

Local Styling Design of Dio for Indian Market

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ABSTRACT

Along with high economic growth and modernization, people in India can get easier access to the Internet and other means of communication to instantly acquire information from around the world. Younger people in India in particular are highly conscious of trends in the developed nations and hunt for advanced styling design for motorcycles and scooters as well. This time, the novel design was created to be applied for full model change of the Dio after 10 years since its first release, by consolidating the styling element of sporty motorcycles, which is what young folks in India are yearning for, into the styling form of a scooter. This was also the first model which experienced a full model change under the major involvement in styling design work from Indian local research and development branch of Honda R&D India Pvt. Ltd.

1. Introduction

With a continuing economic growth, the market for motorcycles and scooters more than tripled in a decade, from 3.87 million units in 2000 to 11.82 million in 2010⁽¹⁾. It grew another 17% in 2011 to 13.84 million units. Within the market for that percentage, scooter category was 1.11 million units in 2000, expanding about 70% to 1.92 million in 2010, followed by a further increase of 22% to 2.4 million units in 2011.

The Dio of first-generation (Fig. 1) was launched in September 2000 as the dedicated model for India targeting young people. Scooters in India at the time were regarded as vehicles only characterized by simplicity and fortitude, and were considered as transportation for a practical family use. In the demographical compositions in India⁽²⁾, young people in late teenage and early twenties represent the largest population group. However, there had been almost no models targeting those younger generations.

In such a market situation, the Dio has been keeping the

successful status with its stable sales, earning reputations from students and working women because of its stylish design as well as lightweight and compactness. That resulted in establishing the unchallenged position as the only one scooter in the market which owns sporty styling. However, India has made significant changes in its culture and life style, through experiencing the economic growth, the proliferation of Internet-use and the advances of foreign business entities into India from Europe, the U.S.A. and other Asian countries. In those transitions, there has been a significant change in preferences of our targeting younger people, and the sales of the Dio had been suffering without additional growth despite of the market growth as a total. That was because the styling of Dio had become less attractive with matured familiarity gained through a lapse of 10 years after its release.

The full model change of the Dio, by Indian local initiative, had been planned at the opportunity of the model change of the Activa (Fig. 2), which shared the engine and the frame with the



Fig. 1 Dio 2000 model year



Fig. 2 Activa 2008 model year

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Dio, applying the 109 cm³ fuel efficient engine. Accordingly, Honda R&D India Pvt. Ltd. has got the responsibility to create the styling that fit to young people of India, which are the same target group that the initial model was aiming at, by reflecting new interpretations to the current era.

2. Concept

The Activa, the best-selling scooter in India, has become the benchmark model that anyone can easily ride and purchase with confidence. Young customers, however, have avoided it because of its conservative design, which is intended for family use. Motorcycles and scooters that appeal to young people in India are sports motorcycles like the CBR1000RR and VFR1200F (Fig. 3), a trend that is further evidenced by the arrival in India of several large-motorcycle companies, one after another, from North America and Europe. Those motorcycles are extremely expensive, and as products they are not affordable to anyone but very affluent customers. The Dio developed this time was intended to appeal to young people by offering the image of the sports motorcycles they like but in the form of an affordable scooter. Therefore the model concept chosen was “Youngster’s Honda Sporty Scooter.” A styling sketch of the newly developed Dio is shown in Fig. 4.



Fig. 3 VFR1200F 2010 model year



Fig. 4 Styling sketch showing “Layered design” and “Wedge shape”

The sales price is also important since the model targets young people, but practices like sharing components with mass-produced models give the Dio the ability to offer an affordable price range. Component sharing is a great advantage in terms of service and maintenance in India, where logistics systems can be weak.

In terms of performance, the use of a new 109 cm³ engine has enhanced output, giving the Dio top-class performance as a sporty scooter. Additionally, consumers are particularly interested in fuel efficiency in India, because gasoline is so expensive there. The fuel efficiency of the Dio has been enhanced by 15%, so its major appeal points are performance, fuel efficiency and price.

As for equipment, it uses a combined brake system (Combi-Brake)⁽³⁾, such that the front and rear brakes work in conjunction with each other. As a result, the Dio is not at all inferior to a model with a larger displacement engine, so it appeals to customers with its safety and advanced performance.

3. Styling

3.1. Styling Concept

“Moto-scooter,” a term that signifies the combination of a motorcycle (which appeals to the tastes of young people) and a scooter (which is more accessible), was designated as the styling concept to help embody the model concept, “Youngster’s Honda Sporty Scooter.”

