

Understanding Maintenance

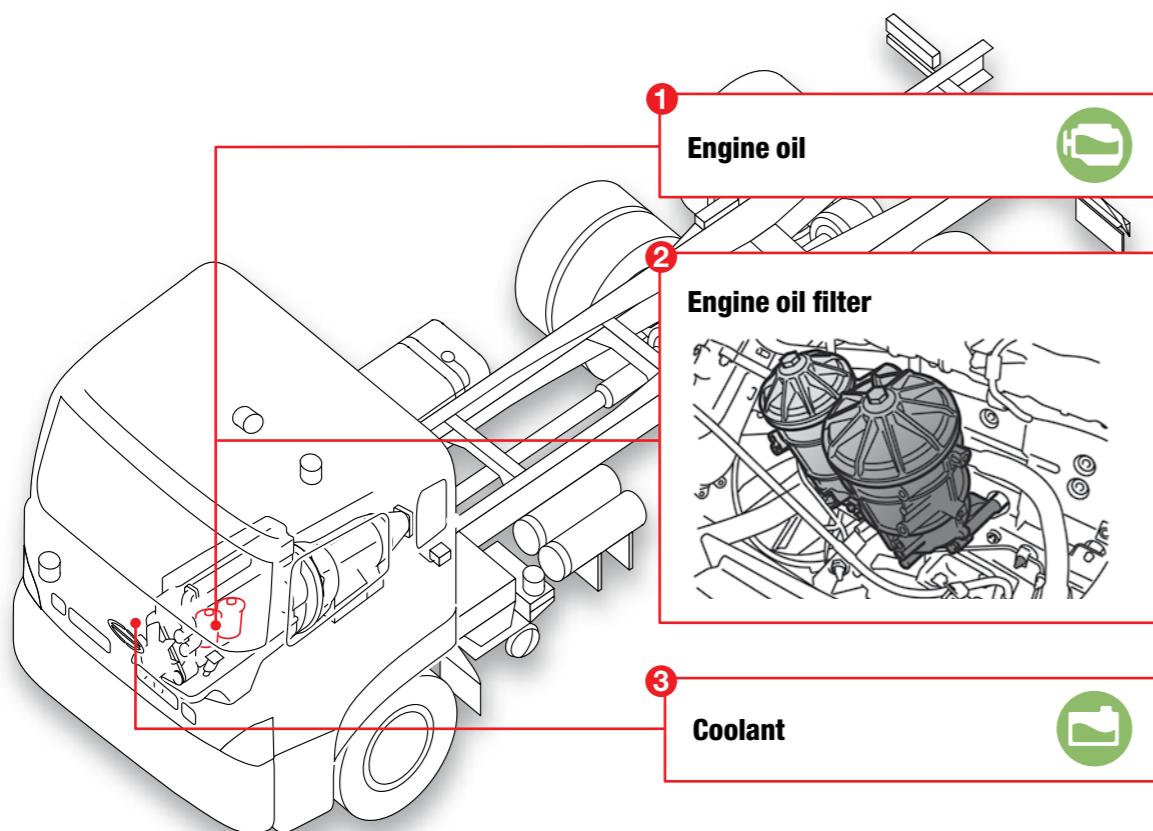
Engine-related parts that require regular replacement.

Hino recommends to its customers to carry out daily inspections, as well as regular inspections as a means for preventive maintenance to enhance safety, avoid problems on the road, and reduce repair costs. In this issue, we will be discussing engine-related parts, as well as oil and other items that must be replaced during these regular inspections. We will also briefly go into the types of problems that can potentially occur if these are not replaced. We hope you find this information useful.

(1) First up is engine oil. If the heart of a vehicle is its engine, then its blood is its engine oil. As such, engine oil maintenance is extremely important to ensure that you are able to run your engine trouble-free for many years to come. As our readers know, engine oil lubricates the interior of the engine and is essential for the engine to run smoothly. It also protects the engine from contaminants and helps keep it cool. If engine oil levels fall below the specified amount or if it is dirty, it loses its ability to enfold contaminants and its lubricating performance, which in turn could result in engine damage or seizure. Make sure you change your oil every 5,000km.

