

2014 Model Year FIT Design Based on New Honda Design Concept

Yoshiya KITAJIMA* Atsushi MURAKAWA*

ABSTRACT

The 2014 model year FIT is the third generation of the model having undergone a full model change. Under the grand concept of “The World Best Functional Compact”, it was developed with the aim of making it the world’s most convenient compact car to use by offering exceptional space, fuel economy, and coolness (design and cruising).

The design of the 2014 model year FIT is the first to incorporate the new Honda design concept, “Exciting H Design.”

“Exciting H Design” consists of three facets: “High Tech” (people-friendly advanced technology built on the human-centered “Man Maximum, Machine Minimum” concept), “High Tension” (dynamic-looking framework), and “High Touch” (texture that appeals to the senses).

By incorporating the “Exciting H Design” concept, Honda has achieved a 2014 model year FIT design capable of asserting stronger individuality and presence in the world.

1. Introduction

The 2001 model year Fit (the first generation) used innovative packaging technology, called a center tank layout, to cause a “revolution” in small cars. The 2008 model year FIT (the second generation) retained the advantages of the first generation while advancing them in every way. It continued the success of the first generation as the downsizing trend spread worldwide. The FIT continues

to be popular with many customers having sold 4.87 million units in 123 countries to date.

The new 2014 model year FIT (the third generation) was built on the grand concept “The World Best Functional Compact” (Fig. 1). With this generation, the intention was to build a basic world car that would feel familiar to people, support their lifestyles, and make every day pleasant for customers in the same manner as Honda’s global long-seller SUPER CUB.



Fig. 1 Grand concept

* Automobile R&D Center

After deciding that the universal values of the small car should be space, fuel economy, and coolness, the designers developed the 2014 model year FIT with the aim of elevating each of these characteristics to a surprising new level.

2. Design Concept

The world small car market is growing but also increasingly competitive, so design has to be highly distinctive to avoid getting buried in the crowd. The FIT incorporated the new Honda design concept “Exciting H Design” (Fig. 2) consisting of the three facets “High Tech.” (people-friendly advanced technology), “High Tension” (dynamic-looking framework), and “High Touch” (texture that appeals to the senses). The exterior design was made to follow the “CROSSFADE MONOFORM” concept (Fig. 3) and the interior design follows the “Sophisticated Futuristic Cockpit” concept (Fig. 4).

In order to express its strong distinctiveness globally the 2014 model year FIT uses the Solid Wing Face, the new unified face design of Honda cars. It achieves “High Tech”



Fig. 3 CROSSFADE MONOFORM



Fig. 4 Sophisticated Futuristic Cockpit

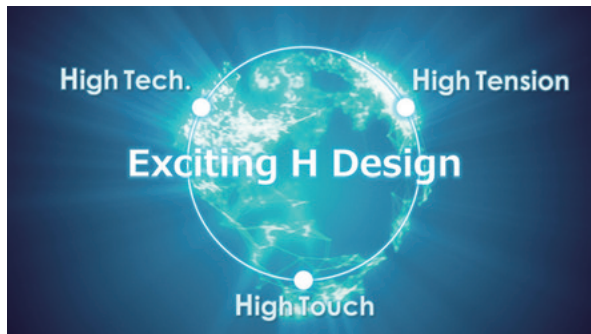


Fig. 2 Exciting H Design

with an advanced interface, “High Tension” with its dynamic mass look and personal cockpit framework, and “High Touch” with high texture transcending this small class.

3. Package Layout

The package concept for the new FIT was defined as “SMALL MAX PACKAGE” (Fig. 5). Following Honda’s traditional development concept of “Man Maximum, Machine Minimum” (MM), it aimed to further increase space efficiency and offer a more spacious interior than the first and second generations.

