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D e s i g n i n g C a r s f o r R e a l W o r k

When most people think of “commercial vehicles,” several words often come to mind: Boxy, Bulky and Boring. That’s not surprising, given that the history of “work trucks” can be traced directly to primitive carts and wagons – where more attention was paid to the oxen or horses that powered them than their appearance or to the driver.

The evolution of commercial vehicles accelerated, of course, with the arrival of the internal combustion engine – yet the focus remains primarily on their “work” aspect, with vehicles engineered first and foremost around the cargo box or bed.

Nissan, as one of the world’s few automakers to offer a comprehensive product line of passenger and commercial vehicles in markets worldwide, has its own long history of work vehicles going back to the company’s founding and its first production vehicle, the 1935 Datsun 14T minitruck.



The Datsun 14T (April 1935)

In the years since, Nissan’s commercial vehicle line-up has expanded to include everything from Clipper minis to light duty trucks. And while every Nissan commercial vehicle today is built on a foundation of advanced drivetrains and work capabilities, the future is being powered by one other important element: *Design*.

Style Matters

Product Chief Designer Ryoichi Kuraoka understands the changing role of commercial vehicles in today’s business environment. “More than just tools for carrying cargo, commercial vehicles are moving signboards that support the image and name-recognition of the fleet operator,” Kuraoka explains. “Even individual owners of commercial vehicles increasingly understand that their vehicles’ design expresses the company’s professional commitment and lifestyles, leading us to anticipate a growing demand for attractive, high-quality design in commercial vehicles.”



Ryoichi Kuraoka

Kuraoka cites his two highest priorities in designing commercial vehicles (including trucks, vans and forklifts): contribute to the image of corporate customers, and improved driver comfort, something that was rarely considered in earlier commercial vehicle designs.

“A driver of a commercial vehicle ordinarily spends his or her entire workday behind the wheel, so the cabin is more than a simple control center. It must serve other purposes as well – as an office, a break room and the like,” says Kuraoka. “This requires designers to come up with ideas for making long hours of driving comfortable, with a good view and posture, and adding convenience for non-driving activities such as organizing invoices and documents, keeping travel logs and reclining for a nap.”

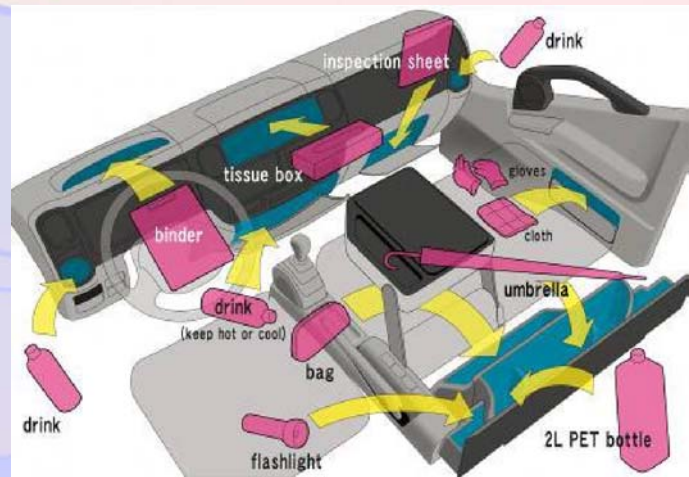
Commercial Vehicle Design: It Starts With Research



As with passenger cars, the development of a commercial vehicle begins with careful observation. The development and planning team first goes into the field to watch how people use commercial vehicles through the day: on streets, at distribution centers, loading and unloading and during breaks. At times, design team members ask truck customers to let them ride along, gaining a valuable “insider” perspective.



For Nissan's core Atlas F24 truck, the development team, along with the design and planning divisions, considered reorganizing the area around the driver's seat of a normal fleet truck. They worked on details like the binder slot in the dash, configuring the steering wheel to ensure that the binder would be both secure and easy to reach.



For the Atlas exterior, the windshield and side windows were laid out as close to 90 degrees as possible to create a squarer cabin for enhanced visibility and maximum roominess. To help improve image for corporate customers, the team chose a modern, no-nonsense exterior design accentuated with vertical headlamp arrays.



Cultural and regional requirements are a necessary consideration in designing commercial vehicles for today's global marketplace. Nissan produces the Atlas series in Japan, Europe, China and Mexico, so needed to organize the design requirements for each market's unique use and size regulations



Design-stage comparison of Atlas F24 (left) and Cabstar (right)

In Japan, for example, commercial trucks can be no more than 1.7 meters wide and 2 meters high, while trucks for other markets can be 1.87 meters wide and a little taller as well for extra room. In order for trucks of different widths to be able to share parts, the designers came up with solutions such as an optimized headlamp array and a three-part instrument panel that can be adapted to various cabin widths.



Atlas F24



Cabstar

The New NV200 Vanette

The new NV200 Vanette is another example of the role of Design in addressing multiple market needs. Nissan originally offered the Vanette only in Japan, but the new NV200 was designed for the world, with production and sales in Europe and China as well as Japan.

