

Styling Design of New CR-V

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ABSTRACT

The new CR-V was developed as a passenger vehicle to help customers lead daily lives that are active, stress-free and smart.

The new CR-V has been developed and fashioned into a vehicle capable of a self-expression of convenience and rich lifestyles transcending the boundaries of customers' life stages. It represents a synergistic crossover of the efficiency and premium character of a sedan or similar passenger car (EFFICIENT), the function of a minivan (FUNCTIONAL) and the confidence of an SUV (CONFIDENT).

The exterior design was based on the theme of BOLD AND ADVANCE to embody an expression of a bold, strong construction and expression of advanced functionality, while the interior design was based on the theme of CROSS CONSTRUCTION to simultaneously achieve roominess and user-friendliness in any setting.

1. Introduction

During the initial stages of development, members of the development team pondered the relationship between the customer and the CR-V that has continued since the first generation, and deeply considered what role the vehicle should play in customers' lives.

Speaking figuratively, the team wanted the vehicle to be like the slice of bread or the bowl of rice one has every morning. People eat such food every day, but it always tastes good and never gets boring. The team wanted the CR-V to be the vehicle that customers would choose, enjoy driving for many years, and feel it had become an indispensable part of their lives not because it is particularly luxurious but because it was built to the highest standards of quality and safety.

The value offered by this vehicle is that its functions are so closely aligned to customers' lifestyles at all times and that it brings joy to customers who use them day to day. The team was mindful of the fact that creating such joy is the starting point of development and the motivation for bringing the new CR-V into being.

This CR-V, the fourth generation of the model, came with a mission to meet the varied needs of Honda's many customers around the world, and the CR-V is now, along with the ACCORD and CIVIC, one of Honda's core

global models.

The development team's aim was to accurately determine the current needs of customers around the world and boldly but carefully build the new CR-V to surpass the previous CR-V generations.

Making the latest CR-V the best CR-V is a natural goal but difficult to achieve in practice. To do so, it would be important to have a strong awareness of the CR-V's identity, to polish it up and to bring a proactive approach and a consistency that clearly encompasses new value. In addition, what customers want from a vehicle like the CR-V varies depending on where they are in the world. In North America, for example, customers want the CR-V to evolve into a compact crossover vehicle for safe and convenient daily transportation, while customers in Europe and Asia are looking for it to become an upgraded passenger car with premium value.

Customers looking for an expression of an energetic and rich lifestyle could use the CR-V actively. Use of the CR-V should be stress-free in daily life, formal situations and all types of settings. And finally, the CR-V aims to be smart and easy to use, so that customers could use it for many years as they go through various life stages. This is the SUPER CR-V grand concept for surpassing the expectations of customers around the world (Figs. 1, 2).

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Fig. 1 Grand concept

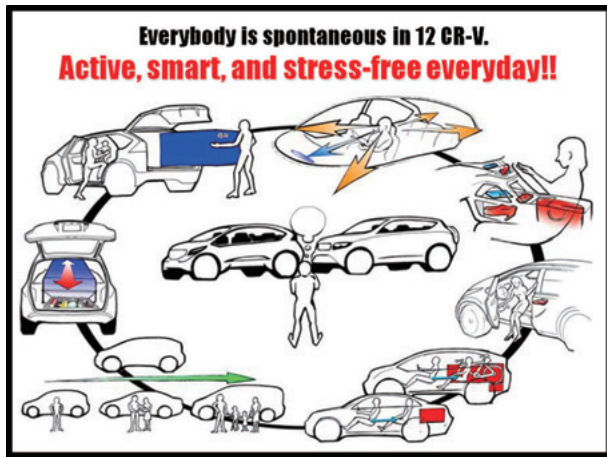


Fig. 2 Concept of customer demand

2. Package layout

One characteristic of the CR-V that has remained consistent since the first generation is the wheelbase, which is the key to the vehicle's external dimensions and interior space. The overall width, overall height and overall length have changed owing to, for example, revisions in the crash safety standards of the time and how the spare tire is loaded, as well as by the choice of a suitable platform, but this generation continues the tradition of not increasing the wheelbase to increase interior space.

