All-New

Nissan Rogue
Nissan: 30+ Years of SUVs

1987 Pathfinder
1996 Pathfinder
1999 Murano
2002 Pathfinder
2004 Xterra
2005 Murano
2007 Pathfinder
2010 Rogue
2013 Rogue
2015 Murano
2017 Armada
2018 Rogue Sport
2020 Rogue Sport
2021 All-New Rogue

All-New 2021 Rogue
New Rogue: THE CONCEPT
Rogue Product Concept

MODEL Promise
Right sized family
versatile SUV
w/ sense of Premium-ness

STRATEGIC ADVANTAGE
Thoughtful Safety CSUV
with 2nd row functionality

THOUGHTFUL SAFETY & ASPIRATIONAL
SUV has Modern Strength
w/ Premium-ness & Family focused Functionality

“All Around” SAFETY
STYLE AND FLEXIBILITY
FOR UP TO 7

FUNCTIONALITY 2nd
Row focused w/ EMOTIONAL Interior

Aspirational & Modern Strength Design
**BIW CONTRIBUTION TO Rogue TARGETS**

**INNOVATIVE & EFFICIENT PACKAGING**
- Improved roominess with enhanced stance & Fuel Efficiency
- Weight reduction for improved fuel efficiency
- Increased cabin roominess

**PREMIUM & ADVANCED FEELING**
- Premium & secure driving experience without compromising quality
- Increased stiffness for improved dynamics and reduced road noise
- A-PLR section & layout to maximise front visibility
- Segment best RR door opening for improved comfort
- Top crash performance for secure driving

**STRIKING & ATTRACTIVE DESIGN**
- Dynamic stance with premium and high quality feel
- Sharp metal lines for dynamic & sleek appearance
- Optimizing Aerodynamics
  - Reduced wind noise
  - Cd total improvement: 5%
Rogue BODY DESIGN PHILOSOPHY

To develop the BIW by leveraging the Alliance in order to achieve maximum customer value.

- Overall dimensions ▲
- Crash performance ▲
- Vehicle stiffness ▲
- NVH performance ▲
- Vehicle weight ▼

New Rogue

Alliance Standardization

Global Availability

Optimization

Value Maximization

Alliance Commonality
New Rogue: THE ACHIEVEMENT
Cluster CAE allows the consideration of multiple key performance parameters simultaneously, in order to achieve the required targets with minimal mass impact.

**Safety**
- Frontal (ODB/FLP/SOL)
- Side (MDB/POLE)
- Rear (VK/MDB)

**NVH**
- Key Structure Stiffness (MBRs, RR-END)
- Panel Stiffness (FLOOR, DASH)
- Eigen Frequencies

**Ride & Handling**
- Global Stiffness (Torsional)
- ENG ROOM Stiffness (Bending/Torsional)
- RR END Stiffness (Bending/Torsional)
Maximize AHSS with well balanced global deployment

SHF980&1180*, Nissan core technology, is applied to upper body pursuing weight saving & crash performance improvement. *Super High Formable Advanced High Strength Steel

Rogue BIW – Steel Usage

~35%
Maximize AHSS with well balanced global deployment

1. AHSS selection with well consideration for global deployment.
   Now being used at 9 manufacturing locations across multiple countries within the alliance.
2. Well balanced Hot stamping and cold stamping selections on PF for top safety performance.
Rogue Platform – Steel Usage

- Maximize AHSS with well balanced global deployment
  1. AHSS selection with well consideration for global deployment.
     Now being used at 9 manufacturing locations across multiple countries within the alliance.
  2. Well balanced Hot stamping and cold stamping selections on PF for top safety performance.
Safety Performance

- Rogue achieved IIHS Top Safety Pick+

Individual IIHS Test Modes (2021)

- Moderate Overlap Crash Test
- Small Overlap LH/RH Crash Test
- Side Impact Crash Test
- Roof Crush Test
- Whiplash Test
- Headlight Test
- Crash Prevention Test
- Pedestrian Crash Avoidance Front- 2020
40mph Small Overlap

- Structure optimized to reduce mass and increase strength

Optimized body structure

Reaction force increase by 9.7%
37mph Side Impact

- Structure optimized to reduce mass and increase strength

Reaction force increase by 38%

More direct cross car loading
56mph Offset Oblique Impact

- Smoothly connected platform for axial load distribution
Stiffness Improvement

New platform and upper body design provides improved Stiffness resulting in better dynamic performance and noise reduction.