(2) And the second item we recommend is that you replace your engine oil filter each time you change the engine oil. The engine oil filter filters the engine oil and removes contaminants. If the filter is not replaced regularly, contaminants in the engine oil, such as metallic powder (ground particulates) and carbon, can accumulate and cause the filter to clog. If the filter loses its ability to filter out impurities, these unfiltered contaminants can potentially damage the engine. This is why the filter must be replaced regularly.

(3) Next we would like to discuss changing your engine coolant. The engine coolant absorbs the heat from the engine and releases this heat in the radiator to cool the engine. In addition to this function, it is also responsible for preventing corrosion on internal metal parts that make up the cooling system, and helps prevent freezing during the winter months. If the coolant becomes degraded or its volume or concentration declines, this can cause overheating, as well as corrosion in the cooling system or damage to the radiator due to freezing. We recommend that you replace your coolant every 2 years. Please refer to your owner's manual for details.



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HINO Cares

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New HINO300 Series Special



HINO's Vision

A fully remodeled body embodies Hino's great will.

Hideyuki Kakizawa,
EXECUTIVE OFFICER,
PRODUCT PLANNING

In Japan, Hino has led the medium- and heavy-duty truck market sectors since 1973. Moreover, promoting local compliance to facilitate global launch, Hino has produced a diverse range of HINO500 and HINO700 Series trucks; customized for each region, and attracting people in many countries thanks to their performance and reliability. This may be why the Hino name is synonymous for many with medium- and heavy-duty trucks and—we believe—for HINO Cares readers too. However, Hino's latest light-duty truck is aiming to make further waves and transform its global perception—namely, "Their light-duty trucks are also great!" This refers to the new HINO300 Series, a model launched in Japan and globally; packed with Hino's passion and technology.

In 1999, Hino co-developed a light-duty truck with Toyota Motor Corporation, which was produced at the "Hamura Plant" (located in Hamura city, Tokyo) and sold under the Hino and Toyota brands. Subsequently, 2006 saw its modification and global launch as the HINO300 Series. Mr. Kakizawa, then chief engineer and current executive officer for product planning, looks back on those days saying, "We were not selling many light-duty trucks overseas when I was chief engineer, and what we were producing was not sold globally. Later, there was a company-wide push to market this truck globally, and it was gradually sold in more countries. However, in terms of product planning, I think it could have been handled more efficiently as we were having to add new models every six months. Learning from this, we returned to the drawing board and studied more extensively how the HINO300 Series trucks were to be used in various countries.



Mr. Kakizawa speaks passionately in front of the HINO300 Series which has undergone a complete model change for the first time in 12 years.

Consequently, we could enhance its wide cab specs—a mainstream feature overseas—and have proudly striven to create a light-duty truck with enhanced transport and fuel efficiency, safety and comfortable interior, even on a global standard." Not only is this truck designed to be suited for small volume urban deliveries, it is also designed to represent an economical model that is usable for full-fledged medium-duty transport. Some models of the new light-duty truck have loading capacity and power equivalent to medium-duty trucks that, we believe, would enable versatile applications, according to Mr. Kakizawa. This light-duty truck, fully remodeled for the first time in 12 years in Japan, is a Hino original-packed with know-how acquired through the development of Hino's heavy- and medium-duty trucks. During this process, Hino led the way as a commercial vehicle manufacturer within the Toyota group. Meanwhile, Toyota's light-duty truck, which was also fully remodeled at the same time, will be supplied by Hino as an OEM (Original Equipment Manufacturer) product. "Given these developments, the new

HINO300 Series is one of the key products for us at Hino. Light-duty trucks generally operate within a smaller area compared to medium- and heavy-duty trucks, which is partly why sales offices need only cover a small area, helping them cultivate new markets. Also, because these trucks will be operated city-wide, there will be greater general public awareness of the vehicle and the Hino brand. This makes the truck a truly strategic model, heralding a new period of growth for Hino in future." With these words, Mr. Kakizawa had a message for Hino customers and dealers marketing the new HINO300 Series, "We will continue to enhance the HINO300 Series based on feedback from Hino dealers and our customers. We welcome your participation for this truck to continue evolving—in other words, please all share your views!" The new HINO300 Series has just launched to global market, but it carries Hino's wish for continued evolution.



