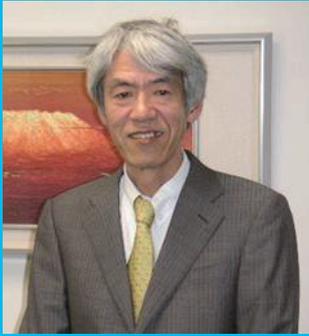


Creating Ever-Better Cars



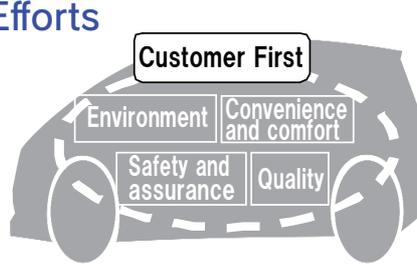
Development Managing Headquarters
Vice President,
Hiroshi Ōhashi

Providing smiles to our customers through “Creating Ever-Better Cars”

We at Toyota Auto Body, imagine the smiling faces of our customers as we look to surpass the awe and excitement in exceeding the heart racing expectations to develop products. In order to do so, we promote development activities for our technical development engineers travel throughout the world beyond our own country to see with their own eyes and listen to the voice of our customers how our vehicles are actually used.

Fundamental Thinking for Our Efforts

1. Sincerely listen to the voice of our customer, and deliver products that surpass their expectations and requests from customer's point of view.
2. Provide balanced products with design, marketability, performance, quality and safety.



Placement Product Development

Toyota Auto Body is a complete vehicle manufacturer that is involved in the overall process from design to development, and our development headquarters has unified ourselves to work on “Creating Ever-Better Cars.”

Creating Ever-Better Cars					
Comply to the voice of our customers			Creating cars with high quality that provides safety and assurance		
Development (Planning, design, design planning)			Safety (Vehicle Evaluation & Engineering Div.)	Quality (Quality Assurance Div.)	
From Development Through Quality Assurance	Product Planning	Design	Design Planning	Test Evaluation	Quality Assurance
	Research customer use and desires	Imaginative designs	Design planning based on designs	A real vehicle is made and safety performance is confirmed (Ex.: Collision test)	Delivering fine quality to customers by “making processes easy to perform” (Ex.: Front window glass installation machine)
					[Customers' Evaluation] American JD Powers IQS (Initial Quality Study)
	Orchestrating from market research to planning	Recreation of design image by model making	Design and strength be compatible by CAE (Ex.: Collision simulation)	Confirmation of a real vehicle by estimating use and environmental conditions (Ex.: Poor road condition testing)	Our Yoshiwara Plant was ranked 2nd in the world and 1st in Asia in the Plant category.

Creating Ever-Better Cars

Meeting Customer Expectations

Making Everyone in the Family Happy

Toyota Auto Body has thoroughly researched our customers' inclination and the ways they use our vehicles. In placing importance on their voice "wish there were this kind of car", we have worked on development of our products. (New Models Voxy and Noah introduced in January 2014)

Aiming to Receive Smiles From Customers

We developed our new models Voxy and Noah with the goal to improve various points. Mainly from "families with children," we have listened to the voice of our customer how they are actually using our vehicles, and we looked to improve cabin space, ease of getting in and out of the vehicles, as well as driving visibility.



New Model Voxy



New Model Noah

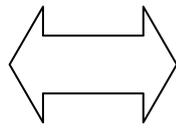
To feel the voice of customers

Our development engineers go to the market directly to hear customers voice in person to promote our development.

<Use surveyed at an expressway rest area>

TOP 10 Points of Emphasis in Purchasing

1	Cabin space
2	Vehicle price
3	Comfortable ride
4	Ease of getting in and out of the vehicle
5	Drivability
6	Driving visibility
7	Fuel efficiency
8	Cargo space
9	Style and appearance
10	Seat arrangement



What development engineers experience is important



Able to load lots of items (Cabin space)



Ease of getting in and out for children

<Entire families came to evaluate getting in and out of our vehicles>



Family friendly (cabin space)



Driver friendly (good visibility)

Comment from Developer of Voxy and Noah



Product Planning Center

Hiroshi Ishimoto

By listening to the voice of our customers, I was able to notice what I had originally missed, and the importance of creating cars was reminded from the vantage point of our customers.