As a method for achieving such styling, keywords like “mass concentration,” “layered form” and “wedge shape” were used in order to incorporate the image of an up-to-date Honda sports motorcycle. In concrete terms, design methods used for the VFR1200F and CBR1000RR⁽⁴⁾ were incorporated, but with a new interpretation for a scooter.

“Mass concentration form” is a method that evokes a look of volume around the engine area while making the rear appear more nimble. On scooters, however, the body volume is divided between the front and rear, with the floor between them, making it difficult to apply this method as is. Thus, the sports motorcycle mass concentration form design motif was incorporated into each of the major components, presenting the image of a “moto-scooter” overall.

3.2. External Appearance of the Body

The challenge in this process was to express the design of a sports motorcycle’s front cowl, its most distinctive part, in the body of a scooter. An actual example of the 2012 model of the Dio is shown in Fig. 5. Scooters are often shaped by design method to feature continuity from front to rear, but the Dio divides the exterior parts into several different elements to project the cowl image of a sports motorcycle. The leg shield is divided into two parts, with a dividing line that is diagonal in relation to the overall leg shield, creating a “layered” design with three-dimensional overlap. This “layered” part provides the function of deflecting the air stream that hits the body to both sides

behind the front wheel. In addition, each of the divided parts features a different color, enabling a distinctive design that draws attention to the layered parts.

The “wedge” shape is a basic element of the design shape, giving a sense of speed and sharpness, but traditionally it has been challenging to present a sharp image on a scooter, which has a large amount of volume in the rear body. On the Dio, the rear body cover, which is of the main body color, was made visually independent as a compact and sharp “wedge” shape. The look of nimbleness and sportiness is also brought out by the shape that boldly sweeps upward from the floor side cover to the rear body cover. Additionally, the portion running from the floor step to the rear body cover is made with black-colored plastic, giving a strong contrast and making the visual compactness and the distinctive shape of the body cover stand out more clearly. The rear grip is made of die-cast aluminum, which is easy to form freely. With a shape that integrates it with the rear body cover, it forms a “wedge”-shaped silhouette that reaches upward from the rear of the body. By assuming a form like that of a spoiler, it serves not only as a part with a practical function, but also as a key styling element for presenting a look of sportiness.

3.3. Exterior Design of Functional Parts

The form of functional parts is likewise not limited by the scooter frame. These parts have design elements found on sports motorcycles and were given a design to match the tastes of Indian users. The headlight was incorporated into the front cover and shaped to integrate with the body surface. The main body of the headlight borrows a reflector designed with a non-standard shape, such as is used on small sports motorcycles, while the lens face is unique to the Dio. The turn signals have clear lenses and a shape that connects them to the headlight, giving a sharp and distinctive front design (Fig. 6).

The form of the handle cover echoes the way the tip of the front cover tapers to a point, a design that evokes a sense of speed whether seen from the front or side. Scooters frequently have slits in the cover to facilitate transmission

of sound from the horn, but the Dio positions the horn to provide sufficient volume even without such openings. The result is a smooth, uninterrupted surface form.

The Dio continues to use the bottom-link front suspension that has such a good reputation for riding comfort, but the front fender has received a new form that matches the overall design. There is an edge running down the center of the front fender, providing a surface configuration that conforms to the front cover form. In addition, part of its form stretches downward to protect the cushion unit, which presents the image of the front fender of a sports motorcycle.

The bottom-link cover, located on the side of the front brake panel, was used as a part that could proactively assert the design, instead of the conventional practice of trying to keep it from standing out. With its wedge-shaped design, the bottom-link cover has a dynamic form that is conscious of its connection to the body.

The design around the tail part of the body also projects sporty and dynamic styling by integrating the turn signals and brake lamp and using a sharply modeled taillight full of edges. For users in India, who are looking for a sense of value greater than the price, a magnificent and opulent look is a very important element, so the reflectors inside the turn signals have a chrome finish. The combination of amber-colored bulbs with the cut shape of the clear lenses was intended to deliver a showy impression similar to that of the headlight (Fig. 7).



Fig. 6 Integrated headlight unit with turn signals



Fig. 5 Dio 2012 model year



Fig. 7 Integrated tail light unit

The twin analog meters, arranged side by side, give a sports motorcycle image based on the “Moto-Scooter” concept. The large circular speedometer on the left and the somewhat smaller circular fuel meter on the right create an aggressive expression with their asymmetrical form. The left and right meter dials are of different colors, reinforcing the asymmetrical form. The handle cover panel surface surrounding the meters has a dimpled texture to leave a sporty and functional impression. Dot graphics that create a dimpled image are used within the meters to unify their design with the panel (Fig. 8).