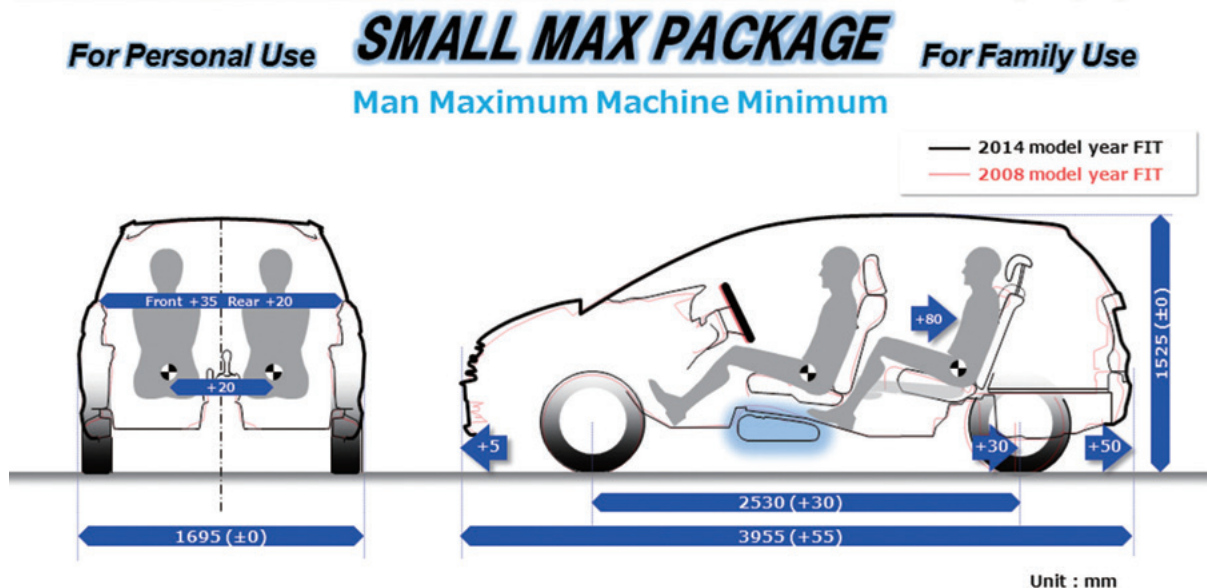


Fig. 5 Package concept

The vehicle is 55 mm longer and the wheel base 30 mm longer than the second-generation FIT, and the tandem distance (the distance between front and rear passengers) has been extended by 80 mm, a distance greater than the extension of the wheel base. By shortening the front-to-back length of the rear suspension, the cross member supporting the rear seat was moved toward the back. Shortening the rear wheel arch flange and enlarging the rear door opening allowed the designers to increase the tandem distance without sacrificing ease of rear seat access.

While the interior space has the same width as the second-generation FIT, the form of the door lining and the placement of the side windows were altered to expand the passenger shoulder space. The couple distance (the lateral distance between passengers) is 20 mm longer, and the shoulder space 35 mm greater in the front seat and 20 mm greater in the rear seat, combining for more spaciousness than in the second-generation FIT.

4. Exterior Design

To express the new FIT's grand concept of "The World Best Functional Compact," the exterior design retains the first and second generations' "one-motion silhouette", the single-stroke design that is symbolic of the vehicle's spaciousness and convenience.

The designers applied the concept "CROSSFADE MONOFORM" which suggests taking the upper mass consisting of a short engine hood (symbolic of advanced technology) and a cabin that continues smoothly from

it, and the solid-looking lower mass that emphasizes the tires, and knocking the top and bottom together to fuse them. Adding to this the designers pursued the look of an automobile that ranks above its own class and the dynamism of a moving object that would be suitable anywhere in the world. Furthermore, following the "Exciting H Design" that Honda is pioneering with the new FIT, they aimed for a design that would incorporate the three elements "High Tech," "High Tension," and "High Touch" and provide a strong presence (Fig. 6).

To achieve "High Tech," the designers aimed to embody a Solid Wing Face as a new design identity (Fig. 7). The role this plays is to express the innovative power train which uses the new FIT's Earth Dreams Technology to achieve best-in-class fuel economy.

The front face of the new FIT was designed with an aim to create an expression based on the Solid Wing Face concept that would be suitable globally, not just in Japan. Both the first-generation Fit and second-generation FIT had an expression of a small, sweet animal. The new FIT aimed to move away from this to the expression of a small but fearless and hardy lion cub (Fig. 8). Another aim was to give the design a sense of the distinctiveness and strength to survive in the world's highly competitive societies. To emphasize such distinctiveness, the front design features headlights that are long and narrow and give a sharp impression. The front grill is positioned to be continuous with the headlights and matches the texture of the lenses. This front design creates a dynamic image and advanced-looking expression.



