

Styling Design of the CRF1000L Africa Twin

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ABSTRACT

The CRF1000L Africa Twin was developed as a new large dual sport motorcycle. After a 12-year absence, this model was developed as a successor to the Africa Twin series originating from the XRV650 Africa Twin, which made its debut in 1988 and became famous. The concept in designing this model was to make it immediately identifiable as an Africa Twin and to convey the trends in latest racing machine technologies. Based on this concept, the styling design embodies functional beauty throughout the vehicle, not only in the overall appearance, but also the details including the fairing, fuel tank, headlights and meters, to highlight the distinct personality of the Africa Twin. Additionally, the revival of the Africa Twin brand is placed at the core of the concept for colors, and each of the color variations provided—Tricolor, CRF450 Rally color and Standard colors—have distinct personalities to strike a balance in carrying on its heritage, demonstrating advancement and responding to customer needs. Through this styling design and color scheme, we have achieved the desired design goal of fusing the classic Africa Twin styling with the styling of racing machines backed by the latest technologies.

1. Introduction

The CRF1000L Africa Twin (Fig. 1) is a new model developed by Honda as a large dual sport motorcycle. Among Honda's dual sport motorcycles, the name, Africa Twin, has been given to models that inspire the Paris Dakar Rally, which was held in Africa from 1978 to 2007.

The first-generation XRV650 Africa Twin (Fig. 2) made its debut in 1988. It was based on Honda's factory-backed machine, the NXR750 (Fig. 3), which competed in rallies in the 1980s. Many fans were captivated by the

off-road performance that would allow it to compete in an actual rally and by the unique styling design that included a full fairing. In the aspect of practical use, it met the needs in Europe, which is the original market of sport motorcycles, where they travel long distances at a high speed while asking for comfort. Additionally, other manufacturers also involved to create a category of large dual-sport motorcycles equipped with full-fairings.



Fig. 1 The CRF1000L Africa Twin



Fig. 2 The XRV650, the first generation Africa Twin launched in 1988

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Subsequently, they increased the engine displacements and the maximum speeds and the product families were expanded in other manufacturers' products. Meanwhile, Honda released the XL1000V Varadero (Fig. 4) and the VFR1200X (Fig. 5). Those were developed focusing on usability in the practical use and on-road performances. In the continued trend of applying a larger engine



Fig. 3 The NXR750, 1987 Paris Dakar Rally model



Fig. 4 The XLV1000 Varadero, launched in 2000



Fig. 5 The VFR1200X, launched in 2010

displacement, the Africa Twin was discontinued in 2003.

In recent years, the market of touring motorcycles with a large engine displacement has become fully matured. On the other hand, models that can offer enjoyable off-road riding are attracting customers' interests again. Those new trends all together have led to the louder voices to request the comeback of the Africa Twin.

After more than a decade of absence from the market, the way how Africa Twin should be revitalized to fit to the current market was investigated. It was started with discussions on the requirements and requests from the market. To construct the basis of the investigations, market researches were conducted in Germany, France, Italy and the United Kingdom, which are the major markets in Europe. Further discussions were followed after that to settle the basic concept of the developing model. The discussion was concluded that the new Africa Twin must be a fully off-road compatible motorcycle, which is capable enough to allow a rider "to go anywhere."

Therefore, the development team set the concept for the new Africa Twin as "Go Anywhere—an adventurer's motorcycle that satisfies daily commuting and can be extended to the journey of their dreams of dynamic rides across a vast continent."

As a consequence, it had recognized that the styling design was an indispensable factor in the development that represents the determined concept and is evoking a spirit of adventure. This paper will explain the styling design concept and how it was implemented.

In this paper, the CRF1000L Africa Twin will be referred to as "this model" or "the new Africa Twin," while the XRV650 Africa Twin will be referred to as "the first generation Africa Twin" and the XRV750 Africa Twin as the "previous Africa Twin."

2. Styling Concept

People who have been the users of consecutive models of the Africa Twin's or the customers who have grown up longing for purchasing these models are strongly attached to the former models of the Africa Twin's. Through the results of market researches, which have been mentioned earlier, the customers want the new Africa Twin to have an exterior appearance that makes them immediately recognize it as an Africa Twin at first glance.

