

Friendly to the Global Environment



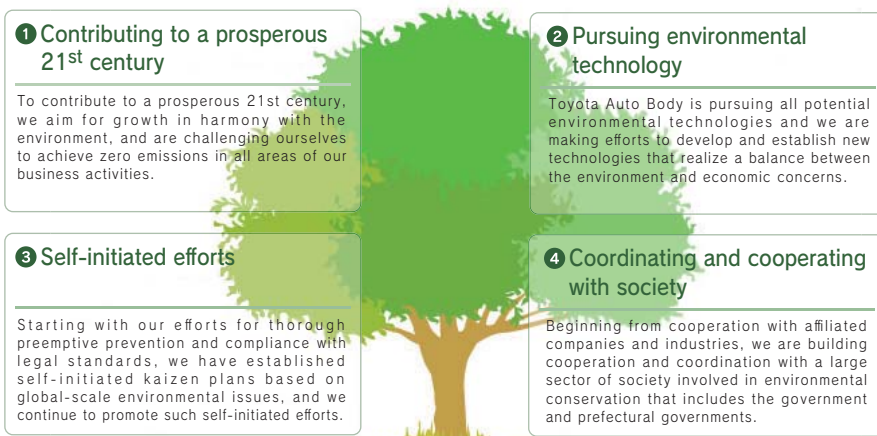
Production Engineering Headquarters
Production Environment Committee Chairperson:
Akitsugu Ishiguro,
Executive Vice President

Working to Create Plants that are Harmonized with Nature and Coexist with Local Communities

One of the fundamental principles of Toyota Auto Body is harmony with the environment, and we successfully completed the Fifth Toyota Auto Body Environmental Action Plan (fiscal years 2011 – 2015).

Beginning from fiscal year 2016, and aiming for the sustainable development of society and the world, we have formulated the Sixth Toyota Auto Body Environmental Action Plan (fiscal years 2016 – 2020), and have started new activities that will introduce new technologies from a long-term perspective, and will challenge all employees to carry out global activities.

Toyota Auto Body Basic Environmental Policy (Established in 1993, Revised in 2004)



Toyota Auto Body Environmental Action Plan

1993	1995	2000	2005	2010	2015	2020
First Plan	Second Plan	Third Plan	Fourth Plan	Fifth Plan	Sixth Plan	
◇Construct a system for environmental programs.	◇Improve the level of the programs by introducing ISO14001.	◇Achieve zero landfill waste and expand the areas of environmental activities.	◇Work to reduce CO ₂ emissions, and apply environmentally friendly designs to our products.	◇Develop super-compact EV. ◇Create plants that coexist with local communities.	◇Reduce environmental impacts on a global scale. • Reduce CO ₂ emissions. • Enact programs for biodiversity.	

Field \ Area	Building a low-carbon society	Building a recycling-oriented society	Building a society that lives in harmony with nature
Product environment (development and design)	<ul style="list-style-type: none"> Improve fuel efficiency by reducing vehicle weight Develop and promote the use of super-compact EV 	<ul style="list-style-type: none"> Improve ease of vehicle dismantling Expand use of recycled materials Develop materials using plant fibers 	<ul style="list-style-type: none"> Improve the management of products containing chemical substances Introduce products that contain fewer substances that impact the environment
Production environment (production and logistics)	<ul style="list-style-type: none"> Develop/introduce production technology that reduces greenhouse gas emissions, improve productivity, and intensify energy-saving activities Improve transport efficiency in our logistics operations and switch to electric vehicles for on-site logistics 	<ul style="list-style-type: none"> Carry out activities to reduce emissions and improve yield Reduce the amounts of packaging materials used 	<ul style="list-style-type: none"> Reduce environmental-impact substances (VOC) in painting operations Create plants that coexist with local communities and are harmonized with nature
Environmental management (Environmental administration)	<ul style="list-style-type: none"> Promote and improve consolidated environmental management Enhance and promote environmental education and training 		<ul style="list-style-type: none"> Strengthen and carry out plans to prevent environmental risks. Promote further environmental activities that are coordinated with suppliers

- [click](#) Fifth Toyota Auto Body Environmental Action Plan
- [click](#) Sixth Toyota Auto Body Environmental Action Plan
- [click](#) Action System and Items
- [click](#) Fiscal Year 2015 Action Results

Development of Weight-Reducing Technologies that Contribute to Top-Class Fuel Economy Performance

Energy and global warming problems are important environmental issues that may have a major effect on humanity and the ecosystem. In cooperation among related divisions, we are developing technologies and working from the initial design stage in order to create environmentally friendly vehicles.

