



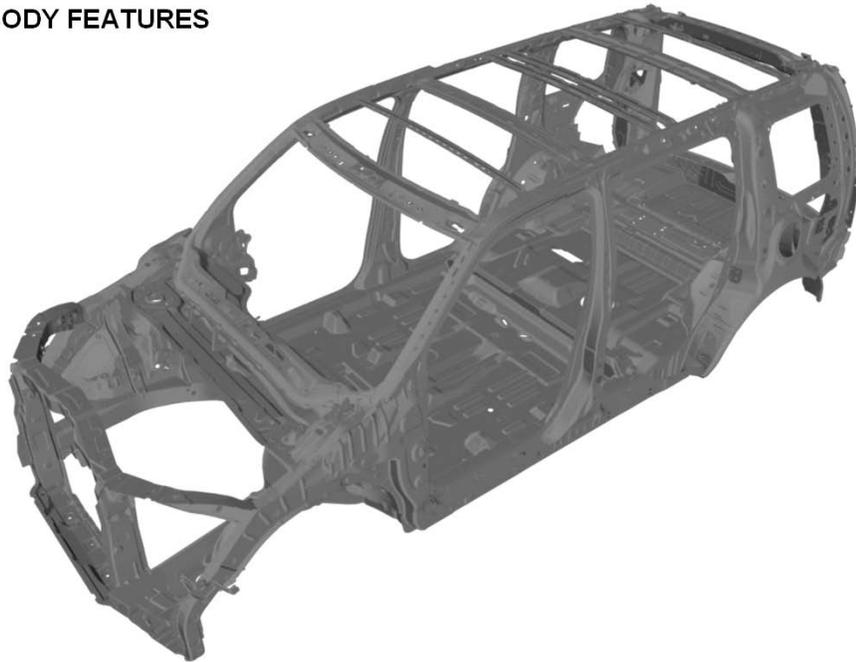
## 2009–15 Pilot: Body Repair Information

**DISCLAIMER:** This publication contains a summary of new body and vehicle technology that may affect collision and other body repairs. Always refer to the appropriate service and body repair manuals for complete repair information. A subscription may be purchased at: [techinfo.honda.com](http://techinfo.honda.com)

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### OVERVIEW OF BODY FEATURES



#### 2009–11 models have these body features:

- Introduction of Advanced Compatibility Engineering™ (ACE™) crash compatible body structure.
- Extensive use of high-strength steel (52%), including 10% in grades 780 and 980.
- Aluminum hood panel for weight reduction and improved fuel efficiency (not shown in this view).

#### For the 2012 model year, a minor model change (MMC) added or upgraded these body features:

- Reinforced roof and center pillar structure for improved rollover protection.
- Addition of 1,500 MPa ultra-high-strength-steel (UHSS).