Additionally, though the CR-V has been downsized compared to the previous generation, the core value of the fourth-generation CR-V was the evolution of Honda's proactive approach with its "man maximum, mechanism minimum" (MM) concept, which is to enhance comfort and user-friendliness. The development team decided that the best size for the new CR-V is one that lets customers all over the world enjoy stress-free use in their daily lives and user-friendliness for any setting in which they find

themselves.

ADVANCED SYNERGY PACKAGE was taken as the theme to embody the SUPER CR-V synergy of EFFICIENT, FUNCTIONAL and CONFIDENT as the development team aimed to enhance the CR-V's convenience in a more compact size (Fig. 3).

2.1. EFFICIENT PACKAGE

To achieve vehicle efficiency and comfort, the development team pursued a lower CdA (a coefficient indicating the degree of aerodynamic drag, divided by dynamic pressure, found by multiplying Cd, a dimensionless number indicating the degree of aerodynamic drag, with A, the vehicle's frontal projected area), high-efficiency proportions, and a comfortable on-board position.

First, concerning a lower CdA, the frontal projected area was shrunk by reducing the overall height exclusive of antenna by 30 mm (or 40 mm in the North American 2WD version only), and aerodynamic performance was enhanced by extending the tail end of the roof.

Next, concerning high-efficiency proportions, everyday maneuvering was made easier by shortening body overhang by 10 mm in the front and 15 mm in the rear for North America (15 mm in both the front and rear in Japan) as compared to the final form of the previous generation, while still providing for safety performance in collisions. The cabin offers a comfortably expanded space for people by pushing the lower end of the front window forward and extending the tail end of the roof. The compact body and comfortable cabin embody high-efficiency proportions with strong individuality.

Moreover, the development team aimed to provide the on-board position of a passenger car for comfortable travel even over long distances, so the steering wheel was made the same diameter as that of a passenger car, and the seat height adjustment range was increased 15 mm downward. In the rear, foot height was left the same, while the hip point



Fig. 3 Package layout concept

was lowered, making the on-board position close to that of a passenger car (Fig. 4).

2.2. FUNCTIONAL USABILITY

First, the development team pursued wide space indicative of the status of an automobile one class higher and an intuitively usable low-floor, high-volume luggage compartment to make the minivan's functionality intuitively understandable and usable.

The seating positions in the first-generation CR-V were arranged with a wider space between the right and left passenger seats in the front to allow a walk-through space between the front and rear seats. The second and third generations retained these positions, but users of the third-generation CR-V indicated that those seating positions expressed the status of an automobile one class higher. Thus, in addition to these seating positions, the development team pursued a wider lateral dimension to let the CR-V evolve into the status of an automobile one class higher. The usual design techniques to achieve this goal are to increase the overall width and move the side window outward, thus increasing frontal projected area and negatively impacting fuel economy. So instead, the new CR-V doors were made thinner in cross-section (while still providing for good performance in collisions), thus achieving 45 mm more space laterally compared to the previous generation.

A seat arrangement was designed that lets the user open up a flat luggage compartment with one action, changing the complicated seat arrangement of the previous generation. Additionally, the excellent low floor of the previous generation was lowered another 20 mm and the height of the tailgate opening lowered 25 mm, thus achieving intuitive user-friendliness. The comfortable cabin and lower floor achieved 65 L greater capacity than the previous generation despite the downsized body (Fig. 5).

2.3. CONFIDENT APPEARANCES

To provide the confidence of an SUV, the development

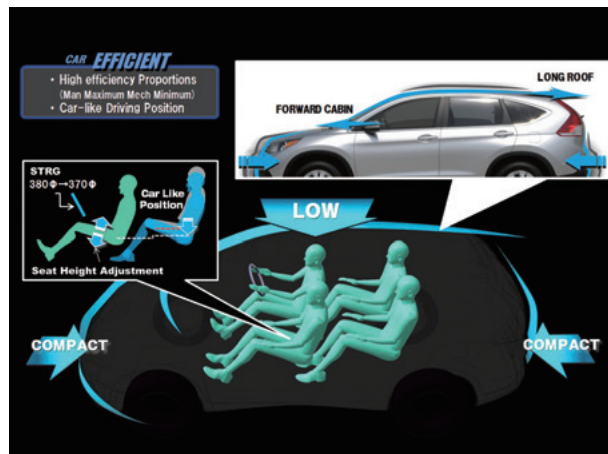


Fig. 4 Concept of efficient package

team studied how to balance a confident appearance with enhanced fuel economy.

