

RCI-52-22-010-1: R1S Material Matrix

Rivian Automotive, LLC Service Document

Document Type	Collision Repair Information Document
Date	4/15/2022
Affected Region(s)	USA
Affected Model(s)	R1S
Model Year(s)	2022+
Vehicle System	52 - Body

Rivian R1S body and frame structures have been assembled from different grades of a variety of materials. These materials include, but are not limited to, stamped steel, Aluminum sheets, Aluminum extrusions, and molded plastics. Before starting a repair, refer to the tables and diagrams in this document to reference the type of material being worked on, and the allowed operations for each type of material.

Color Key	Material Type	Welding		Heat Straightening	Cold Straightening
	Conventional Steel	Yes	Yes	60 sec. @ 600° C	Yes
	Advanced High Strength Steel	Yes	Yes	No	Yes
	Ultra High Strength Steel	No	Yes	No	Yes
	Press-Hardened Steel	No	Yes	No	No
	Aluminum Sheet	Yes	No	60° C	Yes
	Aluminum Extrusion	No	No	No	No
	Plastic	N/A	N/A	N/A	N/A

Repairability Guidance Per Material Type

Steel

Conventional Steel is the most common steel type used in R1S vehicle construction. Follow the guidelines outlined below when repairing or replacing this type of material.

1. Cold straightening is allowed for cosmetic repairs on panels that do not exhibit deformities such as creasing or kinking. Paintless dent repair and glue-pulling is recommended for repairs, when applicable.
2. The use of controlled heat is allowed when repairing minor panel damage. Do NOT exceed 600°C (1112° F). A panel may only be heated a maximum of 2 times for up to 60 seconds each time.

3. Sectioning a component for partial replacement is allowed as outlined in the vehicle specific repair procedures.
4. The use of GMA welding is allowed as outlined in the General Repair Guidelines. Minor tears and punctures can be repaired with approved tools, equipment, and welding wire.

Advanced High-Strength Steel has strict requirements around repairability. Follow the guidelines listed below when working on this type of material.

1. Cold straightening is allowed on this type of material for minor repairs on panels that do not exhibit deformities, such as creasing or kinking.
2. Sectioning a component for partial replacement is allowed as outlined in the vehicle specific repair procedures.
3. The use of GMA welding is allowed as outlined in the General Repair Guidelines.

Ultra High-Strength Steel (Cold Stamped) can not be repaired and must be replaced if any damage is present. Follow the guidelines below when working on this type of material.

1. Repair of Ultra High-Strength Steel components is NOT allowed.



Note: Any deformation to Press Hardened Steel components requires replacement.

2. Sectioning or partial replacement is allowed only at approved locations and as specified in the vehicle specific repair procedure.
3. The use of GMA welding is allowed as outlined in the General Repair Guidelines.

Press Hardened Steel (Hot Stamped) can not be repaired and must be replaced if any damage is present. Follow the guidelines below when working on this type of material.

1. Repair of Press Hardened Steel components is NOT allowed.



Note: Any deformation to a Press Hardened Steel component requires replacement.

2. Sectioning a component for partial replacement is NOT allowed.
3. The use of GMA welding is NOT allowed.
4. Follow the vehicle specific repair procedures when replacing any components made of Press Hardened Steel.

Aluminum

Aluminum Sheet panels may be repaired with special tools, equipment, and proper training. Use only aluminum dedicated tools and equipment when repairing bare aluminum.

1. Cold straightening is allowed on this type of material for minor dent repairs.
2. Heat straightening is allowed when repairing minor panel damage. Do NOT exceed 60°C (140° F).
3. Minor tears and punctures can be repaired with the approved tools, equipment, and welding wire.
4. Sectioning of a component for partial replacement is allowed as outlined in the vehicle specific repair procedure.

Aluminum Extrusion

Extruded Aluminum structures are NOT repairable and must be replaced with new components.



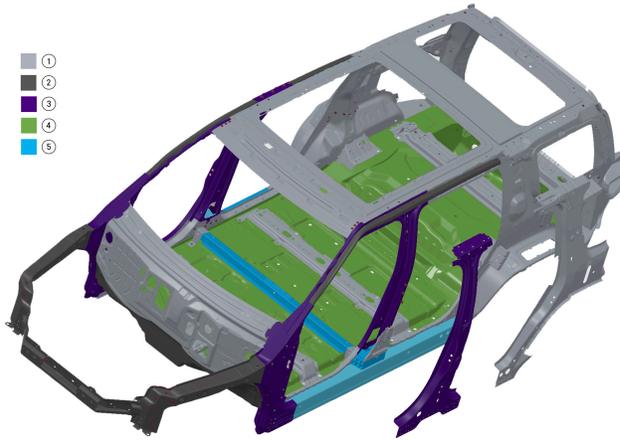
Note: Any deformation to Extruded Aluminum components requires replacement.

