

# Honda Environmental Annual Report 2003

This report has been compiled focusing  
on the environmental conservation activities  
Honda undertook in Japan in the fiscal 2002.

# 2003



## Corporate Profile & Financial Data

**Company name** Honda Motor Co., Ltd.

**Head office** 1-1, 2-chome Minami-Aoyama, Minato-ku, Tokyo

**Established** September 24, 1948

### Representative

Takeo Fukui

President and Chief Executive Officer

### Capital

¥86,067 million (as of the end of March 2003)

### Sales (Results of fiscal 2002)

Consolidated: ¥7,971,499 million

Unconsolidated: ¥3,322,719 million

### Total number of employees

Consolidated: 126,900 persons (as of the end of March 2003)

Unconsolidated: 27,798 persons (as of the end of March 2003)

### Consolidated subsidiaries

312 subsidiaries (as of the end of March 2003)

### Major products

#### <Automobiles>

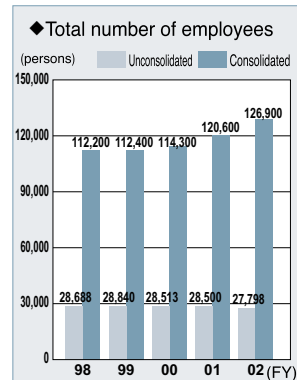
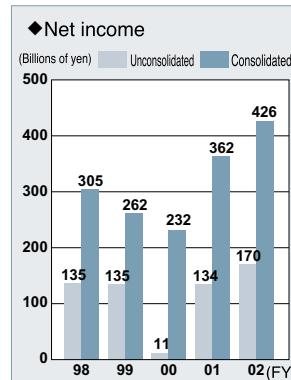
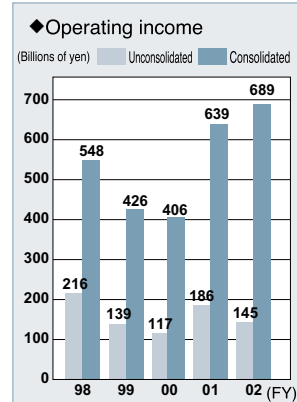
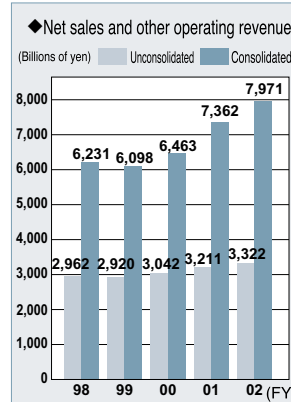
Standard vehicles, small-sized vehicles and mini vehicles

#### <Motorcycles>

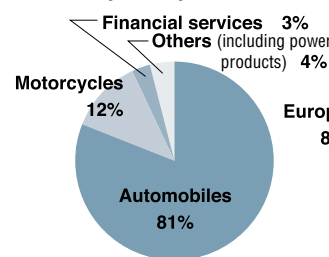
Small-sized motorcycles, mini motorcycles and motorbikes

#### <Power products>

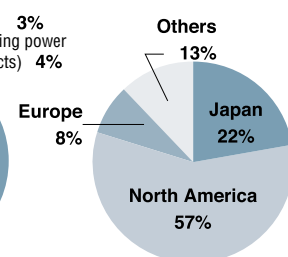
Agricultural instruments, tractors, generators, multipurpose engines, mowing machines, hedge trimmers, transporters, snow blowers, outboard engines, pumps, etc.



◆ Sales by segment  
(consolidated: fiscal 2002)  
\*Including inter-segment sales



◆ Net sales and other operating revenue by region  
(consolidated: fiscal 2002)



## Segments Covered by the Report

Period covered Fiscal 2002 (from April 1, 2002 to March 31, 2003)

Organization covered The Report covers Honda Motor Co., Ltd., Honda R&D Co., Ltd., Honda Motorcycle Japan Co., Ltd., Honda Engineering Co., Ltd. as well as the following production companies and subsidiaries outside of Japan.

#### • North America

Honda of America Mfg., Inc. (U.S.)  
Honda Transmission Mfg., of America Inc. (U.S.)  
Honda Power Equipment Mfg., Inc. (U.S.)  
Honda of South Carolina Mfg. (U.S.)  
Honda Mfg., of Alabama L.L.C. (U.S.)  
Honda of Canada Mfg. (Canada)  
Honda de Mexico S.A. de C.V. (Mexico)

#### • South America

Moto Honda da Amazonia LTDA. (Brazil)  
Honda Automoveis do Brasil LTDA. (Brazil)

#### • Europe

Honda of the U.K. Mfg., Ltd. (U.K.)  
Honda Europe N.V. (Belgium)  
Honda Belgium N.V. (Belgium)  
Honda Italia Industriale S.P.A. (ATESSA) (Italy)  
CIAP S.P.A. (Italy)  
Montesa Honda S.A. (Spain)  
Honda Turkiye A.S. (Turkey)  
Honda Europe Power Equipment S.A. (France)



#### • Asia and Pacific

Honda Automobile (Thailand) Co., Ltd. (Thailand)  
Thai Honda Mfg. Co., Ltd. (Thailand)  
Asian Autoparts Co., Ltd. (Thailand)  
Honda Cars Philippines Inc. (Philippines)  
Honda Philippines Inc. (Philippines)  
Honda Siel Cars India Ltd. (India)  
Hero Honda Motors Ltd. (India)  
Honda Siel Power Products Ltd. (India)  
Honda Motorcycle & Scooter India (Private) Ltd. (India)  
P.T. Honda Prospect Motor (Indonesia)  
P.T. Astra Honda Motor Inc. (Indonesia)  
Honda Atlas Cars (Pakistan) Ltd. (Pakistan)  
Atras Honda Ltd. (Pakistan)  
Honda Vietnam Co., Ltd. (Vietnam)  
Armstrong Auto Parts SDN. BHD. (Malaysia)  
Honda Autoparts Mfg., SDN. BHD. (Malaysia)  
Dongfeng Honda Auto Parts Co., Ltd. (China)  
Dongfeng Honda Engine Co., Ltd. (China)  
Guangzhou Honda Automobile Co., Ltd. (China)  
Honda Mindong Generator Co., Ltd. (China)  
Wuyang-Honda Motors (Guangzhou) Co., Ltd. (China)  
Jialing-Honda Motors Co., Ltd. (China)

\*For overseas factories, please refer to the "Related Data" and "Environmental Activities Outside of Japan" sections.

# Honda Environmental Information Disclosure

Honda publishes two types of brochures as its primary media for environmental information disclosure. These are the Honda Environmental Annual Report and Honda ECOLOGY, both of which have been made available to the general public on the Internet.

Name	Role	Frequency
<b>Honda Environmental Annual Report</b> 	<b>Environmental annual report</b> Description of Honda's environmental conservation activities and results: · Report and evaluation of the results of the previous fiscal year · Plans for the present fiscal year	<b>Annually</b>
<b>Honda ECOLOGY</b> 	<b>Brochure describing environmental activities</b> Outline of Honda's environmental activities: · Basic stance concerning the environment · Environmental conservation activities conducted by each department · Future directions	<b>Every three years</b>

We are using two different brochures to convey and disclose environmental information in order to reinforce and strengthen our two key concepts:

- It is vital that we convey accurate information on the progress made in our environmental commitment during the previous year by clearly distinguishing between “Annual Results” and “Past Results and Future Efforts.”

We see the Honda Environmental Annual Report as an integral part of Honda's PDCA (Plan, Do, Check, and Action) Process, relating to our environmental commitment made over the entire report year.

- It is important to convey a full picture of our environmental commitment, past, present and future, so that the general public are able to assess our results for the year for themselves. This furnishes them with the essential information by which we are judged.

We trust that the public will understand this and make the best use of the Honda Environmental Annual Report and Honda ECOLOGY to make an informed assessment.

The Honda Environmental Annual Report is issued in the summer every year and Honda ECOLOGY is revised every three years.

This Report has been compiled on the basis of Honda's guidelines.



For related information, please refer to Honda ECOLOGY.

## Contents

<b>2</b>	<b>Corporate Profile &amp; Financial Data</b>
3	Honda Environmental Information Disclosure
<b>4</b>	<b>Introduction</b>
<b>6</b>	<b>Fundamental Principle and Vision</b>
6	Honda Environment Statement
7	Assessment of and Our Policy on the Environmental Load Generated by Our Corporate Activities
<b>8</b>	<b>Mid-Term and Annual Targets and Results</b>
8	Specific Targets to be Achieved and Results
9	Results for Fiscal 2002 and Targets for Fiscal 2003
<b>10</b>	<b>Environmental Management</b>
10	General Policy
10	Organization
11	Role
12	Environmental Management by Honda's Business Sites (ISO 14001 and EMAS)
12	Environmental Audits
13	Environmental Accounting
13	Environmental Training
14	Environmental Risk Management
15	Promotion of Life Cycle Assessment (LCA)
<b>16</b>	<b>Results of Environmental Conservation Activities during Fiscal 2002</b>
16	1. Product Development Domain
16	Automobiles Achieving Cleaner Exhaust Gas
18	Improvement in Fuel Economy
19	Alternative Energies
19	Noise Reduction
20	Motorcycles Achieving Cleaner Exhaust Gas
21	Improvement in Fuel Economy
21	Noise Reduction
22	Power Products Achieving Cleaner Exhaust Gas
23	Improvement in Fuel Economy
23	Alternative Energies
23	Noise Reduction
24	2. Purchasing Domain
24	Promotion of Green Purchasing
25	3. Production Domain
25	Promotion of Green Factories
27	Honda Green Conference
28	4. Transportation Domain
28	Promotion of Green Logistics
29	Reduction of Packaging Materials by Product
30	5. Sales Domain
30	Promotion of Green Dealers (Automobiles)
31	Expansion of Environmental Commitment to the Motorcycle and Power Products Areas
32	6. Disposal and Recycling (3R) Domain
32	3R Design and Reduction in Substances with Environmental Impacts
34	Increasing the Recovery, Recycling, and Reusing of Parts
35	Activity Results of the Dismantling Verification Center
36	7. Administration Domain
36	Promotion of Green Offices
<b>37</b>	<b>Social Activities</b>
37	Green Renaissance Activities
38	Support to NGOs and Environment-Related Foundations
38	Cooperative Activities with Local Communities
38	Cooperation in Environmentally Friendly Vehicle Fairs and Support for Environment-Related Seminars
38	Other Activities
38	Environment-Related Prizes and Awards Won by Honda
39	Environmental Communication
<b>40</b>	<b>Related Data</b>
40	Environmental Data by Products Sold in Japan
42	Data of Japanese Factories
48	Data of R&D Centers and Technical Center in Japan
50	Data of Overseas Factories
<b>52</b>	<b>Environmental Activities Outside of Japan</b>

# Introduction



**Michiyoshi Hagino**  
Director in charge of environment  
Senior Managing Director

**Hiroyuki Yoshino**  
Director and Advisor

At the Earth Summit held in Johannesburg in 2002, participating leaders of 190 countries urged all people throughout the world to conduct environmental improvement activities on a long-term, continuous basis for the sustainable development of mankind.

