


TECHNICAL I-CAR[®] NEW ZEALAND REPORT

THE SCANNING
DEBATE
- A GLOBAL HOT TOPIC
INVOLVING
EVERYONE WITH A
VESTED INTEREST IN
CORRECT AUTO BODY
REPAIRS AND SAFETY
REQUIREMENTS...

DIAGNOSTICS – SCANNING & RE-CODING





Some of the information contained within this article has been compiled from a symposium by I-CAR, in association with Subject Matter Experts (SME) from vehicle makers, collision repairers, insurance personal and scan tool manufacturers (August 2016). A peer review group have subsequently edited and updated all of the content and definitions of that conference.



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At the risk of over-exposing any, and all ongoing “discussions” between work providers and service providers (read that as insurance companies and repairers respectively), about any issues and / or procedures that will, by necessity, generate cost increases, it is imperative, and absolutely vital that OEM procedures, specifications and requirements should be adhered to, in the first instance.

In this day and age, we are all experiencing a proliferation of technological advancements on a scale that has never been seen before.

In the automotive field, that sees an enormous increase in electronic features, for driver and passenger safety and comfort, as well as lower emissions, increased performance and better fuel efficiencies.

With those advanced features comes a myriad of specialist requirements when both servicing new-age vehicles, and of particular relevance to the body repair industry, when a collision event occurs.

Virtually all ACTIVE, and most PASSIVE safety systems in today's vehicles are controlled or activated by electronic devices and associated telemetry - the industry as a whole, needs to understand that these complex components are also instrumental in identifying damage that may not necessarily be determined with conventional analysis methods (measuring, visual inspections and comparisons etc).

› WHAT THE COLLISION REPAIR INDUSTRY IS DOING NOW (IN GENERAL TERMS) :-

Diagnostic Trouble Codes (DTC) are identified, analysed and cleared (or re-set) **AFTER** the collision repair is completed – this is normally carried out as a “sublet” by the local auto electrical business or the appropriate dealership. On many occasions, numerous fault codes are present that are difficult to clear, or appear to be unrelated to the collision event (more on that next).

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WHAT THE COLLISION REPAIR INDUSTRY SHOULD BE DOING :-

Diagnostic Trouble Codes (DTC) are identified, analysed and recorded **BEFORE** any dismantling of critical components and power supply disconnections. Capturing and interpreting this information substantially increases the accuracy of a damage assessment by identifying latent defects / hidden damage, as well as providing a recording of codes that will be inherently easier to clear in the post- scan and/or initialisation processes.

Pre-scans will typically also show pre-existing faults and DTCs. This is extremely helpful in resolving disputes that occur on a somewhat regular basis between vehicle owners, insurers and repairers when determining who is responsible, or liable in the event that additional time and / or component replacement (additional costs), will be required to re-set some codes that may present.

SCANNING DEFINITIONS EXPLAINED :-

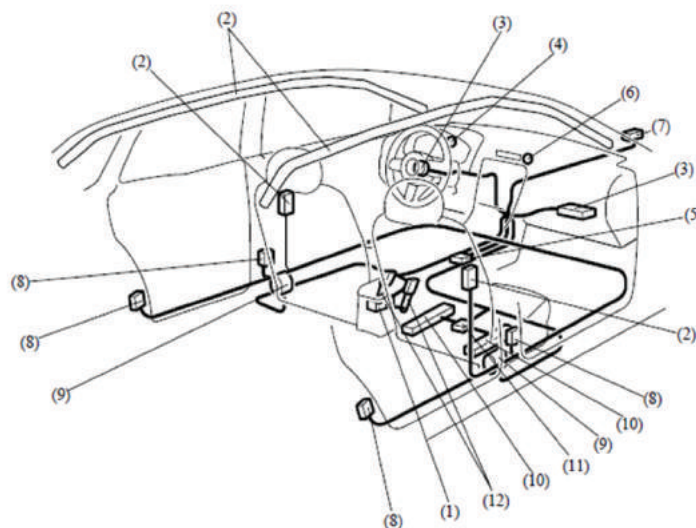
1/ Pre-Scan – Code Capture – A step in the damage analysis/blueprinting process used to identify errors, faults, and/or damage, related AND unrelated, to the collision event. Pre-scanning is also done to capture Diagnostic Trouble Codes (DTCs). If a pre-scan is not possible because the 12-volt electrical system (that will include communication networks), has been disabled, or fails during the pre-scan, it should be completed as soon as the repair progress allows it to be done safely.

2/ Post Scan – Code Clearance - A post-repair, quality control process used to ensure ALL Diagnostic Trouble Codes (DTCs), both related and unrelated to the collision, and those set during the repair processes, have been identified and cleared. A test drive may be required prior to some code clearances – other DTCs may present only after certain driving distances or key cycles have been reached.