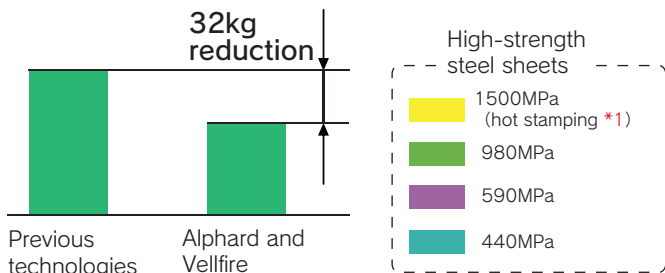
Developing Weight Reduction Technologies for Vehicle Parts

Improving the power train and reducing vehicle weight are essential in order to improve fuel economy. We consider reducing the weight of vehicle parts as a core approach of Toyota Auto Body, and the entire company is actively working for this purpose.

Main programs for reducing the weight of Alphard and Vellfire body and interior parts

[Alphard and Vellfire]

By using high-strength steel sheets for approximately 62% of the underbody (by weight), and by improving the structure and reducing the thickness of interior parts, we achieved a weight reduction of 32 kg. The use of high-strength steel sheets also efficiently increases rigidity, creating a lightweight and strong body while also ensuring collision safety performance.

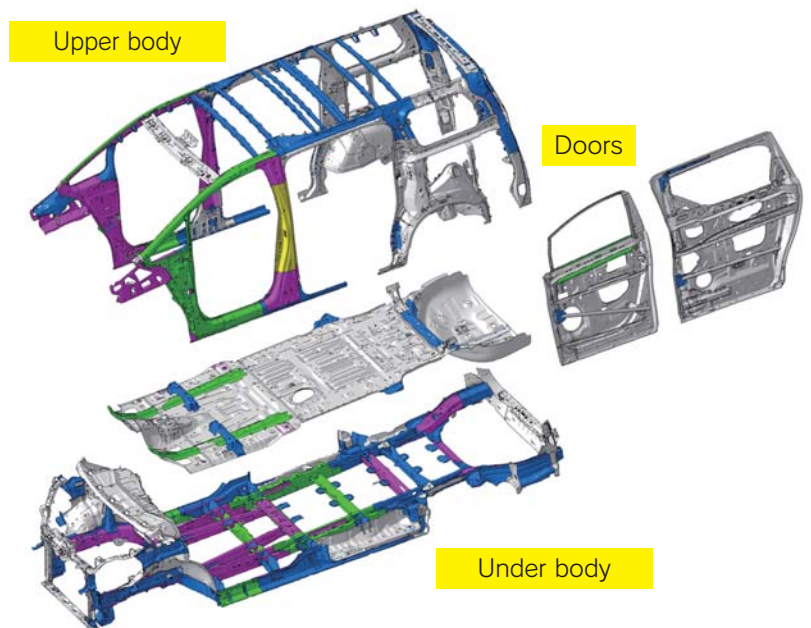


*1 .Hot stamping: A part forming method where steel is softened by heating it to a high temperature and is then press formed.



Discussion of the Alphard and Vellfire weight reductions involving officers of the development and production engineering divisions

Body:



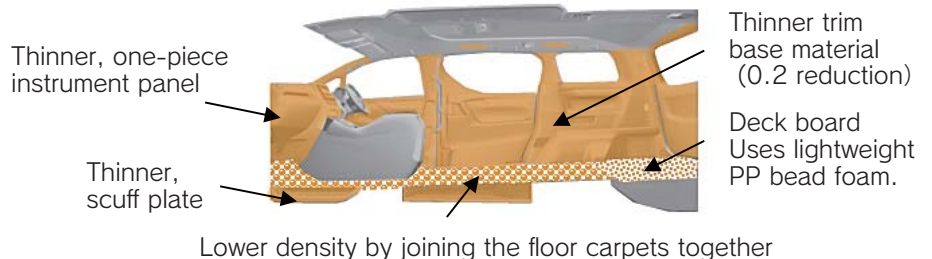
Comment from a weight-reduction CAE analysis engineer

Safety CAE Dept., CAE Div. Junji Watanabe



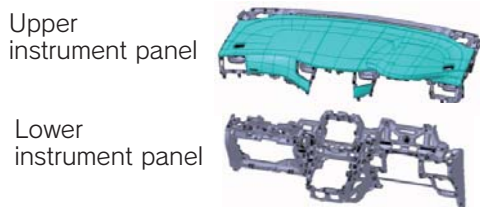
We ensured safety performance and achieved weight reduction by optimal positioning of 1,500 MPa hot stamped steel for the B pillar - a part which requires strength in the event of a side collision.