Fig. 6 Final exterior rendering

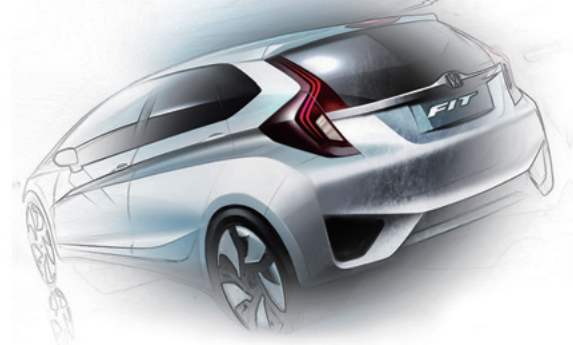


Fig. 7 Front face identity



Fig. 8 Change in facial expression

The Solid Wing Face evokes an image of two spreading wings with the “H” mark emblem in the center. This embeds the hope that Honda’s advanced technology will fly like a bird flapping its wings throughout the world. Expressing the image of flapping wings required a design that connects everything from the front grill to the headlights. An idea was needed that would make the texture of the front grill more like that of the lens on the headlight surface. The designers could have simply given the two the same texture, with a front grill consisting of a lens and housing plated by vapor deposition in the same manner as the headlights. However, while this would give a uniform feel, there was concern that the weight and cost would be more than double those of an ordinary front grill and adversely impact the fuel economy and cost performance that people expect of the new FIT. The designers then asked if it were not possible to achieve the desired feel at lower weight and cost. The result was to use a transparent smoke acrylic plate 3 mm thick for the front grill surface and apply mirror coating from behind so that the grill would give the appearance of being plated by vapor deposition. This made it possible to create an appearance similar to the construction of the headlight such that a plated layer can be seen through the lens. The back side of the acrylic plate, moreover, was given a vaulted form. The effect is that the front grill, as seen from the front, has high texture and depth such that it does not appear to be a 3-mm plate.

The designers similarly tried to give an advanced expression with the front and rear bumper designs by using a layered wing motif, like one wing overlapping another. The purpose here was to give a new sporty expression. Whereas the model sought to convey power in the past, the image that the designers were aiming for here was propulsive power using natural wind. The front bumper’s

center opening and the area below the center opening all the way to the lower end of the bumper are black. This further accentuates the three-dimensional, deep-looking wing form of the bumper (Fig. 9).

The rear likewise projects an advanced feel with the rear combination lamps and tailgate lamps located alongside the tailgate. The lamps use two LED light tubes which create illuminated lines and serve as a tail lamp. Even when it is dark the vehicle is recognizable right away as the new FIT. The result is an advanced-looking design with presence (Fig. 10).

In the pursuit of “High Tension”, the designers achieved physically beautiful proportions and an athletic form by dynamically showing off the one-motion silhouette retained from the first and second generation FIT.

The silhouette in side view needed to provide a sense of strength and confidence so that customers could drive the new FIT with a sense of assurance that this is a car driven around the world. The headlights were placed in a low position and the leading edge of the engine hood was set high and made thicker to emphasize the new FIT’s characteristic short engine hood. The expression is one of strength with a look of confidence as the vehicle cruises by.

The designers also incorporated techniques to give a dynamic look, from the engine hood’s high leading edge to the roofline that connects to it in a single flowing stroke. The roofline has its highest point above the heads of the persons in the front seats, and from there as it moves to the back it gradually slopes downward to the point above the heads of persons in the rear seats and on to the end of the roof. This roofline is flowing but projects a forward sense of motion as a moving object (Fig. 11). This silhouette modeling actually helps enhance aerodynamic performance. Techniques were also used to impart a sense of motion to the rear-end silhouette as seen from the side. The upper edge of the rear window on the tailgate was brought forward to give the window a forward tilt. The resulting side-



Fig. 9 Layered wing bumper



Fig. 10 Rear design

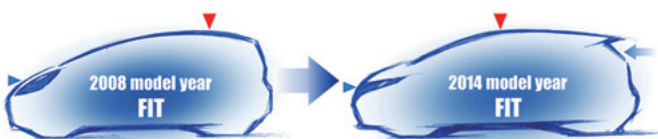


Fig. 11 Side view silhouette



view silhouette makes it look as if the mass, together with the roofline, was pushed forward. To further emphasize dynamism, the design incorporates the expression of a moving object in the front as seen from diagonally in front of the vehicle, and in the back as seen from diagonally behind it.

The aim was to give the front a dynamic expression using the long horizontal Solid Wing Face, the wide and rich-looking engine hood surface, and the three-dimensional front fender. The second-generation FIT had large headlights positioned so that they encroached deep into the upper face of the front fender. As a result, the fender design could only be expressed by the body side face, which limited the designers' modeling freedom. The new FIT, on the other hand, uses the Solid Wing Face to create a three-dimensional front fender with an upper face and side face without the headlights encroaching on the upper face (Fig. 12). The result is a dynamism and wide expression surpassing anything else in the class.