Mr. Kakizawa making a presentation of the New HINO300 Series in UAE (also the lower left photo)

Hino sees the path it should take.



that its ease of building /mounting its body—an important feature on trucks—has not been sacrificed even though the cabin interior has been optimized. “What kind of truck do drivers enjoy driving? I think this ultimately comes down to safety and driving with peace of mind.” One of the features in the New HINO300 Series that contributes to safe driving is Hino’s original “wide view pillars.” “We made the cross section of the pillars slender to contribute to a wide field of view from the driver’s seat. By making the width of the pillar narrower than the space between the driver’s eyes, we were able to considerably reduce blind spots.” While these pillars may be slender, they are designed to deliver a wide field of vision with the same strength as a result of Hino’s sophisticated technological capabilities.

“Making trucks that are a good fit with purchase decision makers means that they are able to find the truck that is best suited to

HINO's Technology

The New HINO300 Series is the result of our pursuit of our ideal, “perfect fit.” We want all of our customers to experience its true value hands-on.

Masahiro Kumasaka, CHIEF ENGINEER,
LIGHT-DUTY TRUCKS SECTION, PRODUCT PLANNING DIVISION



“To pursue the perfect fit!” was chief engineer Mr. Kumasaka’s reply when we asked him what the development concept was for the New HINO300 Series. He says that his team aimed to develop a light-duty truck that would be the perfect fit for businesses, drivers, and purchase decision makers. But what does that exactly mean? This is what Mr. Kumasaka had to say, “In short, a truck that delivers superior reliability, with minimal fuel and maintenance costs as well as safety. For this light-duty truck to be worthy of inheriting the Hino DNA, or QDR (Quality, Durability, and Reliability), we strived to make full use of our know-how and experience that we have cultivated over the years as well as our passion for technological innovation. For example, its engine is an enhanced version of our medium-duty truck engine, and it is

designed to deliver ample power and fuel economy. We have also strived to reduce the idling noise by controlling and smoothening the fuel consumption in the engine.” As light-duty trucks often operate in urban areas, we believe this low noise technology is a welcome feature, particularly during night time and early morning. “In addition to enhancing the engine’s fuel consumption, we have also developed a cab design that takes into account the flow of air while the truck is in motion to reduce its Cd value, which in turn would contribute to lower fuel consumption.” The Cd value, or drag coefficient, is a measure of how smoothly air flows around an object. The lower the value, the better its aerodynamics. This attention to aerodynamics was also mentioned in our interview with the Design Division. The New HINO300 Series has been designed to lower its Cd value by 10% over the previous model, which already had notable aerodynamic performance.

“This wide cab is designed to be easy to get into and out of, aiming it to be a ‘perfect fit’ for drivers.” Its boarding steps and door openings have been enlarged. And design features have been incorporated to help the driver to get in and out of the truck even in tight city alleys, where there may only be enough space to open the door half way. Additionally, the interior of the cabin provides optimal space for drivers. And the seat is designed to slide on an incline to make various height positions possible. True to the “perfect fit” concept, this truck is designated to fit various driver preferences. Another point of the New HINO300 Series is



The truck underwent an extensive range of tests and evaluations.

their needs from a broad range of variations.” As we highlighted in our interview with the Vehicle Evaluation & Engineering Division, the New HINO300 Series is available in 800 different types in the Japanese and overseas markets combined, all of which are based on extensive studies of the needs of each market. Notwithstanding this, developers plan to further increase the number of truck types to meet the diverse range of needs.

The New HINO300 Series is a product of our pursuit of the ideal, “perfect fit.” Mr. Kumasaka adds, “Words do not convey half of the full potential of this truck. Only by riding and driving it will one realize the true value of the New HINO300 Series.” Wherever you are in the world, there is a New HINO300 Series truck waiting to meet you.

