

OEM POSITION STATEMENTS ON PRE & POST SCANNING



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(INFO OBTAINED FROM OEM1STOP.COM & I-CAR.COM)

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OEM POSITION STATEMENTS

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Collision Position Statement

December 10, 2018

PRE- AND POST-DIAGNOSTIC SCANNING DURING A COLLISION REPAIR

Ford Motor Company vehicles contain many state-of-the art features that provide occupant safety and enhance the driving experience. During collision repairs, it is critical the proper function of these systems and features be restored back to pre-accident condition and performance. Ford defines a collision as damage that exceeds minor outer body panel cosmetic distortion.

All Ford Motor Company vehicles from and including model year 2010 forward involved in a collision require a pre-repair diagnostic scan during the estimation phase of a collision repair to properly identify all required repairs. During the repair process, certain modules and other system components may require calibration or initialization to properly complete the repair. Additionally, the vehicle must have a post-repair diagnostic scan completed after the vehicle has been repaired to verify that new faults have not been introduced in the course of the repair and to verify that the vehicle has been fully repaired. The following points show why a diagnostic scan is crucial to the proper repair of the vehicle:

- 1. Preliminary diagnostic scans provide a baseline to the condition of the systems on the vehicle, and what concerns may need to be addressed during the vehicle repair plan development.**
- 2. Not every malfunction will illuminate a malfunction warning light (MIL) or message center warning.**
- 3. A system may require a certain number of drive or function cycles in order to set a warning light or manifest a concern.**
- 4. Low battery voltage may allow for numerous Diagnostic Trouble Codes (DTCs) to set.**

It is important to utilize Ford repair procedures for all collision repairs to ensure quality results. Ford also recommends the use of the Integrated Diagnostic System (IDS) or Ford Diagnosis and Repair System (FDRS) to perform all vehicle diagnostic testing, module programming, and system calibrations during collision repairs. Ford dealer-owned body shops can access service information, training and diagnostic scan tool support through the Professional Technician Society at www.fordtechservice.dealerconnection.com and independent collision repairers can find information at www.motorcraftservice.com.

Ford Motor Company vehicles are designed and built to provide optimum fit, function, safety and structural integrity. For this reason, Ford Motor Company does not approve the use of aftermarket, recycled, salvaged, or reconditioned parts. The quality, performance and safety of these parts cannot be verified and may result in substandard repairs, which can inhibit proper vehicle function and cause erroneous DTCs. Only by using Ford original equipment collision parts can you be assured of the part's fit, finish, quality and safety.



Pre- and Post-Scan of Collision Vehicles

October 2016

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 re-tested 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.

Even minor body damage or glass replacement may result in damage to one or more safety-related systems on the vehicle. Any action that results in loss of battery-supplied voltage and disconnection of electrical circuits requires that the vehicle is subsequently tested to ensure proper electrical function.

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).

Technology Supported Diagnostic Aids

General Motors states that the method to correctly identify vehicle diagnostic trouble codes (DTCs) is by using the appropriate GM diagnostic software: **GDS2 or Tech 2/Tech2Win**, each of which can scan a vehicle for all DTCs in one operation. GM diagnostic software is supported by one of the GM approved diagnostic scan tools (MDI or a J2534 device). GM does not recommend the use of other scan tools and cannot guarantee their accuracy. For a list of vehicle covered by these applications, refer to the GM technical document titled *Vehicles Supported by GDS2 or Tech2/Tech2Win*.

GMSi is the factory source for all diagnostic and repair procedures, wiring diagrams and associated repair information.

GM Service Programming System (SPS) is the ECU programming application that provides calibration updates and guided learn procedures where required.

Any repairs performed without using Genuine GM Parts and not following published GM collision repair procedures may result in erroneous DTCs and expose vehicle owners and occupants to unnecessary risk. GM collision repair information can be accessed for free on genuinegmparts.com or is available through a GMSi subscription.



Issued: October 2017

SUBJECT: POST-COLLISION DIAGNOSTIC SCAN AND CALIBRATION REQUIREMENTS FOR HONDA AND ACURA VEHICLES

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](#) for more information.
- A post repair diagnostic scan to confirm that no DTCs remain.
 - Any repair that requires disconnection of electrical components in order to perform the repair will require a post-repair diagnostic scan to confirm if the component is reconnected properly and functioning.
 - Damage that requires body parts replacement will always require a post-repair diagnostic scan.
- 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.

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

Background on Scan Requirements

**All vehicles indicates any model year Honda or Acura vehicle that is capable of being scanned. This includes: all 1996 to current model year vehicles, certain 1994 to 1995 model year vehicles that contain a 16 pin OBD2 connector, and certain 1992–1995 model year vehicles that contain a 3 pin diagnostic connector. Honda and Acura vehicles include numerous electronic control systems, including those that operate safety and driver assist systems. Most of these systems include onboard self-diagnostics that monitor the state of health and/or rationality of input and output circuits.