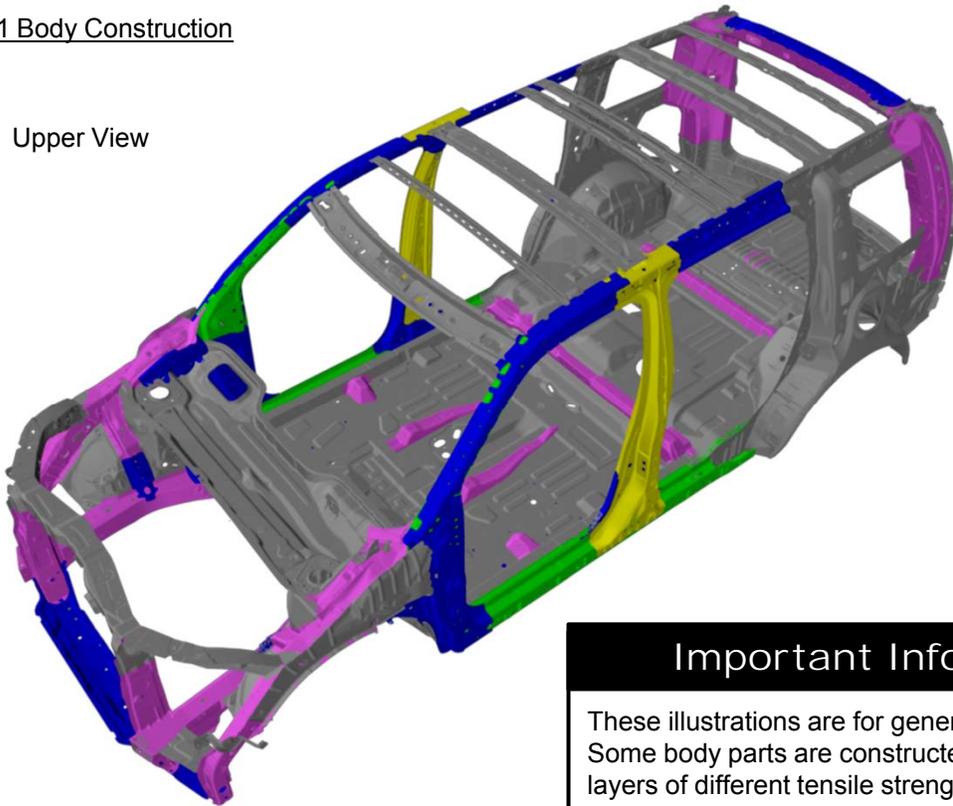
# New Model Body Technology

## BODY CONSTRUCTION AND HIGH-STRENGTH STEEL CONTENT - 2009–11 MODELS

- Steel parts are color coded based on their tensile strength in megapascals (MPa).
- High-strength steel is defined as any steel with a tensile strength of 340 MPa or higher.
- Steel repair and welding procedures vary depending on the tensile strength of the parts involved.

### 2009–11 Body Construction

Upper View

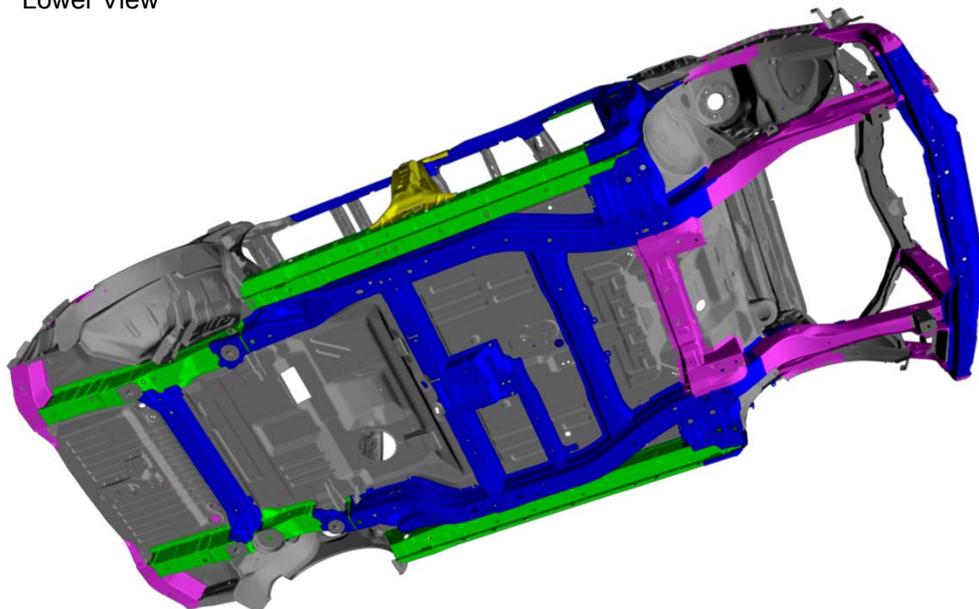


Steel Tensile Strength Legend

### Important Information

These illustrations are for general reference only. Some body parts are constructed from multiple layers of different tensile strength steels. Always refer to the body repair manual body construction section for specific steel tensile strength information.