In Europe, many automakers offer commercial vehicles with strong three-dimensional body features, while in China people use vehicles like the Vanette for both work and leisure. It was a major challenge to create distinctive features to stand out in Europe, along with a large enough cargo space (within the confines of the 1.7-meter width limit) for the Japanese market, while also doubling as a passenger car in China.



The key to creating a truly global vehicle was to assemble a global product development team, led by Japanese and French designers. The artistic sense of European designers, skilled in strong, three-dimensional features for commercial vehicles, combined with the strong feeling for cost-design balance of Japanese designers, who know how to get maximum interior space out of tight commercial specifications. The two groups meshed superbly and cleared one hurdle after another.

In the beginning it seemed very difficult to fit the desired cargo space into the NV200's overall size constraints, but through many discussions the designers found ways to realize the "modern" and "active" concepts. On the exterior, they focused on the front end for maximum visual impact. Inside, they put a priority on a textural quality around the driver's seat and creating an open feeling in the cabin.

The design of the NV200, like all Nissan commercial vehicles, followed much the same procedure as that for passenger cars. Designers choose the best sketches, build a quarter-scale model, then a full-sized clay. In the later stages of design for the NV200 Vanette, the designers worked to incorporate the sportiness of Proposal B into the basic Proposal A, while balancing cost and design requirements.



Proposal A



Proposal B

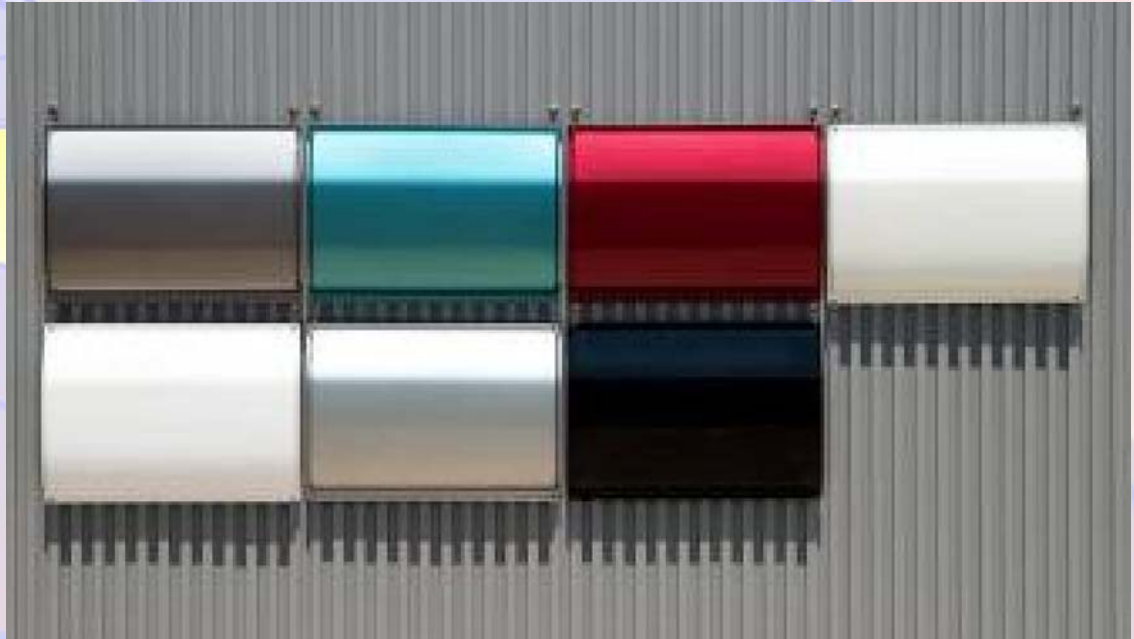
An Added Dimension

For NV200, the designers also had to determine the right length of the cargo space relative to total vehicle length, a process that took place over the course of many meetings. The previous Vanette was a "cabover" design (in which people sit above the engine). Putting the seats all the way forward left enough length for cargo space, but between the necessary seating posture and the engine's heat, noise and vibration, a cabover layout made the driver less comfortable – a major drawback considering the long hours spent behind the wheel.

In contrast, the new Vanette uses the more standard front-wheel-drive layout, with the engine ahead of the front seats, allowing the driver posture to be close to that of a passenger car, thereby providing much more comfort. However, this left the unresolved problem of a shorter cargo space. The designers moved the interior layout around many times until they found ways to achieve the cargo-space target.

A New Look at Color Design

Along with its new layout and fresh exterior design, the Vanette also offers a new look in terms of color design.



Satoshi Yoshida

"Commercial vehicles are mainly used for business, so keeping the interior looking clean despite dust and the like is vitally important. To that purpose, designers often choose the safe option of a single, dark interior color," says Satoshi Yoshida, in charge of color design. "But for the NV200, we chose a combination of black and grey to accentuate the cabin space and make it more comfortable. The light grey on the instrument panel makes the otherwise hefty-looking structure seem lighter and creates an open feeling in the cabin. For the seats, we offer different designs for each grade, allowing various cabin impressions."

