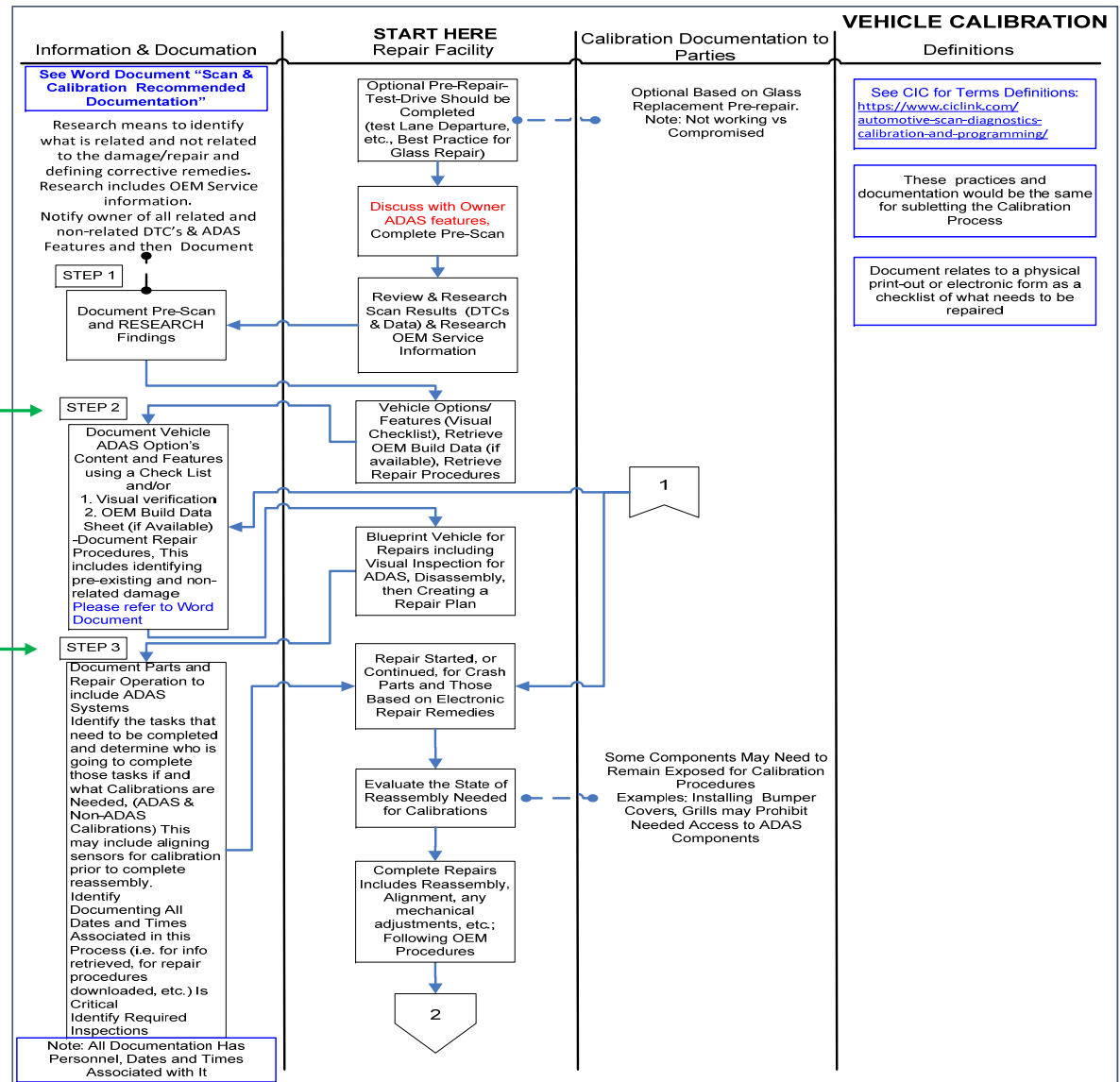
Workflow Step 1

- STEP 1 - Document DTCs (Document Scan Results) - Virtual Printout (*.pdf, *.jpg, etc.) of all the DTCs and all the modules tested and must include the valid VIN number associated with the scanned vehicle**
 - Notify owner of known ADAS Systems and update them on these features being returned to OEM specifications
 - Refer owner to the owner's manual the factors that can impact their ADAS Systems operation (e.g., weather, tires, etc.)
 - Note: Calibration or re-learn may or may not be reported via DTCs (vehicle specific)
 - Research means to identify what is related and not related to the damage/repair, and to define corrective remedies
 - Research includes OEM service information (If OEM Procedures are Available)
 - Date, Time, Personnel, Source for Download Documented
 - Evaluate if vehicle has been altered, see STEP 9
 - Notify all parties involved (e.g., owner and insurance carrier) of all related and non-related ADAS research findings and then document



