

Styling Design of VFR1200F

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ABSTRACT

Honda has undertaken the challenge of a new styling design in the development of a new model in the VFR series, the only product in the sports tourer category to use a V-4 engine and one which has captured a unique position in the European market. Based on the design concept of a sports tourer with refined styling for mature riders, the design effort sought to achieve a form for mass concentration that fused, to a higher degree, the dynamism of a sports motorcycle with the high functionality of a tourer. Honda sought to create a new kind of attractiveness in achieving such a design by realizing four external appearance elements as a single form. The result was a styling design that retained the refined expression built up in successive generations of the VFR, while boasting an advanced and premium look suitable to the flagship of Honda motorcycles.

1. Introduction

Since the debut of the first-generation VFR750F (Fig. 1) in 1986, users have consistently supported successive generations of the VFR, which is the only product in the sports tourer category to use a V-4 engine. By introducing Honda's leading-edge technology at the time, the succeeding generations have realized the concept of blending a unique hard package with high performance and functionality and refined styling for adults. Many users, especially loyal Honda customers, have referred to this uniqueness as "the showcase of the latest Honda technology," "intelligent sports" and so on over the years. The VFR has had continuously stable sales in the European middle sports class, where it is a strong brand and has no competitors.

No major model change had occurred since the fifth-generation VFR800 of 2002 and sales had continued with only minor alterations, but as the novelty of the model declined, the VFR brand value, which had been built up over such a long period, was starting to seem less special.

The sixth-generation VFR, the VFR1200F (Fig. 2), had the mission of rebuilding the Honda brand image in Europe, making the leap in terms of engine displacement and vehicle status from middle-class sports tourer to the European premium sports category, where competition was growing year by year, and serving as the flagship for Honda's sports motorcycles. As a brand-leading model incorporating Honda's unique leading technology and enviable styling, it would be sold mainly in industrialized countries starting with Europe, the key market for the vehicle, and also including North America and Japan.



Fig. 1 1986 model year VFR750F



Fig. 2 2010 model year VFR1200F

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2. Concept

The VFR originally came with the V-4 engine and body directly descended from Honda works racing machines like the RVF and had a technical package rivaling even super sports, while being characterized by elegant styling that departs from a racing image. Its ability to combine high-mobility performance with its capabilities as a tourer that even two could ride for long distances gained it support from highly experienced adult users who were dissatisfied with the racer replica style. During the development process, Honda understood the need to constantly protect the high-performance image indicative of the VFR's historical racing machine lineage as the backbone of its concept, and also protect this appeal to users.

However, with the rise nowadays of a group of super sports motorcycles with racer replica styling and the trend to radical performance, the position of the VFR in the market has changed gradually from a "sports bike that can also be used for touring" to a "touring bike that is also available for sports use." Market needs for the VFR have also changed: many users were looking for the roominess and status of a large premium sports tourer instead of the latest racing machine technology and a reflection of such an image. The VFR was additionally tasked with serving as the Honda motorcycle brand leader, which greatly transformed its concept.

Specifically, the VFR1200F aimed to bring new value to restructure attractiveness in response to user needs while retaining its basic structure as a sports tourer with Honda's latest technology without depending on racing elements.

During development of the VFR1200F, Honda believed that the value that would appeal to users would be a product that could give them greater individuality and let them build a new motorcycle lifestyle, instead of projecting an image of quantified performance and high functionality. Three concept keywords were chosen: "Unique," "Intelligent Technology" and "Riding Fun," along with the styling development keywords, "The Gentleman Challenger."

In the technical domains composing the VFR1200F, releasing the developers from having to continue using the racing image as the concept backbone expanded their freedom with technical options in one stroke. The newly designed 1200 cm³ V-4 engine (Fig. 3) has a lightweight, compact unicam (SOHC with both direct lift and rocker arm)⁽¹⁾ head such as is used in motocross racer engines instead of a twin cam head with a strong high-performance image. It has unique technologies such as a rear wheel drive system that replaces the chain drive used in successive generations of the VFR with an offset pivot shaft drive that is clean and has outstanding maintenance performance. This was a new undertaking for the VFR, pushing it into the premium domain. While keeping the advantages of the existing manual transmission, the new motorcycle became the world's first to use a dual clutch transmission and highly automated electronically controlled automatic transmission,



Fig. 3 Initial sketch of V4 engine's appearance

creating for users a strong impression of the new VFR value proposed by Honda.

