

Style and Design of New Model INSIGHT

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ABSTRACT

The new model INSIGHT was developed based on the key concept - “A Compact Car Standard for the Next Generation.” During the development, the aims for the new INSIGHT were to achieve good fuel economy and low exhaust emissions in a compact class car, and to be used by even more customers.

The exterior design theme is that of an “Aero Athlete,” and aims for not only an advanced style, but also a running form backed up by proven aerodynamic performance.

The interior design theme is that of an “Emotional Hybrid Interior” that fuses the fun of driving a car with the advanced, futuristic feeling of a hybrid car.

1. Introduction

Honda has continued to release models that take into account the environment since the release of the CIVIC in 1972 equipped with the CVCC engine.

The first generation INSIGHT was released in 1999 as a hybrid car, and it achieved the goal of “providing the maximum fuel economy performance to customers.” However, due to its release in the two-seater coupe category, it was unable to provide the benefits of a hybrid car to many customers.

The new INSIGHT was developed with the grand concept of “A Compact Car Standard for the Next Generation” so that the hybrid car benefits of good fuel

economy and low exhaust emissions could be provided to even more customers. Emphasis continued to be placed on good fuel economy and low exhaust emissions performance in order to achieve an environmentally friendlier vehicle. Another element realized by the design package was the innate pleasure of car driving incorporated with INSIGHT’s usable cabin and luggage space demanded from a standard car. These elements were realized in an affordable package thus helping to enable hybrid cars to be offered to a greater number of customers.

Figure 1 shows the new model INSIGHT released in 2009.



Fig. 1 2009 model year INSIGHT

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2. Package Layout

To give concrete form to the package concept of “A Global Standard for High Efficiency,” a five-door hatchback style was selected. INSIGHT’s package offers the convenience of allowing comfortable seating for up to five adults, and provides sufficient cargo space while the size remains compact with a low overall height of 1425 mm (Fig. 2). The overall height and width are standard throughout the world, and only the total length

differs depending on the front license plate specifications - 4375 mm for North American specifications, 4390 mm for Japanese specifications, and 4395 mm for European specifications.

The basic platform uses that of the FIT, with the fuel tank location changed to under the rear seat so as to lower the front-seat hip point by 50 mm compared to the FIT.

The wheelbase was lengthened by 50 mm compared to the FIT to 2550 mm. This resulted in a space that provides both front and back seating comfort for adults

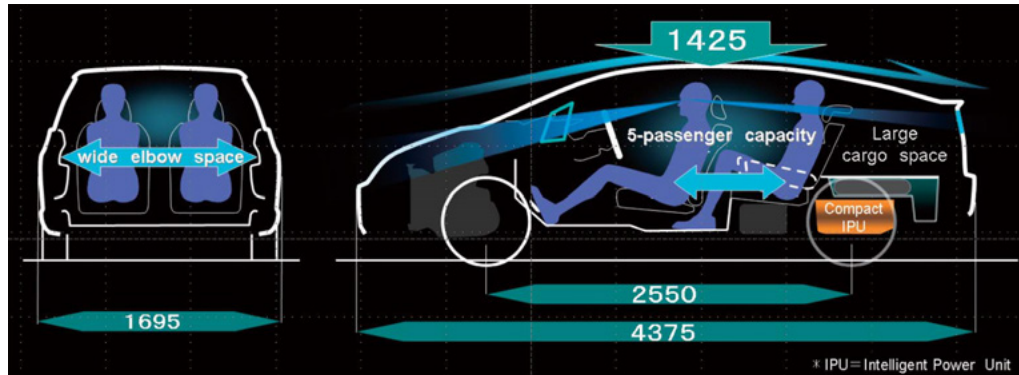


Fig. 2 Package layout (North American specifications)



Fig. 3 Luggage compartment for European and Japanese specifications



Fig. 4 Front visibility

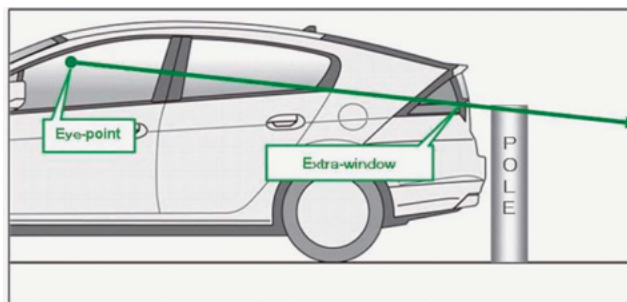


Fig. 5 Extra window

equivalent to that of the 2003 model year European and Japanese ACCORD (North American ACURA TSX), even in a compact size.