Honda, as its vision for 2010, decided to become a company that people want to exist. Based on this idea, we have been aggressively conducting environmental conservation activities throughout our business domains.

For example, the FCX, which we had developed for practical use in 2003, became the first fuel cell vehicle certified by the U.S. government for commercial use in July 2002. The FCX was subsequently released both in Japan and the United States in December of the same year, earlier than planned.

Also in fiscal 2002, in the products domain, in the production of motorcycles, we completed the replacement of 2-stroke engines with 4-stroke ones, and introduced a fuel injection system to small scooters, for release in Europe and Thailand. In the production domain, towards the achievement of targets up to 2010 of reducing energy unit by 30% (compared with fiscal 1990), we achieved a reduction of approximately 20%. In the sales domain, we steadily expanded the number of “Best Green Dealers” under our Green Dealer System. For life cycle assessment (LCA), total CO<sub>2</sub> emissions from all of our business departments in Japan were identified. In summary, we achieved steady progress across all domains towards the achievement of our vision for 2010.

Regarding the targets for 2005 announced in 1999, we successfully achieved the fiscal 2002 average fuel economy target for automobiles. For cleaner exhaust gas, all Honda automobiles were approved as “Excellent” (☆☆) low emission vehicles or better. Before 2005, we plan to have almost all of our passenger vehicles approved as “Ultra” (☆☆☆) low emission vehicles.

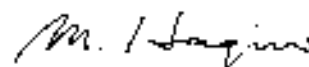
In all of our business domains, we will further promote environmental conservation activities by setting new targets, while responding more actively to requests from society at large and local communities.

This Report sums up our results for each fiscal year and is published annually to keep the public informed of our progress. We would feel our efforts were fully rewarded if our readers were kind enough to let us have the benefit of their frank opinions and reactions in response to their perusal of this Report.

June 2003



**Hiroyuki Yoshino**  
Director and Advisor



**Michiyoshi Hagino**  
Director in charge of environment  
Senior Managing Director

# Fundamental Principle and Vision

Honda, under a slogan of “Blue Sky for Children,” has long been conducting environmental activities. In the 1990s, we improved our organizational structure step by step, and declared our “Honda Environment Statement” to clearly describe our attitude towards environmental issues. Since then, we have been improving our environmental conservation activities, regarding them as one of the most important themes for the company.

Looking towards the future, Honda has set out its vision for 2010, based on a corporate culture of “freedom and openness, challenge, and cooperation.” As mentioned in our vision statement, in order to pass on our joys to the next generation, we will strengthen our measures to achieve the high environmental improvement goals that we have set for ourselves. Through these activities, we aim to become a company that people want to exist.

## Honda Environment Statement

**As a responsible member of society whose task lies in the preservation of the global environment, company will make every effort to contribute to human health and the preservation of the global environment in each phase of its corporate activity. Only in this way will we be able to count on a successful future not only for our company, but for the entire world.**

We should pursue our daily business interest under the following principles:

1. We will make efforts to recycle materials and conserve resources and energy at every stage of our products life cycle from research, design, production and sales, to services and disposal.
2. We will make every effort to minimize and find appropriate methods to dispose of waste and contaminants that are produced through the use of our products, and in every stage of life cycle of these products.
3. As both a member of the company and of society, each employee will focus on the importance of making efforts to preserve human health and the global environment, and will do his or her part to ensure that the company as a whole acts responsibly.
4. We will consider the influence that our corporate activities have on the regional environment and society, and endeavor to improve the social standing of the company.

Established and announced in June 1992



# Assessment of and Our Policy on the Environmental Load Generated by Our Corporate Activities

Honda is aware of its corporate responsibility for the environmental load generated by all of its corporate activities and the use of its products, and embraces an uncompromising commitment to reducing this and to conserving the environment. To achieve this, it is essential to establish directions for specifically defined issues, and set targets for action, based on the impacts of our corporate activities and the use of our products on

the global environment.

Recognizing this, our approach is to define specific goals toward which we will work in an effort to resolve the issues that have been identified, by using our life cycle assessment system (LCA) which assesses and analyzes the measurable environmental impact at the present stage.

## Environmental Management Policy in our Domains

Domain	Output	Environmental Impacts	Major Goals
Product Development	CO <sub>2</sub> Exhaust gas Noise	Global warming	<ul style="list-style-type: none"> <li>● Clean exhaust gas</li> <li>● Improvement in fuel economy</li> <li>● Noise reduction</li> <li>● Improvement in recyclability</li> </ul>
Purchasing	CO <sub>2</sub> Waste Wastewater Exhaust gas Noise Chemical substances	Depletion of natural resources	● Promotion of Green Purchasing
Production		Air pollution	● Promotion of Green Factories
Transportation	CO <sub>2</sub> Waste	Waste	
		Destruction of the ozone layer	● Promotion of Green Logistics
Sales	Waste parts CFC <sub>12</sub> , HFC <sub>134a</sub> Waste	Water pollution	● Promotion of Green Dealers (Automobiles, Motorcycles and Power Products)
Disposal and Recycling (3R)	End-of-life products	Soil pollution	<ul style="list-style-type: none"> <li>● Increasing the recovery, recycling, and reuse of parts</li> <li>● Technical support for the proper disposal and recycling of end-of-life products</li> </ul>
Administration	CO <sub>2</sub> Waste	Noise	● Promotion of Green Offices



# Specific Targets to be Achieved and Results

To give further impetus to our environmental conservation activities and achieve clear results in a more effective manner, Honda has set itself voluntary targets and is working toward their attainment. The following data gives our targets and the level to which we attained them at the end of fiscal 2002. Our progress in reaching our targets is presented in "Results of Environmental Conservation."

## Specific Targets Announced in Fiscal 2001: "Cleaner Exhaust Gas by 2005"

Specific targets		Progress made in fiscal 2002	Reference
Automobiles	To have most Honda passenger vehicles approved as "Ultra" low emission vehicles by the Ministry of Land, Infrastructure and Transport by 2005*	Percentage of the models that attained the objective: 10% In fiscal 2002, another three models attained the objective.	Page 16

\*Target in Japan

## Specific Targets Announced before Fiscal 2001

### Targets to be Achieved by 2005 by Improving Clean Exhaust Gas Emissions and Fuel Economy (1999)

Specific targets		Progress made in fiscal 2002	Reference
Automobiles	Up to fiscal 2005 : To reduce the total exhaust emissions of HC and NOx by approximately 75% for new vehicles (compared with fiscal 1995)*	HC: Reduced by 72.5% NOx: Reduced by 72.5%	Page 16
	Up to fiscal 2002 : To achieve a clean performance that exceeds the 2000 exhaust emissions standards of Japan by 50% or more for all vehicles*	Percentage of the models that attained the objective: 100%	Page 16
	Up to fiscal 2005 : To achieve the new fuel efficiency standards of Japan for fiscal 2010 for all weight categories*	Achieved for 6 categories among 7 weight categories	Page 18
	Up to fiscal 2005 : To improve the average fuel economy by approximately 25% (compared with fiscal 1995)*	Improved by approximately 41% (Attained)	Page 18
Motorcycles	Up to fiscal 2005 : To reduce the total exhaust emissions of HC to approximately 1/3 for new vehicles (compared with fiscal 1995)	Reduced to approximately 28% more than 1/3 (Attained)	Page 20
	Up to fiscal 2005 : To improve the average fuel economy by approximately 30% (compared with fiscal 1995)	Improved by approximately 29.5%	Page 21
Power Products	Up to fiscal 2005 : To reduce the average exhaust emissions of HC and NOx by approximately 30% for new products (compared with fiscal 1995)	Reduced by approximately 34% (Attained)	Page 22
	Up to fiscal 2005 : To improve the average fuel economy by approximately 30% (compared with fiscal 1995)	Improved by approximately 23%	Page 23

\*Targets in Japan

## Energy Saving and Reduction in Waste in the Production Domain

Specific targets		Progress made in fiscal 2002	Reference
Up to fiscal 2001 : 15% reduction in energy unit* (compared with fiscal 1990)		(Attained)	Page 25
Up to fiscal 2010 : 30% reduction in energy unit* (compared with fiscal 1990)		Reduced by 19.3%	
Up to fiscal 2001 : Achieving ZERO landfill disposal		(Attained)	Page 26

\*energy unit: energy consumption per unit of production output

## Recyclability Rate for New Models of Automobiles and Motorcycles

Specific targets		Progress made in fiscal 2002	Reference
Automobiles	90% or more from 2000 onward	(Attained)	Page 32
Motorcycles	90% or more	(Attained)	Page 33

## Lead Content in New Models of Automobiles and Motorcycles

Specific targets		Progress made in fiscal 2002	Reference
Automobiles	By the end of 2003 : 1/3 or less (compared with 1996)	(Attained)	Page 32
Motorcycles	Equal to or below the lead content in 1996	(Attained)	Page 32

## Activities Already Successfully Completed

The following activities not featured in this report have already been completed successfully.

		Time completed
Automobiles :	Abolition of CFC12 in favor of HFC134a	End of 1994
	Discontinuing the use of sodium azide*1 (Mass-produced vehicles sold in Japan)	End of 1998
	Reducing the lead content in the covering of wire harnesses*2	End of 1998
Motorcycles :	Reducing the lead content in the covering of wire harnesses	End of 1998
Power Products :	Reducing the lead content in the covering of wire harnesses	End of 1998

\*1 Sodium azide: Sodium azide's chemical symbol is NaN<sub>3</sub>. It was the primary ingredient in the gas generator for automotive air bag systems. When an automobile that contains an air bag system that has not been activated is crushed, for example, the sodium azide is released into the atmosphere, where it forms a potential hazard to workers' health.

\*2 Wire harnesses: An automobile contains a huge number of wires (approximately 1,000) that form the wiring networks. Wire harnesses are used to systematically run the wires between terminals and connectors and facilitate their installation on vehicles.

# Results for Fiscal 2002 and Targets for Fiscal 2003

Our efforts of the previous year also continued in fiscal 2002 with a commitment to achieving the high targets set for all domains in the life cycle of Honda's products. Some activities achieved their set targets while others failed to attain their goals for various reasons, including changes in conditions. The outcomes of all activities whether "on target" or not were analyzed and the findings were fed back to the targets and programs set for fiscal 2003 in our commitment to further reductions in the environmental loads of our products.

