



Body Repair News

MODEL/YEAR MODÈLE /ANNÉE	DATE OF ISSUE DATE EN VIGUEUR	LETTER NUMBER NUMÉRO DE LA LETTRE
2017 NSX	JUNE 5, 2017	J-1-17

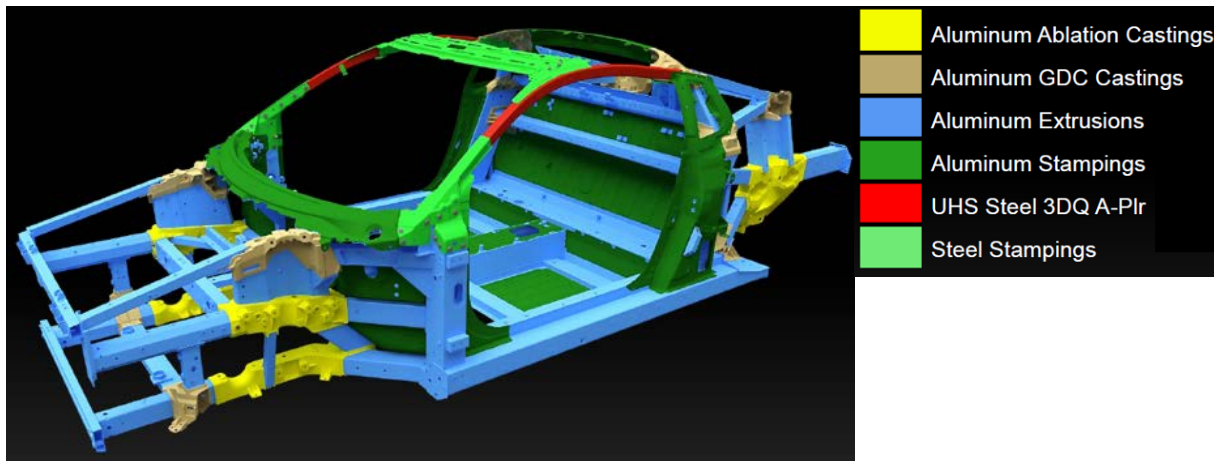
2017 NSX: BODY REPAIR INFORMATION

INTRODUCTION

The second generation Acura NSX utilizes a multi-material body structure, new materials and construction methods to achieve unprecedented dynamic rigidity, outstanding outward visibility and world-class collision performance. Making use of space-frame design, the new NSX is composed primarily of lightweight aluminum, with the strategic use of steel and carbon fiber in select areas. Because of this advanced body technology, complete and proper repair of any collision or body damage is critical. Should body and/or structural repairs become necessary, Acura recommends a unique two levels collision repair process (structural repairs and non-structural repairs) for the NSX described in this service letter.

OVERVIEW OF BODY STRUCTURE

1. The main NSX structure consists of an aluminum space frame that is primarily MIG welded aluminum extrusions, joined at castings which act as nodes to link the extrusions
2. Additional structural components and sheet metal is held in place using Flow drill screws, (FDS) Self piercing rivets (SPR) bolts and traditional pop rivets.



NSX Multi-Material Space Frame

7 Parts Joining Technologies	
	Main Structure MIG, Spot, & Laser Welds
	Multi-Material Joints SPR, Bolts
	Single Side Access FDS (Flow Drill Screw)
	Datum Pop Rivet

BODY STRUCTURE REPAIR CHALLENGES

Aluminium welding and space frame repair requires a very high investment in tools, materials and training to ensure the repair is done properly and safely. Some of the concerns with aluminium welding include:

1. Risk of fire, explosion, fumes and other safety related concerns.
 - Mixing of fine aluminum dust with Iron oxide powder could result in a thermite explosion in the presence of a spark.
 - Mixing fine aluminum powder with water can create hydrogen gas which can lead to fire or explosion hazard.
 - Welding Fumes and UV hazards
 - A separate aluminum repair room, specialized dedicated repair tools, dust extraction equipment, fume extraction equipment, respirators. Welding mask, specialty fire extinguishers and other specific safety protocols need to be followed.
2. Reliable aluminium Weld quality
 - Aluminium welding is generally more challenging than steel. The NSX repair involves joining differing wall thicknesses of material in the up down flat and overhead positions. Extremely specialized welding equipment and an expert level aluminum welding technician is needed to ensure the integrity of the repair. For NSX a costly ISO 9606-2 aluminium welding certification - (not common in the auto repair industry) was the minimum skill requirement needed to proceed with further training on this vehicle.
3. Corrosion
 - Galvanic corrosion will occur if uncoated steel comes in contact aluminium. The aluminium will preferentially corrode leaving black pitting or a white ash like coating or flaking/damage to any paint on the contaminated surface. Dedicated aluminium tools and rooms are required to prevent cross contamination of steel particles on aluminium body.
4. Specialized equipment:
 - A high end compatible frame bench (Celette or Car-o-liner) and costly NSX specific jigs are needed to fixture the body prior to welding and reduce post weld distortion
 - Computerized measurement equipment from Celette or Car-o-liner) is required to assess damage areas needing repair and to confirm repair quality.
5. Replace vs straightening:
 - No structural components on the NSX can be straightened sectioned or sleeved without affecting the strength or crash worthiness of the structure. Structural repairs are to be performed by replacing the affected prefabricated assembly.
 - Specialized training repair methods and hands on skill
 - NSX certified structural repair technicians have received specialized repair information and have demonstrated their skill on NSX bodies to obtain an NSX specific repair certification