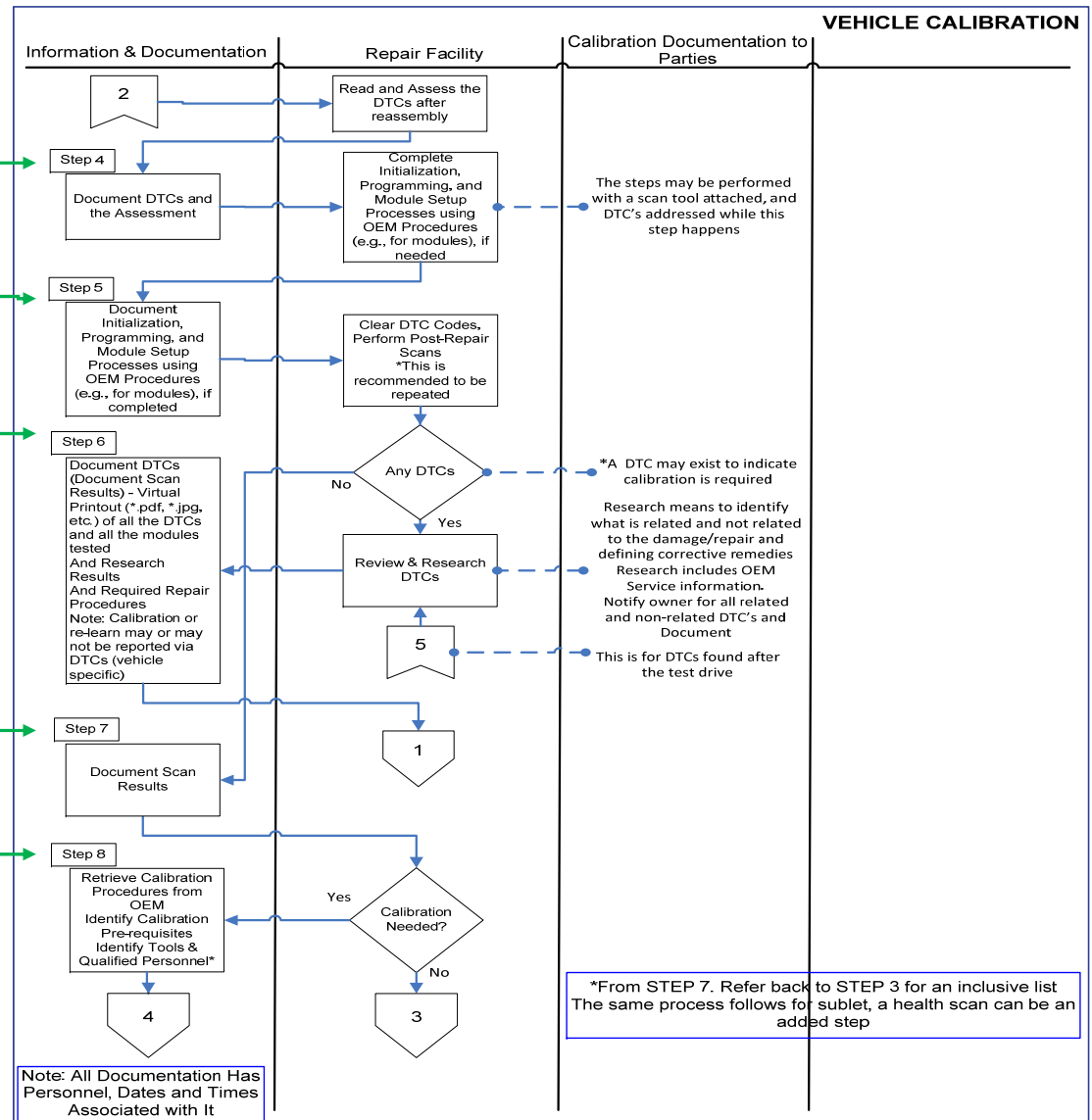
Workflow Steps 2-3

- STEP 2 –**
 - Document Vehicle ADAS Option's Content and Features using a Check List and/or
 - Visual verification
 - OEM Build Data Sheet (if Available)
 - Document Repair Procedures (If OEM Procedures are Available)
 - This includes identifying pre-existing and non-related damage
 - This is critical information that is not easily captured.
- STEP 3 –**
 - Document Parts and Repair Operation to include ADAS Systems
 - Identify the tasks that need to be completed and determine who is going to complete the work
 - Identify if and what Calibrations are Needed, (ADAS & Non-ADAS Calibrations)
 - Evaluate the State of Reassembly Needed for Calibrations and Document
 - Documenting All Dates and Times Associated in this Process (i.e. for info retrieved, for repair procedures downloaded, etc.) Is Critical
 - Identify Required Inspections