Major Commitments	Procedures		Fiscal 2002 Targets	Fiscal 2002 Results	Level of attainment	Fiscal 2003 Targets	Reference	
Product Development	Clean exhaust gas	Automobiles	Expansion of "Ultra" low emission and "Excellent" low emission vehicles	To reduce emissions by 50% or more compared with the fiscal 2000 emissions standards of Japan for all vehicles	Percentage of the models that attained the objective: 100%	◎	Expansion of "Ultra" low emission vehicles	Page 16
		Motorcycles	Shift to 4-stroke engines	To be successively expanded	Attained for all 6 models released in fiscal 2002. Shift to 4-stroke engines: attained by 70.1% of the models	◎	Future extensions	Page 20
		Power Products	Comply with regulations in advance		Attained for all 10 models released in fiscal 2002	◎		Page 22
		Development of alternative energy vehicles			Starting leasing of fuel cell vehicles	◎		Page 19
					Release of the cogeneration system for households	◎		Page 23
Improvements in fuel economy	Upgrading efficiency by employing new technologies	Automobiles	Improvements in the average fuel economy by category	Attainment of the fiscal 2010 fuel economy standards of Japan for 6 categories	◎	Further improvements in fuel economy	Page 18	
		Motorcycles	Improvements in fuel economy for new models	26.8% improvement in the average fuel economy for all the models released in Japan in fiscal 2002	◎		Page 21	
		Power Products	Improvements in fuel economy for new models	Outboard engine BF15D: 7% improvement compared with the previous model	◎		Page 23	
Purchasing	Promotion of Green Purchasing	Reduction of chemical substances contained in the products of suppliers (parts and materials)		Compliance with the schedule set in Honda's chemical substance guidelines	Compliance with the EU Directive on End-of-Life Vehicles (to be applied from July 2003)	◎	Reduction for four classifications of two substances	Page 24
		Management of environmental impacts in suppliers' manufacturing process (23 affiliated companies)		Reduction of suppliers' CO <sub>2</sub> emissions	6.5% reduction in energy unit as compared with the previous year (regarding affiliated companies)	◎	Reduction of suppliers' CO <sub>2</sub> emissions	Page 24
				Reduction of suppliers' landfill waste	48% reduction as compared with fiscal 2000 (regarding affiliated companies)	◎	Reduction of suppliers' landfill waste	Page 24
		Introduction of environmental management systems to suppliers		Promotion of the acquisition of ISO 14001 certification by all suppliers	Acquisition by 66% of suppliers (293 companies)	◎	Acquisition by 75% of suppliers	Page 24
Production	Promotion of Green Factories	Improvements in energy efficiency		Energy unit: 22.4 CO <sub>2</sub> -tons/¥100 million	Energy unit: 22.2 CO <sub>2</sub> -tons/¥100 million	◎	21.9 CO <sub>2</sub> -tons/¥100 million	Page 25
				CO <sub>2</sub> emission volume: 480,000 CO <sub>2</sub> -tons	CO <sub>2</sub> emission volume: 482,000 CO <sub>2</sub> -tons	△	485,000 CO <sub>2</sub> -tons	Page 25
		Zero landfill disposal		—	(Continuance of zero landfill disposal)	◎	(Continuance of zero landfill disposal)	Page 26
		Reducing the amount of incinerated waste		56% reduction as compared with fiscal 1998	54% reduction as compared with fiscal 1998	△	60% reduction as compared with fiscal 1998	Page 26
Transportation	Promotion of Green Logistics	Implementation of environmental management system for distribution companies		ISO 14001 certification acquired by four major companies	Acquired by three of the four major companies. Own management system introduced by one company	△	Joint environmental management by the four companies	Page 28
		Improvements in shipping efficiency		CO <sub>2</sub> emission volume: 126,400 CO <sub>2</sub> -tons (Transport of completed automobiles)	CO <sub>2</sub> emission volume: 125,058 CO <sub>2</sub> -tons (Transport of completed automobiles)	◎	CO <sub>2</sub> emission volume: 132,400 CO <sub>2</sub> -tons (Transport of completed automobiles <sup>*1</sup> )	Page 28
Sales	Promotion of Green Dealers/Green Distributors	Automobiles	Introduction of environmental management systems to dealers	Acquisition of the Best Green Dealer certification by 1,650 stores	Acquisition of the Best Green Dealer certification by 1,607 stores	△	Further expansion of the Best Green Dealer-certified stores	Page 30
		Motorcycles	Introduction of environmental management systems to distributors and dealers	Expansion of the Honda Dream Stores	Launch of 11 environmentally-friendly Honda Dream Stores	◎	Expansion of Honda Dream Stores	Page 31
		Power Products	Promotion of environmental conservation activities for dealers	Full-scale deployment of the Green Dealer system for power products	Acquisition of the certification by one dealer, and start of the acquisition process by another dealer	◎	Expansion of Green Dealers for power products	Page 31
Disposal and Recycling	Improved recyclability	Improvement of recyclability		Improvement of recyclability	Automobiles	More than 90% achieved for models newly released or models whose design was changed in fiscal 2002	Improvement of actual recycling	Page 32
					Motorcycles		Improvement of recyclability	Page 33
					Outboard engines		Improvement of recyclability	Page 33
	Increasing the recovery, recycling, and reuse of parts	Integration of the remanufacturing business and reuse business	Expansion of "Honda Recycle Parts"	No increase in the number of Honda Recycle Parts	—	Expansion of the models for which reused parts can be applied	Page 34	
Technical support for proper disposal and recycling of end-of-life vehicles	Technical support for proper disposal and recycling of end-of-life vehicles	Support for achieving an actual recycling rate of 95% or more	<ul style="list-style-type: none"> <li>Improvement of the vehicle turnover device for dismantling</li> <li>Formulation of a specific dismantling line</li> <li>Implementation of measures for parts that are difficult to recycle</li> </ul>	◎	Technological development for improving the ASR recycling rate	Page 35		
Administration	Promotion of Green Office	Introduction of environmental management systems to offices	Introduction of environmental viewpoints into daily business	Pilot implementation of environmental management systems at model departments	◎	Full-scale implementation of environmentally-friendly business activities <sup>*2</sup>	Page 36	

\*1 While the fiscal 2003 target for CO<sub>2</sub> emission has increased as compared with the fiscal 2002 results, this increase is to allow for the planned growth in shipments. This target figure does, however, already include the (anticipated) reduction effect arising from the measures being taken to improve transport efficiency.

\*2 At the Aoyama Office, which is implementing an environmental management system (EMS), environmental viewpoints are introduced to daily business activities. We call the development of business that takes the environment into consideration, "environmentally-friendly business activities."



# Environmental Management

To give concrete meaning to the Honda Environment Statement, which specifies the general direction of Honda's environmental conservation activities, Honda has made efforts to establish and expand its organization in respect of the environment. For the smooth deployment of environmental conservation activities, we have established an environmental management system as described below.

## General Policy

Honda's environmental action plans are established by the individual active departments on the basis of medium-term policies determined by the Executive Committee. These plans are then discussed and approved at the Environmental Committee. After this, the individual active departments concerned push ahead with their commitment in accordance with these plans. The results are scrutinized and evaluated by the Environmental Committee and fed back to the next targets and plans to complete the PDCA\* cycle at the regional level. Universal issues shared worldwide are reported to the World Environmental Committee and fed back to the Medium-Term Policy Statement.

The hallmark of Honda's activities is that planning and execution are not left to specially-appointed staff, but rather that the individual employees of all departments are involved themselves. This is what Honda means when it says "All members of the Honda organization are individually engaged in a positive commitment to environmental issues as part of their own duties."

\*PDCA stands for Plan, Do, Check, Action.

## Organization

In December 1991, Honda created an Environmental Committee as an organization that could play a core role in dealing with environmental issues in Japan. After this, the organization framework was extended to North America, South America, Europe, Asia, and Oceania. In March 1995, the World Environmental Committee was set up to frame and promote the world-spanning plans for our commitment.

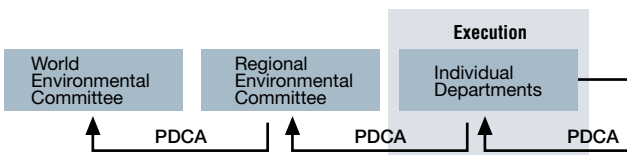
In addition, we have created a system to effectively promote our efforts on organization-spanning themes. In this context, we initiated the Green Factory Project\*<sup>1</sup> and the New Recycle Project\*<sup>2</sup> in 1997, and the LCA Project in 2000.

\*1 Green Factory Project

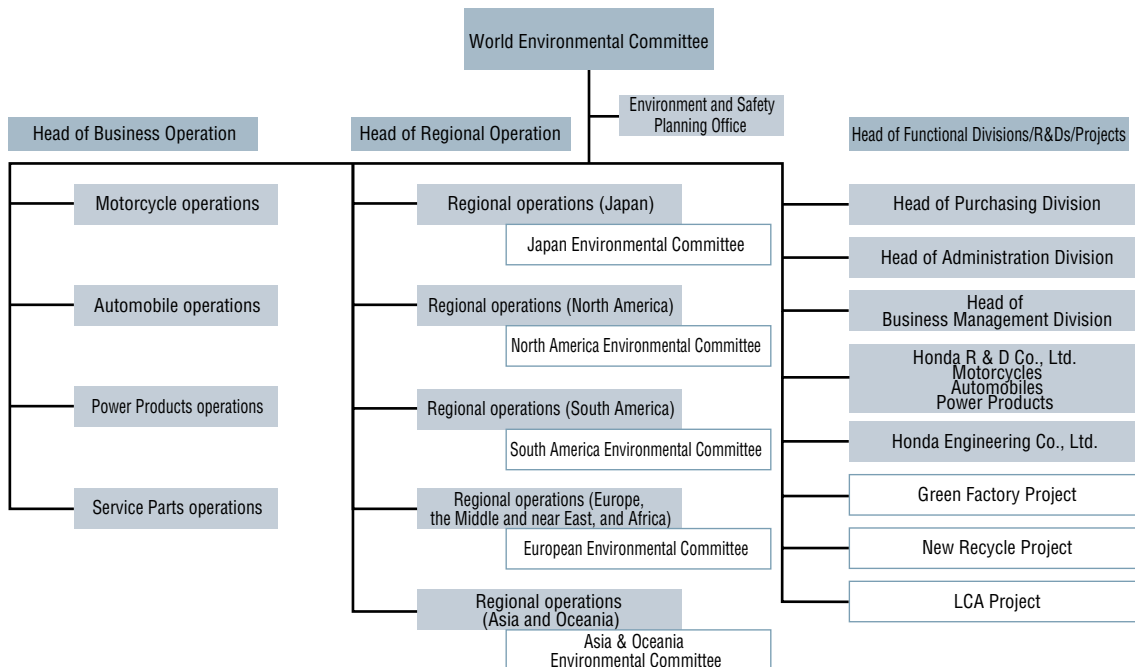
The Green Factory Project is an organization to promote the Green Factory Plan that aims at building new factories for a recycling based society. Led by this organization, solutions to issues such as energy-saving and waste reduction are deployed to our factories throughout the world.

\*2 New Recycle Project

In this project, recycling activities, involving recycling design and recycling technology, as well as recovery and disposal systems, are deployed over the products' whole life cycle, in anticipation of the future sustainable use of resources.