To Meet Customer Expectations

We recreated countermeasures to meet customer expectations in a cabin model to have our internal users, their children and families participate in verifications repeatedly so that we can create ever-better cars.



Female-Friendly (Ease of getting in and out)



Child-Friendly (Ease of getting in and out for small children)

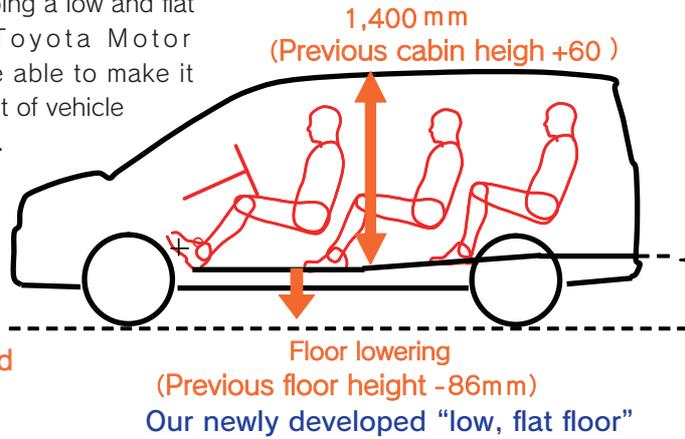


Creating Ever-Better Cars

Meeting Customer Expectations

Responding to the Voice of Customer: “more cabin space” and “ease of getting in and out”

By working on developing a low and flat cabin floor with Toyota Motor Corporation, we were able to make it easier to get in and out of vehicle from children to elders.



Wide cabin interior



Superb ease of getting in and out of vehicles

Responding to the Voice of Customer: “easier to drive and good visibility” (Decreased pillar diameter by 30mm)

By expanding the triangular window and slimming the pillar, we greatly improved side visibility by keeping the belt line low.

Expanded triangular window
(Previous area +22%)



(Previous height -60mm)



Responding to the voice of customer: “more cargo space”

As well as deepening the cargo space area, cargo capacity was greatly improved by leaving no slack when the third seat is lifted to fit against the side of the cabin.



Expanded depth of the luggage section 105L (+27)



Improved cargo capacity

Responding to the voice of customer: “more flexible seat arrangement”

By making the side seat fit into the side of the cabin, second seat sliding distance was lengthened to achieve our customers’ desired seat arrangement.



Side seats fit flush with the cabin interior sides



The first extra-long sliding seat in vehicle class
Sliding distance is 810mm
(Previous distance +300)

Creating Ever-Better Cars

Meeting Customer Expectations

Providing “The Access for Transportation and “Joy” for Everyone

In addition to those with physically disabled that require handicapped accessible products, we are listening to the voice of the caregivers and families to develop and distribute products that will satisfy our customers.

To Create User-Friendly Vehicles to Caregivers and Families

Making handicapped accessible vehicle easy to use just as regular vehicles

An option to fit a second seat for changes in usage condition has been added



New models with included ramp Noah



Attachable second seat

Voxy and Noah Slope type Comments from the person in charge



Conversion & Mobility Vehicle Center
Conversion & Mobility Vehicle Product Planning Dept.
Takafumi Hijikata

Those in wheelchairs want everyone in the family to be happy with a vehicle that is convenient. This is the basis for developing the concept of a handicapped accessible vehicles to share the same characteristics as a “regular vehicle” . Hereafter, I look to continue developing welfare vehicles that are easy to use and really make people happy.