When monitored circuit values fall outside predetermined thresholds, DTCs may be set in one or more electronic control units (ECUs).

The mechanical forces encountered in a collision can damage electrical circuits and components in ways that are not easily diagnosed with visual inspection methods.

Here are some other electronic control system self-diagnostic facts:

- The proliferation of electronic control systems has increased the number of potential DTCs beyond the point where a dashboard indicator can be installed and/or illuminated for every DTC. Dashboard indicators are intended for driver notification, not vehicle diagnostics.
- Therefore, the presence or absence of dashboard indicators/warning lights is **not** an acceptable method to determine if post collision diagnostic scans are necessary.
- Many DTCs **do not** illuminate **any** dashboard indicators, but an electronic control system may still operate improperly or be completely inoperative.
- Because of the complexities of serial data networking, dashboard indicators that do illuminate may appear unrelated to the actual vehicle problem.
- Some self-diagnostics require multiple failures, or other criteria such as a number of drive cycles, to be met before illuminating any indicators.

- Low battery voltage and/or repair procedures may inadvertently set multiple DTCs. Clear the DTCs, and determine which ones reset after battery voltage is stabilized.

Diagnostic Recommendations

The **recommended** way to accurately determine the post-collision status of all Honda and Acura vehicle electronic control systems is with the i-HDS.

- The i-HDS has an All DTC Check feature that will scan available electronic control systems for DTCs in one operation.
- American Honda does not test other scan tools and cannot comment on their capabilities or accuracy.

NOTE: Not all electronic control systems can be scanned using the i-HDS. For example, Honda LaneWatch™ and earlier model air conditioning and climate control systems have self-contained diagnostics that are not accessible using the i-HDS. For systems such as these, refer to the published diagnostic procedures in the appropriate service information available on the Honda Independent Repair/ServiceExpress website: (techinfo.honda.com).

Inspection/Calibration/Aiming Requirements

Safety and driver assistive systems that will require inspections, calibration, and/or aiming after collision or other body repairs include, but are not limited to the following:

After reconnecting the 12-volt battery:

After collision repairs are complete and the battery is reconnected, some electrical systems may not operate properly. These may include, but are not limited to the following:

- Navigation systems
- Engine idle speed learn
- Power window, power tailgate, moonroof, power sliding door position and/or pinch detection
- Keyless access and immobilizer/security systems

Since the reset procedures vary by vehicle and system, enter the vehicle information into ServiceExpress and search the keyword **Reset**. This search will retrieve a list of reset procedures required after parts replacement and/or a battery disconnect. Some reset procedures can be done without special tools. Others may require scan tool software.

Front Passenger's Seat Weight Sensor - Inspections and Calibration:

These sensors control passenger's front airbag operation and the PASSENGER AIRBAG OFF indicator based on the occupant's weight. Like any scale, weight sensors are a precision device.

- The service information may refer to these sensors as the seat weight sensor (SWS) system or occupant detection system (ODS), depending on model and year.
- This inspection requires a scan tool to fully check the seat weight sensor's operation using the following criteria:
 - Empty front passenger seat weight to confirm the sensors can detect this condition
 - Seat weight with a known calibration weight amount if necessary
- This check **must** be done after **any** collision, regardless of damage, even if no airbags deployed.
- The check confirms sensor operation and that no binding or damage exists in the relationship between the seat frame, weight sensors, and floor pan.
- Weight sensor calibration is also required when front passenger seat components have been removed or replaced. Refer to the service information for procedures.

Driver Assistive System Aiming:

Some models use one or more of the following camera and/or radar based driver support systems that require software-based aiming and/or calibration to ensure proper operation after certain components have been removed and/or replaced:

- Adaptive Cruise Control (ACC)
- Collision Mitigation Braking System™ (CMBS™)
- Forward Collision Warning (FCW)
- Lane Departure Warning (LDW)
- Lane Keeping Assist System (LKAS)
- Road Departure Mitigation (RDM)
- Blind Spot Information (BSI)
- LaneWatch™ (Honda Only)
- Multi-View Camera System (MVCS - Acura Only)

NOTE: Rearview (backup) cameras do not require any aiming procedures after removal or replacement unless the vehicle is also equipped with the Multi-View Camera System (MVCS).

These procedures may require special tools and/or the i-HDS to complete. Refer to the service information for specific information.

The chart below shows damage areas where driver assistive system components may be located in close proximity. Collision damage in these areas should be given particular attention because certain repairs and/or parts replacement may require aiming procedures to be done.