The HINO300 Series underwent repeated test drives on the test course.



The untold story behind the New HINO300 Series. A meticulous level of detail has been infused into the New HINO300 Series.

Hino's relentless pursuit for enhanced product satisfaction.

Kiyohiro Hosokawa, GENERAL MANAGER, VEHICLE EVALUATION & ENGINEERING Div.
Hideto Yokoyama, GENERAL MANAGER,
VEHICLE RELIABILITY / VEHICLE EVALUATION & ENGINEERING Div.
Masatoshi Abe, DEPUTY GENERAL MANAGER, VEHICLE PROVING GROUND
Kazuhiro Hatanaka, DEPUTY GENERAL MANAGER, PROJECT ADMINISTRATION DEPT.



Durability tests were conducted in an environmental test chamber under temperatures ranging from +50 to -40°C.



Present at our interview were those who work in the Vehicle Evaluation & Engineering Division. Deputy General Manager Mr. Abe, who is in charge of market research says, "You could say that the Vehicle Evaluation & Engineering Division is the department that is closest to our customers in the development process. Our aim is to look at things from the customer's perspective, to evaluate the needs of customers around the world, and assess the performance and quality levels that our customers demand based on the conditions in which they will be using these vehicles. To do that, we must first carry out extensive studies in Hino's market countries to determine the use and conditions under which these vehicles will be used in these markets."

Inside Hino's development division, there is a section that pursues how Hino's products can deliver satisfaction as commercial vehicle to our customers. As the division that is entrusted with this mission, the "Vehicle Evaluation & Engineering Division" observes various evaluation criterions and conducts checks on Hino products. We have introduced the Vehicle Evaluation & Engineering Division to our reader in previous issues of HINO Cares, and we believe that many of our readers were surprised at the thoroughness of the tests and evaluations that are being conducted out here. In this article, we would like to describe how the New HINO300 Series passed various tests in the development division.

For example, some cargo vehicles which would be operated in extreme cold weather down to -30°C are subjected to vastly different conditions from the conditions which are applied to cargo vehicles that are exported to warmer regions. And even if the vehicles are exported to the same market, differences in operating conditions—trucks operating at rated cargo load on paved roads, and those that must operate under severe condition on unpaved roads—are verified for different use—cargo and dump trucks—to determine specifications that are required in each specific case. Based on these studies, we strive to establish testing programs that would match the operating environments and use in these markets to test vehicles and parts for their suitability to these various conditions.

Mr. Hatanaka, Deputy General Manager, adds, "The New HINO300 Series, which has undergone a full model change as a global model, is a light-duty truck, and therefore it will be used in a more diverse range of countries and situations compared to heavy- and medium-duty trucks. And because their specifications will be more highly segmented, the tests we carried out on this truck were various." The number of different types of the New HINO300 Series—as derived from studies of different markets, use, and operating environments—range up to approx. 800, which is approx. twice the number of types for medium-duty trucks.

The team evaluated all of these types using approx. 1,200 test criteria. The mind boggles just thinking about it. These evaluations included a range of particular detailed test evaluation criteria because this was a light-duty truck. "Light-duty trucks are often used for small lot deliveries. And the number of times its doors are opened and closed, its engine is turned off and restarted, and its steering wheel is turned on a daily basis is high. For this reason, we set various target values for our tests. For example, in our door open/close tests, the doors were opened and closed over 10 times more than in similar tests for heavy- or



A scene from cold weather tests conducted in Canada.



From left to right,
Messrs. Abe, Hosokawa, Hatanaka and Yokoyama.



Test drive conducted on a bumpy road.



Test drive conducted on a water road.

medium-duty trucks" says Mr. Hosokawa. But with the New HINO300 Series, testing did not end there. Mr. Yokoyama, General Manager of the Vehicle Reliability Testing Section adds, "We tested certain parts and assembled vehicles until they broke down. Our aim was to determine which parts would begin to breakdown first, and at what point the vehicle would reach the end of its service life, and also to determine the performance of the New HINO300 Series. We then gave feedback to the design and development divisions on areas that could be enhanced, and continued to conduct tests on trucks that incorporated these new enhancements."