Front-lowering function ramp was added to allow ease of cargo storage without a wheelchair



Slope opened



Vertically upright (no change)



Store ramp by folding toward into the cargo space (newly developed)

For Everyone’s Happiness Around the World

Domestic and Overseas Promotion Activities



Using a real vehicle to explain characteristics of welfare products to customers (Domestic Welfare)



Introducing welfare vehicles to customers in China (Shanghai International Exhibition Senior Care Rehabilitation Medicine and Healthcare)



Introducing welfare products to customers in Saudi Arabia (Jeddah International Motorshow)

“Vehicles and Equipment for the Physically Impaired Lineup”

“Special Purpose Vehicle Equipment Lineup”

“Activities in China (TAMI)”

Creating Ever-Better Cars

Meeting Customer Expectations

For the Safety of Our Customer

We are pursuing safety from the two aspects of preventing accidents by “preventive safety technology” and “collision safety technology” by reducing damage at the time of an accident

To Strengthen Safety Functions for Preventing Accidents (Preventive Safety)

For the new models Voxy and Noah, we support actions of our customers such as “awareness of surroundings” while driving and “parking operations” to avoid accidents.

Looking to Achieve Zero Wraparound Incidents

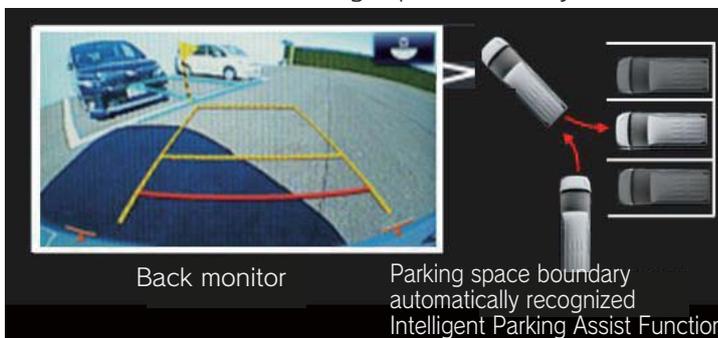
In order for customers to notice danger, we increased the size of triangular windows and lowered the beltline to improve visibility.



Confirming improved visibility

To Avoid Collisions with Other Vehicles

Our vehicles assist steering wheel operations for the customers who find “difficulties in parking.” By the push of a button, the boundaries of the parking space are recognized, and the vehicle automatically parks itself.



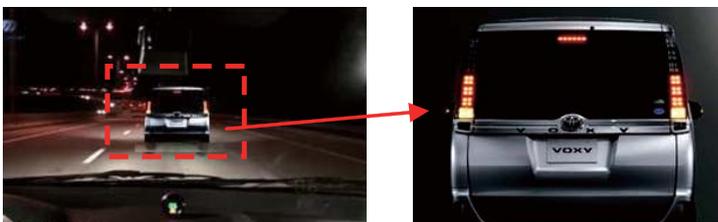
Back monitor

Parking space boundary automatically recognized
Intelligent Parking Assist Function

Intelligent Parking Assist Function

To achieve Zero Sudden-Braking Collisions

In order to reduce most common accidents of collisions, when brake is applied suddenly, the hazard lights automatically flash to alert drives in behind to stop as quickly as possible.



Sudden brake signal

To Improve Safety in Various Situations (Collision Safety)

To Reduce Injuries of Passengers

In order to minimize injury to our customers in case of emergencies, we are working on the balance of collision-absorbing body and high-strength cabin. Based on accident research results, collisions with trees and telephone poles that may occur in the market are projected.

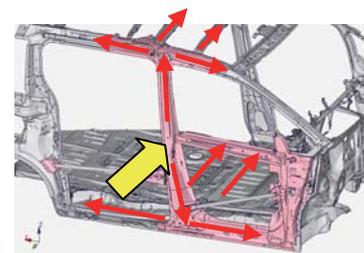


Image of impact absorbed load distributed at the time of a side-on collision

To Reduce Injury of Pedestrians

We are using collision absorbing structure *1 in hoods, cowls, fenders, and bumpers in order to reduce injury to pedestrians in the event of a collision between a vehicle and pedestrian.

Mitigating impact to the head



Mitigating impact to pedestrian legs



Assessment of the impact of a dummy (iron ball) dropped on the hood



Significant hood deformation resulting in impact absorbed and the occupant protected

Pedestrian Protection Performance Evaluation Comments from the Person in Charge

Indoor safety Laboratory Dept.

Takashi Agata



I am continuing to work on technological development by incorporation the latest vehicle preventive safety technology, and for injury reduction for passengers and pedestrians in case of emergencies.