Meanwhile, there is another tendency as a recent trend that the customers expect for sport motorcycles to share technologies and characteristics with leading edge racing machines.

Honda come back to the Dakar Rally in 2013 and keeps participating since then. The styling design of the CRF450Rally (Fig. 6), which is the machine participating in that rally, is exactly representing the latest trend of motorcycles of that category.

The styling for the first-generation Africa Twin (Fig. 2) was based on the NXR750 (Fig. 3), one of the

Honda's factory-backed motorcycles that participated in the rallies in the 1980s. To meet the requirements for the set conditions of the stages in those rallies at that time, the NXR750 was designed so as to have a large and sturdy body with a priority in protecting a rider and functionally important parts. For example, a larger sized fuel tank was installed to allow long distance travel, and the fairing was designed in large size to provide enough wind protection for a rider. They showily displayed the presence the Africa Twin being symbolized as its icons. In addition, the headlight system employed two large-sized round shaped lamps to provide better visibilities for tough ridings in the dark. By implementing these styling design elements, the impression of this particular motorcycle that the vehicle could run through a vast land satisfying a capability of long and high speed cruise with ease of mind was realized.

Meanwhile, the Dakar Rally relocated to South America in 2009, and the conditions of the stages have changed significantly from the previous Paris Dakar Rally. In response to this, Honda's factory-based motorcycle, the CRF450Rally, became slimmer, light-weight and compact. Following the evolution in technology, functional parts, including the headlights, also became smaller and lighter. The large fuel tank was split into four and now fits inside the body, making it less visible. Also, to reduce time required for maintenance, covers for functional parts were taken off. Therefore, the styling design needed to creates an image of a motorcycle with superb dynamics and a serious off-road performance that allows you to travel through rough mountainous terrain.

These two images were thought to be essential in designing the styling for the new Africa Twin. In other words, it was important to fuse the classic Africa Twin styling with the styling backed by functions and technologies in the latest factory-based racing machine.



Fig. 6 The CRF450Rally

This was placed at the core of the styling concept for the Africa Twin of the new era. The sketches and renderings created based on this styling concept are shown in Figs. 7, 8, 9 and 10.



Fig. 7 Concept evolution sketches



Fig. 8 Sketches to realistic proportions



Fig. 9 Design sketches of face part of the vehicle



Fig. 10 Rendered image of the final design of the new Africa Twin

3. Specific Methods for Designing the Styling

There are roughly two parts to designing the styling for motorcycles—one is determining how the overall vehicle should look in terms of balance, proportions and volume, and the other is designing the details and expression of textures in the individual parts. The overall design is established by harmonizing these two.

3.1. Overall Image

First, the overall image will be explained. A full-fledged off-road motorcycle has an image of having excellent dynamics that allows riders to journey through rough roads. Therefore, the method used in Honda's motocross motorcycles including the aforementioned CRF450Rally, was incorporated, which was to concentrate mass and create a V-shaped form. The long stroke suspension, an indispensable component of off-road models, was also incorporated to create a long-legged proportion that emphasizes dynamics. The difference in proportion with the previous Africa Twin is shown in Figs. 11 and 12.

As for the overall volume, development team members brought together their various perspectives to define a size that would reassure the rider while not feeling too heavy and difficult to handle. For example, the seat is sufficiently sized but shaped such that it would not hinder the movements of an active rider, satisfying both comfort and dynamic appearance (Fig. 13). The fairing is also compact enough that riders of various body types could feel they could control it as they wish, but large enough that it provides reassurance in that it could protect you from elements that hinder your ride such as wind, sand and dust.

3.2. Details

Next, the details will be explained. In rendering the details, the theme was to have functional beauty embodied throughout the vehicle, by achieving functional beauty in the design of every single part. Specific examples are provided below.

(1) Fairing

The front overhang on the fairing was shortened as much as possible. Doing so would enhance the dynamics through concentration of mass and create an agile and dynamic appearance when looking at the entire vehicle. In order to shorten the overhang, the angle of the front



Fig. 11 Proportional scheme of the previous model of the Africa Twin



Fig. 12 V-shape proportional scheme applied to the new Africa Twin



Fig. 13 Streamlined seat shape that helps smooth actions of a rider

screen is steepened (Fig. 14). This also causes the negative pressure inside the fairing to go up, which may affect the rider's ability to maintain his posture. In order to mitigate this, an air duct was created towards the bottom of the screen. This design enables a styling that looks agile while providing a comfortable ride (Fig. 15).