Interior:

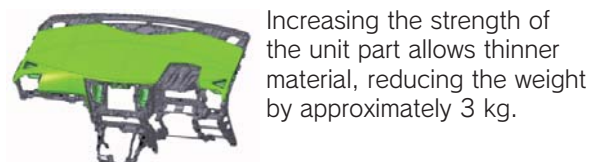


< Example: Instrument panel >

Old model: Separate upper/lower structure



Current model: One-piece upper/lower forming



Friendly to the Global Environment

Product Environment

Three Priority Themes:

Low Carbon

Recycling Orientation

Harmony with Nature

Expanded Use of Recycling-Friendly Designs for Efficient Use of Resources

Because we understand that all resources are finite, based on the 3 R's (reduce, reuse, recycle), we are working to improve the ease of dismantling, expand the use of recycled materials, and develop and design plant-fiber materials.

Improving the Ease of Vehicle Dismantling

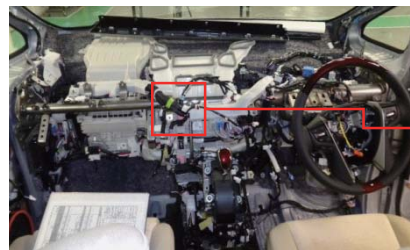
As heavy machinery for vehicle dismantling has become widely used in the markets, we are working in cooperation with Toyota to develop vehicle structures that can be dismantled more easily.



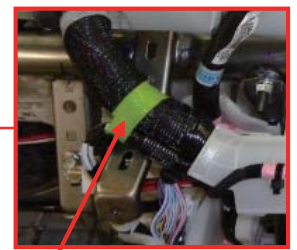
Video Showing the Use of Heavy Machinery for Vehicle Dismantling

Improving the ease of wiring harness dismantling with heavy machinery

Green tape is used at key positions to show where wiring harnesses can be removed efficiently when scraping the Alphard and Vellfire, improving the ease of dismantling.



Instrument panel wiring harness

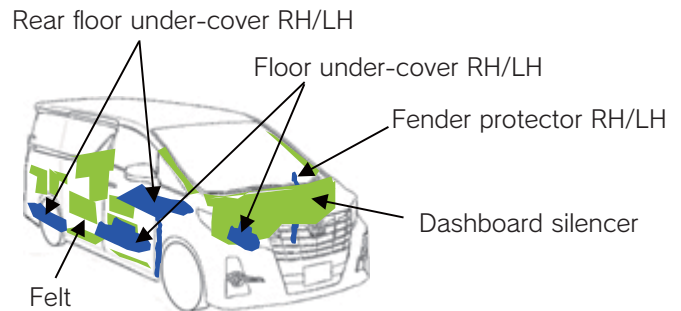


Green tape is added at the wiring harness positions to show the starting points for easy removal

Expanding the Use of Recycled Materials

Expanding the use of recycled materials made from waste plastics and felt from the market

The Alphard and Vellfire use recycled polypropylene and recycled felt, increasing the use of recycled materials.



- : Recycled polypropylene (bumper, other recycled materials)
- : Recycled felt

Development of Materials using Plant Fibers

Use of cedar from woodland thinning

We have developed the TABWD *1 flame retardant injection molding material that uses cedar from woodland thinning as a reinforcement fiber.

Starting from the aftermarket fog lamp bracket, we are increasing the number of production products using this material as we work for more effective use of resources.