Lower View

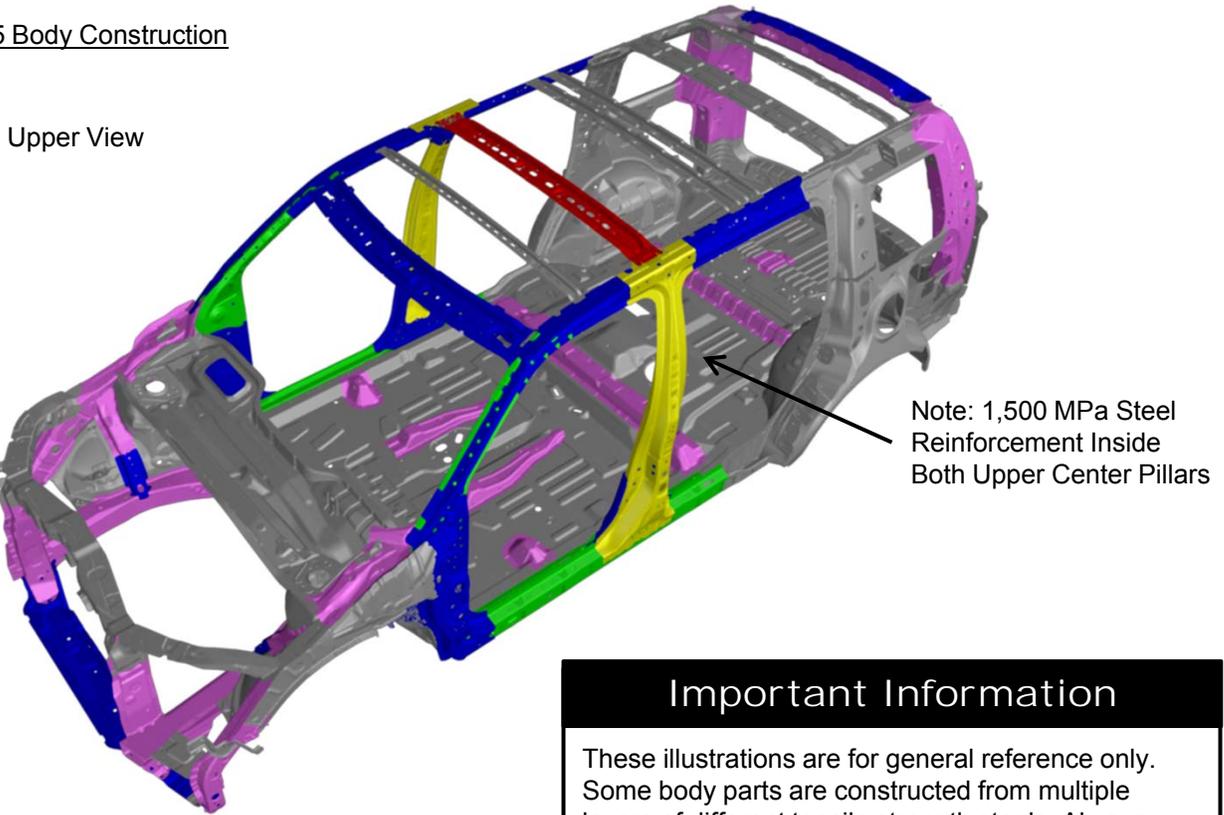


Steel Tensile Strength Legend

## BODY CONSTRUCTION AND HIGH-STRENGTH STEEL CONTENT - 2012–15 MODELS

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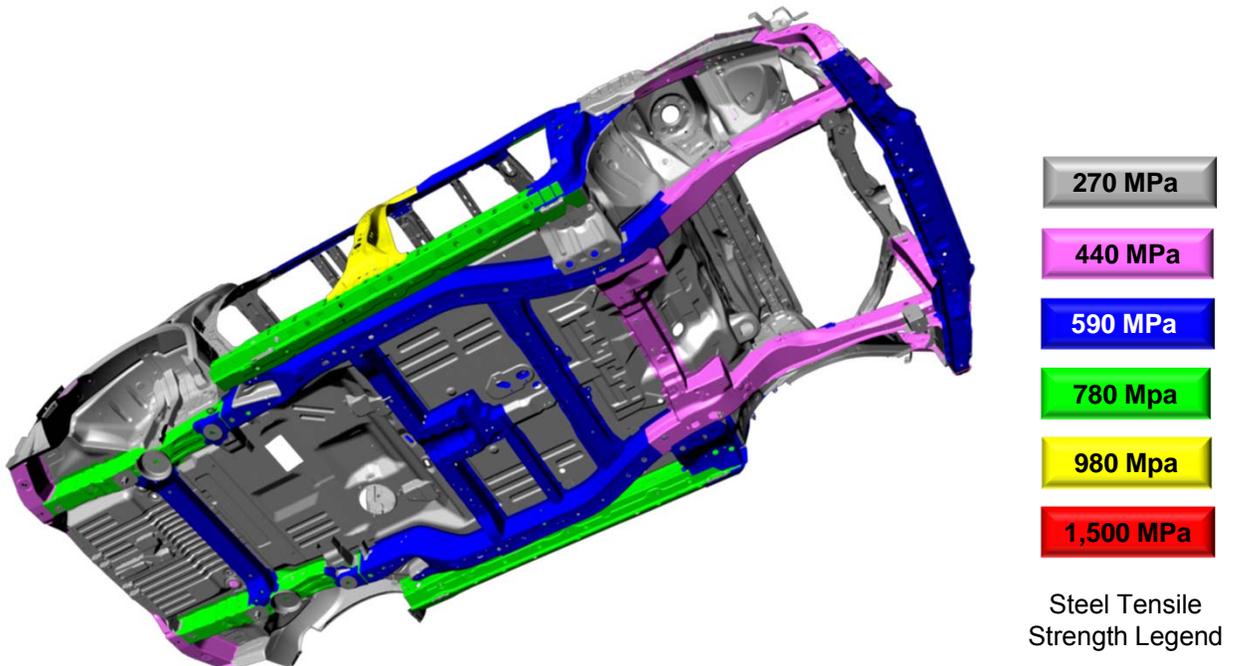
### 2012–15 Body Construction



### Important Information

These illustrations are for general reference only. Some body parts are constructed from multiple layers of different tensile strength steels. Always refer to the body repair manual body construction section for specific steel tensile strength information.