(2) Fuel tank

In the past models, a tank that was relatively large in proportion to the body was used to create an image of toughness and suitability for long distances. In other words, the distinctive fuel tank was an important element in the Africa Twin's identity. When developing the new Africa Twin, excellent dynamics became essential in addition to the ability to travel long distances. This meant that the tank needed to be slim enough that it did not hinder the rider's movements. In this model, the engine layout was changed from a V-twin to a parallel twin layout, which allows the tank to be expanded downwards. Therefore, the team was able to create a tank that was slim but looked large when seen from the side. This allowed the fuel tank design to maintain the classic Africa Twin identity while achieving excellent dynamics as well.

(3) Headlights

The headlights are an important element in designing the front of the motorcycle. In the case of the Africa Twin,



Fig. 14 Fairing with wind screen with a steep angle



Fig. 15 Air streams around the fairing and the rider

the symmetric and round twin headlights looked like eyes and left a strong impression on those who saw it. However, due to the structure of the slim LED headlights that are used in this model, the illuminated area looks almost like a half circle and the surface area is smaller as well, resulting in the presence of the “eyes” to be reduced. Therefore, signature accent lights are placed on the bottom perimeter to enhance the presence of the headlights as “eyes”. By doing so, the new LED technology could be adopted while also emphasizing the presence of the distinct eye-like headlights of the new Africa Twin (Fig. 16).

(4) Meters

The styling for the Africa Twin needs to carry the lineage of a rally machine and give riders the sense of thrill that it will quickly responds to the changing conditions of a rally. Therefore, the meter design in the latest rally machine was applied to this model as well. Information is stacked and displayed vertically, resulting in the meter to be vertically long (Fig. 17). This meter configuration creates space to the left and right of the meter (Fig. 17), which secures



Fig. 16 Headlights and signature accent lights that emphasize the impression of round edge lines



Fig. 17 Vertically long-sized display unit with information display stack

visibility in the front and allows the rider to see the constantly changing road conditions to understand the ride environment in off-road travel. In addition to that, this model needs to display more information than what is required in normal motorcycles. This includes information on the status of the Dual Clutch Transmission (DCT), Selectable Torque Control and Anti-lock Brake System. Therefore, a wide array of information needs to be displayed in a way that is easy to see during the ride, depending on the conditions and priorities. In order to satisfy that need, information is displayed from the top based on how frequently it is checked. There are switches right at the rider's hand for changing what is displayed, so that the rider can check various types of information without moving their hand from the grip. This meter design inherits the styling characteristics of the Africa Twin, giving riders elation and the feeling that they are really participating in a rally.

Through the design of these details as discussed above, our goal of having functional beauty embodied throughout the vehicle is achieved, and the distinct personality of the Africa Twin is highlighted.

4. Color Design

4.1. Color Concept

The colors used in the motorcycle are important elements that communicate the concept of the model immediately. In determining the color concept for the Africa Twin, the team first discussed about what needs to be expressed the most. The initial idea was to highlight that it was a new model and appeal to customers using a completely new concept for the colors. However, an important segment of the target users for this model included those customers who had cherished riding the past models for many years. In addition to that, the perspective of inheriting the Africa Twin brand, which was defined to be the styling concept for the entire vehicle, was also indispensable. Therefore, the coloring design also needed demonstrate that this model is a next-generation model that maintains the Africa Twin identity and inherits the brand image established by its predecessors. From these perspectives, the revival of the Africa Twin brand was placed at the core of the color concept.

4.2. Logotype and Accent Lines

The design for the logotype, which is common across all variations, inherited the sense of momentum and energy in the brush stroke-like font that the first-generation Africa Twin had. In addition to that, sharpness and edginess was added to the design to give the logotype a more modern twist. The large logotype on the side of the vehicle conveys a dynamic and strong Africa Twin (Fig. 18).

The accent lines on the body aim to create a visual synergy by emphasizing the new styling that strives for further concentration of mass.

Described below are the methods taken for each color variation.