### Organization for global environmental conservation activities



## ■ Role

### ■ World Environmental Committee

The World Environmental Committee plays the role of a committee to deliberate the world-spanning plans for our commitments in accordance with Honda's mid-term policy. This Committee decides environmental policies and conducts annual reviews of their execution and implementation.

### ■ Japan Environmental Committee

The objective of the Japan Environmental Committee is to enhance the level of execution of environmental conservation activities that are deployed in Japan. It reviews the annual PDCA cycle of the individual active departments, and establishes overall compatible targets. It also establishes new policies in accordance with an analysis of the situation of the individual active departments. Through these activities, it tries to maintain and improve its environmental activities to cover the entire life cycle of Honda's products on an ongoing basis.

### ● Sales Domain

The mission of the Sales Domain, which mainly consists of motorcycles, automobiles, power products, and parts, is to meet the current market needs in terms of the diffusion of environmentally-friendlier products, the proper disposal of end-of-life products, and parts recycling.

### ● Factory and Office Operations Domain

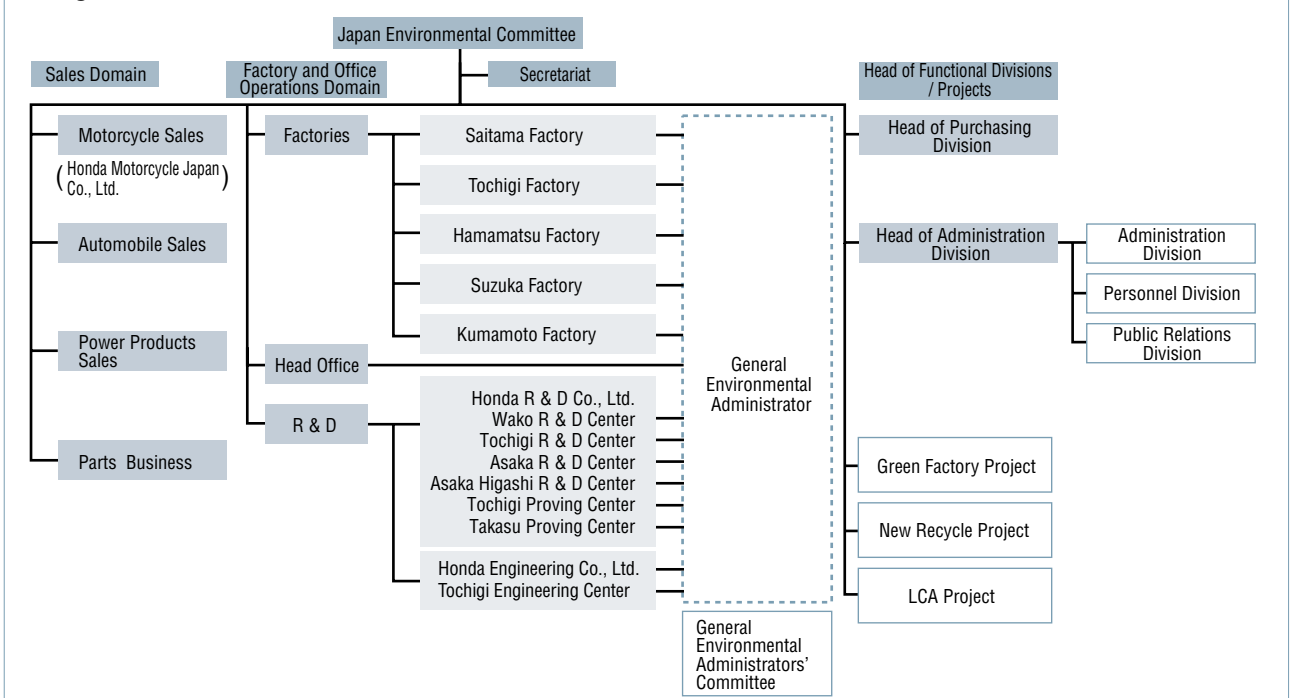
The Factory and Office Operations Domain comprises the active departments organized within our factories and offices. This domain has the responsibility of dealing with environmental issues at our factories and offices. The General Environmental Administrator\* devises and carries out policy measures for the Factory and Office Operations Domain through the General Environmental Administrators' Committee. Here, the programs as a whole are promoted by the Green Factory Project.

\*The General Environmental Administrator is responsible for the environmental activities at their factory/office in general, and for the running of the environmental organization. They also have administrative-managerial responsibility for the environmental management system of the factory/office and acts as the Chairman of the Preliminary Evaluation Committee under the provisions of the Recycling Law.

### ● Head of Functional Divisions/Projects

The Administration Division has the role of handling the environmental issues for the entire range of PR, environmental training, and social activities in general. It comprises the General Affairs Department, which promotes such measures as the expanding use of environmentally-friendly vehicles within the company, the Personnel Department, which provides employees with environmental training, and the PR Department, which disseminates information on our activities to society. The Purchasing Division promotes green purchasing to increase the proportion of materials and parts with less environmental impact within the total goods purchased by the company. There are also three projects on organization-spanning themes.

## ◆ Organization for domestic environmental conservation activities





# Environmental Management

## Environmental Management by Honda's Business Sites (ISO 14001 and EMAS) E p. 36

Concurrently with the building of the environmental management system for Honda as a whole, each of our business sites are introducing environmental management systems to continuously improve their ability to protect the environment and to more thoroughly control substances with environmental impacts.

Honda has actively engaged in acquiring ISO 14001 certification, the international standard for the environmental management system, mainly for our production operations.

In Japan, all of Honda's production plants acquired certification within fiscal 1998. Also as a part of the Green Office promotion, the Head Office building in Aoyama acquired ISO 14001 certification in 1999, and six other regional offices in 2001.

We are also advancing the work to acquire certification for our main production plants in North America, South America, Europe, Asia and Oceania. In Europe, we are promoting the acquisition of the EU's Eco Management and Audit Scheme (EMAS).

Honda's ISO 14001-certified business sites are as shown below\*, totaling 49 sites as of the end of fiscal 2002. The EMAS-certified business sites in Europe are presently three. Please refer to the upper right table for the business sites that acquired ISO 14001 and EMAS certification in fiscal 2002.

We will further promote the establishment of ISO 14001-certified (and EMAS-certified in Europe) environmental management systems within the Honda Group and encourage the certified business sites to continue to be certified. Through these measures, we will promote the PDCA cycle at our business sites as continuous measures to reduce environmental impacts of our business.

\*Within the extent covered by this Environmental Annual Report  
 Note: For the details of the certified business sites, please refer to the domestic and international data for each business site provided at the end of the report (pages 42 to 51).

**Business sites that acquired the ISO 14001 certification in fiscal 2002**

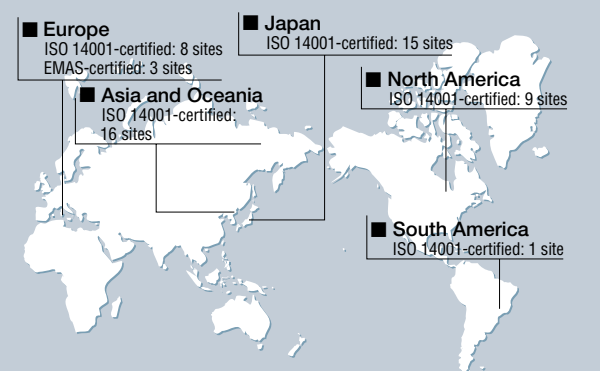
Name of the business site	Location	Business details	Date of certification
Wuyang-Honda Motors (Guangzhou) Co., Ltd.	China	Motorcycles	January 2002
Honda Motorcycle & Scooter India (Private) Ltd.	India	Motorcycles	December 2002
Honda Power Equipment Mfg., Inc.	U.S.A.	Power products	May 2002

## Environmental Audits

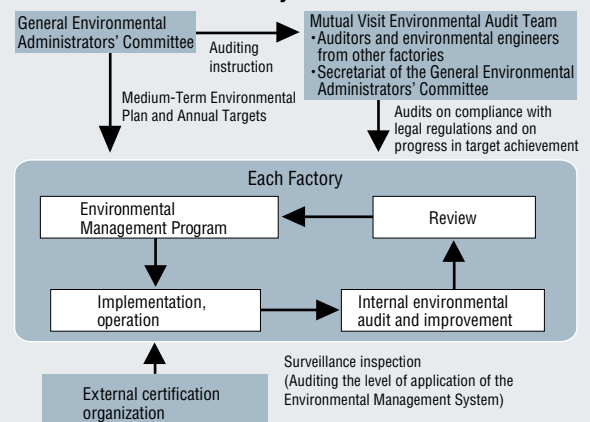
Environmental conservation activities at individual factories are carried out in accordance with the environmental management program of each factory on the basis of the Medium-Term Environmental Plan and Annual Targets determined by the General Environmental Administrators' Committee. To confirm that the environmental management system is appropriately implemented through these activities and continuously improved, internal environmental audits and surveillance inspections by external certification organizations are carried out in our factories and offices.

The internal environmental audits conducted in fiscal 2002 led to a total of 324 cases of minor recommendations and advice. The external inspections led to 7 minor recommendations and 46 findings. We promptly responded to these recommendations and comments. Furthermore, the "Mutual Visit Environmental Audit" is carried out in factories to confirm the level of progress made by them in achieving their targets of environmental conservation activities. (The targets of factories are determined on the basis of the compliance with the legal regulations and company's policy.) The Mutual Visit Environmental Audit is conducted by engineers and auditors from other factories in accordance with instructions given by the General Environmental Administrators' Committee. In fiscal 2002, the Mutual Environmental Audit was conducted from June to July.

### ISO 14001/EMAS-certified business sites as of the end of fiscal 2002



### Environmental Audit System



## Environmental Accounting

Honda is in the process of identifying the costs necessary for environmental conservation activities based on the following objectives:

- Environmental accounting is to provide a management tool in the environmental area.
- Environmental accounting offers indices for corporate evaluation and serves as a data source for disclosure to the public.

The following table shows the environmental conservation costs incurred by the company in fiscal 2002.