- **Torsional stiffness +27%**
- **FR Strut MTG stiffness +20%**
- **FR lateral bending stiffness +17%**

**Significant improvement from outgoing model**

**Same performance as best in class with light weight advantage**
Floor Stiffness Improvement

Based on the result of the cluster analysis, the platform structure was studied to find the most optimum layout of the Floor members.
Rear Body Stiffness Improvement

Smooth & Connected Body structure in Rear provides improved solid structure feel

Ring structure in Body including floor structure

Impact shock

<table>
<thead>
<tr>
<th>Acceleration [m/s^2]</th>
<th>New Rogue</th>
<th>Outgoing Rogue</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IMPROVED</td>
<td></td>
</tr>
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</table>

Outgoing Rogue New Rogue
Load Transmission Improvement

Rear FLOOR optimized to compensate for increased tire width impact on load transmission

Distance between centroid of SILL and Rear SIDE Member increased

New Cross Member added for added stiffness and load transmission

Smooth connection from Rear Cross Member towards the Rear Suspension mounting surface and Rear Side Member

RR Suspension mounting point is at center of Rear Side Member and Cross Member section
New Rogue: KEY ELEMENTS
INCREASED CABIN ROOMINESS

New Platform designed to improved cabin roominess within compact vehicle dimensions

New Floor designed for cabin space improvements:

- New Rear Seat Cross Member for passenger for ingress/egress improvement
- New Lower Rear Floor for seating comfort and luggage space

OAW: 1840(+10)mm

Head Room +28

2nd Hip Point: -40

2nd Heel Point: -10

1675 mm (-20) : US 4WD

Blue is difference from 20MY Rogue

935mm(+5) to 2705mm to 1005mm to 4645mm(+5)
Baby & Child Loading

- Improved access

A: Head space
Top level RR DOOR opening height.

B: Hip space
Door armrest cut out
21MY

C: Leg space
Delete sill cover.

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A: Head space
Top level RR DOOR opening height.

B: Hip space
Door armrest cut out
21MY

C: Leg space
Delete sill cover.

---

**Covered AF60(5’ 5’’) comfortable posture**

<table>
<thead>
<tr>
<th>Model Year</th>
<th>Rogue</th>
<th>Comp A</th>
<th>Comp B</th>
</tr>
</thead>
<tbody>
<tr>
<td>20MY</td>
<td>1450</td>
<td>1500</td>
<td>1550</td>
</tr>
<tr>
<td>21MY</td>
<td>1475</td>
<td>1525</td>
<td>1550</td>
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</table>

Front View
Delete Sill cover
**Cargo Room Opening**

- Increased width and squared off opening
- Flat load floor from luggage room & folded 2nd row seats

<table>
<thead>
<tr>
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<th>21MY</th>
<th>20MY</th>
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</thead>
<tbody>
<tr>
<td>Maximum Opening Width (mm)</td>
<td>1146.3</td>
<td>1140.5</td>
</tr>
<tr>
<td>Minimum Opening Width (mm)</td>
<td>1029.7</td>
<td>975.3</td>
</tr>
<tr>
<td>Opening Height (With Board) (mm)</td>
<td>795.5</td>
<td>795.2</td>
</tr>
</tbody>
</table>

Target storage item: 1 gallon milk/water jug

2nd Row Seatback = 4 deg
Inner Lugg Board = 5 deg
Outer Lugg Board = 3 deg
SHF980/1180 Application Tech – TWB*

- World 1st SHF980+SHF1180 TWB adoption to B-PLR
  1. Cold Stamping on SHF AHSS realizes integration tech comparable to Hot Stamping
  2. Achieved high balanced Crash safety and light weight; -15% weight saving*

*Compared with conventional design of 590+980MPa TWB

- Fine hardness control on the welding bead for high alloyed steels
- Optimized section design for the formability

Special tech. supported by
**SHF980/1180 Application Technology**

- **Liquid Metal Embrittlement Control**

- **Fine controlled SPOT weld schedule to avoid LME**
  1. Appropriate Holding time extension to Zinc melting control
  2. Tension stress reduce by fine weld gun/panel control
  3. Set up design guideline for applicable stacks for SHF980 and SHF1180

Before Countermeasure

![Diagram showing the before state of liquid metal embrittlement with stresses and temperature changes.]

After Countermeasure

![Diagram showing the after state of liquid metal embrittlement with stress and temperature changes, indicating no cracks.]

To lower temperature in releasing electrode
Front Suspension MBR Design – 780HR

- Contributes to IIHS Small Over Lap performance while lightweighting
  1. Achieved high reaction force with optimized shape design balanced light weight
  2. -26% weight saving comparing 590HR adoption
Nissan AHSS* strategy

- +780MPa steels aims to develop & apply more than 30% for lightweight and crash performance improvement

Please support Nissan AHSS strategy!!
All-New Nissan Rogue