Collision Damage Area	Driver Assistive System Components Affected
Front Bumper and Grille Area	Millimeter Wave Radar Unit Front Camera (w/Multi-View Camera System)
Windshield Area	Multipurpose Camera Unit
Front Passenger's Door/Mirror Area	LaneWatch™ Camera (Honda Only) Right Side Camera (w/Multi-View Camera System)
Driver's Front Door/Mirror Area	Left Side Camera (w/Multi-View Camera System)
Rear Bumper Area	Blind Spot Information System Radar Units Rear Camera (w/Multi-View Camera System)

How To Obtain Service Information, i-HDS Diagnostic Software, and Interface Hardware

i-HDS software, as well as other service information, is available to independent repair facilities and others for use on laptop or desktop computer hardware. These may be purchased in three time intervals: 1 day, 30 days, and 365 days.

NOTE: The i-HDS software requires the use of a Bosch MVCI or Denso DST-i vehicle communications interface (VCI) device between the vehicle and your computer, which must be purchased separately.

To purchase i-HDS diagnostic software and/or a vehicle interface device, do the following:

1. Access the Honda Independent Repair/ServiceExpress website: (techinfo.honda.com).
2. Click the link under the **Diagnostic Tools** heading (near middle of page).
3. Confirm your computer meets the system requirements and/or purchase a VCI device by clicking the link(s) under **Hardware**.
4. Click the link under **Software** to purchase i-HDS software, and follow the directions.



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March 28, 2018

TO: Collision Repair Industry

POSITION STATEMENT: Pre-Repair and Post-Repair System Scanning

Hyundai vehicles are equipped with multiple electronic components and systems within each vehicle. Therefore, it is important that vehicles involved in a collision have a pre-repair scan and post-repair scan so that repairers are aware of any diagnostic trouble codes that may be present, regardless if a warning light or malfunction indicator light is illuminated.

A pre-repair scan will alert the repairer to diagnostic trouble codes or items that may be malfunctioning within the vehicle. This aids the repairer to develop more accurate repair estimates prior to beginning repairs. The post-repair system scan provides confirmation that systems are functioning properly and calibrated.

Hyundai Motors America's recommends conducting a pre-repair scan as appropriate to ensure safe and accurate repairs and that all vehicles receive a post-repair scan to ensure all systems and components are functioning, calibrated and communicating properly with no diagnostic trouble codes present.

Hyundai values customer safety and requests the collision industry follow the above recommendations for completing pre/post repair scans to achieve safe and quality repairs.

Reference: ISPB/18-286 (Revision to IPSB/16-397)

January 7, 2019

TO: COLLISION REPAIR INDUSTRY

POSITION STATEMENT: Revised Pre- and Post-Repair Scanning, Calibration

FRANKLIN, TN—INFINITI continues to add greater technology and electrical systems promoting driver assist features and overall vehicle safety. The presence of increasingly sophisticated and inter-connected technology supports and necessitates the requirement of all INFINITI vehicles, having a diagnostic system scan to identify any diagnostic Trouble Codes (DTCs) present, even in cases where there is no identifiable Malfunction Indicator Light (MIL) illuminated on the vehicle's dashboard. Forces encountered in a loss or simply disconnecting vehicle systems during the repair process for paint or other access can trigger a DTC in the vehicle's systems. A pre-repair system scan is recommended to identify items in advance that are malfunctioning on a vehicle. This helps the repair facility fully understand the scope of the repair before starting as well as documenting elements related to the overall loss. The post-repair diagnostic system scan is required to confirm DTCs are properly resolved and assist in system calibrations, helping to ensure our owners' safety and satisfaction.

Background on Scan Requirements

Introduced in 1996, INFINITI vehicles systems have the ability to capture and record DTCs of vehicle systems within the vehicle Electronic Control Units (ECU). All 1996 to current vehicles that contain a 16-pin OBD2 port have the potential to have a diagnostic system scan. In vehicles without an OBD2 port it may be necessary to locate other vehicle data link connectors to perform this task. INFINITI recommends the use of the CONSULT diagnostic scan tool with the most up-to-date software installed. INFINITI does not test or validate other diagnostic scan tools in the market and cannot comment on their capabilities or accuracy. Using the CONSULT diagnostic scan tool, stored DTCs are identified, validated, and then addressed within the repair process.

Some additional vehicle control systems' diagnostic and DTCs facts:

- The proliferation of vehicle control systems has increased the potential number of DTCs beyond the point where dashboard indicators can illuminate for every DTC. The dashboard indicators are intended for driver notifications, NOT vehicle diagnostics.
- DTCs may be triggered as a result of the loss OR the repair process when electrical systems are disconnected during the restoration of the vehicle.

- The presence or absence of dashboard indicators/warning lights is NOT an acceptable method to determine if a post-repair diagnostic scan is necessary. ALL INFINITI vehicles 2008 and newer MUST have a post-repair diagnostic scan and systems calibration for this reason.

For additional information, please see the Electronic Service Manual (ESM).