### Costs and Effects of Environmental Conservation Activities in Fiscal 2002

(Unit: Millions of yen)

Category	Details of the major activities, etc.	Investment amount	Expense amount	Effects	
Business areas costs	Pollution prevention costs	• Prevention of air, water and soil pollution, etc.	831	1,593	<b>■ Production domain</b> • Total CO <sub>2</sub> emission: 482,000 tons Reduced by 6,000 tons compared with the previous fiscal year →See Page 25. • Total emission of by-products: 203,700 tons Reduced by 700 tons compared with the previous fiscal year →See Page 26. • Total VOC emission: 36.5 g/m <sup>2</sup> Reduced by 6 g/m <sup>2</sup> compared with the previous fiscal year →See Page 26.
	Global environmental conservation costs	• Prevention of global warming and ozone layer depletion, and other environmental conservation	1,331	224	
	Resources cycling costs	• Disposal, reduction, recycling of waste	139	1,156	
Upstream/downstream costs	• Green purchasing (balance) • Collection, recycling, reuse and proper disposal of the products manufactured and sold • Member fees and other charges paid to trade organizations	24	1,741		
Management activity costs	• Provision of environmental training to employees • Building, operation and acquisition of the certification of an environmental management system • Monitoring and measurement of environmental impacts • Organization in charge of environmental conservation measures	191	989		
Research and development costs	• Research and development of products contributing to environmental conservation • Research, development and planning for reducing environmental impacts in the manufacturing, distribution and marketing processes	9,870	113,400		
Social activity costs	• Environmental improvement measures including nature protection, greening and the preservation of beautiful scenery • Provision of support and information to local citizens • Donation and support to organizations engaged in environmental conservation activities • Disclosure of environment-related information and environmental advertisement	0	289		
Environmental damage costs	• Restoration of polluted soil and underground water	0	2,240		

1) The scope of the present calculations is as follows:

- Companies included in the accounts:  
Honda Motor Co., Ltd., Honda R&D Col, Ltd, Honda Engineering Co., Ltd.
- Domains included in the accounts:  
All domains in the life cycle of Honda products
- Targeted period:  
April 1, 2002 through March 31, 2003

Compared with the previous fiscal year, research and development costs increased. This was in order to develop fuel cell vehicles, to reduce exhaust gases from existing engines, and to improve fuel economy.

In this fiscal year, as a result of its environmental conservation activities, Honda will announce reduced amounts of major environmental loads in the production domain. We will also study to identify economic benefits, including those criteria to calculate the effects of corporate environmental activities in each of our business domains.

2) The published figures include some that have been estimated and some given as combined figures because of the difficulty of determining differential amounts.

3) For the tabulation, we referred to reference materials on environmental accounting, including the guidelines and guidebooks published by the Ministry of the Environment of Japan.

4) This Report publishes the specific results achieved in our efforts for each fiscal year. The aggregate total of our environmental conservation costs are quoted on a cash-flow basis in terms of the monetary amount less depreciation costs.

## Environmental Training

### 1. Stratified Environmental Training Programs

Training programs are provided for company employees at different levels so that all members of the company have a full recognition of their own responsibilities and are able to make progress in the company's commitment to the environment as an integral part of their own work tasks. Environmental Training Programs are part of the company's training curriculum, including the initial training offered to new employees and the training offered to employees who have been working for the company for 2 to 8 years.

The objective of the training program for new employees is to generate a proper understanding of Honda's commitment to environmental issues and train them to behave with a sense of environmental awareness within the context of their jobs after assignment to individual departments. Furthermore in fiscal 2001, we revised the basic training programs (HFC training)

to give fuller weight to environmental aspects. These programs had been provided mainly to younger employees at our production sites to convey our corporate philosophy and to develop individual career.

As environmental problems are becoming more global, Honda makes employees more aware of the environment through these measures, and encourages them to voluntarily act in an environmentally-friendly manner in their business and private lives.

### 2. Environmental Training Based on the Environmental Management System

Every factory and office develops plans for education and training programs conducted on the basis of the environmental management system, and holds regular training events for general personnel, operators who are engaged in specially designated works, and internal environmental auditors.



# Environmental Management

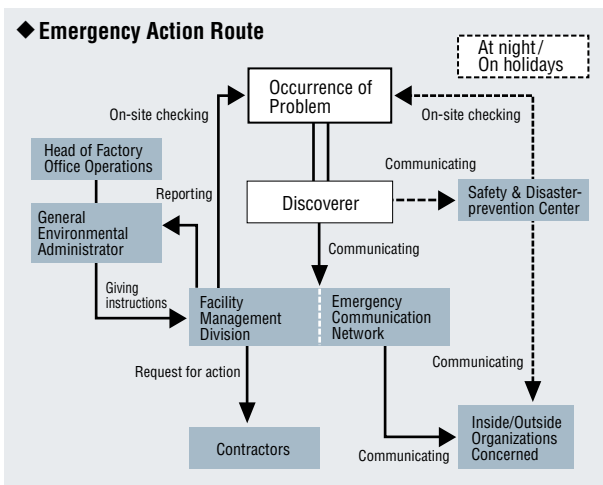
## Environmental Risk Management

### 1. Product Recalls

The company's policy on product recalls is in accordance with the statutes of Honda's Quality Committee. For Honda products, there were no environment-related product recalls in the course of fiscal 2002.

### 2. Action in Emergencies

For accidents or emergencies which may cause environmental pollution, individual factories and their individual departments have clearly-defined procedures and priorities to prevent or mitigate pollution. Daily activities include regular emergency drills and training events to acquire and improve competence in accident and emergency defense procedures. There were no environment-related emergencies in fiscal 2002.



### 3. Compliance with Legal Acts and Regulations

All factories have an ongoing commitment to environmental improvement activities in accordance with the Management System Standards laid down in ISO 14001. For all environmental aspects, the company has established and strictly abides by its own voluntary standards that are more stringent than the national or regional regulations. There were no environment-related lawsuits filed against Honda in fiscal 2002.

There was one complaint about the noise of construction works. We took immediate actions to correct the problem and followed the matter up by further reminding the internal staff and the constructors.

There was also one complaint about noise and another about bad odors, which were both allegedly coming from our plants. Promptly responding to these complaints, we investigated the matters but could not identify the pollution sources within the premises of our plants. We immediately reported the result of investigation to the complainants and the related governmental agencies.

### 4. Measures for Other Issues

Honda, attributing importance to "symbiosis with local communities," promotes Green Factory activities at each of its factories, continuously taking measures on environmental issues. We will continue to aim at becoming a company that local communities can take pride in.

#### Measures to Prevent Soil and Underground Water Pollution

##### 1) Past measures

To strengthen the monitoring of underground water, we increased the number of observation wells established within the premises of our factories, which are used for monitoring the soil and the underground water. As a result, it was confirmed that harmful substances used at the factories have never been emitted beyond the boundaries of the premises.

##### 2) Finishing of the work to make the polluted soil harmless, which was reported in the Honda Environmental Annual Report 2002

For the soil within the premises of the factories that was revealed to contain harmful substances exceeding the environmental standards of Japan in a survey of our factories conducted in fiscal 2001, we completed the planned voluntary work to make these substances harmless.

##### ● Premises of the former Wako Plant

In April 2002, the Plant publicly announced the results of the survey on soil and underground water, and submitted a notification about the detection of polluted underground water to the municipal government of Saitama Prefecture. Subsequently on November 8, 2002, the Plant started to purify the polluted soil, and successfully completed the work to make the polluted soil harmless on March 18, 2003.

##### ● Suzuka Factory

In April 2002, the Factory submitted a notification about the detection of polluted underground water to the municipal government of Mie Prefecture, and publicly announced the results of the survey on soil and underground water. Subsequently on July 23, 2002, the Factory started to purify the polluted soil, and successfully completed the work to make the polluted soil harmless on February 9, 2003.



Purification of polluted underground water at the Suzuka Factory

● Tochigi Factory

In January 2003, the Factory publicly announced the results of the survey on soil and underground water, and submitted a notification about the detection of polluted soil to the municipal government of Tochigi Prefecture. Subsequently on January 11, 2003, the Factory started to purify the polluted soil, and successfully completed the work to make the polluted soil harmless on March 20, 2003.

3) Measures taken in fiscal 2002

● Kumamoto Factory

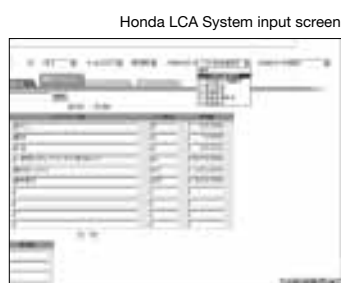
As part of the voluntary measures taken on a continuous basis for environmental conservation, the Factory implemented the following:

(1) The Factory officially submitted a notification about the internal landfill site as preventive measures against pollution. In order not to badly affect underground water in the future, the Factory dug out the site and removed the soil containing landfill waste. The removed soil was incinerated at a high temperature for recycling.

(2) Expanded surveys were conducted mainly on the areas where harmful substances were used in the past, and in the areas where pollution was detected, the Factory implemented measures to make the polluted soil harmless. From December 17 to 30, 2002, soil in the specified areas was dug out and removed. The removed soil was made harmless by a specialist company, completed on January 15, 2003.

4) Future measures

In the past, some of Honda's factories used treatments containing lead and hexavalent chromium, but the use of such treatments was discontinued at the end of March 2003. The surface treatments containing cyanogens will be continuously used, paying careful attention to prevent pollution. We will, however, examine alternatives to discontinue the use of cyanogens as early as possible. Also, we will continue to monitor underground water in the premises of our factories, and will voluntarily announce the results in our environmental annual reports and on our Web site.



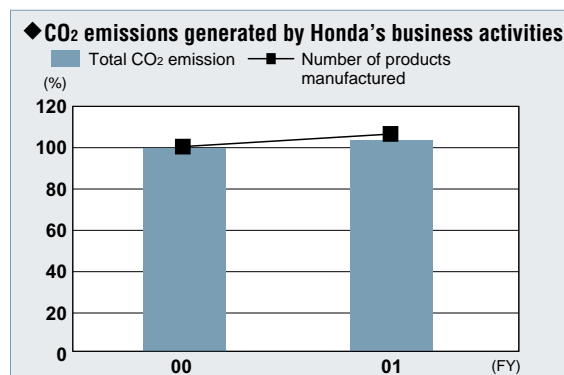
■ Promotion of Life Cycle Assessment (LCA) E p. 56

Honda established the Honda LCA System to quantify the environmental impacts of its products in all its business domains, in order to implement the world's top level environmental management system. The Honda LCA System comprises the Honda LCA Data System and the Honda LCA Management System. These systems can be applied commonly to motorcycles, automobiles, and power products and each department can reduce its environmental impact, directly based on the collected environmental impact data. In fiscal 2002, based on the Honda LCA Data System, we started to calculate the CO<sub>2</sub> emissions generated by each of our departments in Japan. Based on the quantified data, we set the annual CO<sub>2</sub> emission reduction targets for each department, and started to promote the PDCA cycle to reduce our environmental impact.

We checked the CO<sub>2</sub> emissions generated by our business activities by calculating the data collected in fiscal 2000 and 2001 regarding the manufacturing, purchasing, sales and service, and logistics departments. For example, compared with fiscal 2000, the number of products manufactured increased by 6%, although CO<sub>2</sub> emissions increased by only 2%, thanks to the environmental impact reduction activities conducted by the departments. The LCA system thus enables us to estimate the environmental impacts caused by our business activities from different aspects.

In the future, we will improve the efficiency of data collection and the accuracy of the collected data to steadily reduce our environmental impacts. At the same time, we will also introduce the Honda LCA System to overseas facilities in order to expand our environmental impact reduction measures.

\*The total CO<sub>2</sub> emissions generated by Honda's business activities is calculated based on the company's own calculation method.