While this approach to testing and evaluation may seem excessive, Mr. Hosokawa believes that as the result of this approach, we have been able to not only determine the reliability of the New HINO300 Series, but have also been able to clearly demonstrate that the passion and discernment that go into the manufacture of Hino products have not been misplaced. Passionately describing the New HINO300 Series, which has cleared the various tests of the development division, Mr. Hosokawa says, "We are extremely proud of this new product." In closing he adds, "I look forward to how the world will rate this new gem from Hino."

The theme for this truck is “Smart and Delightful” This is a design that is based on a discerning eye on the joy of using this truck.

Yuji Sekiguchi, MANAGER, DESIGN DIVISION
Yusuke Fukushima, CHIEF STYLING DESIGNER

Is it nonsense to pursue good styling in an industrial product whose purpose is to deliver functionality? Our answer to that question is “No.” Design is a part of functionality. We believe the marriage of excellent design and excellent functionality strengthens the emotional ties that users have with their trucks. This is why Hino strives to take note of unevenness that is smaller than 0.1mm and make sure that the angles of lines are accurate to within one-tenth of a degree to create the beautiful solution within the constraints of various conditions that must be met in the styling process. Yuji Sekiguchi says that this designing

philosophy runs through all Hino products. “There are three points that we embrace as our design guidelines. First, the design must be based on ‘functionality’ which includes the reliability and safety that is expected of a professional tool. Secondly, its design must be such that it is able to provide the ‘joy of using’ to our customers including pride and excitement. And thirdly, the design must be an expression of ‘Hino’s nature’ that cannot be mimicked by others. We believe only when these three elements come together can Hino’s idea of design be considered to be complete.”

The New HINO300 Series has been designed based on the “Smart & Delightful” theme, and needless to say, its design is founded on this unwavering design philosophy.” “Smart” means the truck provides good interior space and comfort of driving while being compact. “Delightful” refers to the joy of using that the truck brings to its customers. We have approached this with a thoroughly discerning eye and strived to leave no stone unturned to give the truck familiarity and enhance that it blends in well with urban surroundings.” Mr. Sekiguchi says that, unfortunately, there is not enough space on these pages to describe all the elements of this “discernment.”

As we move forward with the global launch of the New HINO300 Series, the styling designers have no sense of remorse such as, “We should have rather designed such and such an area in such and such a way in terms of styling.” Mr. Fukushima says that he believes they have strived to scrutinize much detail to leave no room for such remorse. Mr. Fukushima was the core styling designer for the external design of the New HINO300 Series. “Let’s take the cab exterior design for example. The shape of the cabin has been tapered towards the front (“See Fig. 1) and the corner radii are now larger to improve aerodynamics, both of these features help enhance fuel efficiency, all the while providing good space inside the cabin. Also, the headlamps were enlarged relative to the size of the cab itself to give it bigger ‘eyes’ that would give the truck a classier feel and sense of familiarity.” Hino’s unique characteristics have been plentifully incorporated into this exterior design. “I think the delicate combinations of surfaces and subtle lines found in the front panels that curve from the front to side, and door styling that was designed to make the area around the tires appear more robust are expressions

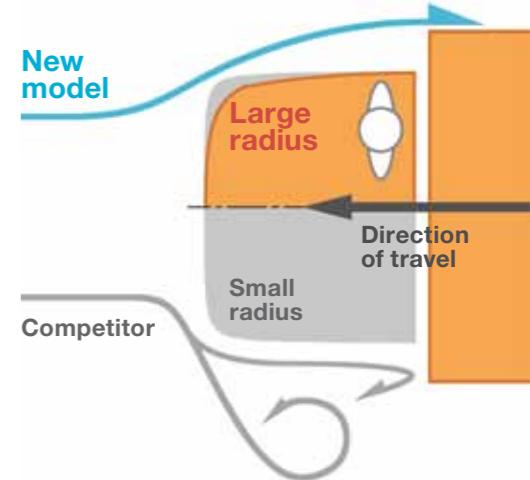


Fig. 1: The larger corner radius and cabin shape that is tapered towards the front contribute to improved aerodynamic performance.