The back consists of an upper mass and lower mass to express an uplifting feel. The upper mass, comprising of the cabin, aimed to lessen the spacious wagon image by compressing the cabin. The lower mass, comprising of the body, projects much farther out than the upper part. The aim of this was to express cruising stability. The tires are also located farther out than the cabin. With this framework, the tires appear to be planting themselves into the ground which was intended to elicit a sense of stability. The voluminous rear bumper area has deeply sculpted modeling. Along with the planted tires, this creates an image not only of strength but also of the nimble cruising characteristics of a small car (Fig. 13). This two-mass (upper and lower) construction gives the new FIT rich-looking modeling beyond its class from the engine hood to the tailgate. It achieves a framework and structure that impart a sense of dynamism



Fig. 12 Front fender



Fig. 13 Rear design

and performance, the intrinsic attractions of a vehicle.

The designers aimed to achieve “High Touch” with dramatic surfaces – in other words, the deeply sculpted, modulating surfaces that draw in the human heart – in the limited 5-number size (measuring just 1695 mm side to side). Dramatic surfaces seek to express a surface quality rich in modulation and change by combining sharp edges and rich surfaces.

The front is expressed with sharp edge lines where the front pillars cut vigorously into the engine hood surface, and with surface quality changes with three-dimensional modulation at the roots of the front pillars where they merge with those edges. The designers considered the modeling countless times on clay models. They achieved modeling that offers strong support for the large cabin while presenting a surface that evokes a dynamic vigor and sultriness (Fig. 14).

The package layout and mechanical layout clashed at the body side. Because the aim of the package layout was to increase space, the new FIT, with its limited width, has a thin wall between the interior and exterior. A thin wall means a smaller design space for the exterior design and a smaller mechanical layout space. Multiple elements are involved with the mechanical layout, including the door-hinge areas, beams that respond well in collisions, the tracks of the side windows as they go up and down, and the position of the door handle. As design work proceeds, the designers constantly check the layout. The new FIT's designers used fine line tape to draw design lines on a full-size clay model to help them avoid interference with the mechanical layout. Then, using these lines as a guide, they performed modeling by adding or taking away clay. When modeling was finished, they applied silver film to the clay model, then checked the model's appearance and points of improvement outdoors. After that, they used measuring equipment to measure the model and check to what degree the mechanical layout and package layout interfered with each other. This process was repeated again and again.

The side panel's modulating design and the formation of the door hinge's mechanical layout were particularly challenging aspects of modeling, but the designers were persistent since these were exactly the body sections that would express the dramatic surface of the side. The body



Fig. 14 Engine food design

section is highly modulated: it starts with the groove of the highly sculpted character line, folds at an acute angle, comes back out, swelling as it moves downward then turning sharply in, then coming out at a gentle curve before folding again and moving inward (Fig. 15). The lower side of the door hinges, located above and below each other on the center pillar, were always interfering or sticking out. Achieving this highly modulated section was an important point affecting the new FIT's uplifting feel. In order to study the optimal positions for the design's fold line and door hinges, the designers rebalanced all lines and surfaces on the body side, and as necessary rebalanced even the side-view silhouette. As a result, they achieved a surface quality rich in modulation and change that would seem impossible in a width of only 1,695 mm. In this manner, they completed the new FIT's exterior design with a dynamism and high quality far beyond those of this small-car class (Fig. 16).



Fig. 15 Side panel design

5. Interior Design

The design team incorporated the three facets of “Exciting H Design” (“High Tech,” “High Tension,” and “High Touch”) into the concept “Sophisticated Futuristic Cockpit” expressing a high-texture advanced interface that lets the driver concentrate on driving and the modeling that envelops it. As a result, they expressed a more advanced character and higher quality beyond anything else in the small-car class (Fig. 17).

To provide “High Tech”, they incorporated leading-edge technologies in pursuit of an Advanced Interface that is easy to see and use (Fig. 18). The speedometer scale and numerals were made bigger, and the large, independent information display was set to the right of the meters, enhancing the advanced character and making information instantly recognizable.

The design has a more advanced feel owing to the virtual blue ring floating above the center of the speedometer (Fig. 19). To create the virtual display, a blue light source is located at a spot closer to the passenger side from the center of the meter indicator, and the light is radiated toward the speedometer dial face. The blue ring is displayed to look farther away than the actual dimensions allow creating an advanced appearance with depth.