# 1. Product Development Domain

Honda has actively taken environmental actions focusing on the product running (usage) stage as the large part of environmental load is generated in that stage of the product life cycle. In 1999, Honda announced its "specific targets to be achieved by 2005 with the improvement of clean exhaust gas and fuel economy" for its automobiles, motorcycles and power products respectively. Honda is now in the process of working towards achieving these targets.

## Automobiles

Besides achieving cleaner exhaust gas and improved fuel economy for Honda automobiles, efforts are under way to develop products using alternative forms of energy.

<b>Main targets for fiscal 2002 in Japan</b>	<ul style="list-style-type: none"> <li>Reduction of exhaust gases to 50% or less of Japan's emissions standards of fiscal 2000</li> <li>Increase in the number of vehicles approved by the Ministry of Land, Infrastructure and Transport as "Excellent" low emission vehicles and "Ultra" low emission vehicles</li> <li>Improvement in average fuel economy by category</li> </ul>	<b>Main achievements for fiscal 2002 in Japan</b>	<ul style="list-style-type: none"> <li>Reduction of exhaust gas to 50% or less of Japan's emissions standards of fiscal 2000</li> <li>Additional approval for 6 models as "Excellent" low emission vehicles (30 models in total), 3 models as "Ultra" low emission vehicles (7 models in total)</li> <li>Attainment of the fuel economy standards for fiscal 2010 by 6 categories among 7</li> </ul>
--	--	---	--

### Achieving Cleaner Exhaust Gas E p. 14

#### Progress in the Targets to be Achieved by 2005 with Cleaner Exhaust Gas

Honda has given high priority to cleaner exhaust gas emissions in gasoline-powered vehicles. We are working to reduce emissions such as carbon monoxide (CO), hydrocarbons (HC), and nitrogen oxides (NOx) contained in the exhaust gas.

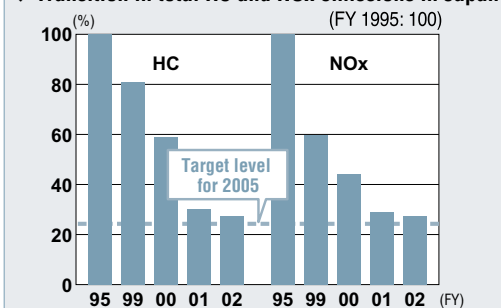
#### Targets

- Up to fiscal 2005 : To reduce the total exhaust emissions of HC and NOx by approximately 75% for new vehicles (compared with fiscal 1995)\*1
- Up to fiscal 2002 : To achieve a clean performance that exceeds the 2000 exhaust emissions standards of Japan by 50% or more for all vehicles
- Up to fiscal 2005: To have almost all Honda passenger vehicles approved as "Ultra" low emission vehicles by the Ministry of Land, Infrastructure and Transport

#### Progress

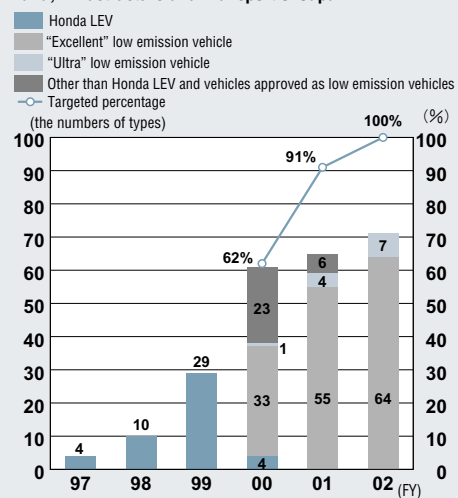
- Total HC emission level: Reduced by approx. 72.5% (as compared with 1995)\*2
- Total NOx emission level: Reduced by approx. 72.5% (as compared with 1995)\*2

◆ Transition in total HC and NOx emissions in Japan (FY 1995: 100)



- All types achieved a reduction of exhaust gas emissions to 50% or less of the 2000 exhaust gas emissions standards of Japan.\*3
- The percentage of models approved as "Ultra" low emission vehicles\*4 by the Ministry of Land, Infrastructure and Transport increased from 6% (4 models) to 10% (7 models).

◆ Transition in the numbers of types approved as Honda LEV and of types approved as low emission vehicles by the Ministry of Land, Infrastructure and Transport of Japan



Note 1: For fiscal 2000 (the year following the first announcement of the targets) and fiscal 2001, the numbers of types classified as "other than Honda LEV and vehicles approved as low emission vehicles" are shown.

Note 2: Honda LEV: Low emission vehicle (LEV) developed by Honda, which are equipped with low emission engines and reduces the emissions of CO, HC and NOx to 10% of the 1978 exhaust emissions standards of Japan. Based on its own standards, Honda qualifies some of its vehicles as Honda LEV. (Presently, however, we do not classify our new models as Honda LEV and instead classify them under the Low Emission Vehicles' Approval System of Japan started by the Ministry of Land, Infrastructure and Transport.)

\*1 Target applicable to Japan

\*2 Results in Japan (excluding trucks)

\*3 Percentage calculated based on the total emission of types regulated by the 2000 exhaust emissions standards

\*4 In order to give greater impetus to the use of low emission vehicles, the Ministry of Land, Infrastructure and Transport of Japan has instituted this approval system. The low emission vehicles with HC and NOx emission levels below the 2000 exhaust emissions standards are classed into 3 categories for approval.

25% reduction on the standards: "Good"

50% reduction on the standards: "Excellent"

75% reduction on the standards: "Ultra"

## 1. Models/Types and Sales Results for Honda LEV and Vehicles Approved as Low Emission Vehicles by the Ministry of Land, Infrastructure and Transport of Japan

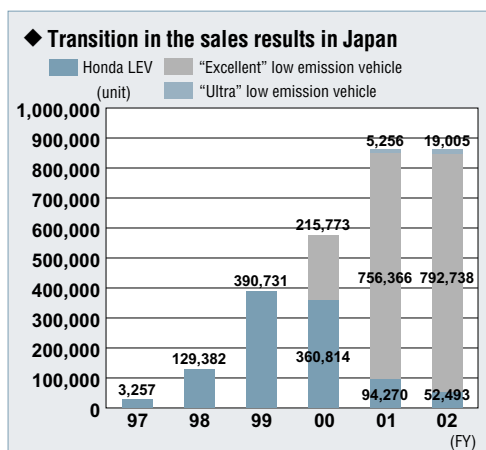
Honda has endeavored to expand the number of models approved under the Low Emission Vehicles' Approval System by the Ministry of Land, Infrastructure and Transport of Japan. In fiscal 2002, the Accord, certain models of the Accord Wagon, and the MDX were approved as "Ultra" low emission vehicles, and all the Honda marketed models were approved as low emission vehicles.

A total of 864,236 of Honda LEV and of vehicles approved as low emission vehicles were sold in fiscal 2002, accounting for approximately 99% of Honda's total sales in Japan.

Note: Figures quoted for the years prior to the establishment of the "Low Emission Vehicles' Approval System of Japan" (FY 1997-1999) refer to the Honda LEV conforming vehicles.

◆ Models released in fiscal 2002 approved as low emission vehicles

"Ultra" low emission vehicles (☆☆☆): 3 models	"Excellent" low emission vehicles (☆☆): 6 models	
Accord (2WD 20E, 20EL)	Fit 1.5T	Accord
Accord Wagon (2WD 24E)	MOBILIO Spike	Accord Wagon
MDX	Accord Euro R	Fit ARIA



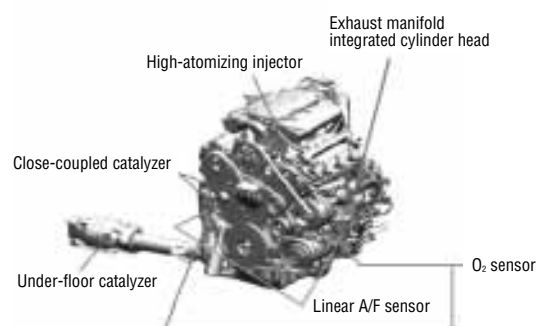
## 2. Improvement in the Emission Performance of Honda's Main Models

The MDX, released in March 2003, became the first vehicle to be approved as an "Ultra" low emission gas-powered vehicle by the Ministry of Land, Infrastructure and Transport of Japan in the upper SUV class\*. To reduce air pollutants contained in the exhaust gas from the vehicle (HC and NOx), we have installed a catalytic converter directly to the exhaust manifold of each cylinder bank, and adopted a low exhaust-pressure catalytic converter under the floor. Sensors installed in the closed-coupled catalyzers ensure precise control of the air-fuel ratio, resulting in cleaner exhaust gas.

A catalytic converter is a device to clean air pollutants contained in exhaust gas. A catalyzer is activated when the temperature reaches a certain level, and it is therefore important to raise the temperature quickly to maximize the exhaust gas cleaning performance of a catalytic converter. To improve the performance at cold start, converters used for the MDX are structured so that combustion gas concentrates in the cylinder heads, and the exhaust manifolds are integrated to reduce the distance and volume to the close-coupled catalyzers, thereby remarkably reducing the heat loss of combustion gas. Also, the atomizing fuel injectors provide near-complete combustion, resulting in cleaner combustion gas.

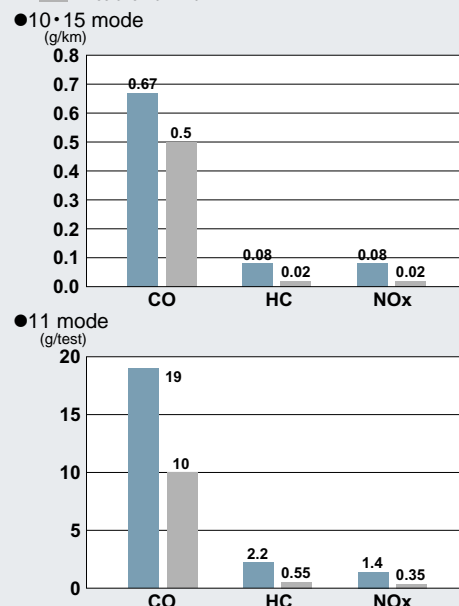
\*Sports utility vehicles (SUVs) weighing over 2,020 kg

### ◆ Major technologies used for V6 VTEC engine mounted on the MDX



### ◆ Emissions from the Honda MDX as compared with the 2000 exhaust emissions standards of Japan

■ The 2000 exhaust emissions standards of Japan  
■ Emissions from the MDX





# 1. Product Development Domain

## Improvement in Fuel Economy p. 16

### Progress in the Targets to be Achieved by 2005

Honda has introduced various technologies for improving fuel economy as a way of reducing CO<sub>2</sub> emissions that are responsible for global warming. As a result, the MDX, Fit ARIA and MOBILIO Spike released in fiscal 2002 all met the fuel efficiency standards of Japan for fiscal 2010.