For these reasons, only body shops already experienced in aluminium space frame repair with the necessary training and equipment were considered for certification as NSX structural repair center

NSX repairs can be divided into 2 different levels Structural Repairs and Non-Structural Repairs.

STRUCTURAL REPAIRS

Due to the high welding skill, specialized training, and specialized equipment required, structural repairs to NSX are limited to 2 body shops across Canada which have met the equipment, training, and skills requirements for NSX structural repair. To ensure repair quality structural replacement, parts will not be released from Acura to any other repair facility.

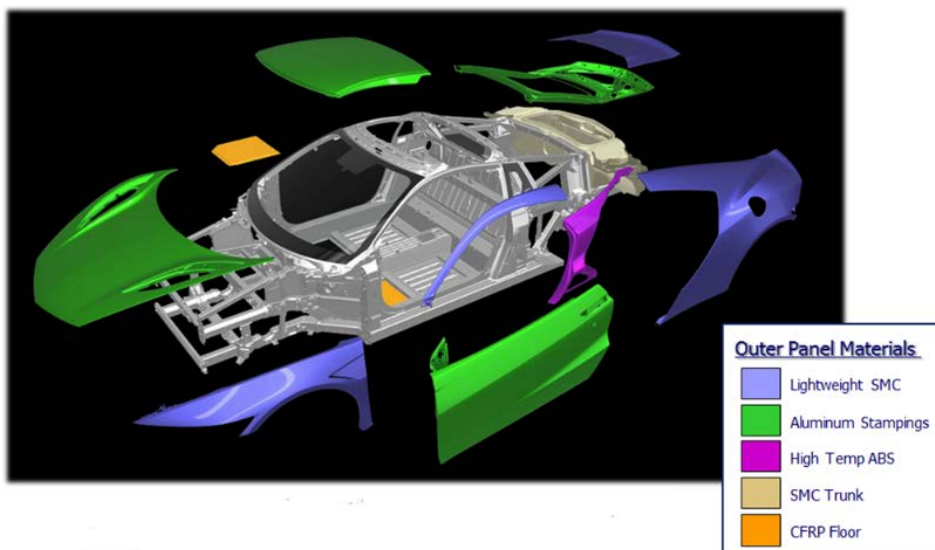
The auto body centers are:

*427 Auto Collision Ltd
395 Evans Ave, Toronto, ON M8Z 1K8
Servicing MB, ON, PQ, NB, NS,NL,PEI*

*Open Road Richmond Auto body
2691 No 5 Road Richmond B.C. Canada V6X 2X8
Servicing BC,AB,SK,YK,NT,NU*

NON-STRUCTURAL REPAIRS

The non-structural or outer panels on NSX are a mixture of high temperature ABS plastic, Aluminum stampings, SMC (sheet molded composite) and CFRP (carbon fiber reinforced polymer) They are primarily bolted in place or held in place using urethane adhesive.



ALUMINUM PANEL REPAIR

Replacement is often the preferred repair method. Repairs can be made to the aluminum sheet metal parts by shops that are aluminum certified. Many of the requirements and hazards associated with the aluminum structural repairs are still concerns if sanding or grinding aluminum panels. Aluminum repair centers have training and dedicated tools and repair areas for aluminum repair and refinishing.

To prevent galvanic corrosion, most fasteners for aluminum parts are considered one-time use and must be replaced if removed. Refer to the body repair manual for more information. In addition, specialized tools and dedicated repair areas must be used to prevent steel contamination leading to corrosion.

SMC REPAIR

SMC is a fiber-reinforced plastic, or FRP, which are also called composites. FRP parts are usually considered a rigid part. These types of plastic have fiber strands that are inlaid into a plastic polymer to create the rigid part. Except for light scratches in the outer layer, SMC parts on the NSX are not repairable.

CFRP REPAIR

Only surface scratches should be repaired on CFRP parts. If the scratch is deep enough where it has reached the fibers, the part needs to be replaced. In addition to the carbon fiber floor pan shown above, A CFRP roof, engine cover, spoilers and diffuser are also available on NSX.

DISTINGUISHING BETWEEN STRUCTURAL REPAIRS AND OUTER PANEL REPAIR

- If the part has exclusively use of bolts or urethane adhesive, it is not considered a “structural repair”.
- If the part is welded or put in place by a special tool such as flow drill screws or self-piercing rivets, it is considered a structural repair. The repair should be performed by the authorized structural repair center.