Lower View

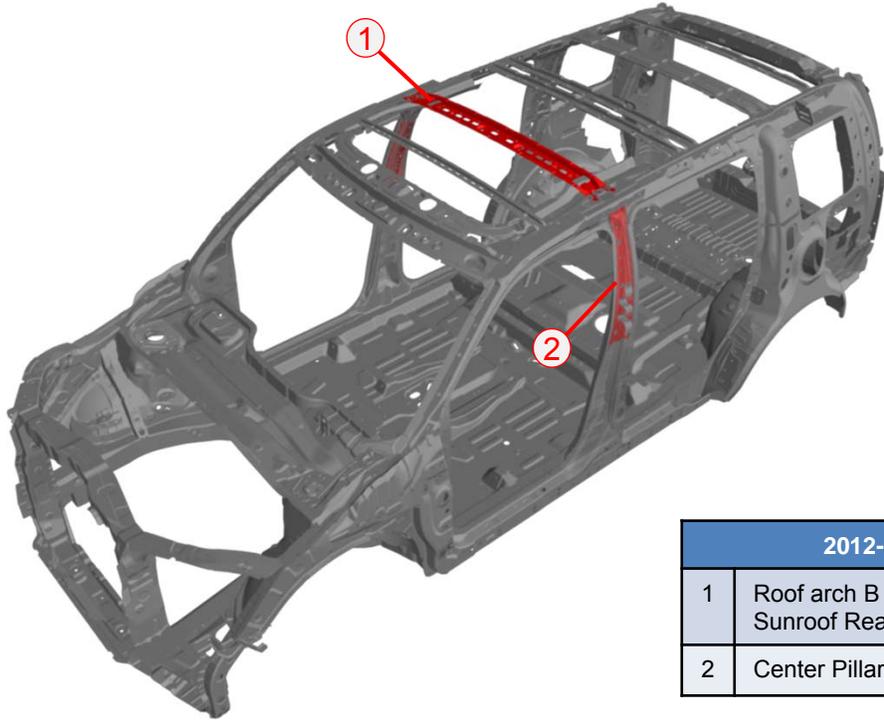


### 1,500 MPa (HOT STAMP) STEEL LOCATIONS - 2012–15 MODELS

1,500 MPa steel is stronger than ordinary steel, so it can help protect vehicle occupants while reducing overall vehicle weight to improve fuel efficiency.

The numbered parts in the diagram below are constructed of 1,500 MPa steel:

NOTE: 1,500 MPa steel is not used in 2009-11 models.



2012-15 Models	
1	Roof arch B (w/o sunroof) Sunroof Rear Stiffener (w/sunroof)
2	Center Pillar Inner Reinforcement

### ALUMINUM PARTS & REPAIRABILITY

The hood panel is constructed of aluminum alloy.

#### Repairability Issues:

- The aluminum hood may be repaired by body shops that have a dedicated aluminum repair facility and separate tools.
- To prevent galvanic corrosion, some fasteners for aluminum parts are considered one-time use and must be replaced if removed. Refer to the service or body repair manual for more information.



Aluminum Hood Panel

### TOWING AND LIFTING PRECAUTIONS

- 4WD models must be towed using only flat bed towing equipment to prevent VTM-4 system damage.
- 2WD models may be towed using front wheel lift or flat bed towing equipment.
- 4WD models do not have a manual switch to disable the VTM-4 system. Whenever service work requires spinning the front or rear wheels with the engine, always lift and support the vehicle so all four wheels are off the ground.

For more information, refer to “Emergency Towing” in the owner’s manual.

- Lift or jack only at the specified points to avoid damaging the vehicle.
- Do not lift or tow this vehicle by its bumpers, or serious damage will result.

For more information, refer to “Lift and Support Points” in the appropriate service or body repair manual.



## Body Repair Information

NOTE: The following content is intended only to highlight new/special concerns. No body repairs should be attempted without first referencing the appropriate body repair manual for complete information.

### USE OF HEAT DURING BODY STRAIGHTENING AND REPAIR

When you are doing body straightening and repair procedures:

- DO NOT apply heat to any body part during straightening. This may compromise the internal structure and strength of high-strength steel parts.
- Any part that has heat applied to it during straightening MUST be replaced with new parts.
- Ignoring these instructions may significantly reduce occupant protection in any subsequent collision.

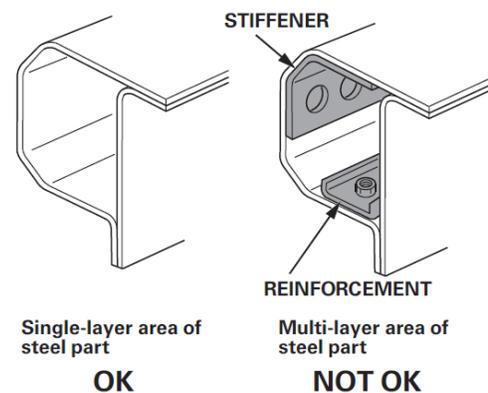


### SECTIONING (CUT AND JOINT) GUIDELINES

Various high-strength steel materials with different sheet thicknesses and strengths are applied in many places that vary by body design in order to increase collision safety performance, body stiffness, and weight reduction. Stiffening members inside each part (patch, stiffener, etc.) are also specified in detail.