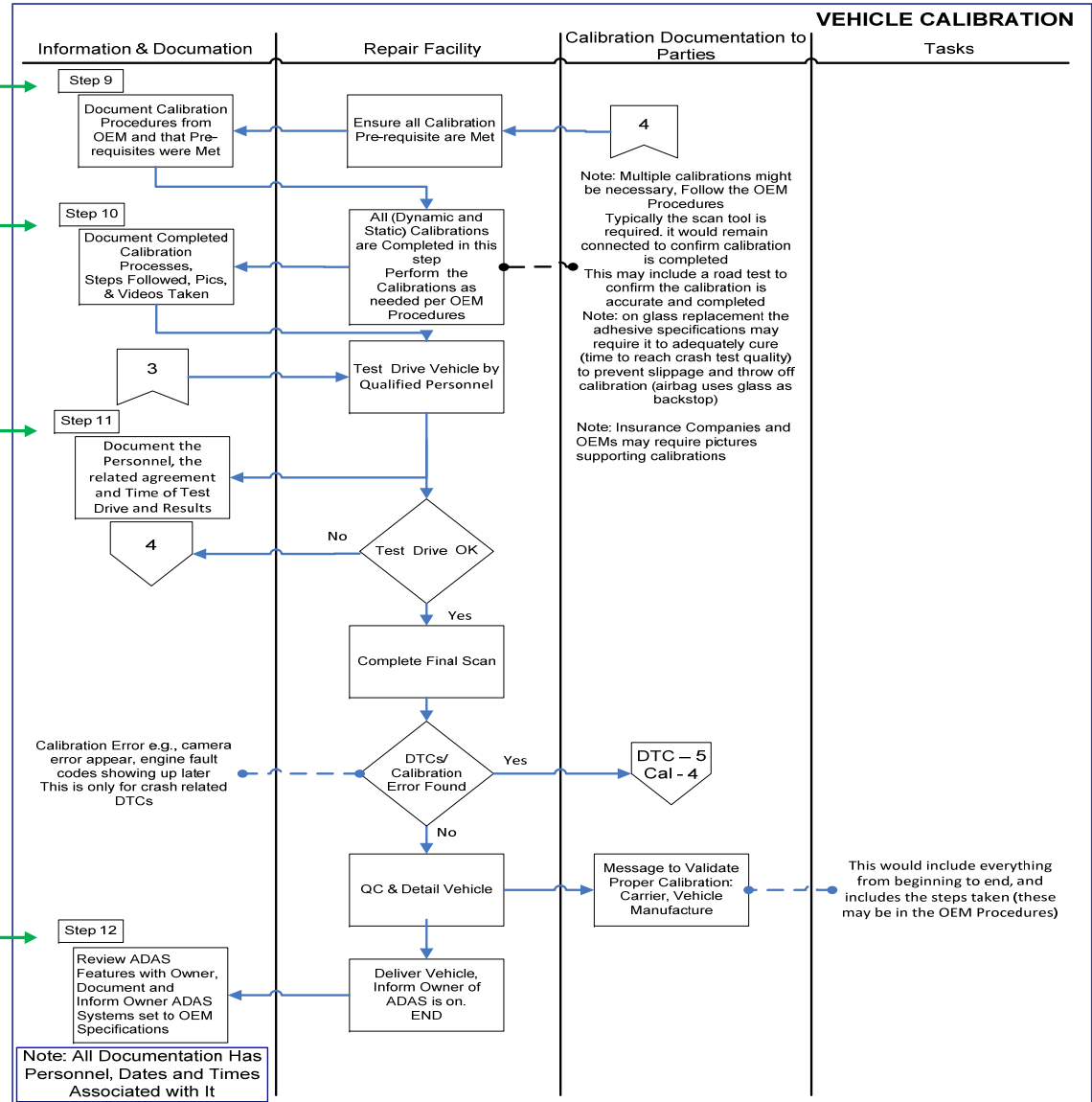
Workflow Steps 4-8

- **STEP 4 –**
 - Document DTCs and the Assessment
- **STEP 5 –**
 - Document Initialization, Programming, and Module Setup Processes using OEM Procedures (e.g., for modules), if needed
- **STEP 6 –**
 - Document DTCs (Document Scan Results) - Virtual Printout (*.pdf, *.jpg, etc.) of all the DTCs and all the modules tested
 - Research Results
 - Document Required Repair Procedures
 - Note: Calibration or re-learn may or may not be reported via DTCs (vehicle specific)
- **STEP 7 –**
 - Document Scan Results (see above)
- **STEP 8 –**
 - Retrieve Calibration Procedures from OEM
 - Identify Calibration Prerequisites
 - Identify Tools & Qualified Personnel
 - Refer to STEP 3 for an inclusive list
 - For Sublet, please see bullet at the end of this document



Workflow Steps 9-12

- STEP 9 –**
 - Document Calibration Procedures from OEM and that pre-conditions were met
 - Ensure and document all calibration process pre-conditions have been met, e.g., full fuel tank, check tire pressure, alignment
 - If the vehicle was altered, e.g. larger/high performance tires or modified ride heights, it may not be possible to perform a proper calibration
 - However, some OEMs may have limited procedures for related alterations
