Designers Talk #7

CB1100

Design Top

Aiming for beauty and fun that transcend the numbers

What plays the main role in the design of the CB1100? Definitely the engine.

The cooling fins that cover the surface of the CB1100's air-cooled engine are quite different from the fins used to decorate a liquid-cooled engine, or the ribs used to strengthen one. Instead, they play the crucial role of increasing the surface area of the engine, thereby helping to disperse heat. At the same time, they give the naked engine a glorious appearance sure to draw admiring glances once the rider dismounts.

Beauty is a subjective thing that can't be expressed in numbers or explained with logic. While valuing the way that air passed over the fins, so that they could perform their crucial function of carrying heat away from the engine, we also greatly valued—as fans of bikes and guys who love machinery—the excitement that the appearance of the fins could produce, and we shaped them with appropriate care.

Fulfilling the requirements of beauty and function resulted in cooling fins that were just 2 mm thick—the thinnest of any model in the Honda lineup. Commercially producing such fins is difficult, and at first the factory told us it was impossible. But we developed a new production process to make the fins possible, and they became a part of the bike of which we are extremely proud.

The two camshafts—which are often said to look like eyes—can't be too close together, or the engine won't look cool. Putting them just the right distance apart may not help maximize performance, but it helps provide the grand proportions befitting a large-displacement engine.

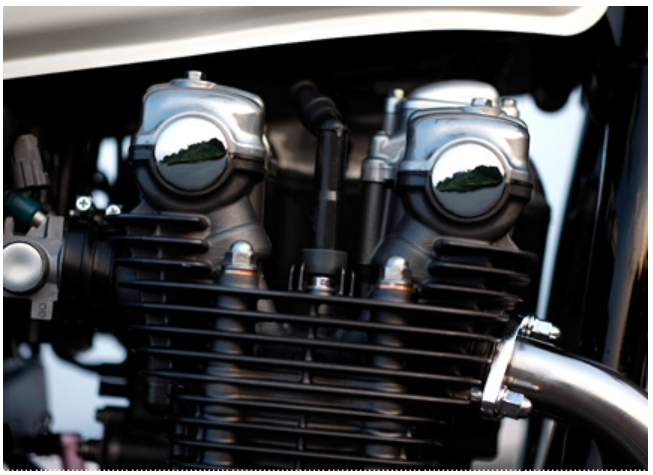
At the same time, the required performance numbers will influence such dimensions as engine height, engine width, valve angles and so on, and all these figures will tend to determine by themselves the engine size and shape.

The CB1100 engine was no different, and an engineer said to me

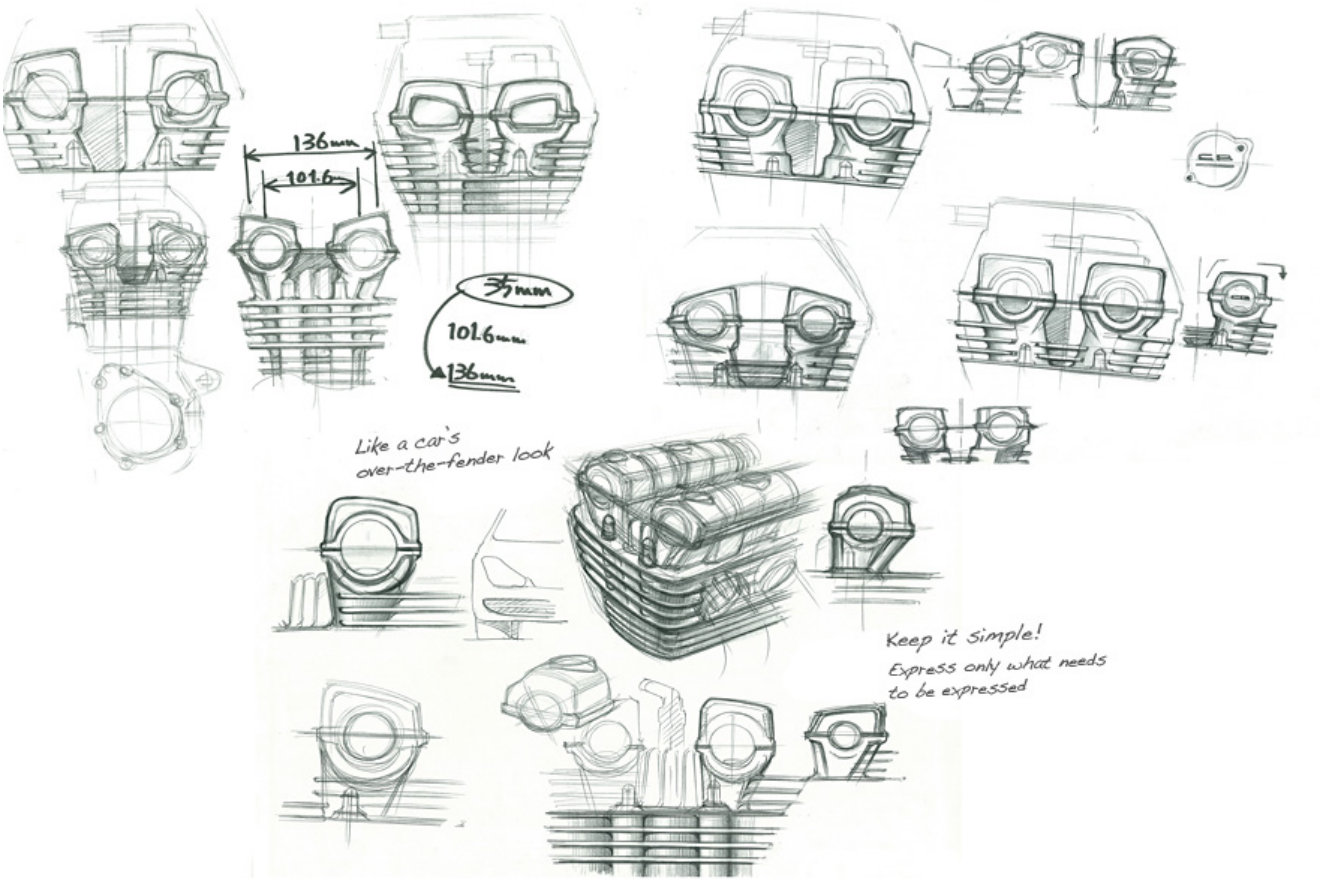
at the beginning of the process, "What level of displacement did you have in mind?"