The image of heavy- and medium-duty trucks has been carried over to this light-duty truck.

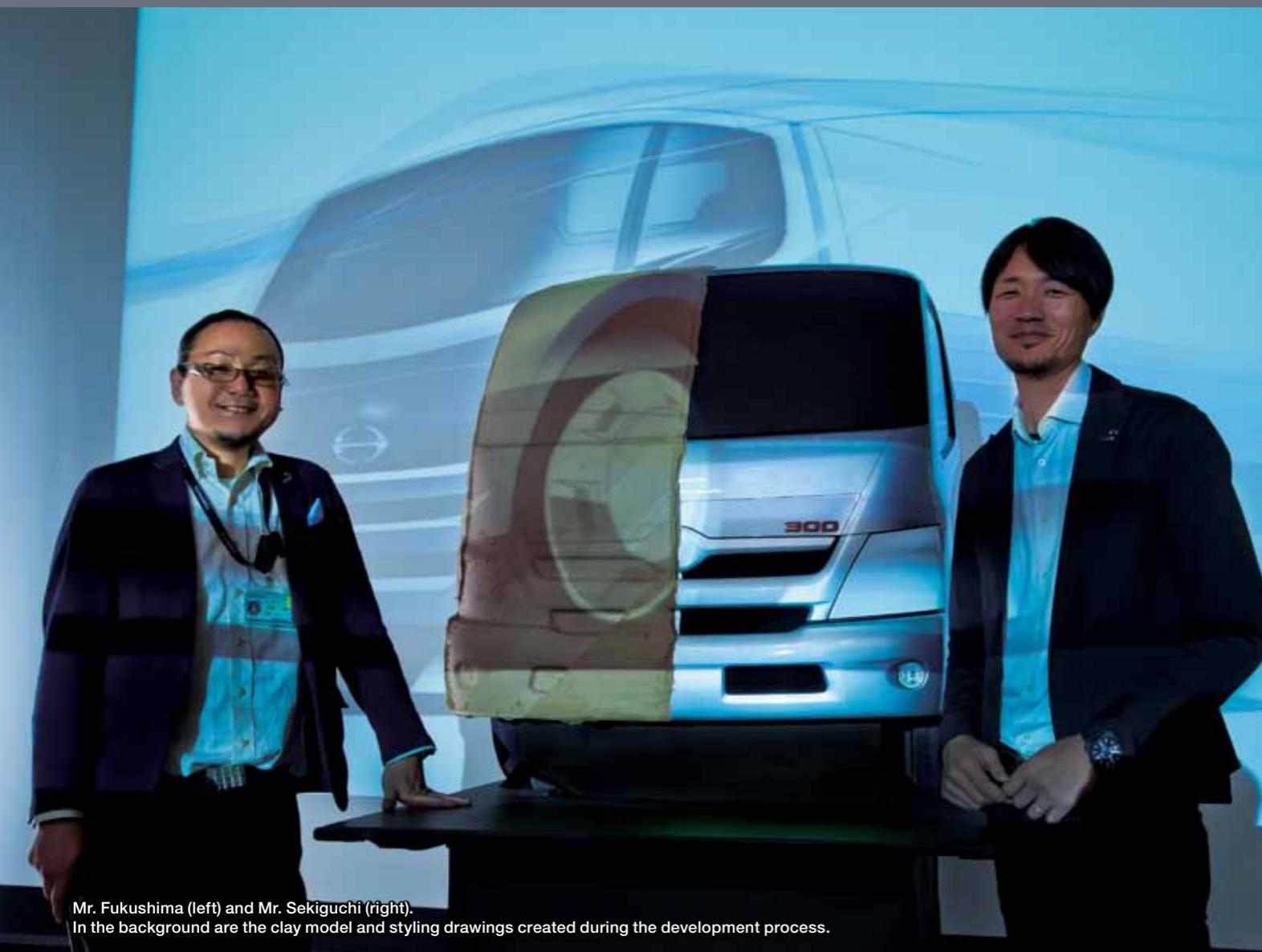


that embody Hino’s unique features that would not be mimicked by anyone else. “This attention to detail also shows in the amount of easily accessible storage inside the cabin, steps that were designed to make getting in and out of the truck easy, as well as its door trims.