 - If altered, document and advise the owner/driver that the alteration can cause the inability for some ADAS systems to operate correctly and proper calibrations to be performed successfully
- STEP 10 –**
 - Document Completed Proper Calibration Process:
 - Retrieved OEM Calibration Processes, Steps Followed, Photos, Videos & Other Documentation (e.g., screen shots) to Provide Evidence It Was Performed Correctly
 - Again, Personnel, Dates and Times Associated with Each Step
 - Insurance Companies and OEMs may require pictures supporting calibrations
- STEP 11 –**
 - Repair facility should have an agreement with the personnel performing the test drive and receive adequate documentation to prove it completed correctly
 - Document Personnel and Date & Time of Test Drive and Results
- STEP 12 –**
 - Review ADAS Features with Owner, Document and Inform Owner ADAS Systems set to OEM Specifications



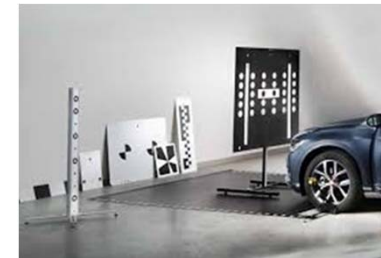
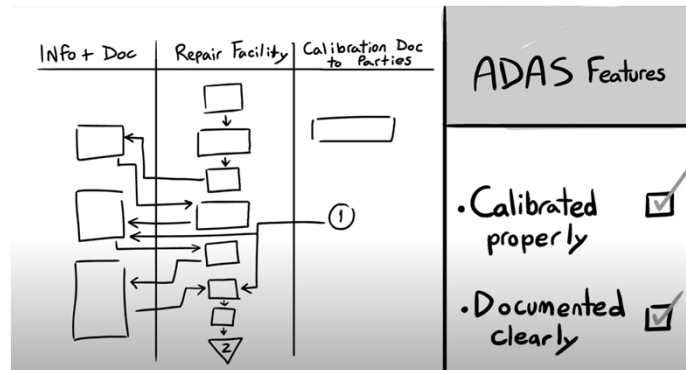
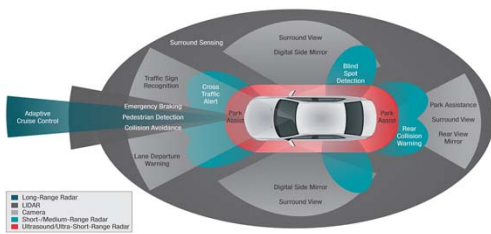


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Thank You!!

Special Thanks to all 80+ CIECA calibration committee members who contributed to the 18 months of working out all the details in creation of this workflow

Extra Special Thanks to Charley Quirt and Darrel Amberson for facilitating and organizing all meetings



Audience Response Question:

Workflow "best practices" process to be accepted as CIC work product.