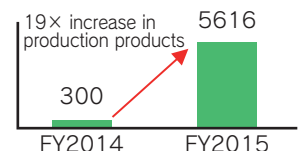


Fine cedar fiber



TABWD

Amount of material from woodland thinning used (kg/year)



Black parts are where the developed material is used



Wiring harness protector (Alphard and Vellfire hybrid vehicles)



Fog lamp bracket (Estima hybrid vehicles)

*1. TABWD : Toyota Auto Body WooD plastic

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Product Environment

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Start of a Recycling Business for the COMS Super Compact EV

The COMS Recycling System that was launched in April 2015 is an original recycling system constructed by Toyota Auto Body for the COMS – a vehicle which is not subject to the Automobile Recycling Act. In this system, COMS which are no longer needed are suitably recycled. We will continue to work for the creation of a recycling-oriented society in the future.

Ensuring suitable recycling



COMS collection and transport

Lead battery recovery

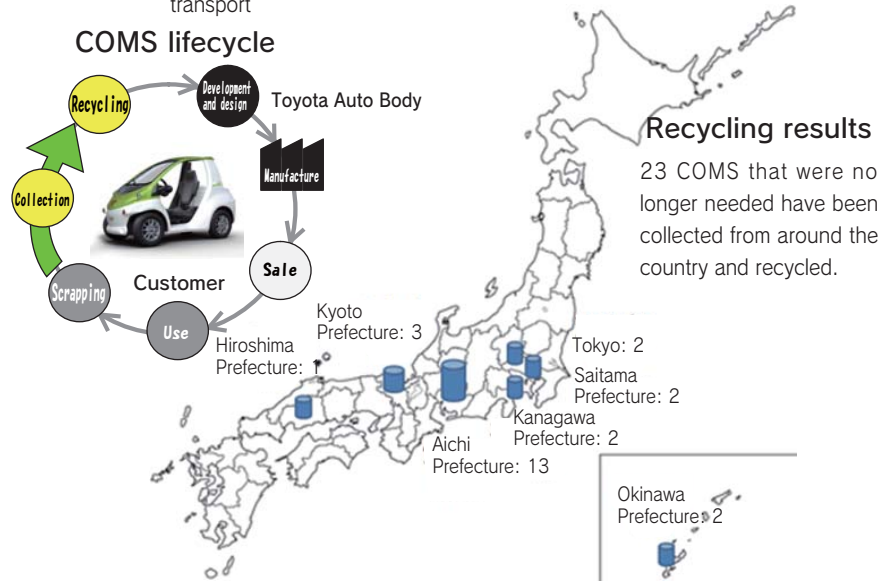
Recycling after crushing

Comment from a person in the COMS super-compact electric vehicle recycling business

Technical Administration Div. Hiroki Tanaka



We are not only working to deliver better products, but are also helping customers who are concerned about disposal, and making effective use of resources and preserving the environment for the children of the future.



Three Priority Themes:

Low Carbon

Recycling Orientation

Harmony with Nature

Improving Management of the Chemical Substances Used in Products

We at Toyota Auto Body are coordinating with our raw material and parts suppliers to identify and assess the risks of the chemical substances that are used in our products, and we are working to protect the environment via actions such as managing chemical substances and changing to the use of substances with lower environmental impacts

Certain Compliance with REACH Regulations and Other International Chemical Substance Regulations

Regulations of chemical substances include the Japanese Chemical Substance Control Act*1, the European ELV Directive*2, and the REACH Regulations*3, as well as independent regulations in North America and Asia.

Toyota Auto Body is working together with Toyota Motor Corporation and our suppliers to build and administer a system for IMDS *4 registration and other systems for chemical substance management under these kinds of international chemical substance regulations.

In fiscal year 2015, in order to further comply with regulations on a global scale, we constructed and implemented a system for IMDS registration in the same way as in Japan.



We conduct video conferences with overseas subsidiaries and provide support for management of chemical substances. (Indonesia)

*1. Chemical Substance Control Act: Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

*2. ELV Directive: End-of-Life Vehicles Directive

*3. REACH Regulations : Registration, Evaluation, Authorization and Restriction of Chemicals

*4. IMDS : International Material Data System

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Three Priority Themes:

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Harmony with Nature

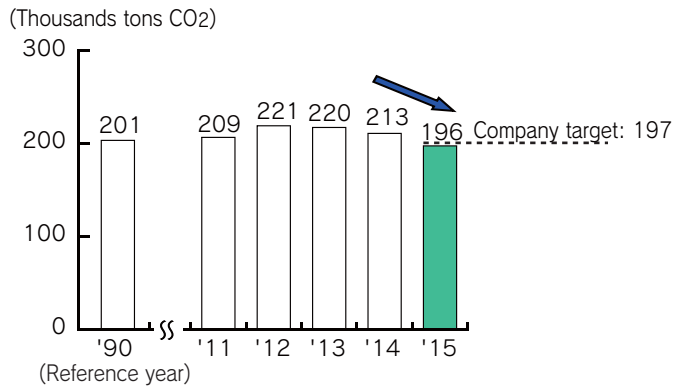
Extensive energy-saving and CO₂ emissions reductions in production activities

We are developing and introducing technologies for low-CO₂ production, improving production line productivity, fully eliminating waste in everyday activities, and promoting optimal equipment operation.

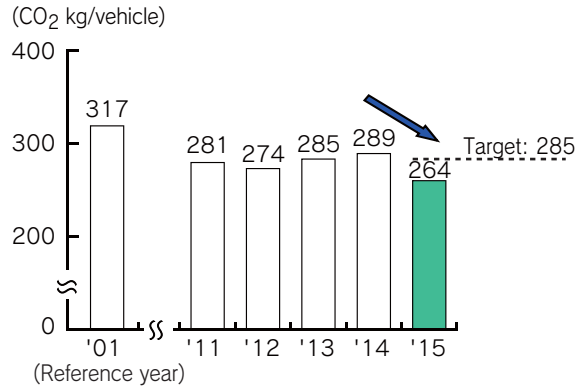
Activities to reduce CO₂ emissions in production processes

We achieved our emissions per vehicle unit and total emissions volume targets.

CO₂ emissions (Toyota Auto Body)



CO₂ emissions per vehicle (Toyota Auto Body)



Reduction activities for downtime energy use at the Inabe Plant

Our company is focusing on efforts to reduce downtime energy use. In particular at the Inabe Plant, the Plant Director's Energy Conservation Report Meeting is held each month, and efforts are being made to accelerate the pace of activities.

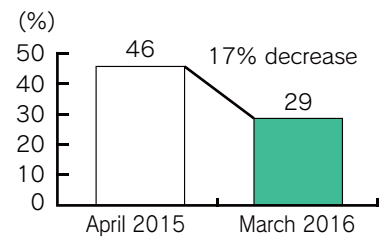


Scene from the Plant Director's Energy Conservation Meeting

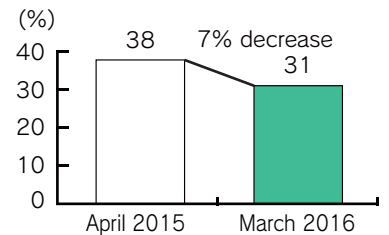


Scene from on-site inspections

Inabe Plant: Percentage of power used between shifts



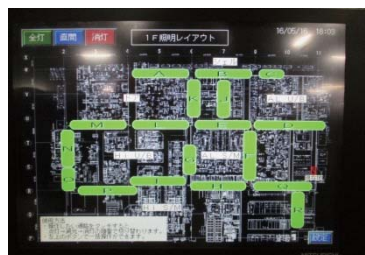
Inabe Plant: Percentage of compressed air used between shifts



<Example of making corridor lighting switches easier to operate (after improvement)>



Central control panel for Inabe body process corridor lighting



Touch panel switches that also show the on/off status

Comment from a person working on Inabe Plant energy-saving activities

Inabe Paint Div. Junpei Wakao



Global warming is an important issue for our business activities. We will proceed steadily ahead with whatever we can do to prevent global warming.

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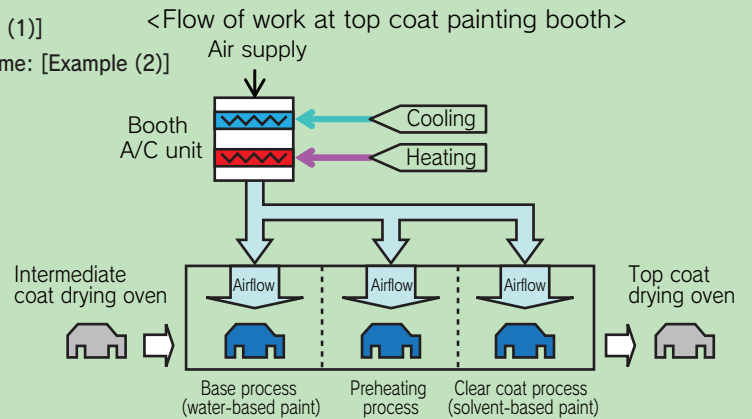
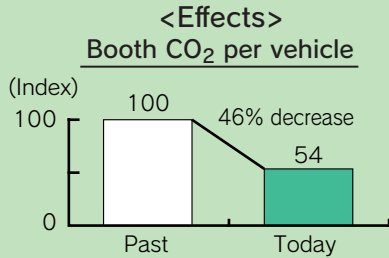
Harmony with Nature

