

RCI-86-22-001-7: Advanced Driver Assistance System (ADAS) Calibration Requirements and Best Practices, R1T and R1S

Rivian Automotive, LLC Position Statement

Document Type	Collision Repair Information Document
Date	November 14, 2024
Affected Region(s)	USA
Affected Model(s)	R1T, R1S
Model Year(s)	All
Vehicle System	86 - Driver Assistance


Rivian has established important guidelines regarding collision repair and interaction with parts on Rivian vehicles to help ensure the vehicle is repaired to Rivian standards. Certified Collision Centers and the collision industry must follow these guidelines to uphold Rivian's standards of safety and quality.

Repair guidelines, position statements, and repair procedures published by Rivian are engineered and tested to help ensure Rivian vehicles are repaired to provide quality, performance, safety, and durability. To meet [Rivian Repair standards](#), repairs should be performed by Rivian Certified Technicians using Rivian approved repair procedures, tools, and Rivian Original Equipment Parts.

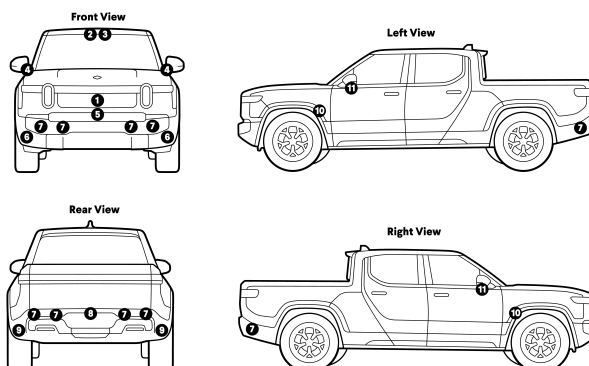
Overview

The Rivian suite of Advanced Driver-Assistance Systems (ADAS) are referred to collectively by Rivian as, "Driver+" for model year 2022-2024 vehicles (Gen 1), and, "Rivian Autonomy Platform(+)," For model year 2025+ vehicles (Gen 2). The systems are comprised of cameras, radar sensors, antennas, and ultrasonic sensors that aid with vehicle operation. To meet Rivian Standards, all repairs and calibrations involving ADAS components should be performed by a Rivian Certified Technician at either a Rivian Service Center or Rivian Certified Network Location (i.e. Rivian Certified Collision Centers, Rivian Calibration and Diagnostic Centers, etc.). After a repair, the ADAS components may need to be calibrated before the vehicle can be returned to the customer, however, not all components will require calibration. Refer to the appropriate service procedure(s) for the latest detailed and vehicle-specific calibration instructions.

Always refer to the Rivian Service Manual Procedure(s) for information on removal, installation, fault tracing, and component calibration.

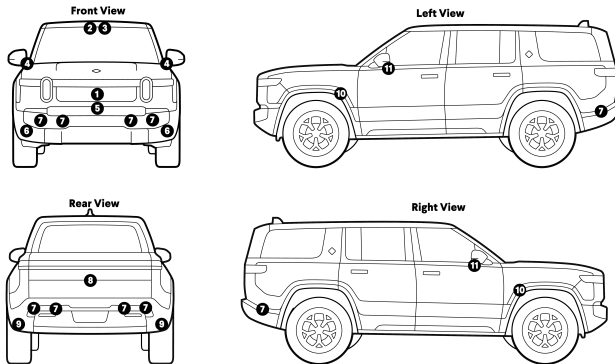
 **Warning:** Improper maintenance and calibration of ADAS components may result in catastrophic failure of the system, which can cause severe injury or death.

R1T ADAS Component Locations



Number	Component Type
1	Sensor, Radar, Front, Center
2	Camera, Driver Assistance, Front
3	Camera, Long Range, Front Camera, Wide Angle, Front (Model Year 2025+ Vehicles Only)
4	Camera, Forward Facing, Mirror
5	Camera, Bumper, Front
6	Sensor, Corner Radar, Front
7	Ultrasonic Sensor(s) (Park Assist)
8	Camera, Bumper, Rear
9	Sensor, Corner Radar, Rear
10	Camera, Fender Flares, Front (Model Year 2022-2024 Vehicles Only)
11	Camera, Surround, Mirror Camera, Lane Change, Mirror (Model Year 2025+ Vehicles Only)