Parts Warranty

INFINITI Americas New Vehicle Limited Warranty and Limited Warranty on replacement parts does not apply to any parts other than Genuine INFINITI replacement parts. INFINITI will not be responsible for any subsequent repair costs associated with a vehicle and/or part failure caused by the use of parts other than new Genuine INFINITI replacement parts.

For additional collision information: collision.infinitiusa.com.

Refer to the Electronic Service Manual (ESM) prior to any repair or replacement being performed. Information specific to each model may be found at
<https://www.infiniti-techinfo.com>.





Kia Pre and Post Diagnostic Scanning Related To Collision Repairs Position Statement

Kia Motors has designed many electrical modules and complex electrical components which communicate with each other in Kia vehicles. These systems help control many of the phases of vehicle performance, as well as vital safety systems that were designed to prevent accidents and/or to help protect the driver and occupants in the event of a collision.

After a collision has occurred, it is imperative to perform both pre-repair and post-repair scan procedures within all the systems to test for potential diagnostic trouble codes (DTCs). The DTCs may be stored in specific modules such as the airbag, body engine, or powertrain control units. The DTCs can provide information about these and other components, such as sensors, cameras, and radars (if equipped), used in the vehicle's safety systems and equipment.

A DTC alert may not always illuminate a DTC indicator light on the dash board, so testing for codes is important both before and after repairs are made, even if the repairs appear to be minor. Not only can scanning help ensure accurate estimating before a job commences, after-repair scanning helps ensure that all systems are communicating and functioning as originally designed and can help indicate that the repair was completed thoroughly, resulting in the vehicle being restored to the state and condition as originally engineered.

The scanning procedure should not be considered an option, but rather as an essential task both during the pre-repair collision estimating phase and after the repairs are completed.



THE LINCOLN MOTOR COMPANY

Collision Position Statement

December 10, 2018

PRE- AND POST-DIAGNOSTIC SCANNING DURING A COLLISION REPAIR

Lincoln Motor Company vehicles contain many state-of-the art features that provide occupant safety and enhance the driving experience. During collision repairs, it is critical the proper function of these systems and features be restored back to pre-accident condition and performance. Lincoln defines a collision as damage that exceeds minor outer body panel cosmetic distortion.

All Lincoln Motor Company vehicles from and including model year 2010 forward involved in a collision require a pre-repair diagnostic scan during the estimation phase of a collision repair to properly identify all required repairs. During the repair process, certain modules and other system components may require calibration or initialization to properly complete the repairs. Additionally, the vehicle must have a post-repair diagnostic scan completed after the vehicle has been repaired to verify that new faults have not been introduced in the course of the repair and to verify that the vehicle has been fully repaired. The following points show why a diagnostic scan is crucial to the proper repair of the vehicle:

1. **Preliminary diagnostic scans provide a baseline to the condition of the systems on the vehicle, and what concerns may need to be addressed during the vehicle repair plan development.**
2. **Not every malfunction will illuminate a malfunction warning light (MIL) or message center warning.**
3. **A system may require a certain number of drive or function cycles in order to set a warning light or manifest a concern.**
4. **Low battery voltage may allow for numerous Diagnostic Trouble Codes (DTCs) to set.**

It is important to utilize Lincoln repair procedures for all collision repairs to ensure quality results. Lincoln also recommends the use of the Integrated Diagnostic System (IDS) or Ford Diagnosis and Repair System (FDRS) to perform all vehicle diagnostic testing, module programming, and system calibrations during collision repairs. Lincoln dealer-owned body shops can access service information, training and diagnostic scan tool support through the Professional Technician Society at www.fordtechservice.dealerconnection.com and independent collision repairers can find information at www.motorcraftservice.com.

Lincoln Motor Company vehicles are designed and built to provide optimum fit, function, safety and structural integrity. For this reason, Lincoln Motor Company does not approve the use of aftermarket, recycled, salvaged, or reconditioned parts. The quality, performance and safety of these parts cannot be verified and may result in substandard repairs, which can inhibit proper vehicle function and cause erroneous DTCs. Only by using Lincoln original equipment collision parts can you be assured of the part's fit, finish, quality and safety.



Position Statement

Subject: Scanning a vehicle before and after a collision repair

Irvine, California, January 3, 2018 – Every Mazda vehicle is built with new technology to keep the passengers inside safer. Sensors, cameras, and radars are built into the car to accomplish the highest standard of safety.

As OE manufacturers become more technologically advanced, Mazda North American Operations recommends that all vehicles being repaired for collision damage be scanned before and after the repair. Diagnostic Trouble Codes (DTCs) will be stored if any of the sensors, cameras, or radars were damaged in the collision.

Mazda North American Operations also recommends that only Mazda Genuine Parts be used when repairing the vehicle. Information on proper repair procedures, scanning and reprogramming are available via www.oem1stop.com to ensure that the vehicle is repaired correctly.