The low floor luggage compartment exceeds the standard for this class, and the use of a downsized Intelligent Power Unit (IPU) with an under-floor layout achieved a luggage compartment capacity of 355 L. European and Japanese models can also select specifications without spare tires which further lowers the floor by 105 mm and increases the luggage compartment capacity to 400 L (Fig. 3).

The front pillar was moved forward to increase the area of the side windows in the forward direction, and the side mirror mounts have been reduced in size enabling the realization of good forward visibility (Fig. 4).

The extra window area was increased by using a thin rear spoiler to enhance rear visibility thus making it possible to see a pole (i.e., representing a young child) (Fig. 5).

3. Exterior Design

“Aero Athlete” was selected as the key concept for the exterior styling evoking an aerodynamic and powerful running form. In the chassis, a low total height has been maintained in order to enhance aerodynamic performance. Furthermore, the low height combined with the integrated line from the tip of the hood to the cabin achieves a more compact looking engine compartment and produces an advanced overall form.

The bold and sharp wedge lines used for the sides of the vehicle express a sense of speed and optimize the airflow around both the cabin and the body. The surfaces that envelop these forms were sculpted in the image of the supple tension of an athlete’s muscles (Fig. 6).

Testing and design proceeded concurrently in the development process, with the results of aerodynamic tests using models being fed back into the design before the final design image was fixed. A CD value of 0.28 was

achieved in actual running tests, resulting in a stylish design with proven aerodynamic performance.

The thin and wide headlights make the front appear even lower and wider. The rear combination lamps and the high-mount stop lamp were made continuous for a distinctive rear appearance (Fig. 7).

The rear combination lamps adopt an advanced design utilizing LEDs with low power consumption to enhance fuel economy (Fig. 8).



Fig. 7 Final rendering

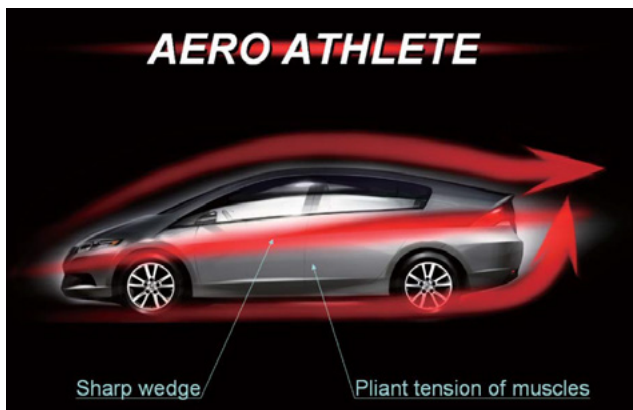


Fig. 6 Exterior design concept



Fig. 8 Rear combination lamp

4. Interior Design

“Emotional Hybrid Interior” was selected as the key concept for the interior styling. The aim was to establish an interior space that combines the advanced driver’s cockpit and exhilaration with an everyday utility.

The cockpit, which is triangular with a vertical layout, uses a multiplex meter; an advanced interface that was developed originally by Honda. In addition, the instrument panel framework is rounded towards the front of the car, which both emphasizes the cockpit area and reduces the instrument panel volume. The upper and lower parts of the instrument panel are formed by concave surfaces realizing a clean field of vision and a feeling of space around the knee area (Fig. 9).

The multiplex display shows a digital speedometer and an ambient meter on the upper level. Drivers are able to recognize driving conditions by changes in the background color, which naturally leads to more fuel-efficient driving. The ambient meter uses an earth motif that expresses the aim to “Increase the Green on this Blue Earth!” The lower level locates a tachometer, ASST/CHARG meter, and fuel gauge around a multi-information display. Analog displays present an exciting sense of accuracy with the mechanical feel of a machine. The multi-information display shows the conventional vehicle information, and features an eco-

assist bar that provides coaching for accelerator and brake operations for more fuel-efficient driving. These displays, together with the heater controls and an ECON switch located strategically around the steering wheel, create a cockpit that seamlessly integrates an advanced feeling with “FUN to DRIVE” functionality (Fig. 10).

Cup holders, storage for small items (Fig. 11), and a console box and armrest (Fig. 12) are provided in the limited width between the right and left front seats to increase driver convenience. In addition, practicality has been enhanced in consideration of users downsizing from larger cars, such as by providing a security pocket below the car stereo that can be used to hide a garage door opener or other items (Fig. 13).