Activities to reduce CO₂ emissions in production processes

Challenging ourselves to achieve a 50% cut in CO₂ emissions through technical innovations during renovation of Yoshiwara Plant painting booths

<Primary energy-saving technologies>

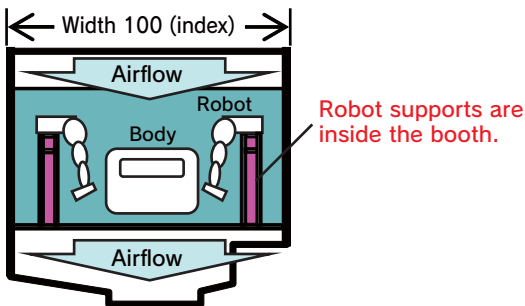
- Reducing A/C airflow at robot processes (smaller booth sizes): [Example (1)]
- Utilizing heat pumps that provide both hot and cold water at the same time: [Example (2)]
- Change to steamless A/C heat sources
- Recycling A/C exhaust



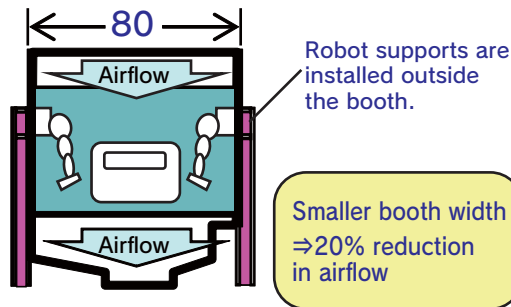
[Example (1)] Reducing A/C airflow at robot processes (smaller booth sizes)

We reduced the A/C airflow by placing the painting robot supports outside the booth and reducing the size of the air-conditioned space.

<Past> [Booth cross-section image]



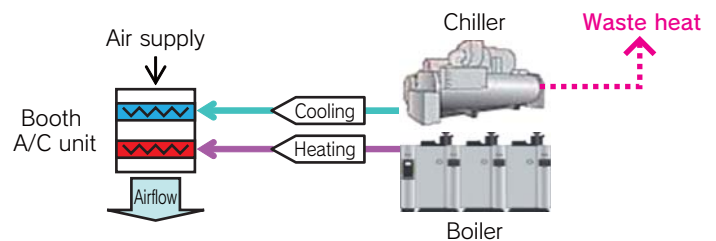
<Today>



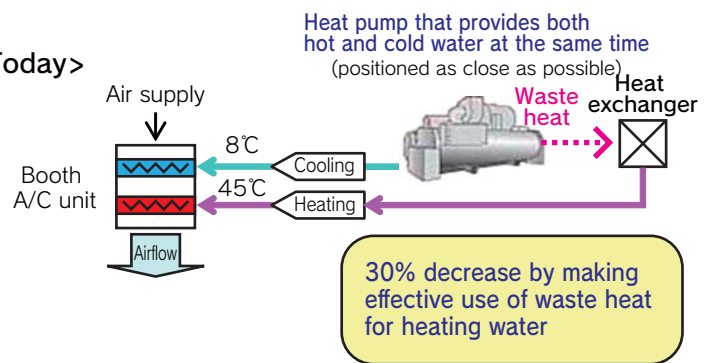
[Example (2)] Energy saving by utilizing heat pumps that provide both hot and cold water at the same time

We have adopted heat pumps that provide hot and cold water at the same time and can make effective use of the waste heat generated from cold-water manufacturing.

<Past> [Cold/hot water manufacturing and supply flow diagram]



<Today>



Comments from engineers working on the Yoshiwara CO₂ 50% cut challenge



(Left) Yoshiwara Paint Div. Kazuhiko Inagaki
(Right) Paint PE Div. Takahiro Oyama

Energy consumed at the painting process accounts for approximately 50% of total energy use, and saving energy at this process is important. We will continue challenging ourselves to achieve a 50% cut in CO₂ emissions at future updates and modifications.