MBUSA Collision Position Statement re: Diagnostic Repairs Following a Collision



Mercedes-Benz vehicles consistently set the standard for safety, occupant protection, and engineering design. Advancements in our technology incorporate many different electronic control units, sensors, and cameras that assist various functions within the vehicle. These components are an integral part of the vehicle's operational, safety, and convenience features. During a collision, some of the vehicle's sensors could sustain damage internally or in a manner in which failure is not evident to the driver of the vehicle. These vehicle sensors and control units must be evaluated after a collision to ensure that a complete repair is performed, regardless of whether the vehicle notifies the driver of damage or failure via the instrument cluster.

As of model year 1996 (OBDII), vehicles involved in a collision repair should have these systems evaluated using an up-to-date Xentry Kit diagnostics computer:

- Pre-repair scanning and diagnosis of the vehicle is highly recommended. The pre-repair scan will reveal any potential issues early in the estimating and repair process to allow for a more complete estimate of repairs.
- Post-repair scanning and diagnosis of the vehicle is necessary to ensure that the vehicle's safety and driver-assist systems are operable and fully functioning. Many of the safety and driver-assist systems that may have been activated during a collision require vehicle calibration, normalization, or coding.

The post-repair scan will also help to ensure that a comprehensive repair has been performed. Some examples of when a full Xentry diagnostic scan is required include, but are not limited to:

- Vehicle collisions, regardless of the appearance of damage
- Windshield replacement for vehicles with driver-assist sensors (including rain/light sensors) located in the windshield
- Removal and/or replacement of exterior components, bumpers, SRS sensors, parking sensors, driver-assist system sensors and cameras, wiring harnesses, vehicle control units, seats, or interior trim panels

If a collision repair is necessary, MBUSA strongly recommends that all repairs are performed by a certified technician using only Genuine Mercedes-Benz Parts, mechanical components, and electrical components, as well as all safety devices such as airbags and seat belts.

With constant advancements in the technology of Mercedes-Benz vehicles, always consult Workshop Information Systems - (WIS) for up-to-date and approved repair instructions.





SCAN TOOL POSITION STATEMENT

FCA US LLC vehicles, systems and components are engineered, tested and manufactured to help protect vehicle occupants. They are engineered to meet or exceed both government-mandated and internal corporate requirements relative to durability, NVH (noise vibration and harshness) and vehicle safety. Use of the Mopar® wiTECH vehicle diagnostic tester (Mopar Scan Tool) is an important part of FCA US vehicle service and maintenance. This tool contains software that aftermarket tools may not contain and can assess whether any FCA US vehicle's safety and security systems contain active or stored Diagnostic Trouble Codes (DTCs).

Safety and security-related systems, such as antilock brakes, supplemental restraint systems (SRS - air bags), occupant restraint controller (ORC), seat belts, active head restraints, forward facing camera and radar, blind spot monitoring, and other automated electronic driver assistance systems, MUST be tested for fault codes (DTCs) that could be active (current) or stored following a collision. Use of the Mopar wiTECH vehicle diagnostic tester is necessary before and after collision repair.

ANY of the following conditions could trigger DTCs prior to or during collision repairs, which could result in improper vehicle performance:

- Vehicle is involved in an accident or collision, even though the damage may appear minor
- Vehicle has been in an accident with or without air bag deployment
- Voltage loss, including battery disconnects and hybrid battery disabling
- Significant vehicle disassembly including, but not limited to, bumpers, door handles, headlamps and mirrors
- Interior trim repair or removal
- Glass removal and replacement operations

Any repairs performed without using Mopar Parts and not following published repair guidelines and procedures may expose current or future vehicle owners and occupants to unnecessary risk.

If faults were stored in the DTC memory for any safety or security system, then these systems MUST be serviced according to the repair procedures in Service Information. After performing repairs, recheck the system to determine if any active or stored DTCs remain; if so, take appropriate service action to ensure proper function.

SRS AIR BAG SQUIB STATUS

Multistage air bags with multiple initiators (squibs) MUST be checked to determine that all squibs were used during the deployment event. The driver air bag (DAB) and passenger air bag (PAB) are deployed by electrical signals generated by the occupant restraint controller (ORC) through the driver or passenger squib circuits (up to 3) to the initiators in the air bag inflators. Typically, all initiators are exhausted and all potentially hazardous chemicals are burned during an air bag deployment event.

However, it is possible for only one initiator to be exhausted; therefore, you MUST always confirm that all initiators have been cycled to minimize the risk of improper handling or disposal of potentially live pyrotechnic or hazardous materials. This procedure must be performed using the Mopar wiTECH diagnostic scan tool or at a company such as Collision Diagnostic Services that diagnostically remotely scans the vehicle using FCA US scan tools in conjunction with their patented asTech device, to verify the status of all air bag squibs, prior to removing deployed air bags from the vehicle for disposal.