Plastic

Plastic components are NOT repairable and must be replaced with new components.

Body Structures - Body In White

- ①
- ②
- ③
- ④
- ⑤



Number	Material Type
1	Conventional Steel
2	Advanced High-Strength Steel
3	Press Hardened Steel
4	Aluminum Sheet
5	Aluminum Extrusion

Body In White - Additional Views

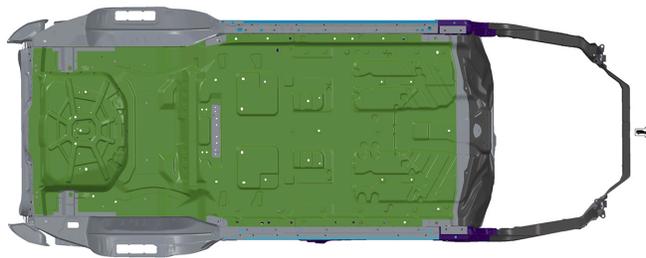
Quarter View - Right Side



Top View

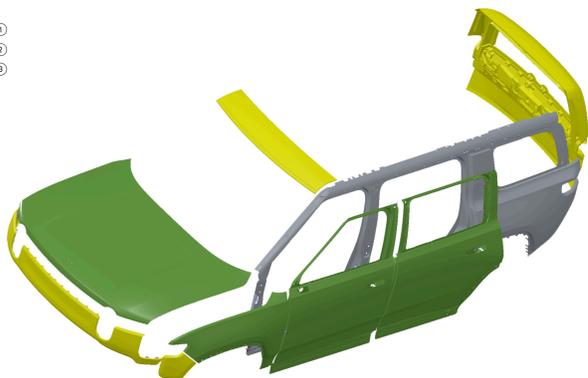


Bottom View



Body Structures - Closures

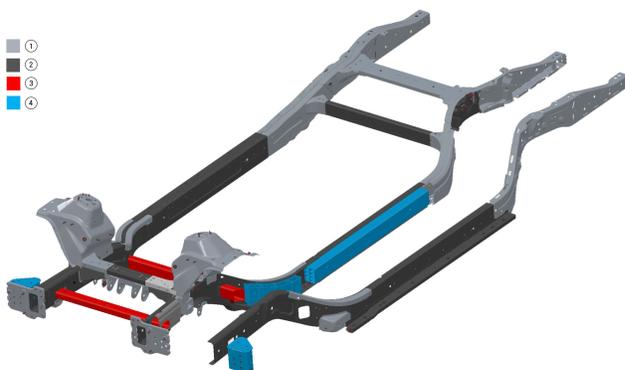
- ①
- ②
- ③



Number	Material Type
1	Conventional Steel
2	Aluminum Sheet
3	Plastic

Frame

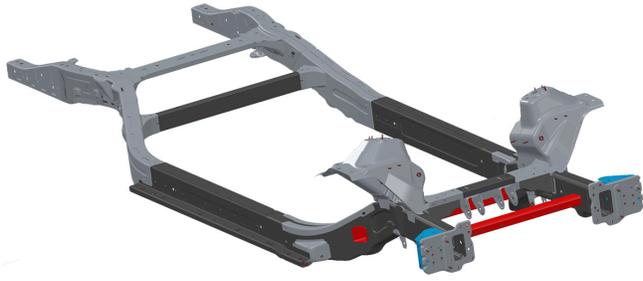
- ①
- ②
- ③
- ④



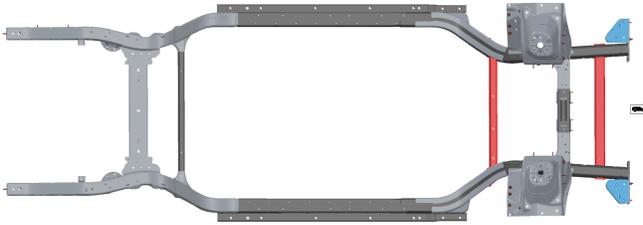
Number	Material Type
1	Conventional Steel
2	Advanced High-Strength Steel
3	Ultra High-Strength Steel
4	Aluminum Extrusion

Frame - Additional Views

Quarter View - Right Side



Top View



Bottom View