#### Targets

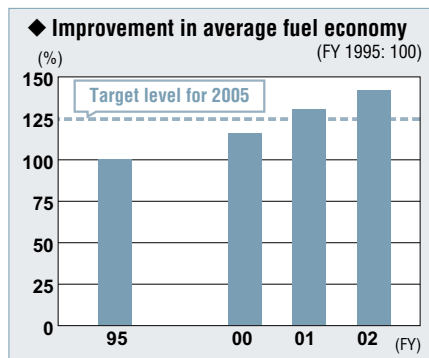
- Up to fiscal 2005 : To achieve the new fuel efficiency standards of Japan for fiscal 2010 for all weight categories
- Up to fiscal 2005 : To improve the average fuel economy by approximately 25% (compared with fiscal 1995)\*

\*Targets in Japan

#### Progress

As a result of the efforts described later, we were able to achieve the following progress in fiscal 2002.

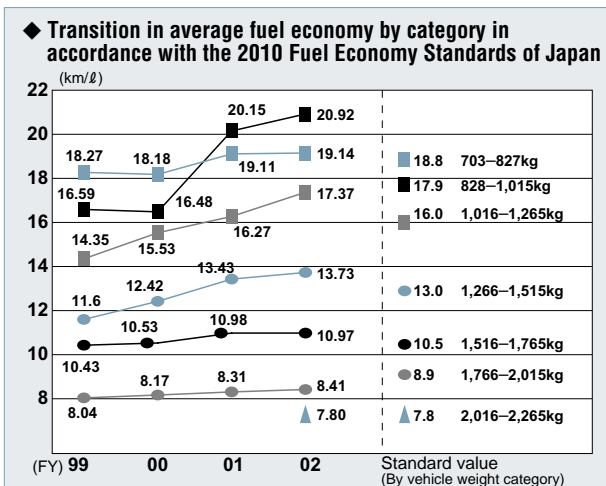
- The 2010 Fuel Economy Standards of Japan were attained in six out of the seven vehicle weight categories.



### 1. Types/Shipment Results Conforming to 2010 Fuel Economy Standards of Japan\*

In accordance with the amendment of the Energy Saving Law of Japan, the fiscal 2010 targeted values for fuel economy of Japan were announced. Honda is making efforts to increase the types that exceed the values. For types sold in fiscal 2002, 6 types meet the standards. (See the table below.) The number of the vehicles meeting these standards that were shipped in fiscal 2002 was 758,752, approximately 87% of all Honda vehicles shipped within Japan.

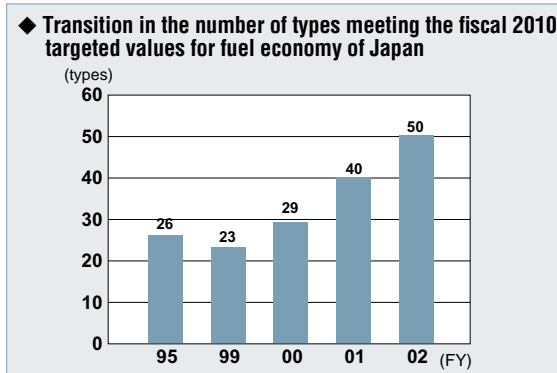
\*Shipment results reported to the Ministry of Land, Infrastructure and Transport, and the Ministry of Economy, Trade and Industry



#### Average fuel economy

Average fuel economy was improved by approximately 41% (compared with fiscal 1995)\* and achieved the objective for 2005 (improvement in average fuel economy by approximately 25%) consecutively for two years from fiscal 2002. The total domestic sales of the Fit, released in fiscal 2001, reached 250,790 in fiscal 2002 (according to a survey conducted by the Japan Automobile Dealers Association), and the Fit ranked No. 1 in the registered automobile sales. The achievement of our objectives are mainly attributed to these sales.

\*Average fuel economy in Japan (for gasoline-powered vehicles)

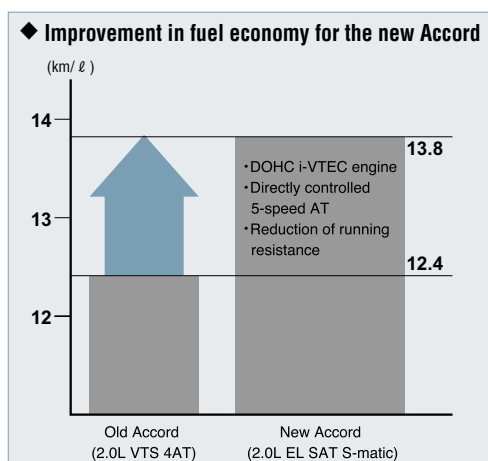


Models	Types meeting the standards
Fit*	All the types including the newly added 1.5T
MOBILIO Spike	All the types
Accord	All types, excluding those with a displacement of 2.4ℓ
Accord Wagon	All types, excluding those equipped with the 2.4E aluminum wheels
Fit ARIA	All the types
MDX	All the types

\*A new model type was added.

## 2. Fuel Economy for Main Models

The new Accord, released in October 2002, achieved a high fuel economy of 13.8 km/ℓ (10•15 mode), improved by 11% compared with the previous model, while achieving the highest output of 114 kW (155 ps). This was made possible by the adoption of the DOHC i-VTEC engine and the directly controlled 5-speed automatic transmission, as well as by improvements to aerodynamic performance.



Use of the DOHC i-VTEC engine
In addition to being highly efficient, combustion was stabilized by closing one of the two intake valves at a low rpm to create a swirl effect. This enables an increase in exhaust gas recirculation (EGR), thereby reducing pumping losses.
Directly controlled 5-speed automatic transmission
By adopting the clutch pressure direct control system and a new logic control system, precision of the transmission control has been drastically improved and optimized. Also, the lock-up control system for a wide range of transmissions, from 2nd gear to 5th gear, the highly efficient and ultra thin torque converter, and the low friction clutch all contribute to higher fuel economy.
Reduction of running resistance
Despite the stylish design, the coefficient of drag (Cd) (a coefficient of air resistance) is 0.26, achieving excellent aerodynamic performance. <ul style="list-style-type: none"> <li>• Adoption of three-dimensional surface glass for side windows</li> <li>• Minimization of aero drag by controlling the underbody airflow</li> </ul>

## Alternative Energies p. 18

### 1. Natural Gas Vehicle

The sales of the CIVIC GX, powered by natural gas, which is more abundant and emits a cleaner exhaust than oil, amounted to 124 vehicles in fiscal 2002.

### 2. Fuel Cell Vehicles

To deal with increasing environmental problems, including global warming, air pollution, and depletion of resources, Honda has been developing a new power train to replace its internal combustion engines. As a result, we released the FCX, which is a fuel cell vehicle using an ultimately clean power train powered by hydrogen. The FCX became the

world's first fuel cell vehicle to receive U.S. government certification in July 2002. Subsequently in November of the same year, it was certified for commercial use by the Minister of Land, Infrastructure and Transport of Japan. On December 2, Honda delivered the FCX, manufactured according to the specifications for leasing in Japan, to Japan's Cabinet Office and on the same day in Pacific Standard Time, it delivered the FCX manufactured according to the specifications for the U.S. to the government of Los Angeles City. The FCX adopts the "ultra capacitor," developed by Honda, a highly efficient condenser with a high output, thereby achieving powerful and highly responsive running. Also, by placing the power train elements in an optimal arrangement, enough space is ensured for 4 adults to sit comfortably within the vehicle, despite the compact body size, with collision safety ensured in all directions.



Fuel Cell Vehicles

## Noise Reduction

Honda also focuses on the development of technology to reduce exterior noise. Such noise sources as the intake, exhaust, and engine are responsible for most of the exterior noise. The new Accord that was released in October 2002 has benefited from the following technologies to achieve a reduction in exterior noise (to 74 db, which is lower than the regulation standard of 76 db) compared with the previous model.

### Reduction in engine noise

- Highly rigid cylinder block
- Adoption of "silent chains" (low-noise chains) for the timing belt
- Highly rigid crankshaft
- Adoption of a secondary balancer shaft
- Adoption of a gusset stiffener
- Adoption of a floating head cover
- Adoption of an engine undercover

### Reduction in noise from the exhaust system

- Adoption of a floating exhaust manifold cover
- Adoption of double catalyzer covers
- Adoption of a large-capacity silencer



# 1. Product Development Domain

## Motorcycles

In the motorcycles area, we have made further progress in expanding the use of 4-stroke engines to give cleaner exhaust emissions. We have also made efforts to introduce new technologies to improve fuel economy, and also applied these technologies to small motorcycles.

### Main targets for fiscal 2002 in Japan

- Expanded use of 4-stroke engines
- Improved fuel economy for new models

### Main achievements for fiscal 2002 in Japan

- Adoption of 4-stroke engines for all models released in fiscal 2002 (4-stroke motorcycles as a percentage of all motorcycles manufactured by Honda: 70.1%)
- Improvement of average fuel economy by 26.8% for all models marketed in fiscal 2002

## Achieving Cleaner Exhaust Gas E p. 20

### Progress in the Targets to be Achieved by 2005 for Cleaner Exhaust Gas

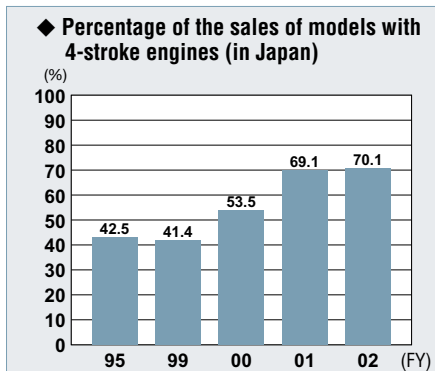
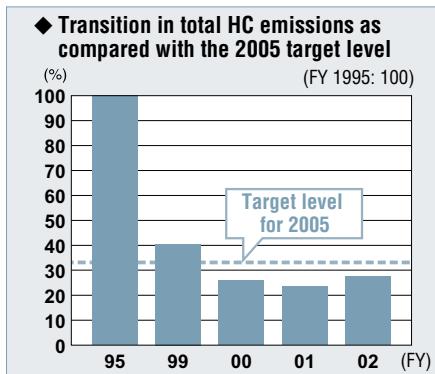
#### Targets

Up to fiscal 2005: To reduce total exhaust emissions of HC\* to approximately 1/3 for new vehicles (compared with fiscal 1995)

\*Total for Japan, the US, the EU and Thailand

#### Progress

In fiscal 2002, HC emissions from new Honda motorcycles were kept at approximately 1/4 of 1995 levels, although sales increased by 14.6%.\* This was due to the growth of sales of 4-stroke motorcycles, which account for 70% of the total sales of Honda motorcycles in Japan.



In Japan, as a result of releasing the TODAY, a scooter with a 4-stroke engine, total HC emissions reduced to approximately 19.1% of 1995 levels, down 1 point from the previous year. The production of 2-stroke motorcycles was discontinued in fiscal 2002, excluding special motorcycles.