- Service Information can be obtained at www.oem1stop.com
- Mopar wiTECH scan tools can be purchased from <https://www.techauthority.com/Pdf/WiTecOrderForm.pdf>





N I S S A N
Collision Position Statement
Revised Pre- and Post-Repair Scanning, Calibrations
Reference: NPSB/18-409
Date: January 7, 2019

TO: COLLISION REPAIR INDUSTRY

POSITION STATEMENT: Revised Pre- and Post-Repair Scanning, Calibrations

FRANKLIN, TN—Nissan North America continues to add greater technology and electrical systems promoting driver assist features and overall vehicle safety. The presence of increasingly sophisticated and inter-connected technology supports and necessitates the requirement of all Nissan vehicles, having a diagnostic system scan to identify any diagnostic Trouble Codes (DTCs) present, even in cases where there is no identifiable Malfunction Indicator Light (MIL) illuminated on the vehicle's dashboard. Forces encountered in a loss or simply disconnecting vehicle systems during the repair process for paint or other access can trigger a DTC in the vehicle's systems. A pre-repair system scan is recommended to identify items in advance that are malfunctioning on a vehicle. This helps the repair facility fully understand the scope of the repair before starting as well as documenting elements related to the overall loss. The post-repair diagnostic system scan is required to confirm DTCs are properly resolved and assist in system calibrations, helping to ensure our owners' safety and satisfaction.

Background on Scan Requirements

Introduced in 1996, Nissan vehicles systems have the ability to capture and record DTCs of vehicle systems within the vehicle Electronic Control Units (ECU). All 1996 to current vehicles that contain a 16-pin OBD2 port have the potential to have a diagnostic system scan. In vehicles without an OBD2 port it may be necessary to locate other vehicle data link connectors to perform this task. Nissan recommends the use of the CONSULT diagnostic scan tool with the most up-to-date software installed. Nissan North America does not test or validate other diagnostic scan tools in the market and cannot comment on their capabilities or accuracy. Using the CONSULT diagnostic scan tool, stored DTCs are identified, validated, and then addressed within the repair process.

Some additional vehicle control systems' diagnostic and DTCs facts:

- The proliferation of vehicle control systems has increased the potential number of DTCs beyond the point where dashboard indicators can illuminate for every DTC. The dashboard indicators are intended for driver notifications, **NOT** vehicle diagnostics.
- DTCs may be triggered as a result of the loss **OR** the repair process when electrical systems are disconnected during the restoration of the vehicle.
- The presence or absence of dashboard indicators/warning lights is **NOT** an acceptable method to determine if a post-repair diagnostic scan is necessary. **ALL** Nissan vehicles from **2008 forward MUST** have a post-repair diagnostic scan for this reason.

For additional information, please see the Electronic Service Manual (ESM).

Parts Warranty

Nissan North America's New Vehicle Limited Warranty and Limited Warranty on replacement parts do not apply to any parts other than new Genuine Nissan Original Equipment Parts. Nissan North America will not be responsible for any subsequent repair costs associated with a vehicle and/or part failure caused by the use of parts other than new Genuine Nissan Original Equipment Parts.

For additional collision information: Collision.NissanUSA.com

Refer to the Electronic Service Manual (ESM) prior to any repair or replacement being performed. Information specific to each model may be found at
<https://www.nissan-techinfo.com>.



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Position Statement

Subject: Pre- and Post- Scanning of Collision Vehicles

Subaru of America, Inc., October 2018 - With each new model, Subaru makes advancements in technology that assist in the operation and safety of our vehicles. These advancements incorporate different sensor, cameras, control units, as well as other components, to assist with the functionality of the vehicle. They are a critical part of vehicle operation and the safety features in each Subaru vehicle.

In the event of a collision, these components could incur damage, which may trigger diagnostic trouble codes (DTC), but may not be evident via a warning light on the instrument cluster. It is imperative that these components be evaluated after a collision to ensure the vehicle is completely repaired. If these components are not evaluated, it could have a direct effect on vehicle operation and safety.

For Subaru vehicles from model year 2004 and forward involved in a collision, Subaru collision repair procedure requires 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.

Additionally, Subaru collision repair procedure also requires 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.

To accurately determine whether DTCs are present in a vehicle, Subaru recommends the use of the Subaru SSM4 diagnostic tool. Information regarding the purchase of the Subaru SSM4 diagnostic software application and Denso DST-i interface device can be found in the **Subaru Technical Information System (STIS)** at <https://techinfo.subaru.com> > Information > Special Tool Information. If a Subaru SSM4 diagnostic tool is not available, Subaru recommends the use of an asTech™ device. The asTech™ device performs a diagnostic scan remotely using a genuine Subaru scan tool. Information regarding the purchase of the asTech™ tool can be found at <https://astech.com/>. Subaru does not recommend the use of a generic scanning device as we cannot guarantee the content or accuracy. Always refer to the applicable Subaru Service Manual or Technical Service Bulletin (TSB) for the most up to date repair procedures.