Uh oh—he asked! I thought.

The amazing thing about Honda's engineers is that, once they establish an objective, they never quit until they fulfill it. Had the objective been horsepower, there would have been no problem whatsoever. In striving to bring true joy to CB1100 customers, there were things more important to us than horsepower.



Not too far apart, not too close: the design team paid special attention to the positioning of the two camshafts. Freed from the necessity of maximizing output, they were able to establish the grand proportions that befit a large-displacement bike.



This hand-drawn sketch of possible engine shapes hints at the process of trial and error that was required to create a truly beautiful engine.

For this reason, I responded thus to the engineer's question: "Let's decide after we ride it. If it's fun to ride, then that's what we'll need." Since, like beauty, fun is a concept that cannot be numerically expressed, the associates who were responsible for engine design and testing had quite a tough time fulfilling this particular requirement.

Yet, freed from the necessity of maximizing output, the designers came together and created an air-cooled engine offering not a superficial, decorative appearance but instead true beauty based on the essence of the molded form. I believe that this was a huge accomplishment.

The fuel tank is another part that, while functional, has as big an impact as the engine on the external appearance of the motorcycle. In most super sport bikes like the CBR series, the tank is molded so that its front points downward for a dynamic appearance, and the tank often features deeply curved surfaces for a 3D effect. On the CBR1100, however, the fuel tank extends horizontally in relation to the engine and is natural in every detail, including the indentations that help give the knees a comfortable position. What is also extremely important is that, when seated, the rider is able to see the first and fourth cylinder heads of the main attraction, the engine.

The form of the fuel tank comes down to the molding process, and from the beginning we decided against using any graphics other than pinstripes to bring out the shape. As we did with the RC212V, CBR1000RR and VFR1200F, we put the Honda wing logo on a badge. It's a small badge, but we considered a wide range of positions with millimeter-level precision, searching until we found the spot that perfectly complemented the side view of the bike.

I kept telling the team that we didn't need to give the fuel tank any particular individuality, but I think we ended up with a shape that, while simple, makes a lasting impression of true Honda style.

Meticulously designed, the fuel tank badge plays almost as important a role as the engine in the overall look. The designers searched with millimeter-level precision until they found the perfect position for the badge.

Beautiful functional parts in a beautiful silhouette

While designing the functional parts of the CB1100 for maximal beauty, we kept one other thing in mind at all times: the silhouette.

What is the "silhouette"? It's the essential form of the bike that's still there when you take away the engine, fuel tank, seat and all the other details.

What makes for a good motorcycle silhouette depends on the purpose the particular model is being created to fulfill. The silhouette of a super sport bike appears to be lower in front—like a crouching animal, ready to pounce. On the other hand, the silhouette of a cruiser has a low center of gravity and an easygoing feel overall.

The silhouette of the CB1100 can best be described by the word "dignified." It's not forced or strained, and it's not loose or lax, either. Rather, it simply extends its back straight forward with an upright posture. The shape and dimensions of the frame create this silhouette, which is then complemented by the proper placement of the beautifully designed functional parts, including the engine, fuel tank and seat. In this way, we created the beautiful and universally appealing design of the CB1100.

Without the fuel tank and seat, it is easy to see the silhouette of the CB1100. Although many types of bikes have become more forward-leaning over time, the CB1100 features a dignified upright posture.

With just a few small changes, the silhouette can make a vastly different impression. An initial sketch version went all the way to the clay model stage. Finding it to be too tense, the designers went back to the drawing board. The difference between it and the final CB1100 is striking.

Built on Honda's motorcycle origins. Polished to perfection

Although it offers a sporty ride, the CB1100 is not a sport bike. It's a great motorcycle to take on a tour, but it's not a tourer or a cruiser. Despite how good it feels to zip around town on the CB1100, it's not a street bike, either. Focused only on the elements that make a motorcycle a motorcycle, we built the CB1100 on the origins of Honda's motorcycles and polished it to perfection. The result is an archetypal "cool bike."

It's a bike that requires no big "Let's ride!" occasion or attitude. Rather, you can simply think, "The weather is nice—where shall I go?" and take your CB1100 for an easygoing spin. It's a bike that will soon become a trusted friend and ally.

Honda motorcycle designers will continue the search for new possibilities in performance and design. At the same time, by building our bikes on Honda's motorcycle origins and polishing them to perfection, we'll seek to offer true joy to bike fans and riders everywhere.

Going forward, expect great things from Honda!

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