The New HINO300 Series is the winner of Japan’s Good Design Awards for 2011. This globally known award is given to “excellent designs” that help enrich our lives, industries, and society as a whole. We would like to introduce a few comments made by the jurors for this year’s award. “In terms of visibility, wide view pillars were used and positioned more towards the outside, and the door mirror design has been well thought out—design features that help enhance the driver’s line of view. As such, the jurors recognize that this design addresses the demands of the times. The truck is given larger head lights, giving it a classier feel. Inside, it is noteworthy that the designers have taken serious steps from the viewpoint of ease of use, including a larger driver’s foot well, and a larger shift knob to increase ease of use. And drivers are sure to be happy with the abundance of storage pockets. “We believe this award is proof that the New HINO300 Series is a synergistic combination of functionality and styling.

Our hope is for our customers to feel good about our trucks for years to come. The New HINO300 Series is the embodiment of this passionate message from Hino.

All technology is used to create the best HINO for you.



Mr. Fukushima (left) and Mr. Sekiguchi (right).

In the background are the clay model and styling drawings created during the development process.

HINO Owner's Voice

**HINO, because there are reasons
to be selected.**

Trucks aren't the only things HINO provides. One of HINO's most important objectives is to "create" as many "reasons to be selected" whatever the product or service HINO provides, or where they are marketed, and to "create" relationships based on trust with our customers. In this section, we introduce the companies that operate HINO trucks to our readers. We would like to give you a glimpse of how HINO trucks serve our customers around the world by asking them their reasons for choosing HINO.

*The customers are introduced alphabetically by country name

For more detailed stories about the HINO owners, please visit:

http://www.hino-global.com/products/owners_voice/index.html



Canada/ Thrifty Car Rental

Aaron Johnson, Manager Fleet and Remarketing, Dollar Thrifty Automotive Group Canada Inc.

Thrifty Car Rental is a leading car and truck rental provider for value conscious consumers. Thrifty utilizes Hino trucks as part of their daily rental fleet for their superior performance and reliability.

"Our customers love our trucks! They recognize that our fleet of trucks is superior to that of our competitors and we are proud to be able to offer them Hinos" says Aaron Johnson, Manager of Fleet and Remarketing. In urban centres something as simple as the tight turning radius that the Hino provides can make the truck that much more appealing. The fact that a Hino holds its value is also important in daily vehicle rental operations. Says Johnson, "Every time we rent a Hino we are assisting our customers in their endeavors and when they are satisfied, we are satisfied."



**Costa Rica/ Mayca
Javier Maroto, General Manager**

Founded in 1995, Mayca is a general wholesaler that caters to food services and bakeries. The company supplies its 1,500 plus customer companies with over 3,000 types of domestic and imported products. Mayca currently owns 55 transport trucks of which 50 are Hino trucks. Osael Maroto says, "We began looking into Hino trucks when we saw them on the street in 1995. The key to our decision to purchase these trucks was the excellent quality of the products." He also appreciates the durability, engine performance, and low maintenance costs of Hino trucks, as well as the quality of Hino's after sale service.



Let the world know how you feel.

We are currently inviting Hino owners to appear in the “HINO Owner’s Voice” section! Let other HINO fans around the world know how you feel about HINO products. Please contact your local Hino representatives for details.



**Chile/ Gas Providencia
Flavio Hischfeld, General Manager**

"We use Hino trucks to supply liquid gas to major residential areas in Santiago," says Flavio Hischfeld, owner of Gas Providencia. His company currently operates 13 HINO300 Series trucks. "It started with a visit by a Hino sales representative to my office. In 2007, we purchased our first XZU 303. We were happy with the quick service and the excellent quality of the product, and decided to purchase more Hino trucks. The characteristics that we like most about Hino trucks are their excellent quality and the durability of their parts, as well as the professional care of the Hino representative in Chile."