Follow these guidelines to avoid an unsafe repair:

- Sectioning (cut and joint) should usually be avoided except for mild steel outer panels and floor panels unless a specific procedure is provided in the body repair manual.
- However, depending on the type of vehicle damage, steel parts with a tensile strength  $\leq 780$  MPa may be sectioned provided ALL of the following conditions are met:
  - Sectioning must be done in a single-layer area of the part.
  - Multi-layer internal steel reinforcements and stiffeners must not be cut.
  - The repair is not in a load bearing area such as engine, transmission, or suspension mounting points.



Sectioning Area Examples

- Replace body structural components such as stiffeners, reinforcements, and other multi-layered steel parts as assemblies that match the replacement parts configuration.
- Approved welding methods are listed in the table.
- Refer to the body repair manual section "Parts Sectioning (Cut and Joint) Guidelines" for complete information.

Steel Part Tensile Strength (MPa)	Welding Method		
	Spot Weld	MAG Welding	
		Plug	Butt
<590	○	○	○
590	○	○	○
780	○	○	○
980	○	○	X
1500	○	X	X

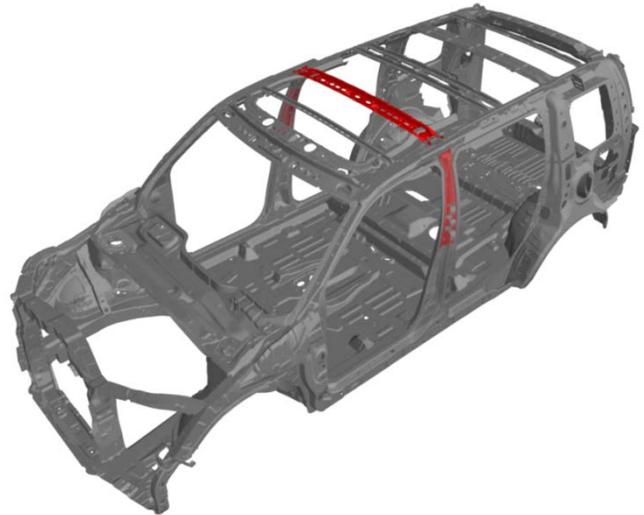
Welding Methods For Steel Parts  
(○ = Approved X = Not Approved)

## Welding Precautions and Information

### REPAIRING 1,500 MPa STEEL PARTS - 2012–15 Models

Observe these precautions when repairing 1,500 MPa steel parts:

- NEVER attempt to straighten damaged 1,500 MPa steel parts because they may crack.
- 1,500 MPa steel parts MUST be replaced at factory seams using squeeze-type resistance spot welding (STRSW). DO NOT SECTION these parts!
- MIG brazed joints should be used ONLY in locations not accessible by a spot welder.
- To assure adequate weld tensile strength, always set the spot welder to the specifications provided in the body repair manual.



### Important Information

Parts made of Ultra High-Strength Steel (UHSS/1,500MPa/USIBOR) must be installed as a complete part. No sectioning allowed. Ultra High-Strength Steel requires special welding equipment, procedures, and settings. See the welding section of the appropriate body repair manual. Failure to use the proper equipment or follow the proper procedures can result in an unsafe repair.

- NEVER perform MAG welding on 1,500 MPa steel. The heat generated during MAG welding will significantly reduce the strength and structural integrity of 1,500 MPa steel parts.
- This photo shows tensile strength test results of MAG welded 1,500 MPa steel. The 1,500 MPa steel fractured first, because the welding heat reduced its strength to far below 590 MPa.
- For more information, refer to “Repair Guidelines for High-Strength Steel Parts” in the body repair manual.



Tensile Test Results of MAG Welded 1,500 MPa Steel

### MIG BRAZING GUIDELINES FOR 1,500 MPa STEEL PARTS

Refer to the body repair manual for complete information:

- MIG brazed joint locations are specified in the body repair manual.
- A single- or double-hole MIG braze may be specified in the body repair manual depending on the tensile strength of the parts being joined.
- The size and number of holes are critical to achieving adequate joint strength.
- A pulsed MIG welder MUST be used. Refer to the equipment manufacturer's instructions for welder voltage and current setup.
- The photos at right show the difference in results between pulsed and non-pulsed MIG brazing.



Pulsed MIG (OK)



w/o Pulsed MIG (Bad)



## MAG WELDING SPECIFICATIONS FOR 590-980 MPa HIGH-STRENGTH STEEL PARTS

NOTE: In this publication and the body repair manuals, gas metal arc welding (GMAW) is referred to by its subtypes depending on the welding/brazing requirements:

- **MIG welding/brazing** = Metal inert gas welding or brazing where 100% argon (Ar) shielding gas is used. Argon is inert and does not react with the molten weld pool or brazing operation.
- **MAG welding** = Metal active gas welding where the shielding gas being used contains a mixture of 80% argon (Ar) and 20% carbon dioxide (CO<sub>2</sub>). It is considered active because the CO<sub>2</sub> undergoes a limited reaction with the molten weld pool.