The navigation system and fully automatic air conditioner located in the center panel use an electrostatic touch panel which is intuitively operated with taps, flicks, and other light touches like a smartphone (Fig. 20).

At the bottom of the fully automatic air conditioner is a silver-decorated horizontal line with a subtly irregular surface positioned to align with the display. This is designed



Fig. 16 Exterior design



Fig. 17 Final interior rendering

so that when the driver's finger touches it the driver will be able to feel around for the switch position.

For "High Tension", the designers aimed to create a sporty and emotional personal cockpit. The configuration concentrates the handling and display systems towards the driver's seat.

The meter panel directly in front of the driver's seat is located in the center, and outlets with metallic decorations

stretch out from it to the right and left. This modeling emphasizes the driver-centric instrument panel design.

The center panel is tilted toward the driver expressing a personal cockpit space that allows the driver to operate the controls easily even while driving. The upper part of the instrument panel is modeled with a clean surface, and the windshield wipers' resting point is below the front hood. These ensure a clear field of vision so the driver can



Fig. 18 Advanced interface



Fig. 19 Meter panel



Fig. 20 Center panel

concentrate on driving. The door mirror is attached to the body which eliminates any unevenness in the front quarter window frame.

In pursuit of “High Touch”, the designers’ careful work focused on the feel of the materials. The result is a diligent “craftsmanship” that reaches into every corner. To increase the value of the decorative parts, the design team pursued modeling consistent with the feel of the materials. The metallic decorative portions of the two sides of the meter panel, the steering wheel, shift panel, and door lining were modeled sharply to give a hard expression (Fig. 21). A soft pad panel was used for the instrument panel in the middle on the front passenger seat side. This created a rich, tension-filled surface. Adding a stitched look conveys a soft and high-texture feel. There is also a metallic decoration on the underside of the soft pad panel. With this contrast of softness and hardness, the two textures make each other stand out (Fig. 22).

Thus, by carefully crafting each element, the designers achieved high texture (Fig. 23).



Fig. 21 Silver decoration panel



Fig. 22 Soft pad panel

6. Color Design

6.1. Exterior

Exciting colors fitting the individuality of the customer were chosen for the exterior. The keywords were fresh and energetic colors, and sophisticated and personal colors, suited to customers’ various lifestyles. The lineup of 11 colors includes five new ones.

For fresh and energetic colors, the designers insisted on unique color gamuts and new textures, choosing colors with impact and a clear character. The hybrid theme color Vivid Sky Blue Pearl uses fine, solid-like pearls and high-chroma blue to express the exhilaration of a blue, cloudless sky. The color evokes both the eco-friendlier advanced character and strong cruising performance of the FIT.

Attractive Yellow Pearl is meant as a bright, vivid color that makes everyone turn their heads when they see it on the street. A high-chroma greenish yellow was chosen to fully emphasize the lightness and youthfulness of the new FIT.



Fig. 23 Interior design

It uses three coats of pearl to present a high-quality three-dimensional look emphasizing the dynamic form.

Four sophisticated and personal colors were chosen. Three new ones were developed with the sophistication to appeal to adult sensitivities taking into account the different tastes of customers of a wide range of ages. To these three was added one existing color (Fig. 24).

6.2. Interior

The basic concept for the interior colors was to provide high-class, high-texture coordination fitting the individuality of each customer. The designers pursued truly high texture

by insisting on materials that are pleasant to the touch and feel authentic.

The interior is a black monotone which creates a highly modulating space since the bright silver decorations showing the texture of aluminum jump out visually.

A soft leather pad is used for the middle of the instrument panel bringing out high texture beyond its class. The seats consist mainly of woven fabrics that are soft to the touch and designed to withstand dirt. The colors and patterns for each grade were chosen in consideration of the tastes of a wide range of customers (Fig. 25).



Fig. 24 Exterior colors



Fig. 25 Interior colors

7. Conclusion

The aim of the new FIT was to set a new standard for small cars. As such, it has remarkably advanced functionality and all aspects of design. The design team's hope is that the new FIT will be recognized as the first example of a new Honda design identity asserting a strong individuality and presence worldwide, and that this vehicle, along with the "Exciting H Design," will fit the lifestyles of our many customers and continue to be loved by them for a long time.

■ Author ■



Yoshiya KITAJIMA



Atsushi MURAKAWA