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Three Priority Themes:

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Recycling Orientation

Harmony with Nature

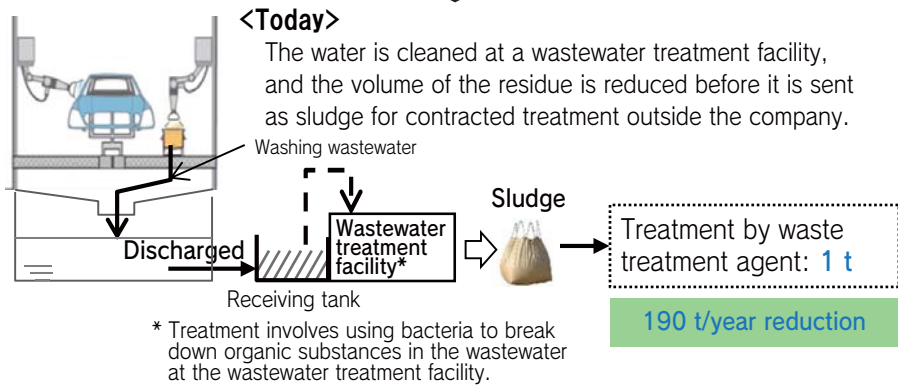
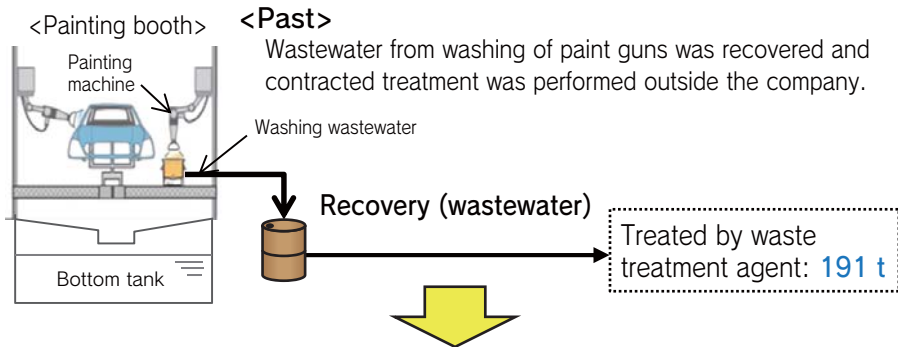
Production Activities with Low Environmental Impacts

We are actively carrying out activities such as taking steps at the source to reduce the amounts of waste generated during production and making efficient use of resources.

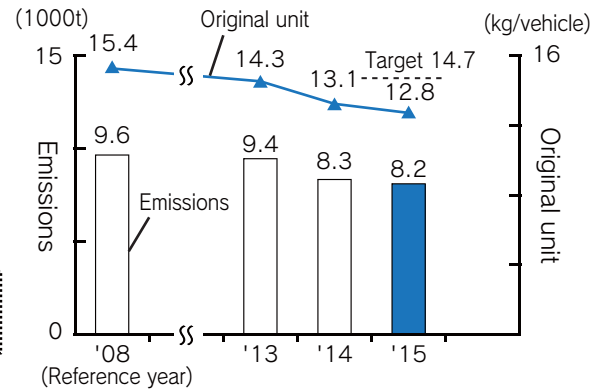
Activities to reduce production process waste

Inabe Plant: Reducing wastewater from paint machine washing

We established a method for in-house treatment of wastewater from the washing of water-based painting machines that occurs at the painting process, and succeeded in reducing wastewater emissions.



Results in total company waste emissions



Comment from a person in charge of waste reduction

PE Environment Div. Ryoko Nishiyama



We are constantly striving for low environmental impact production activities, and are working in close cooperation with other related parties.

Three Priority Themes:

Low Carbon

Recycling Orientation

Harmony with Nature

Creating Plants that are Harmonized with Nature and Coexist with Local Communities

We are all a part of nature, sharing it with the many creatures that live in it. In order to protect the environment of our communities so that people and nature can coexist, we at Toyota Auto Body are coordinating with local communities to create plants that exist harmoniously with nature.