First, the new CR-V retained the commanding view and high sight line that has come down from the first generation in order to provide a sense of confidence and maneuverability in spite of the downsized body.

Next, the team increased the ratio of tire size to body as they worked to achieve a sense of confidence. Successive generations of the CR-V have advanced such a sense of confidence by increasing tire size, so the tire size of the previous generation was retained but the ratio of tire size to body was increased by downsizing the body, thus achieving a sense of confidence (Fig. 6).

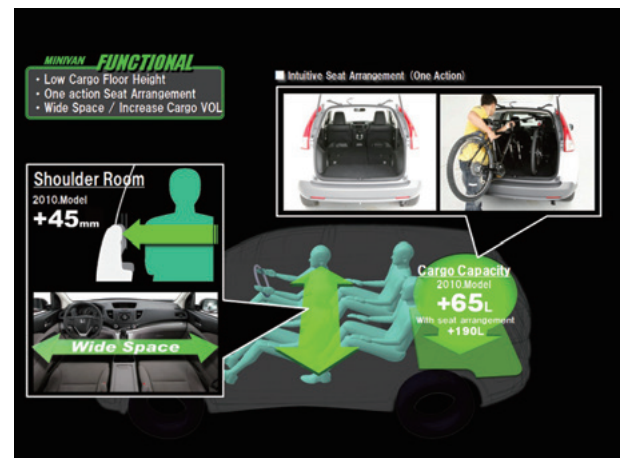


Fig. 5 Concept of functional usability

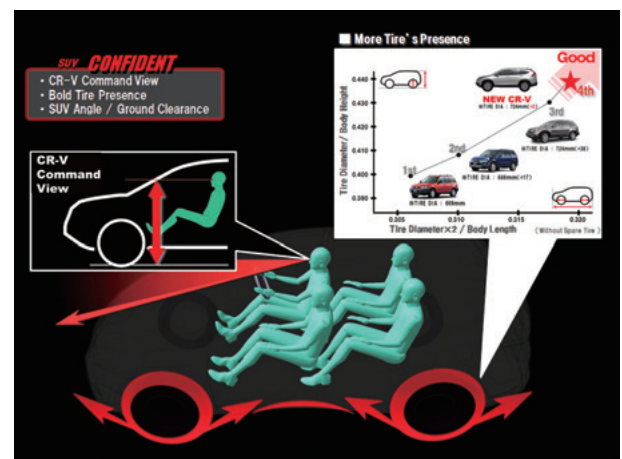


Fig. 6 Concept of confident appearances

3. Exterior Design

The exterior design aimed to express the themes BOLD (i.e., a bold, strong sense of status) and ADVANCE (high efficiency and sense of new functionality) (Fig. 7).

The side view is characterized by a low overall height

and a window slope made sharper by pushing the lower end of the front window forward. The back of the vehicle was given a silhouette reminiscent of a coupe by using highly curved rear glass. The result is a passenger car-like impression flowing sleekly from front to back. The cabin has a low roof, but the side window has been stretched as far as possible from front to back and the belt line lowered, expressing a comfortable look with a large glass area and creating a sharp impression. Unlike the rugged look used in the past, the side sill and tire area have a refined form suited to the smooth silhouette of a new crossover vehicle.

The front is a voluminous-looking mass with an engine hood that is short relative to the overall body, expressing a sense of confidence and a sense that the engine is efficiently enclosed in the compact form. Also, the simply integrated headlights and grill intertwine with each other, while the wide grill's plated insert garnish asserts the classy feel of a higher rank.

In the rear, the combination lamp is arranged vertically, which expresses the CR-V identity. The high curvature of the tailgate glass gives it a three-dimensional shape, which increases luggage compartment capacity. This, along with the sharp-lined rear combination lamp, creates a distinguishing form.