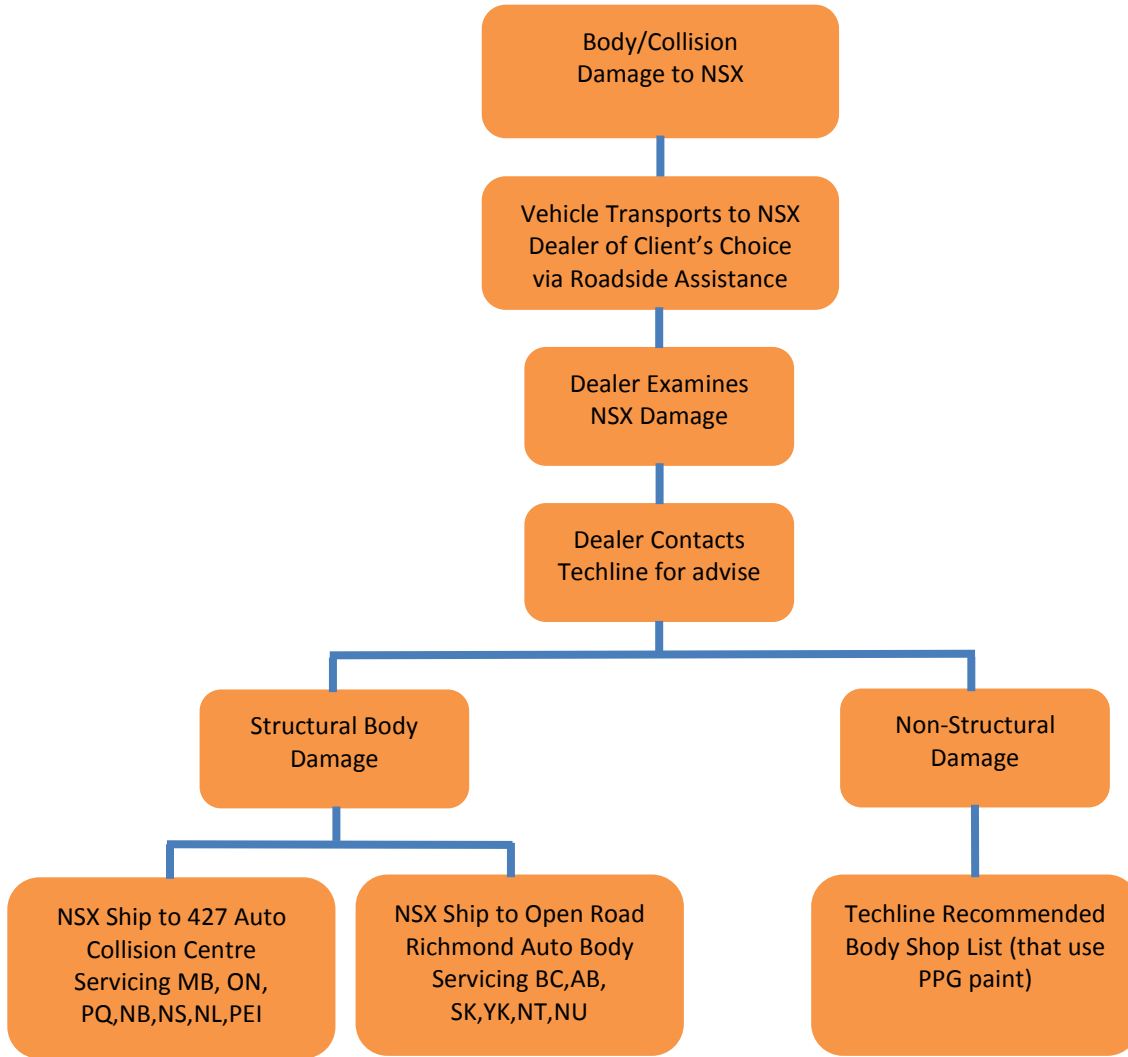
WHAT TO DO IF AN NSX SUSTAINS BODY OR COLLISION DAMAGE

If your dealership becomes aware of an NSX client whose vehicle has sustained collision or body damage, please follow these steps:

- Confirm the safety and health of the driver and passengers
- Arrange for alternate transportation if necessary
- Have the vehicle towed to the closest NSX dealer via Roadside Assistance to begin the repair process

NSX BODY REPAIR PROCESS FLOWCHART

The chart below outlines the process to repair body or collision damage to a next-generation NSX.



NOTE: Due to the complexity and uniqueness of andaro paint (Nouvelle Blue Pearl and Valencia Red Pearl), it is difficult to find the match paint without extensive tests. For body repair using andaro paints, Acura strongly recommends to use PPG. Contact Techline for help to locate a body shop that uses PPG paint.