4.3. Three Color Schemes and Methods

(1) Tricolor

When asking ourselves what colors would feel most like an Africa Twin, our answer as designers was tricolor—red, blue and white. This tricolor scheme were used on the first-generation Africa Twin, the XRV650, which was a replica model of the NXR750, the factory-backed motorcycle that won the Paris Dakar Rally for four consecutive years starting from 1986 (Fig. 2). In Europe, many customers associate the Africa Twin with a tricolor scheme. Therefore, this tricolor option is provided to represent the revival of the Africa Twin brand and to leave a strong impression of this model's concept in the market (Fig. 19).

The tricolor option in the first-generation XRV650 entirely consisted of solid colors. In this model's tricolor scheme, pearl and metallic colors that add depth to the tone were adopted to represent the luxury and high quality of a 1000 cc class motorcycle (Fig. 20). In addition to that, the parts listed below are in Tricolor exclusive colors to



Fig. 18 Logotype designs of the first generation Africa Twin and the new Africa Twin



Fig. 19 The new Africa Twin in Tricolor color scheme

emphasize the concept of the first-generation Africa Twin and convey that this is a special specification.

- Gold rims
- Gold handlebars
- White hand guards
- Red rear suspension spring
- Blue bar end weights

These contribute significantly in communicating the styling image as elements that allow riders to identify the new Africa Twin Tricolor variation.

(2) CRF450 Rally color

After participating in the 1989 rally, Honda withdrew its factory-backed efforts in the Paris Dakar Rally at that time, but returned in 2013 after a 24-year absence. The colors from the current factory-backed machine participating in the Dakar Rally, the CRF450Rally (Fig. 6), are provided as an option to demonstrate its iconic presence as the latest adventure model.

This color scheme was designed primarily to fully express the momentum of the rally machines. Only solid colors are used to provoke a sporty image of a racing machine still in competition (Fig. 21). Also, to express momentum in the colors that run across the body, the white line that begins from the front fairing is extended back to the side of the seat (Fig. 22). However, the technological barriers were high in applying sharp lines to soft seat material, as there was a need to ensure that the lines were placed accurately even on the seams on the seat covers and the area where the seat connects to the body exterior part. Nevertheless, this white line was essential in expressing momentum and continuity, so we overcame these technical issues. As a result, we succeeded in using this line effectively, and the momentum of the rally machine was expressed throughout the entire vehicle.

(3) Standard colors

Currently, especially in Europe, the large dual-sport motorcycle market is growing steadily, so color options that cater to this market were also created. These Standard color variations are not bound to specific images like the other two color schemes previously mentioned, but appeal to a wide range of customers with various lifestyles. They are designed to appeal to businessmen that effortlessly ride their large dual-sport motorcycle to work and couples that enjoy touring together. Chic and bold colors are used to create a metallic feeling that is worthy of being owned by an adult, a strong presence in urban scenery, and a design that blends into nature as well as historical landscapes encountered on a journey (Figs. 23 and 24). These color options propose a new value as a touring motorcycle for grown-ups with serious off-road performance.



Fig. 21 The new Africa Twin in CRF Rally color scheme



Fig. 20 Contrast in brightness by metallic colors applied to the painted areas and the stripes



Fig. 22 The white stripe stretches on to the seat side



Fig. 23 Standard color option: Digital silver metallic



Fig. 24 Standard color option: Matte ballistic black metallic

5. Summary

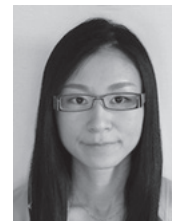
Concurrent multiple approaches were challenged in the styling design process encompassing the whole design aspects of the total balance, details and coloring to accomplish the exterior design goal of the fusion of the inherited styling of the Africa Twin and the styling of racing machines for rallies that is technically backed up by the latest equipment, where it was the consistently held concept footed throughout the development of this particular motorcycle.

As a result of those efforts, the styling design was successfully accomplished and the developed vehicle was recognized by customers as “This is genuinely the youngest descendant of the Africa Twin.” The developed motorcycle has been well accepted by many customers in Europe, the U.S. and Japan since its release in December, 2015. We understand it is the evidence that we have achieved our goal of reviving the Africa Twin. We are truly hoping that this latest model of the Africa Twin will be favored by customers for many years just like it was for the predecessors.

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