Programs to improve environmental awareness in cooperation with local communities

The Kariya Fure-Ai Park is located adjacent to the Fujimatsu Plant. This park is a habitat for living creatures, and we are utilizing it for environmental workshops that are held in cooperation with the local community.

We have also opened Yamaboshi Park adjacent to the Yoshiwara Plant, and are using it as a place for interacting with the local community, and are providing monozukuri (manufacturing) experiences in the Forest Classroom at the Inabe Plant.



Nature observation program for learning about plant growth (Fure-Ai Park)



Sketching competition for students of a nearby elementary school (Yamaboshi Park)

Environmental Management

Strengthening Consolidated Environmental Management

We have created a management system that coordinates our subsidiaries in Japan and overseas, and our suppliers, and are actively carrying out activities including educational activities aimed at raising the level of environmental action.

Strengthening management that includes subsidiaries in Japan and overseas

We have launched the Consolidated Subsidiary Production Environmental Committee . It is organized within the Production Environmental Committee and is composed of the presidents of each company.

We also regularly conduct genchi-genbutsu (actual site and actual objects) environmental audits, and are carrying out environmental improvements, as well as training of local staff.



Consolidated Subsidiary Production Environment Committee
(Overseas: 8 companies, Japan: 5 companies)



Overseas on-site audit (USA)

Improving and carrying out employee training

Environmental training is carried out for each level and each area of specialization, aiming to develop awareness and instill knowledge.

The operation of environmental preservation measures including the above activities has been positively evaluated, and we have been certified as a Kariya City eco Office .



In-house noise prevention meeting



Ceremony for certification as a Kariya City eco Office (November 2015)

Environmental education activities

We have created a permanent environmental exhibit based on the concept of "creating a plant that is friendly to the community, the global environment, and people" , and are using it as a means of communicating information to persons inside and outside the company, and as a place for learning.

Lectures are also held during Environment Month to improve employee environmental awareness.



In-house environmental exhibition
A place for learning from displays of actual parts and materials

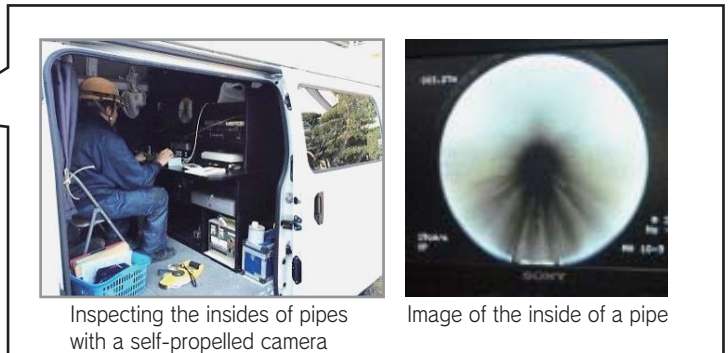
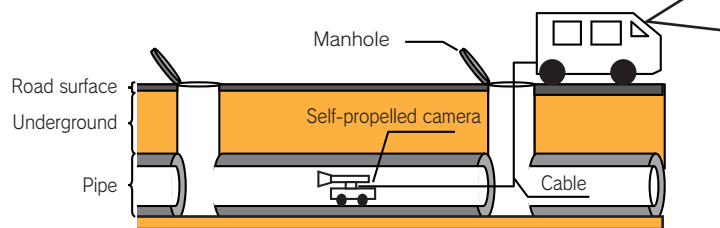


Environment lecture by Ms. Kanamaru from AEON Co., Ltd.

Activities to prevent environmental risks

We are carrying out measures to prevent leakage from facilities which handle production wastewater, chemicals, and similar substances.

Beginning from fiscal year 2015, we have been gradually conducting inspections of the insides of underground pipes.



Inspecting the insides of pipes with a self-propelled camera

Image of the inside of a pipe

Resource Investment into and Emissions Produced by Our Business Operations

Active Release of Environmental Information

Environmental Accounting

In order to utilize the valued opinions of all readers to enhance further and reflect information more accurately for these CSR activities and this report of Toyota Auto Body for the future, please enter information in the survey.

The opinions and information provided will only be used for the purpose mentioned above.
(Private information will be handled appropriately pursuant to the Toyota Auto Body [“Privacy Policy”](#))

Please click here to view the survey. 

Publishing

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Publishing Date June 2016 (Next publishing scheduled for June 2017)

 <http://www.toyota-body.co.jp/english/>