R1S Driver+ Component Locations



Number	Component Type
1	Sensor, Radar, Front, Center
2	Camera, Driver Assistance, Front
3	Camera, Long Range, Front Camera, Wide Angle, Front (Model Year 2025+ Vehicles Only)
4	Camera, Forward Facing, Mirrors
5	Camera, Bumper, Front
6	Sensor, Corner Radar, Front
7	Ultrasonic Sensor(s) (Park Assist)
8	Camera, Liftgate Upper, Rear
9	Sensor, Corner Radar, Rear
10	Camera, Fender Flares, Front (Model Year 2022-2024 Vehicles Only)
11	Camera, Surround, Mirror Camera, Lane Change, Mirror (Model Year 2025+ Vehicles Only)

Component Calibration Requirements

Driver Assistance Cameras

Camera	Calibration Style	Calibrate When:
Camera, Driver Assistance, Front	Static or Dynamic	Camera or Windshield is replaced or removed and reinstalled
Camera, Long Range, Front	Static	<p>Model Year 2022-2024 Vehicles:</p> <ul style="list-style-type: none"> • Calibration is not required <p>Model Year 2025+ Vehicles:</p> <ul style="list-style-type: none"> • Camera or Windshield is replaced or removed and reinstalled
Camera, Wide Angle, Front (Model Year 2025+ Vehicles Only)	Static	Camera or Windshield is replaced or removed and reinstalled
Camera, Forward Facing, Mirror	Static	<p>Model Year 2022-2024 Vehicles:</p> <ul style="list-style-type: none"> • Calibration is not required <p>Model Year 2025+ Vehicles:</p> <ul style="list-style-type: none"> • Camera or mirror assembly is replaced or removed and reinstalled
Camera, Lane Change, Mirror (Model Year 2025+ Vehicles Only)	Static	Camera or mirror assembly is replaced or removed and reinstalled
Camera, Fender Flares, Front (Model Year 2022-2024 Vehicles Only)	N/A	Calibration is not required

Surround View Cameras

Camera	Calibration Style	Calibrate When:
Camera, Bumper, Front	Static	Camera, Bumper, Front is replaced or removed and reinstalled
Camera, Bumper, Rear (R1T Only)	Static	Camera, Bumper, Rear is replaced or removed and reinstalled
Camera, Surround, Mirror	Static	Camera or Mirror Assembly is replaced or removed and reinstalled
Camera, Liftgate, Upper, Rear (R1S Only)	Static	Camera, Liftgate, Upper, Rear is replaced or removed and reinstalled

Radar Calibration Requirements

Camera	Calibration Style	Calibrate When:
Sensor, Radar, Front, Center	Static or Dynamic	<ul style="list-style-type: none"> • Sensor, Radar, Front, Center is replaced or removed and installed • Front fascia is replaced or refinished <ul style="list-style-type: none"> ◦ For front upper fascia removal and install, no calibration is necessary if the radar angle is the same before and after the repair is performed
Sensor, Radar, Front, LH/RH	Dynamic	<p>Model Year 2022-2024 Vehicles:</p> <ul style="list-style-type: none"> • Sensors calibrate automatically when the vehicle is driven <p>Model Year 2025+ Vehicles</p> <ul style="list-style-type: none"> • Sensor, Corner Radar, Front/Rear, LH/RH or Module, Driver Assistance/Audio/Display is replaced
Sensor, Radar, Rear, LH/RH		



Note: Ultrasonic Sensors do not require calibration.



Important: All new radar components must be variant coded when installed on Model Year 2022-2024 Vehicles. Variant coding is not needed if the radar is removed and re-installed. Refer to the appropriate RiDE procedure.

Calibration Guidelines

Vehicle Suspension Alignment

The vehicle suspension alignment must be within specification for successful operation of the ADAS components after calibration(s). Not all Rivian vehicles will require an alignment prior to calibration. If suspension alignment is required, the Rivian approved target placement system will inform the technician during the Driver Assistance Calibration Setup.



Note: Always test drive the vehicle after suspension alignment to verify no additional ADAS related DTC codes are logged.

Module Calibration

Assistance from Rivian Service is needed for some module coding and/or calibration(s). Refer to RiDE to verify if new procedures are available. If coding or calibration assistance is required, contact Rivian Diagnostic Support at: 3pdiagnosticsupport@rivian.com.

Rivian Approved Target Placement System

Only Rivian approved tooling can be used to perform calibrations for ADAS components. The following system(s) are the only target placement systems approved by Rivian at time of publication:



Important: The modification of Rivian approved tools or the resizing of calibration targets is strictly prohibited. Modifications and resizing can result in improper calibrations that may compromise the safe operation of the vehicle.

Test Drives

A test drive should be performed after a suspension alignment or an ADAS component calibration has been performed to make sure no additional ADAS related DTC codes are logged. A test drive of 20 minutes in duration averaging above 20 mph in moderate traffic is recommended. Activation of ADAS features during the drive is not required.

Calibration Labor Time Guide

The following times are based on internal time studies performed by Rivian and factor in the unique differences found in third-party repair environments that are not present in Rivian Service Centers.