“Results for Efforts to Make Safe Vehicles”

Creating Ever-Better Cars

Meeting Customer Expectations

Developing SUVs and Commercial Vehicles to meet the Demands of Marketability, Durability, and Safety for Our Worldwide Customers

We are working on developing the most suitable products by monitoring and analyzing how vehicles are used throughout the world and in each region by the *Genchi-Genbutsu* (go and see; actual site and actual object) approach to consider the intended purposes and conditions of usage.

Applying Worldwide Usage Methods on Products

The level of customer expectation is rapidly diversifying. In order to meet customer expectations, we have strengthened our ability to acquire information early regarding customers by overseas resident officers using *Genchi-Genbutsu* research. We have been reflecting our product development by grasping usage methods and conditions of each area of the world with precise details.



Bus riding in South Africa (Use of the Hiace)



Image of icy road on-site research in Mongolia (On-site research by engineers)



In the Middle East, demand for double-opening doors to make cargo loading convenient (Land Cruiser 100 double-opening door)

“If Only There Were This Kind of Land Cruiser”

Development of the Land Cruiser 70 Double-Cabin Pickup

Development of the Land Cruiser 70 was based on customer views from on-site research in Australia, Mongolia, the Middle East, and Africa.

Using the 70 single pickup truck, we added a second row to the cabin (5 occupants) and extended the cruise range by changing fuel tank capacity to 130 liters from 90 liters.

Reviving the Land Cruiser 200 Double-Opening Door

Based on our on-site research in Middle East, Oceania, and Africa, we revived the double-opening backdoor in order to respond to the voice of customer stating “a vertical door makes it hard to get in and out, and the door cannot be opened from the inside when a spare tire is on the back of the door.”



Land Cruiser 70 double-cabin pickup



The revived double-opening backdoor

Comments From the Person in Charge of On-Site Research

Product Planning Center
Hiroyuki Ojima



Many places of extreme conditions exist in the world, and the Land Cruiser is used by many international organizations. In addition to durability, we have enhanced safety equipment as we continue to progress in meeting customer expectations.



The Land Cruiser 70 doing its part for much of the Red Cross

TOPICS

Dakar Rally 2014 We finish first and second place in “Cross-Country Series Production Vehicles” that our worldwide customers are driving!



We had a first and second placing finish in the “Cross-Country Series Production Vehicles” that our worldwide customers are driving!

The trust and running performance of the Land Cruiser is verified even in the Dakar Rally

We are refining used cooking oil provided locally and are participating in the race by using 100% biodiesel fuel.

Creating Ever-Better Cars

Meeting Customer Expectations

To Prepare for the Society of New Cars

“COMS” is an eco-friendly and user-friendly extra small EV with new concept. We developed a two-seater due to high demands from our customers and in accordance with the very small mobility certification system, and introduced COMS at the 2013 Tokyo Motor Show. From February 2014, three COMS have been selected for Aichi Prefectural Toyota City Low-Carbon Verification Project.

Responding to the Voice of Customer: “I want to ride with my children” and “I want a door”

Development of the Two-Seater COMS

With demands from development customers of two-seater COMS stating “I want to ride with my children and friends” and “I want a door,” we developed and introduced two-seater COMS at the 2013 Tokyo Motor Show.



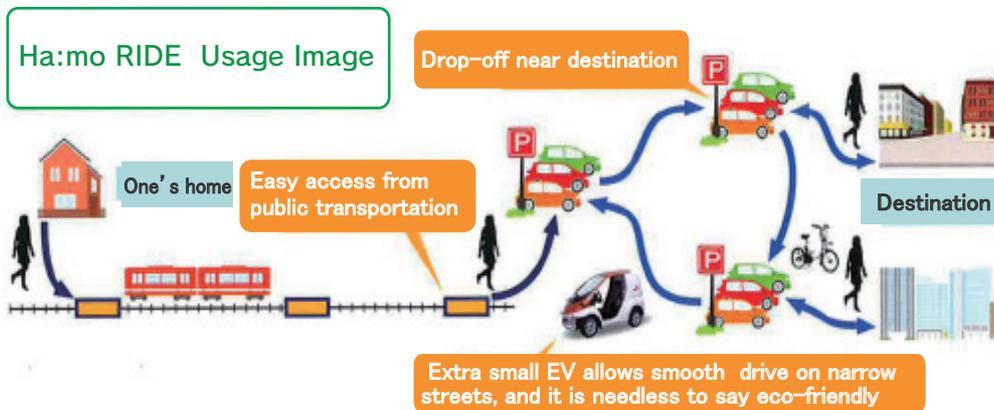
Two-seater COMS (T-COM) exhibited at a Tokyo Motor Show