3/ Post Repair Calibration – Initialization (PRC/I) – A required step following the removal, installation, and/or repair of numerous safety systems and driver aid system parts. PRC/I may also be required if there is damage / disturbance of the mounting locations of these components, R&R or R&I of cameras, sensors, mounting brackets and adjacent parts including trims & closures.

Note that PRC/I may also be referred to as : *aiming, health check, module set-up, re-learn, zero-point calibration, initialization, or calibration.*

It doesn't even need to be "newer", or latest release models to have a plethora of electronic features (2009 Mazda CX9 shown)



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- (1) Driver seat slide position sensor
- (2) Side and curtain inflators and air bags
- (3) Driver/Front passenger dual stage inflators and air bags
- (4) Air bag/front seat belt pretensioner system warning light
- (5) Crash and roll-over sensors, and diagnostic module (SAS unit)
- (6) Front passenger air bag deactivation indicator light
- (7) Front air bag sensor
- (8) Side crash sensors
- (9) Front seat belt pretensioner and load limiting systems
- (10) Front passenger seat weight sensors
- (11) Front passenger seat weight sensor control module
- (12) Driver and front passenger seat belt buckle switches

Let's take a look at what vehicle makers are defining in their position statement information documents on the appropriateness of PRE & POST scanning: (These are segments of OEM bulletins – the various vehicle-maker websites should be accessed for further information)



These randomly selected OEM's position statements / bulletins are typical of most vehicle-maker's official documents for global distribution.



Per the July 2017 Pre- and Post- Scanning of Collision Vehicles position statement: "For Subaru vehicles from model year 2004 and forward involved in a collision, Subaru collision repair procedure recommends that pre-repair scanning be performed. Pre-scanning will reveal DTCs for items that are not functioning properly in the vehicle. It allows a shop to identify any issues early in the estimate process, allowing a more complete estimate and encompassing repair process."

As the position statement states: "Additionally, Subaru collision repair procedure also recommends that post-repair scanning be performed on these vehicles. Post scanning is critical in ensuring the malfunctioning items have been repaired and there are no remaining DTCs. It may also assist in assuring the appropriate calibrations and reinitializations have been performed."

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SERVICE INFORMATION - POSITION STATEMENT

Per the General Motors Position Statement: Pre- and Post-Scan of Collision Vehicles "General Motors takes the position that all vehicles being assessed for collision damage repairs must be tested for Diagnostic Trouble Codes (DTCs) during the repair estimation in order to identify the required repairs. Additionally, the vehicle must be retested after all repairs are complete in order to verify that the faults have been repaired and new faults have not been introduced during the course of repairs."

The GM position statement also identifies "Many safety and security-related components, sensors and Electronic Control Units (ECUs) require calibration and/or learns when replaced. These systems must be repaired according to the corresponding GM repair procedures in Service Information (GMSi)."



Per the July 2016 Toyota CRIB 191: "Toyota requires that repairers perform a "Health Check" diagnostic scan if a vehicle has sustained damage as a result of a collision that may affect electrical systems. Additionally, Toyota strongly recommends that repairers perform a "Health Check" diagnostic scan before and after every repair to identify and document DTCs."

As the CRIB states, "Toyota, Lexus, and Scion vehicle electrical systems are designed to control and communicate with engine, drivetrain, body electrical, navigation, audio, handling and safety systems." Components from these various systems can be damaged in a collision and may not necessarily cause a MIL. The Toyota CRIB also states that the pre-repair system scan will help to identify DTCs that will need to be taken care of to help ensure the systems operate correctly.



HONDA

Per the July 2016 position statement: "It is the position of American Honda that all vehicles involved in a collision* must have the following minimum diagnostic scans, inspections, and/or calibrations done to avoid improper repair:

- A preliminary diagnostic scan during the repair estimation phase to determine what Diagnostic Trouble Codes DTCs may be present, so proper repairs may be included. See Background On Scan Requirements paragraph for more information.
- A post repair diagnostic scan to confirm that no DTCs remain.
- Some safety and driver assistive systems will require inspections, calibration, and/or aiming after collision or other body repairs. See page 2 for additional information.

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*A collision is defined as damage that exceeds minor outer panel cosmetic distortion.”

To summarise :

There is overwhelming evidence to support the collision repair industry's argument that both pre and post scanning should be done on many collision damaged vehicles – This needs to be tempered with a common-sense viewpoint that requires correct identification and validation by all bodyshop professionals (technicians, estimators and managers).

It is disingenuous of any work- provider to argue against this requirement (which is typically stated to be “unnecessary”, when the real reason is that this will, by necessity, add additional cost).

These articles have been written by Martyn Lane : I-CAR Instructor, Weld Test Administrator and Technical Specialist to the auto body industry

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