Procedure	Model	Labor Time (hrs)	Notes
Pre ADAS-Calibration Vehicle Inspection	All	0.5	Includes checking tire pressure, firmware check and update launch as required, estimate review, and required calibration repair planning.
RiDE Set-Up	All	0.3	One time procedure – Includes connection and initial software setup prior to performing calibration process.
Driver Assistance Calibration Setup	All	1.0	Includes setup of the approved target placement system and the alignment checks with the vehicle during the initial calibration process, as well as time to store the equipment after use.
Corner Radar Variant Coding	Model Year 2022-2024 Only	0.2	Performed in RiDE for corner radar replacements. Run once per replaced radar.
Sensor, Radar, Front (Calibrate) Sensor, Radar, Rear (Calibrate)	Model Year 2025+ Only	0.5	Required only once when one or more corner radars are replaced and/or the Module, Driver Assistance/ Audio/Display is replaced
Sensor, Radar, Front, Center (Calibrate)	All	0.8	Includes time for the following: <ul style="list-style-type: none"> • Calibrating position of vehicle relative to calibration equipment • Positioning of component calibration targets • Activation of RiDE calibration routine • Retrieving and putting away calibration targets
Camera, Driver Assistance, Front (Calibrate)	All	0.8	
Camera, Long Range, Front (Calibrate)	Model Year 2025+ Only	0.6	
Camera, Wide Angle, Front (Calibrate)	Model Year 2025+ Only	0.6	
Camera, Forward Facing, Mirror (Calibrate)	Model Year 2025+ Only	1.0	Time is applicable per camera. Includes time for the following:
Camera, Lane Change, Mirror (Calibrate)	Model Year 2025+ Only	0.6	<ul style="list-style-type: none"> • Calibrating position of vehicle relative to calibration equipment • Positioning of component calibration targets • Activation of RiDE calibration routine • Retrieving and putting away calibration targets
Surround View System (Calibrate)	All	1.0	<p>Required only once when one or more of the following cameras are replaced or removed and installed:</p> <ul style="list-style-type: none"> • Camera, Surround, Mirror • Camera, Bumper, Rear (R1T only) • Camera, Liftgate Upper, Rear (R1S only) • Camera, Bumper, Front <p>Includes time for the following:</p> <ul style="list-style-type: none"> • Calibrating position of vehicle relative to calibration equipment

Repair Restrictions

Vehicle Wraps

Third-party external vehicle films such as vinyl wrap or Paint Protection Film (PPF) that are not manufactured by XPEL may affect the performance of ADAS components. Refer to [RCI-52-24-004-1: Paint Protection Film \(PPF\)](#) for more information.

! **Important:** Other physical modifications that include but are not limited to: bolt-on accessories, suspension modifications that alter the vehicle ride height, or other modifications not explicitly approved by Rivian, may affect the performance of driver assistance components.

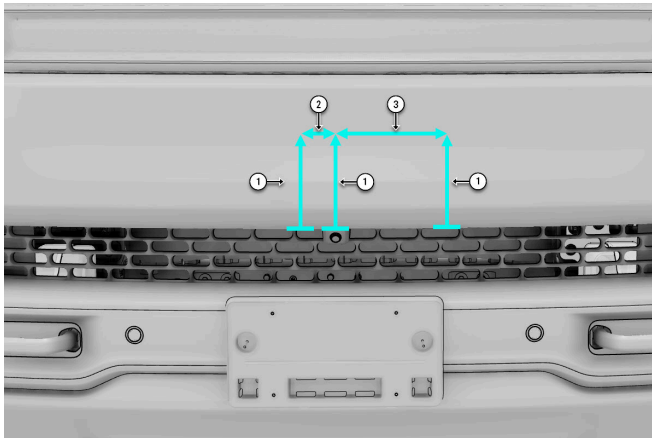
Front Fascia No-Repair Zone

To avoid interference with the Sensor, Radar, Front, Center and the integrated safety systems, repair is not allowed to the Fascia, Front, Upper in front of the component.

In addition to repairs, repainting (primers, sealers, and base coats) is not allowed in the No-Repair Zone. Only clearcoat can be applied in the No-Repair Zone. If any repair beyond clearcoat application is required in the radar transmission area, the bumper must be replaced. Repairs outside the No-Repair Zone area are allowed.

To locate the Sensor, Radar, Front, Center under the Fascia, Front, Upper, measure up from the Camera, Bumper, Front. Then, measure left and right to create a rectangle; the rectangle represents the radar transmission area and No-Repair Zone.

No-Repair Zone:



Callout	Measurement (mm)
1	110
2	40
3	140