Creating a New Society That Uses COMS

Car Sharing “Ha:mo RIDE” (Toyota City)

COMS was selected for the Car Sharing Verification Test “Ha:mo RIDE” hosted by Toyota City Low-Carbon Society System Verification Promotion Committee (as of March 2014, 100 one-seater COMS and 3 two-seater COMS) to achieve mobility that is friendly to the people, community, and environment.

As well as Toyota City, each local municipality and corporations are contributing to achieve a low-carbon society by using eco-friendly COMS as a new “way to get around” for tourists, deliveries, and car sharing.



Source: Toyota City Low-Carbon Society Verification Project pamphlet



Ha:mo Station



Two-seater COMS driving in Toyota City

◆Case example of COMS use

【Delivery】

Introduced new service of delivering products at your door (7-Eleven)



【Sales】

With “stability on four wheels” and for “not helmet requirement” receiving recognition, COMS is a popular way to get around for sales.



(Bank of Nagoya and others)

 “The Path of COMS”

Creating Ever-Better Cars

Creating Safe and Assuring High Quality Cars

Delivering High Quality Products by Considering Customer First

Quality is created by coordinating development, production engineering, production, and our business partners. All Toyota Auto Body employees share and practice "Customer First" and "Quality First" with each of them to have high Kaizen mind. By coordinating with every team, we are working on customer assurance and customer satisfaction level improvement.

To Maintain "Customer First" Among All Employees

In order for all of our employees to have "Customer First" and "Quality First" deeply set in their minds, quality lectures and quality case example exhibits are held regularly, in addition to providing stratified quality education. In our 2013 Fiscal Year Lecture Meeting, we selected the theme from the massive Toyota recall issue that occurred in the United States in 2010 to remember the lessons we have learned.

<Quality Lecture Meeting>



Strongly sensing the importance of placing the customer first while listening to a lecture about quality issues of Toyota in America

To Deliver High Quality to Our Customers

Since the development stage, we work on "Creating Operator Friendly Cars" by considering the importance of quality during production.

<Delivering fine quality to our customers
(Example of the new model Noah headlamp)>

Having Development, Production Engineering, Production, and our Business Partners Work As One for Creating Cars with Easy Process

Even with our new models Voxy and Noah, development, production engineering, production, and our business partners have been working as one since the development stage to pursue easy process.

(Previous)

Headlamp behind

(Current)

Headlamp

The wiring connector was behind the headlamp, requiring the headlamp to be supported by hand while connecting it from behind to install it

After assembling the headlamp by using both hands, the wire connector is connected from the front. This operation is now more easily performed without defective mounting nor scratches resulting

Changed the wiring connector to be in the front

Operator Friendly Process Development

At the production floor, using following standardized work as our foundation, we are implementing Kaizen that returns to processes and product designs for quality issues that could occur despite following our standardized work

<Countermeasures for preventing the plastic clip from catching when mounting a pillar garnish>

Pillar garnish

<1> <2> <3>

When mounting the pillar garnish in steps <1>→<2>→<3>, despite performing the procedure as prescribed, the plastic clip in <3> is sometimes a challenge to fit, resulting in the garnish not being properly mounted

<Cause>

Panel

Clip joint section

The joint section edge and the edge of the panel hole of the clip tip sometimes catch

<Countermeasure>

Clip

Joint section

We changed the position of the edge and reconstructed the joint structure of the clip

⇒ We introduced other similar parts

Voice of Mass-Production Processes Engineering Staff

Engineering Service Dept.
Yoshihiro Kanou

Based on the comments of the on-site operator, we were able to find the root cause by a detailed and careful on-site investigation. I intend to make best efforts so that I can continue hereafter to pass a vehicle of fine quality to our customers.