The development team aimed to achieve synergy of styling and aerodynamic performance. For example, the confidence-inspiring form of the body projects steadily outward from the front bumper corner and along the side, which achieves the desired dimensions and allows the optimal air flow, and the form of the rear combination lamps is put to use to optimize air flow at the corners (Fig. 8).

The team carefully considered the grounds for and appropriateness of the modeling of all of these parts to ensure that they were consistent with the concept. Thanks to these techniques, the vehicle projects not so much its actual downsized dimensions, but an impression of being

upscale while giving a sense of status and functionality that will be convenient and useful for many years. It clearly expresses that this is the next-generation CR-V (Figs. 9, 10).



Fig. 8 Aerodynamics design



Fig. 9 Final rendering

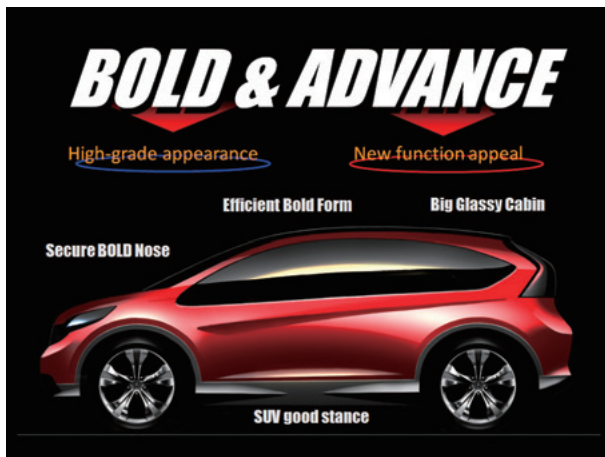


Fig. 7 Exterior design concept



Fig. 10 Final rendering

4. Interior Design

The interior design was developed under the theme of **CROSS CONSTRUCTION**, fusing a sense of upscale-looking status with advanced functionality.

A value that has been handed down since the first-generation CR-V is to build a space that is roomy, refreshing and pleasant to drive in. The new CR-V retains that idea and seeks to take it further, aiming to raise the sense of status to a new level (Fig. 11). Specifically, the area around the instrument panel was designed to flow openly in a horizontal layout. The end is formed to spread so far that it nestles right into the door lining, expressing a rich-looking driver's space that seems larger than its actual dimensions. Additionally, the wide decorative insert garnish panel that conforms to the tone is arranged around the driver's and passenger's seats, thus raising the sense of quality (Fig. 12).

The form of the center console makes full use of the dimensions to create the largest possible console, contributing to the excellent utility, magnificent look and

sense of status. Functionally, it has box dimensions that can neatly contain A4-size documents, and side pocket dimensions that can hold a 500 ml PET bottle (Fig. 13).

Advanced functions include, for the first time on a CR-V, a center display capable of displaying music sources, wallpaper, etc. The display is located in the center of the instrument panel and displays a variety of content that may be controlled through the steering wheel switch, all adding to driving enjoyment. The all-important speedometer is located in the center of the meters and was made as large as possible to ensure instant recognition and intuitive operation. To help drivers intuitively understand switch locations, the audio panel and heater control panel are clearly zoned.

The advanced-function center display is located front and center, which minimizes movement of the driver's line of sight during cruising, and enhances instant recognition (Fig. 14).

Seats are designed with a form that strikes a high degree of balance among optimal embarking and disembarking, passenger hold, and riding comfort as an SUV.