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Any time a collision repair is performed, always refer to the appropriate Body Repair Manual for the most up to date repair procedures.

All Subaru technical information including Body Repair Manuals, Service Manuals, TSBs and more are available for purchase in STIS at <https://techinfo.subaru.com> > Log in/My Account > **Purchase a Subscription.** Subscription options are listed on the site.

If a collision repair is necessary, Subaru of America, Inc. strongly recommends using Genuine Subaru replacement body parts, mechanical components, and electrical parts including all safety devices such as airbags and seatbelts. The use of Genuine Subaru original parts will help ensure the vehicle is restored back to its original pre-collision condition and the structural integrity of the vehicle will perform as it was designed and tested in the event of another collision. The safety of our customers is our number one priority.

The use of any aftermarket or substitute structural, body, mechanical or electrical repair parts are not covered under the Subaru of America, Inc. limited warranty, replacement parts limited warranty or Subaru Added Security (SAS) agreements or contracts. Subaru of America, Inc. is not responsible for any resultant damage caused by the use and/or installation of any aftermarket substitute part(s).

CRIB COLLISION REPAIR INFORMATION

BULLETIN FOR THE COLLISION REPAIR PROFESSIONAL

TITLE: Scanning for Electrical System Faults **2016-191**
SECTION: Electrical **Page 1 of 1**
APPLICABLE VEHICLES: All Toyota, Lexus and Scion Models
DATE: July 2016

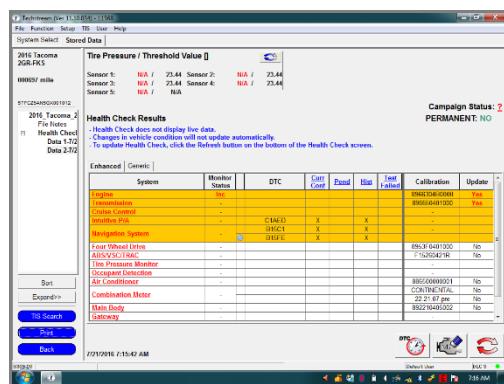
Toyota, Lexus and Scion onboard vehicle electrical systems are designed to control and communicate with engine, drivetrain, body electrical, navigation, audio, handling and safety systems. In the event of a collision, electronic control modules, actuators, sensors, or wiring can be damaged. Damage related to these systems may cause them to not perform properly during future operating conditions including subsequent collisions.

These electrical systems are designed to set fault codes known as DTCs (Diagnostic Trouble Codes) if a fault is detected. **Not all DTCs illuminate a MIL (Malfunction Indicator Light).** Toyota's "Techstream" and "Techstream Lite"** scan tool and software can retrieve and report all DTCs for all Toyota, Lexus, and Scion vehicles.**

Considering the fact that a capable scan tool is the only way to identify some DTCs, 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. If DTCs are identified pre-repair, then they can be considered to create a complete vehicle damage analysis report. If DTCs are identified post-repair, then they can be diagnosed and addressed before returning a vehicle to the customer.



No MIL Illuminated



DTCs found during Health Check

*Call Toyota Approved Dealer Equipment at 800.368.6787 for information, availability and pricing.

** Before using an aftermarket scan tool, check with the manufacturer to ensure that their equipment can retrieve History, Pending and Current DTCs as well as 'Time Stamp' their occurrence on all Toyota vehicles.



Volvo Car USA LLC: Statement on Pre/Post Scanning

Volvo's latest technology incorporates numerous control modules, sensors, and camera systems that support an array of vehicle functions. These components are an integral part of a vehicle's operational systems. In a collision, these sensors could be damaged in ways that are not visually evident and so they must be inspected and evaluated - regardless of whether the vehicle displays a failure via the instrument cluster. This will help ensure that any possible lack of functionality will be discovered and resolved.

As of model year 1996 (OBDII), vehicles involved in a collision repair should have all systems evaluated.

Pre-repair scanning is required prior to performing any work on the vehicle to reveal any malfunctions or failures of components that must be addressed during the repairs.

Post-repair scanning and diagnosis of the vehicle is required to make sure the vehicle's safety and autonomous systems are functioning correctly. Any safety or autonomous systems that may have activated during a collision may require initialization, calibration or replacement.

Examples of when pre/post scans should be performed:

- Windshield replacements (due to cameras and sensors located on the glass)
- Removal and/or replacement of bumpers, SRS sensors, PDC sensors, exterior mirrors, autonomous drive sensors and cameras, headlights, computer-aided drivetrain, wiring harnesses, vehicle control units, seats, or interior trim panels
- Disconnected/drained batteries

Using only genuine Volvo parts will help ensure vehicle safety, performance and residual value.