Creating Ever-Better Cars

Creating Safe and Assuring High Quality Cars

Delivering High Quality Products by Considering Customer First

Kaizen and Standardization of Operation Methods to Prevent Oversight and Failures

Not only at production floor and even with our office staff as well, by “not inconveniencing our customers (downstream process),” and “being able to judge your own work result” we are introducing **Jikotei-Kanketsu** AKA: JKK” (completion of your own work, “Built-in quality with ownership”) mindset across our company to achieve quality improvement.

To be specific, it means to continue Kaizen by organize and practice each task by viewpoint shown below.

- <1>First, clarify target and objective of task
- <2>Clarify detailed procedure of task
- <3>Clarify *Ryohin jyoken* (quality points)
- <4>Execute. Immediately contact your supervisor if a problem and/or delay may occur (pull Andon) and repeat Kaizen.

<Group discussion of Jikotei-Kanketsu themes>



Group discussions on work method kaizen proposals

<Jikotei-Kanketsu Case Example Exhibit>



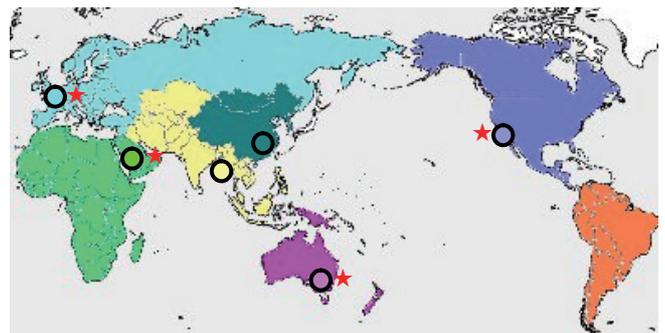
Activity case examples of each department are exhibited and excellent efforts are put into practice and shared

Promoting Early Kaizen From the Voice of Customers

In order to execute early Kaizen by obtaining valuable information ASAP regarding quality from customers who purchased our vehicles, we are promoting EDER activities by closely coordinating with Toyota Motor Corporation to seek fastest in the industry.

For information about our oversea customer as well as, we have assigned on-site staff in each region of the world for fast cause investigation and quick implementation at **Genchi-Genbutsu** (actual site and actual site. AKA: “Go and See”) where customers are located.

<Deployment of resident on-site staff for surveying and utilizing customer information>



○ : Toyota Motor Corporation overseas satellite offices
★ : Toyota Auto Body overseas resident officer locations

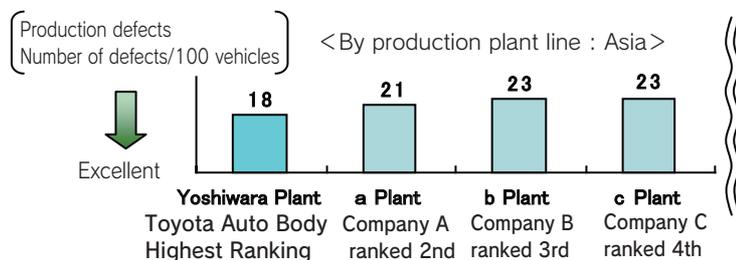
※EDER : Early Detection and Early Resolution
EDER is a communication system for quickly detecting quality issues, immediately resolving issues, and swiftly providing results of rectification and kaizen feedback to customers.

Evaluations From Our Customers

Our company’s quality assurance activities are applied to all mass-production vehicles with similar mindset.

As a result, we have received high acclaim from the JD Power’s IQS (Initial quality Study), which indicates customer evaluation in the United States and Japan.

American JP Powers IQS Assessment



[U.S.A.] The Yoshiwara Plant <Commemorative Shield>

of Toyota Auto Body was ranked second in the “By Plant” evaluation, which is the highest rank in all of Asia. (The Yoshiwara Plant produces the Land Cruiser LC200 and Lexus LX570)



[Japan] In the “By Segment” evaluation, the Voxy and Prius were the highest ranked

Japan JD Powers IQS Assessment