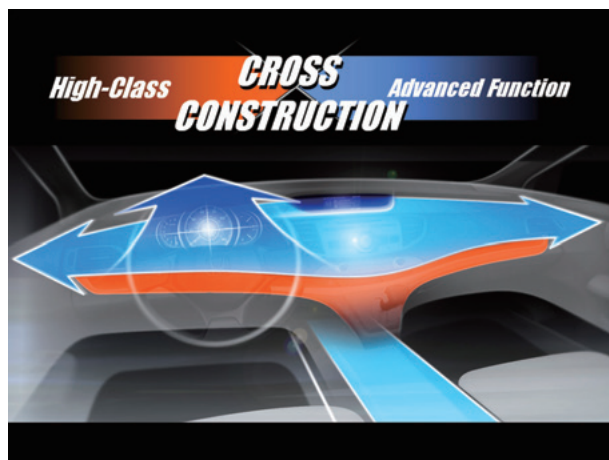


Fig. 11 Interior design concept

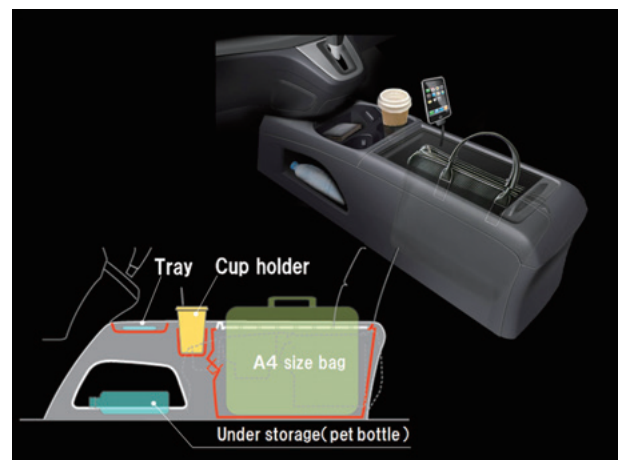


Fig. 13 Console utility



Fig. 12 Final rendering



Fig. 14 Instrument panel

The luggage compartment aimed to enhance user-friendliness. It offers a one-touch seat arrangement for easy operation, uses a tonneau cover, and has net side pockets among other features meeting the need to load large items with ease and hold cargo securely.

5. Color and Fabric Design

As noted above, it was assumed that what customers want from the CR-V varies considerably, and therefore the team explored commonalities among customer needs for color and fabric.

Customers' candid opinions led the team to conclude that one necessity in common for the CR-V all over the world was more "high-class and fine-quality" colors and fabrics than in the previous generation. The team regarded this as a "compulsory exercise," and moreover set its sights on the advanced image that is always at the heart of any proposal at Honda.

The theme PREMIUM & ADVANCED was chosen with the aim of helping our customers live joyfully, youthfully and vigorously through the synergy of ADVANCED expression and PREMIUM coordination (Fig. 15).

For the exterior colors, the developers continued to use white, black, silver and dark silver as global standard colors. They also developed TWILIGHT BLUE M as a new global color. It is a good balance of PREMIUM and ADVANCED since it fuses dark blue (with the depth that is suited to a sedan and thus gives an upgraded impression) and a metallic texture (for a bright, sporty and functional look).

Additionally, given differences in customer taste in each part of the world, Honda uses the most suitable colors for each region. In North America, that includes a vivid red for Generation Y and a green metallic color that continues to be popular among a wide range of age groups. In Japan, black was chosen for an upgraded feel. In China and other parts of Asia, it is a deep red that balances sportiness with a fine-

quality feel (Fig. 16).

Interior colors were coordinated using colors and materials that emphasize a high-quality feel while accounting for soiling so customers can use the vehicle comfortably in everyday life for many years. Since many customers say that soiling is a concern particularly with beige interiors, the team coordinated colors in a new way that accounts for both soiling and quality feel. The whole interior is unified in a dark brown color that does not show dirt, while seats are in high-quality bright beige. Three interior colors are available. In addition to beige, there is a black interior that has grown popular worldwide and a gray interior that is continuously popular in North America. Suitable colors will be offered in each region based on differences in taste (Fig. 17).

To enhance the fine-quality feel and the overall interior material feel, most of the interior (including the instrument panel and doors) received a unified leather texture with deep natural expression to create a sense of consistency in color and material feel, thus achieving a more comfortable fine-quality space.