### Important Information

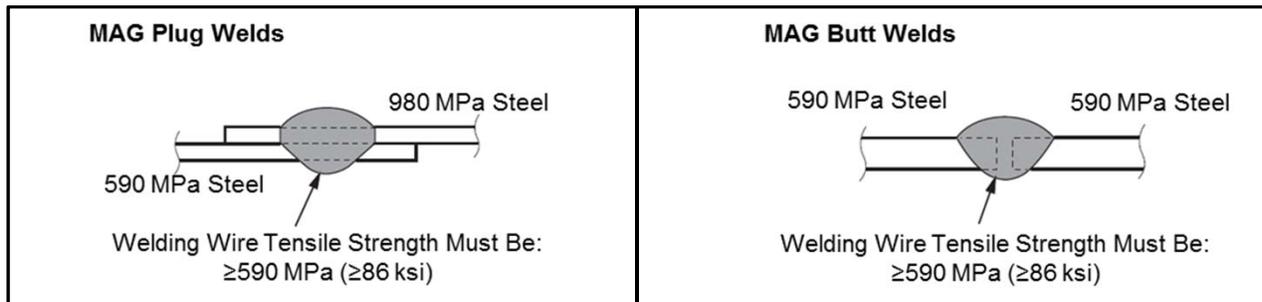
Parts made of High-Strength Steel (590-980 MPa) must often be installed as a complete part. Section only according to published repair information and guidelines. This high-strength steel requires special welding equipment, procedures, and settings. See the welding section of the appropriate body repair manual. Failure to use the proper equipment or follow the proper procedures can result in an unsafe repair.

The body repair manual specifies the weld types and locations for each body panel:

- The welding wire used must have a tensile strength equal to, or greater than, the lowest tensile strength of the parts being welded. This conversion chart shows the relationship of steel tensile strength (MPa) to the minimum welding wire tensile strength (ksi).
- Typical ER70S-6 MIG wire has a minimum tensile strength of 70 ksi (483 MPa). It can be used when welding up to 440 MPa steel parts. Refer to the diagrams shown below:

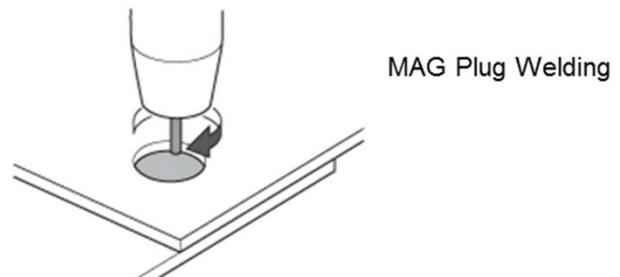
Steel Tensile (MPa)	Wire Tensile (ksi)
590	≥86
780	≥113
980	≥142

(1,000 psi = 1 ksi)



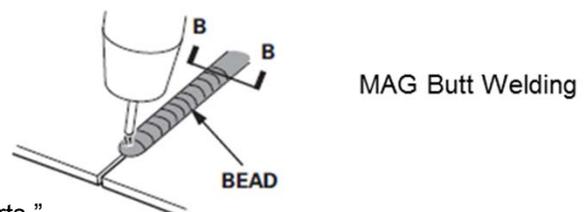
### MAG PLUG WELDING GUIDELINES

- MAG plug welding may be done when joining body components to 590-980 MPa steel parts.
- Follow the recommendations described in the body repair manual sections “Repair Guidelines for High-Strength Steel Parts” and “MAG Welding Conditions for High-Strength Steel (Except 1,500 MPa) Parts.”



### MAG BUTT WELDING GUIDELINES

- MAG butt welding may be done only on steel parts with a tensile strength of 780 MPa and lower.
- Welding speed is critical to achieve the correct weld strength and minimize the heat affected zone (HAZ).
- Follow the recommendations described in the body repair manual sections “Repair Guidelines for High-Strength Steel Parts” and “MAG Welding Conditions for High-Strength Steel (Except 1,500 MPa) Parts.”