Volvo genuine parts are designed and manufactured to exacting specifications to help maximize safety, performance and reliability.

All Volvo exterior paneling, glass, unibody components, drivetrain, electronics, suspension SRS and steering components are essential to safe control of the vehicle. These parts are designed to work with other vehicle components to help keep occupants safe in an accident.

In the event of a collision, Volvo Car USA recommends that all repairs be performed by a Volvo Certified Technician through a Volvo Certified Collision Facility using only genuine Volvo Car parts.

Always refer to Volvo Information and Diagnostics for Aftersales (VIDA) for the latest technical guidelines.

 	<h1 style="margin: 0;">GLOBAL POSITION STATEMENT</h1>	JLRGPS 02	08/2018
Pre & Post Scanning		Model(s): All	

To: All National Sales Companies (NSCs), Importers, Retailers and Authorised Repairers & whom it may concern

Attention: The Managing Director/Retailer Principal/General Manager. The Service/After-Sales Director/Manager Bodyshop Manager & whom it may concern

This Position Statement is issued to address procedures or practices which have come to the attention of Jaguar Land Rover Limited. It either specifically disapproves of or comments on such matters. It does not give approval to or assume responsibility for any such procedures or practices. The fact that any procedure or practice is not addressed in any Position Statement does not mean that it is approved or the responsibility of Jaguar Land Rover Limited.

Any owner or repairer should refer to Jaguar Land Rover published workshop manuals for maintenance and repair methods. The owner and repairer remain responsible for the professional and proper execution of the maintenance and repairs they carry out.

Jaguar Land Rover has Authorised Collision Repair Facilities globally situated strategically to support our customers in the unfortunate event of a collision or other event that requires corrective measures to reinstate the vehicle back to its original specification.

This position statement refers to Pre & Post Vehicle Diagnostic Scanning & Calibration for all Jaguar Land Rover Vehicles.

Advancements in Jaguar Land Rover vehicle technology incorporate many different electronic control units, sensors, and cameras that assist various functions within the vehicle. These components are an integral part of the vehicle's operational, safety, and help to deliver a positive owner experience. During a collision, some of the vehicle's sensors could sustain damage internally or be affected in a manner in which failure is not evident to the driver of the vehicle.

These vehicle sensors and control units must be evaluated after a collision to ensure that a complete repair is performed, regardless of whether the vehicle notifies the driver of damage or failure via the central instrument assembly.

The pre-repair scan will reveal any potential issues early in the estimating and repair process to allow for a more complete and thorough estimate of repairs. Post-repair scanning and diagnosis of the vehicle is necessary to ensure that the vehicle's safety and driver-assist systems are operable and fully functioning. Many of the safety and driver-assist systems that may have been activated during a collision require vehicle calibration, normalisation, or coding. The post-repair scan will also help to ensure that a comprehensive repair has been performed. Some examples of when a full Pathfinder diagnostic scan is required include, but are not limited to:

Vehicle collisions, regardless of the appearance of damage, windshield replacement for vehicles with driver-assist sensors (including rain/light sensors) located in the windshield, Headlamp assemblies, removal and/or replacement of exterior components, bumpers, SRS sensors, parking sensors, driver-assist system sensors and cameras, wiring harnesses, vehicle control units, seats, or interior trim panels If a collision repair is necessary.

Every Jaguar Land Rover vehicle is required to perform to global and market safety standards. From extensive research customers are requesting more technology in the vehicle to support comfort and safety. Some of the features identified (and not limited to) are:

- Intelligent Driveline Dynamics
- Autonomous Emergency Braking
- Blind-spot monitoring
- Forward Collision Avoidance
- Clear Exit Monitoring
- Driver Drowsiness
- Adaptive Cruise Control
- Dynamic Stability Control
- Roll Stability Control
- Sonar for Wading
- Parking Sensors
- Seat Weight Calibration
- Lane Departure Warning

When the vehicle is fully repaired, a post repair diagnostic scan and calibration is required to ensure all safety and customer systems are functioning correctly as designed.

Jaguar Land Rover strongly recommends that all repairs are performed by a trained technician using only genuine Jaguar Land Rover body parts, mechanical components, electrical components, as well as all safety devices such as airbags and seatbelts.

The official technical information portal TOPIx must be accessed to fully understand the damage. Note: All Jaguar Land Rover Authorised Repair Network (JLRARN) Centres are required to have a subscription to TOPIx. TOPIx is continually updated and specific to each model and repair procedure.

<https://topix.jaguar.Jaguar Land Roverext.com/topix> - Jaguar

<https://topix.landrover.Jaguar Land Roverext.com/topix> - Land Rover

Details on how to register and access this information is found using one of the above links

Glen Mathews



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