3. Styling

3.1. Basic Direction of Styling

The styling of successive generations of the VFR visually brought out the VFR concept of performance and uniqueness, not by directly communicating its high performance with expressions like "speed" and "superiority," but by styling with a refined technical expression of the technical "forwardness" with a racing lineage that generates that performance.

Additionally, rather than styling that lets the viewer directly sense the motorcycle's speed and performance, as seen in super sports styling, the VFR expresses its high-quality nature by simplifying design elements including stripes as much as possible and designing the essence of each function simply.

This restrained expression of performance extends to the styling expression of touring performance, which is part of the VFR's capabilities, and the nature of the motorcycle as a distinguished long-distance runner, such as its comfort for both rider and passenger, is expressed as understated performance without drawing attention strongly to the external appearance.

If super sports design consists of "styling by addition," or using performance for decoration and show, the styling of the VFR can be described as using none of its many capabilities as lavish decoration, and this deep, restrained expression resembling the Japanese aesthetic sense has resonated with many adult users.

3.2. Styling Issues with the VFR1200F

The styling of the VFR1200F required a major transformation to bring out strong individuality and novelty and to express innovation sufficient to pull the Honda sports

lineup ahead as its flagship model.

Because the product image appealing to users does not require backup by racing technology, in terms of styling, a new styling expression was needed that does not depend on the “refined racing technology expression” that was naturally continued by successive generations of the VFR. A concept sketch is shown in Fig. 4.

The basis of the VFR1200F styling concept has much to do with a transformation of the basic framework of the body. A motorcycle’s proportions are greatly influenced by the form and placement of the engine and the layout of the drive system. Regardless of the more compact engine size, made possible by the VFR1200F’s use of a uncam head, changes such as extending the swing arm and enlarging the frame to take advantage of the shaft drive characteristics — used for the first time in the successive generations of the VFR— allowed the wheel base to increase to 1545 mm as compared to the 1460 mm of the chain-driven predecessor model, the VFR800. Thus, the frame was transformed into something grander, a large sports tourer instead of the previous sports bike-like compact proportions. One issue of concern with the styling of the VFR1200F was that the combination of a shaft drive, which has an imperfect sports image as compared to a chain drive, and the large body size would create a strong image as a touring motorcycle model. Strongly believing that “the VFR should always have the appearance of a sports bike,” the design development team set out to develop a styling with new ideas about the issues they were assigned to tackle.

3.3. Evoking Lightness by Dividing Volume into Parts

The styling of an ordinary sports motorcycle is based on a single-piece shell construction in which the form of the cowling has a smooth, continuous surface (the so-called speed shape). With the VFR1200F, however, the designers wanted to avoid any increase in visual mass as a result of external components made larger in response to the greater body size. They divided the volume of the cowling into three elements and gave each one a different expression,

creating a visual lightness and achieving both the demanded cruising performance and rider wind protection.

Also, strongly concentrating the styling center of gravity in the center element part helped to realize a “form for mass concentration,” which is the basic theme of Honda sports design that has been continued since the HRC racer RC211V (Fig. 5), which debuted in 2002.

The first element is the so-called external appearance part, which is painted the body color and connects from the shelter part that covers the fuel tank (and which acts as the styling center of gravity) to the middle cowl. The second is the part with strongly functional elements, such as the blacked-out under cowl, the headlight with large surface area and the screen that connects to it. And the third is the silver-painted layer part that cuts across the two and functions as an aero part.

By giving each of these parts a completely different visual expression suited to its function, artificially dividing the absolute volume necessary as a cowl, and bringing out compactness, the designers avoided changing the VFR1200F into the styling of a touring motorcycle with a thick and heavy image (Fig. 6).