3.4. Design for Practicality

Scooters are a means of daily transportation essential to lifestyle, and so the enhancement of practicality was incorporated as an important element of the Dio along with presentation of the sporty styling. The floor was narrowed by as much as 20 mm to make it easier to plant the foot on the ground when stopped, enabling even smaller people to ride with confidence. The pillion steps for the passenger are each 10 mm wider on one side than in the first-generation model. This increases the surface area for resting the feet while making it easy to get on and off so passengers can ride with confidence, as well. Although these steps are functional, they were also actively incorporated into the styling. The design method shaped them to a form that integrates them with the body, as if they were wings spreading out from it. The overall slope of the floor was chosen to help riders maintain a more natural, relaxed posture. Whereas the first-generation Dio had a floor with a 13° slope, in the new model it is just 8°. A hook under the seat in the front provides a convenient place to hang a handbag, shopping bag, etc.

For users in India, it is common to have multiple riders on the same scooter, so back seat comfort is an important element. Particularly among women, it is common to wear unique Indian clothing like saris. Because wearers of such garments cannot straddle the seat, they often sit sideways on it (Fig. 9). Thus the seat width was made the same as

the Activa, a scooter for families, while the slope of the seat was set at 3–4°, giving it a form that is easy to mount. The rear grip has a cross-section form that is easy to hold even when seated sideways and that even women with small hands can grasp comfortably and securely.

Under the seat within the body there is 18 L of trunk space, which is larger than the first-generation model. That is large enough to hold small personal belongings and bags when the scooter is being ridden, or one full-face helmet when parked.

Flat tires happen frequently in India because of bad road surface conditions, and it is quite common to see people by the side of the road repairing them. An important point for facilitating flat tire repair is to enable the rear wheel to be easily removed. The Dio has inherited the structure that enables the rear wheel to be taken off without removing the muffler, facilitating repairs. In addition, the adoption of tubeless tires increases safety when flat tires occur.

3.5. Coloring

Five color variations are available, including standard colors and dynamic colors unique to Dio and chosen to appeal to young people (Fig. 10). In the Indian market,



Fig. 8 Concept sketch of asymmetrical meter panel design



Fig. 9 Female passengers in saris



Fig. 10 Color lineup sketch by 3D-CG

achromatic colors like black and dark silver are used as the standard colors of many models. Because the Dio is targeted at young people, matte colors such as those popular for automobiles in Europe were the focus here, which led to the adoption of Mat Axis Grey Metallic. This was the first attempt at using matte colors on a scooter in India, and as such it gives an advanced impression.

For the red version, a combination of Sports Red and Force Silver Metallic was used to make the color image of the VFR1200F more apparent. Using the same image color as used with Honda sports motorcycles emphasizes the sportiness of the Dio.

Since its use on the Activa, white has rapidly grown popular with motorcycle and scooter users in India. The Dio now shares Pearl Sunbeam White with the Activa, but that color, if used alone, creates an overly elegant impression. Therefore, it is used in combination with Mat Axis Grey Metallic in a two-tone color scheme characterized by sportiness and wildness.

For the green version, Candy Palm Green is used. This color is increasingly being used on small sports motorcycles in India and has a strong sense of presence on the street. This high-chroma color is quickly recognizable even from a distance.

Leblon Violet Metallic, a color that is interesting since it changes according to the intensity and angle of light, was chosen as the fifth color. Though close to purple, this is a high-impact color suited for the young people targeted by this model.

The three-dimensional “Dio” logo emblem, which is chrome-finished, and the concept-expressing “Moto Scooter” mark are placed on the body alone without any stripe, which makes the body form itself look distinctive. Figure 11 shows a target user with an actual vehicle.



Fig. 11 Target user and the Dio 2012 model year

4. Conclusion

Honda's competitors have also begun to release models that target young customers in India's growing motorcycle and scooter market, not just practical family models based on the conventional sense of values. The market is now at a stage where trend-setting designs are needed for these models. With the Dio, an advanced design has been created by taking the styling elements of up-to-date Honda sports motorcycles and fusing them in the scooter form. Moreover, the fact that this design was made in India is a major first step towards future full-scale local development.

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