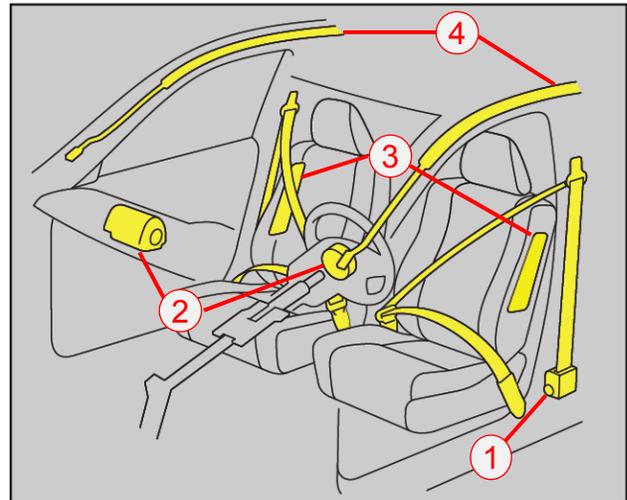


# Airbag System Components and Repairs

## AIRBAG SYSTEM COMPONENTS

The airbag system in this vehicle includes the following components that may deploy in a collision:

1. Driver and front passenger seat belt tensioners (may deploy independently from any airbags).
2. Driver and front passenger SRS airbags.
3. Side airbags mounted in the outer driver and front passenger seat-backs.
4. Side curtain airbags mounted above the left and right side windows under the headliner.



## AIRBAG SYSTEM INDICATORS

There are three indicators used for the airbag system:

### Supplemental Restraint System (SRS) Indicator

When the ignition switch is turned to ON, this indicator should come on and then turn off after about 6 seconds.

- If the SRS indicator does not go off, or does not come on at all, there is a problem with the system.
- DTCs must be read and cleared using the HDS (or equivalent) scan tool. Contact a Honda dealer for assistance if necessary.
- If a vehicle is sent to the dealer for airbag system repair or troubleshooting, include a copy of the repair estimate with part numbers and the source for any replaced airbag system parts.



SRS Indicator

### PASSENGER AIRBAG OFF Indicator

The indicator comes on to alert you that the passenger's front airbag has been turned off.

- This occurs when the front passenger's weight sensors detect 65 lb. (29 kg) or less, the weight of an infant or small child, on the seat.
- If the indicator comes on with no front passenger and no objects on the seat, or with an adult occupying the seat, something may be interfering with the seat weight sensors, or there may be a problem with the system. Refer to "SRS Symptom Troubleshooting" in the service manual, or contact a Honda dealer for assistance if necessary.



Passenger Airbag OFF Indicator

### SIDE AIRBAG OFF Indicator

This indicator comes on when the OPDS sensor detects that the front passenger side airbag needs to be shut off for safety:

- This may occur because the passenger is too small to be sitting in the front seat, is slouching or not sitting upright, or has leaned into the airbag's deployment path.
- This light is not used to indicate problems with the OPDS or airbag system.



Side Airbag OFF Indicator

## AIRBAG SYSTEM REPAIRS REQUIRED AFTER DEPLOYMENT

To restore proper function and allow DTCs to be cleared, the airbag system **MUST** be repaired as specified in the service manual. Refer to “Component Replacement/Inspection After Deployment” for complete information.

- DO NOT install used, refurbished, or modified airbag system parts!
- When making airbag system repairs, only use new genuine replacement parts, which are manufactured to the same standards and quality as the original parts.
- To ensure the correct replacement airbag system parts are installed, provide the vehicle’s VIN when ordering parts. Compare the part numbers on the new and removed parts to make sure they match.

## AIRBAG SYSTEM ELECTRICAL REPAIRS

Except when doing electrical inspections that require battery power, always turn the ignition to OFF, disconnect the negative battery cable, then wait at least 3 minutes before starting work.

- For easier identification, electrical connectors that contain only airbag system wiring are yellow in color.
- Many harnesses that contain primarily airbag wiring are also wrapped in yellow tape.
- Airbag system wiring that runs in a common harness, such as a floor harness, is generally not marked.
- NEVER attempt to modify, splice, or repair airbag system wiring.

If airbag system wiring is damaged, replace the wiring harness(es).

NOTE: Refer to the service manual for complete restraint system operation, diagnostic, and repair information.



## Electrical Repair Information

### TIRE PRESSURE MONITORING SYSTEM (TPMS)

This vehicle is equipped with an initiator-type TPMS.

- The low tire pressure indicator comes on if the air pressure is too low in one or more tires.
- The TPMS indicator will stay on and the system will set DTCs if all four tire pressure sensor IDs aren’t memorized by the TPMS control unit after you replace a wheel and/or tire pressure sensor.
- Refer to “Memorizing a Tire Pressure Sensor ID” in the service manual for complete information.
- The HDS (or equivalent) scan tool may be required to perform this memorization. Contact a Honda dealer for assistance if necessary.