Fig. 5 2002 model year RC211V



Fig. 4 Concept sketch



Fig. 6 Final rendering

3.3.1. Expression of external appearance elements

To begin, the first part (“external appearance”) contains elements that most determine the characteristics of the VFR1200F’s styling as the styling center of gravity. The designers enhanced the comfort and aerodynamic performance such as the wind protection with the cowling, and at the same time completely eliminated technical elements such as the air outlet that would be included in the layout to cool the engine if this were an ordinary cowling. The result was a thoroughly “seductive” surface. With the elegantly continuous surface from the fuel tank part to the middle cowl, and with the side surface construction, which has a simple look and gives the appearance of volume, there were possibilities of creating visual heaviness for sports bike styling, but a thorough job was done of creating the expression in clay models. By paying careful attention to changes in surface tension and changes in corner radii of the character lines, which occur at surface switches, the designers were able to create a seductive form with a sense of rhythm and some tension suitable for the appearance of a sports bike (Fig. 7).

3.3.2. Expression of functional elements

The second part, “function,” was given an expression common to important functional components such as the engine and suspension parts, and its styling emphasized contrast with the “external appearance” part. The hard expression of the under cowl, which has an air management function and looks as if it might be part of the engine, and the design of the screen that allows the structure supporting the meters to be seen from the front, are among parts carrying on some of the VFR’s traditional “refined technical expression” (Fig. 8).

3.3.3. Aerodynamic layer expression

The third part (the “layer”) has important functions such as a radiator cooling exhaust effect, along with a technical expression of tension such as that created by the molding of metal plates. This is the pivotal styling point, threading between the two design elements of “external appearance”

and “function,” and holding the various parts together in a single form that would otherwise be separate because of their division. This threading furthermore is continuous with the expression from the front cowl to the rear cowl, giving the entire body a unified look. This is an important part, the cool expression of which may seem to stand in contrast to the elegance of the “external appearance” part to create a sense of tension in the styling as a whole (Fig. 9).

3.3.4. Gap design

The VFR1200F also has a fourth element that lightens the visual volume of its styling, that being the gaps between the three parts above. Because the three parts of the cowling would never be brought together, the goal was instead to design the gaps as expressive “spaces,” thereby reducing the sense of absolute volume of the cowling and letting the different parts emphasize each other’s individuality. Also, the use of inner air management enables these gaps to have important functions substituting for the independent air intake ducts, air outlet ducts, etc., as would be found in an ordinary sports model’s cowling design, and this change results in greatly expanded possibilities for changing overall styling (Fig. 10).



Fig. 7 Graceful surfacing and character lines



Fig. 8 Styling of under cowl composed of functional elements



Fig. 9 Layer panel with technical expression

3.4. Other Styling Characteristics

Many new things were tried with other parts of the VFR1200F that related to overall proportions.

One of these was the front face. The existing “Line Beam System” was further developed, and the internal structure with a wider light source made the new headlight shape create a strong impression of the face’s overall expression. Furthermore, the headlight shape couples with the space beyond the screen, and the air intake duct (i.e., a space with a dynamic expression with effective inflection between layer and cowl) divides the absolute sense of volume in the front view similarly to the side view and presents a compact and individualistic expression.

Also, as a “form for mass concentration,” in designing the seat, which creates the impression one gets of the rear with its sharp expression (as opposed to the front, which has more volume), the designers sought a seat form with sure performance that would create a sharp impression in side view yet not be lacking in comfort even on long rides. To do this, Honda used composite manufacturing of the seat skin and the cushion urethane for the first time, making it possible to get a sharp seat design in three dimensions that ensured a seating area with uniform surface pressure (Fig. 11).



Fig. 10 Emotional and functional space between each part



Fig. 11 Sharp and three-dimensional seat profile

The VFR1200F has technologies and ideas in the details as well, such as the rear fender design with its one-touch function for easily attaching hard pannier cases without any inelegant-looking stays, providing a smart response for long touring trips when the rider has a lot of baggage. These technologies and ideas cleverly enhance the motorcycle’s functionality with styling.

4. Conclusion

Despite being a step up to the upper class of motorcycles, the styling concept of the VFR1200F, like the successive generations of VFR before it, does not directly or strongly appeal to the viewer with its exceptional innovative technologies and high-mobility performance, and instead passes on its unique value to a new generation with its refined appearance.

However, there were major changes in design: just as new technologies have been used, the designers actively took on a new frontier of styling design for the functional expression rather than getting stuck in existing ways of thinking. By carefully building each necessary function as a new functional expression bringing out the essence of the motorcycle, the designers achieved a new styling as the benchmark for the next generation of sports tourers while appealing to many experienced adult users’ sense of beauty.

Reference

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