Fig. 16 Exterior color line-up



Fig. 15 Color design concept

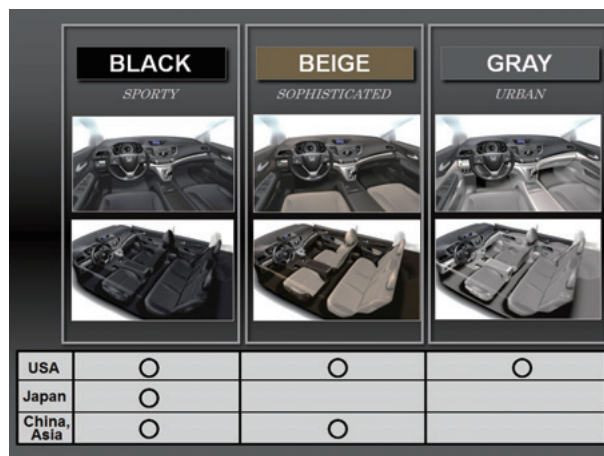


Fig. 17 Interior color line-up

The decorative panel (insert garnish) at the border between the top and bottom of the instrument panel for the high-grade model fuses a wood-grain look and silver. This is a new technique in garnish expression that fuses the natural fine-quality pattern of wood with a metallic texture showing strength and an advanced feel, thus symbolizing PREMIUM & ADVANCED. Other grades use silver insert garnish (Fig. 18).

Highly textured suede-like material, with a sporty image but at the same time a moderate sheen, was used as the seat fabric for the main seat parts. Seat sides, since these are the parts often touched by the hand, used a velour tricot material that is soft to the touch, thus creating a contrast in material feel of the main and side parts. A velour tricot material using surface unevenness to form a pattern was used as the main material for the lower grade. The pattern for both the high and low grades is an advanced, geometric-looking rectangular uneven-surface pattern, but a natural wave pattern is added so that the impression is not too rigid. It imparts an advanced expression that is easy on people. For the highest grade, leather is used (Fig. 19).

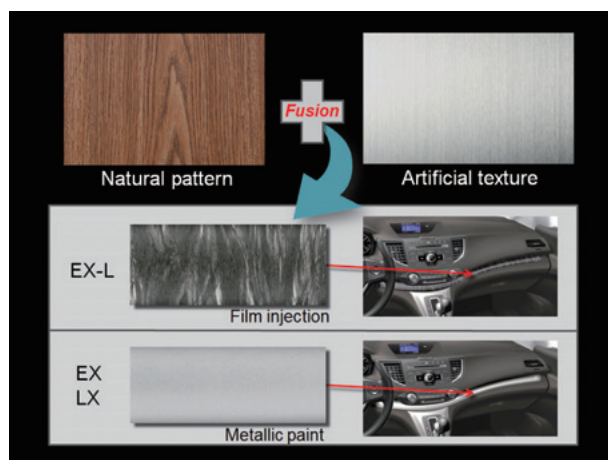


Fig. 18 Interior materials

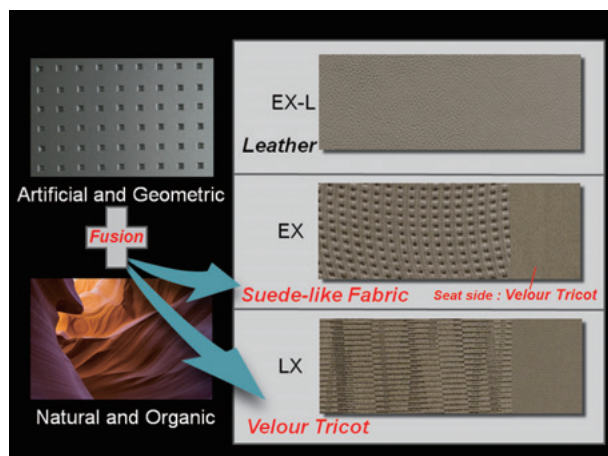


Fig. 19 Seat materials

6. Conclusion

The fourth-generation CR-V has the package of a compact crossover vehicle that has been handed down since the first generation, but this package has evolved to better meet the needs of customers around the world. The core elements of its styling have all been born and given form in this package.

Honda offers its design to customers by embodying the “man maximum, mechanism minimum” (MM) concept with a new framework based on package evolution and the technology to achieve it.

This vehicle was positively conceptualized from Honda’s strong automobile manufacturing ideas. The development team believes that its intentions will be communicated, and the CR-V will show its true worth, when customers sense that this vehicle will help make it possible for them to live comfortable lives.

The team is confident that it has built the fourth-generation CR-V into a vehicle that customers will value and keep close to them in their lives.

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