Low Tire Pressure Indicator

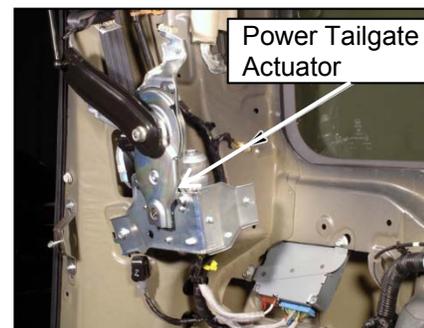


TPMS Indicator

### POWER TAILGATE INFORMATION

2009–15 Touring and 2012–15 EX-L grade models include a power tailgate:

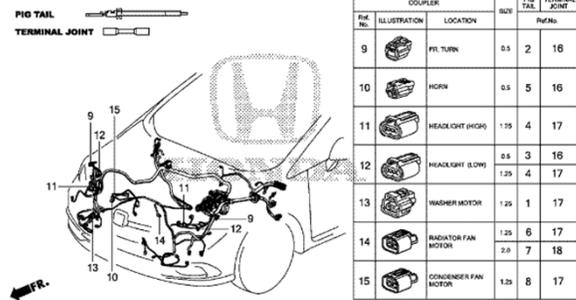
- The power tailgate will not be able to open or close automatically until it is reset when:
  - The battery is disconnected, or the No. 23 (10 A) fuse in the under-hood fuse/relay box is removed while the power tailgate is operating.
  - Certain power tailgate components have been replaced.
- Refer to “Resetting the Power Tailgate Control Unit” in the service manual for complete information.



View Inside Left Rear Pillar Area

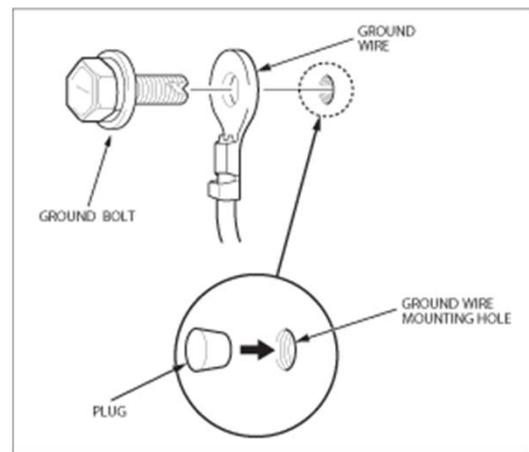
## ELECTRICAL PIGTAIL AND CONNECTOR REPAIR

- Disconnect the vehicle's battery before doing any welding or electrical repairs. Refer to "12 Volt Battery Terminal Disconnection and Reconnection" in the service or body repair manuals for more information.
- Certain front and rear electrical connectors subject to collision damage may be repaired using pigtails and connectors listed in the ELECTRICAL CONNECTORS illustrations in the parts catalog (example shown here).
- Pigtails attach to the vehicle wiring using special crimp-and-seal terminal joints. After crimping, the joints are heated using a heat gun to seal out the environment.
- Repair pigtails come in a limited range of colors that usually do not match the vehicle's wiring. Pay close attention during repairs to ensure correct locations.
- Vehicle wiring schematics service information can be found in the Electrical Wiring Diagrams (EWD).
- If wiring is damaged and a repair pigtail or connector is not available, replace the affected harness.
- NEVER attempt to modify, splice, or repair airbag system wiring.



## ELECTRICAL GROUND WIRE PROTECTION

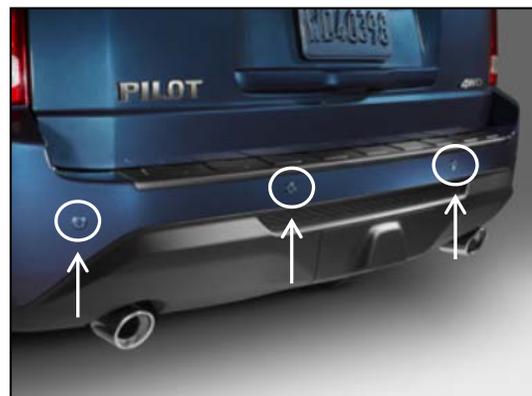
- Painting over electrical ground locations may cause electrical systems, such as Vehicle Stability Assist (VSA), to malfunction and set DTCs that may be difficult to diagnose.
- Protect the ground wire and the ground wire mounting hole threads with a bolt or silicone plug when priming or painting.



## PARKING AND BACK-UP SENSOR SYSTEM

Touring grade models are equipped with a parking and back-up sensor system. The sensors send out ultrasonic waves and receive waves reflected by an obstacle to determine the distance from the vehicle. The system uses multiple devices to inform the driver that an obstacle is near.

- There are six body colored sensors in the front and rear bumpers. One at each corner and two center sensors in the rear bumper.
- The sensors must be free of debris, snow, and ice to work correctly.
- When the ignition is turned to ON, a system check is performed each time the parking and back-up sensor switch is turned ON.
- When a failure occurs, the parking and back-up sensor control unit stores DTCs and the multi-information display shows CHECK PARKING SENSOR SYSTEM.
- The HDS (or equivalent) scan tool is required to read DTCs. Contact a Honda dealer for assistance if necessary.



Rear Parking and Back-up Sensors