The interior lining is comprised of concave surfaces



Fig. 9 Interior design concept



Fig. 10 Drivers cockpit

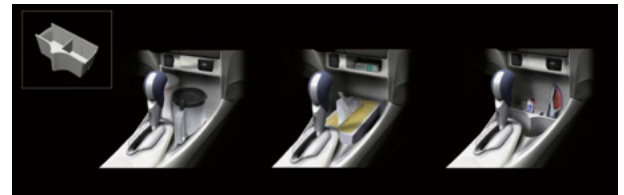


Fig. 11 Cup holder and storage

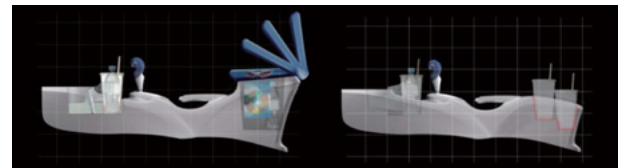


Fig. 12 Console box and armrest



Fig. 13 Lid type center pocket



Fig. 14 Interior rendering

scooped out to the top and bottom centering on the shoulder line, which assists in securing the largest cabin width within this class. This enables two sets of two cup holders to be used when there are four passengers, and creates a simple yet comfortable space that exceeds the standard for this class.

The front seat design firmly supports the lower back and has sporty styling that helps keep the driver's upper body facing forward. The rear seats are fold-down types with a 6:4 seat back partition that increases convenience by enabling use as both a 5-person car and a full-flat luggage compartment. The luggage compartment floor can be moved up and down in two levels enabling under-floor storage of a tonneau cover and the like. In addition, detailed measures were taken such as the addition of wickets to help prevent small items from rolling around or items from tipping over (Fig. 14).

5. Color Design

Based on the definition of hybrid as being a "combination of two different characters," a feeling of freshness was realized in the color design through the contrast or fusion of two elements.

5.1. Exterior

Spectrum White Pearl and Brilliant Sky Blue Metallic were selected as the image colors to directly convey the impressions of "Clean, Ecology and High-Tech", which is the exterior color theme.

Spectrum White Pearl is a new color with an advanced color sense that is based on a completely new and clean white tone befitting a new generation. New materials are blended in that manifest varied colors like a rainbow, depending on the light source and the angle of view, just like an actual pearl. The resulting gold highlights and bluish-white shading create a dichromatic effect that further enhances the muscular body form and full lines.

The grill color uses large and high luminance metallic components to provide an advanced look with a strong sense of presence. Two color schemes, light tone and medium tone, were set to help ensure optimum compatibility between all exterior colors (Fig. 15).

5.2. Interior

The interior color theme, "organic and inorganic," has been expressed in the design of the interior colors, materials, and surfaces.

The interior uses two differing hues, with the entire interior being enveloped in a warm gray that provides a sense of security, and the functional parts colored in blue, which gives them an advanced feel. Metallic accents have been used to help enable the achievement of a balance between these two colors in the cabin as a whole.

For the surfaces, the use of a natural leather pattern throughout the interior provides a sense of harmony, and this pattern is contrasted by a mechanical geometric pattern used for the functional parts.

For the seat fabric, a mesh-like, pin-dotted fabric with a lightweight feel has been used for the seat centers, while the side bolsters use a dense and thick suede-like fabric with a wave pattern. This combination of different materials emphasizes the form of the seats with their subtle modulations.

For the seat fabric colors, the use of blue and warm gray as alternative seat colors enables the efficient realization of two distinct interior types as opposed to the use of a single interior color type (Fig. 16).

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Fig. 15 Exterior image colors and grille colors

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Fig. 16 Interior and material colors

6. Conclusion

The design of the new INSIGHT proceeded from the key concept, “A Compact Car Standard for the Next Generation.” In addition to realizing an easy-to-use vehicle that can comfortably seat five adults in any part of the world, the design fuses a sense of advancement as a hybrid vehicle with the appeal of the innate pleasure of driving a car.

The authors believe that the appealing vehicle created displays a form that points towards the automotive future.

No matter what the specific developments of the period in question, the authors hope that more and more customers experience the pleasure of using a vehicle and protecting the earth’s environment at the same time.

The authors sincerely hope that the development of the new INSIGHT has thrown open a door towards the next generation of cars.

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