\*Total sales quantity in Japan, U.S., Europe, and Thailand

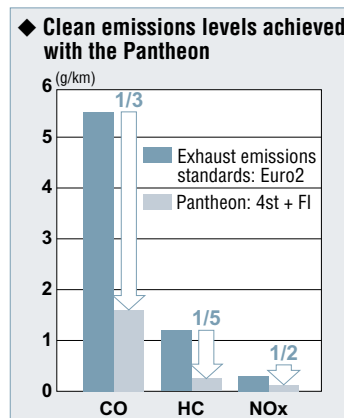
### 1. Improvement in Emission Performance of Honda's Main Models

Honda is promoting cleaner exhaust gases both in Japan and throughout the world.

The Pantheon, which was a 125 cc scooter released in the European market in January 2003, reached clean emission levels equal to 1/3 (CO), 1/5 (HC), and 1/2 (NOx) of the exhaust emissions standards applied in Europe. This was achieved by using the following technologies.

- Use of PGM-FI (an electronic fuel injection system) for small motorcycles
- Use of a ternary catalytic converter, the HECS3\*

\*Honda Evolutional Catalyzing System 3



Pantheon

## Improvement in Fuel Economy E p. 22

### Progress in the Targets to be Achieved by 2005 with the Improvements in Fuel Economy

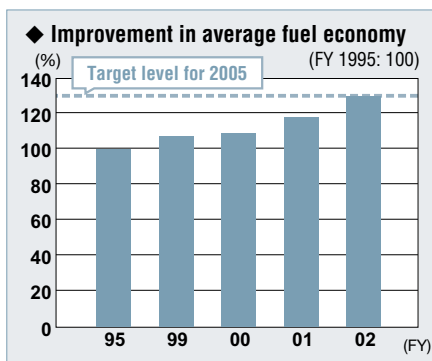
#### Targets

Up to fiscal 2005: To improve average fuel economy\* by approximately 30% (compared with fiscal 1995)

\*Total average for Japan, the US, the EU and Thailand

#### Progress

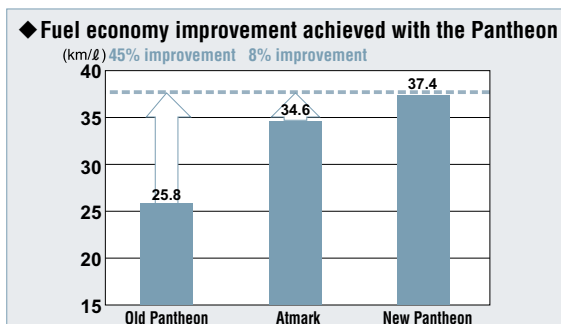
Honda has been expanding the use of 4-stroke engines for motorcycles not only in Japan but also overseas. We completed the replacement of 2-stroke engines with 4-stroke ones for all models (excluding some special motorcycles) by the end of fiscal 2002. As a result, in fiscal 2002, sales of 4-stroke motorcycles increased and accordingly, the average fuel economy increased by 29.5% compared with the level in 1995. We will introduce the PGM-FI system to smaller motorcycles step by step, in order to achieve the 2005 target of a 30% improvement in average fuel economy.



### 1. Improvement in Fuel Economy for Main Models

In Europe, in fiscal 2002, we started the marketing of scooters to which the fuel injection (FI) technology was introduced to further improve the fuel economy of 4-stroke engines.

The Pantheon 125 cc scooter released in the European market in January 2003 achieved a 45% improvement in fuel economy compared with the previous 2-stroke model.

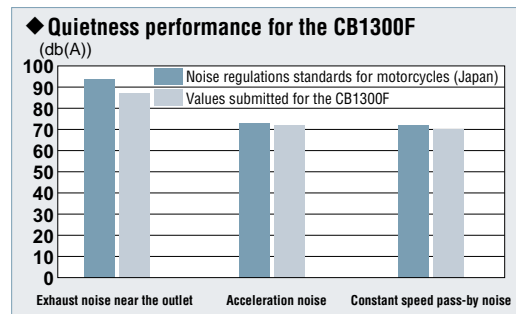


Also, as a result of introducing the FI technology, fuel economy was improved by 8% compared to other 4-stroke scooters of the same class.

## Noise Reduction E p. 23

### 1. Efforts to Reduce Noise

For the CB1300F, released in the Japanese market in February 2003, we have achieved a level of quietness that is below the third noise regulation standards of Japan (made stricter in October 2001) by using the following noise reduction technologies.



Variable exhaust system

Variable exhaust valve

Variable exhaust valve unit

#### Exhaust noise

- Exhaust noise has been reduced by introducing a variable exhaust system that controls the diameter of the exhaust pipe according to the driving condition. The system was introduced for the first time to the CB1300F.

#### Intake noise

- Intake noise was reduced by introducing Honda's own computer-aided engineering analysis (CAE) technology and a variable intake system that optimizes the intake route.

#### Drive system

- Driving noise has been reduced through the adoption of Honda's own "Silent Cross Chain" (urethane resin rollers are used in combination with the iron rollers on the chain) and a drive sprocket that is optimized for the chain.



CB1300F

Motorcycles complying with the third noise regulation standards of Japan
<b>XL230</b> (released in April 2002)
<b>FUSION250</b> (released in February 2003)
<b>CB1300F</b> (released in February 2003)



# 1. Product Development Domain

## Power Products

For Power Products, our environmental commitment is made in anticipation of stringent regulations in advance, in focusing on cleaner exhaust gases and improved fuel economy in all product areas.

Main targets for fiscal 2002 in Japan

- Complying with stringent regulations in advance
- Improving the fuel economy for new product models

Main achievements for fiscal 2002 in Japan

- Compliance with future regulations for all models released in fiscal 2002
- Improvement of fuel economy by 7% for the BF15D outboard engine

### Achieving Cleaner Exhaust Gas E p. 24

#### Targets for 2005 and Progress

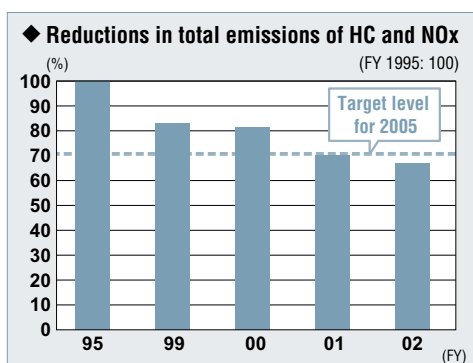
##### Targets

Up to fiscal 2005 : To reduce average exhaust emissions\* of HC and NOx by approximately 30% for new products (compared with fiscal 1995)

\*Average emission levels worldwide

##### Progress

We were able to achieve about a 30% reduction in average HC and NOx emission levels at the end of fiscal 2001, and subsequently in fiscal 2002, we could achieve approximately a 34% reduction by continuously taking the measures described below.



### 1. Improvement in Emission Performance of Honda's Main Models

The GX25, which was a 25 cc, 4-stroke, universally inclinable engine released in June 2002, complies with the world's most stringent Phase 2 Regulations of the U.S. Environmental Protection Agency (EPA) at top-class level.

This was made possible by the adoption of the following technologies:

- Shape of the combustion chamber that minimizes the quenching zone
- Oil control structure that improves cylinder deformation caused by heat

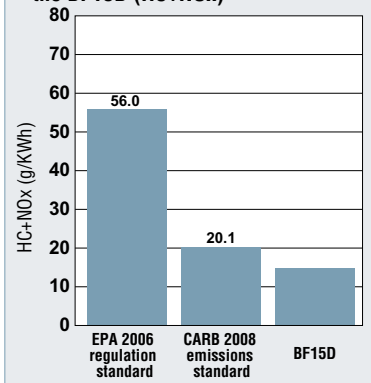
The BF15D and the BF20D, outboard engines released in May 2002, achieved an environmental performance that exceeds the fiscal 2008 exhaust emissions standards of the

California Air Resource Board (CARB) of the U.S., which are the most stringent exhaust gas emissions standards in the world. Also, these engines became the first 15 horsepower and 20 horsepower outboard engines to receive the CARB's three-star rating for ultra-low emissions.

This was made possible by adopting the following technologies:

- Carburetor with an accelerator pump that enables lean burn and cleaner exhaust gas at the same time
- Carburetor structure with 3 routes, designed using the carburetor's primary range
- Electronically controlled CDI (Capacity Discharge Ignition) that enables optimally-timed ignition

#### Clean emission levels achieved with the BF15D (HC+NOx)



BF15D

The FF300 "Salad" mini tiller, released in March 2003, is equipped with the GXV57 engine, which complies with the EPA Phase 2 and the CARB Tier regulation standards, which are the world's most stringent exhaust emissions standards for general-purpose engines. Compared with the old SV engine "Komame," the following points have been improved.

- OHV engine that enables improvement in combustion and reduction in oil consumption
- Compact combustion chamber that enables higher compression and thermal efficiency
- "Uni-block cylinder" structure that reduces cylinder distortion and oil consumption, and improves thermal efficiency



FF300

## ■ Improvement in Fuel Economy E p. 26

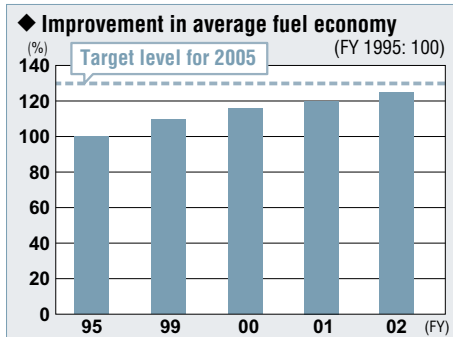
### Targets for 2005 and Progress

#### Targets

Up to fiscal 2005: To improve the average fuel economy by approximately 30% (compared with fiscal 1995)

#### Progress

We were able to improve the average fuel economy by approximately 23% at the end of fiscal 2002 as a result of the following efforts.



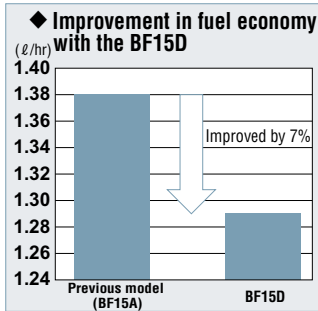
### 1. Efforts to Improve Fuel Economy

We introduced various technologies to the major models released in fiscal 2002, in order to improve their fuel economy. Through the adoption of digital CDI, hemispherical combustion chambers, and center plugs, BF15D and BF20D outboard engines achieved a

fuel economy at the top of their class, while also featuring the largest displacement in each class. The actual fuel efficiency of the BF15D (ISO, E5 mode) improved by 7% compared with the previous model, BF15A.

The FF 300 "Salad" tiller, which was mentioned before, reduces fuel consumption to about half of another tiller in the same class, due to highly efficient tilling performance attained by the introduction of the following technologies:

- Rotary system with coaxial normal/reverse rotating tines that improves straight-line stability and tilling efficiency by offsetting the reactive force and restricting any increase in vibration
- Rotary cover structure that reduces a loss in horsepower caused by carrying soil
- Tines cut and arranged to reduce required horsepower, and a reduction of rpm



## ■ Alternative Energies E p. 27

Honda started the marketing of its own gas cogeneration unit for household use through gas companies in March 2003, in order to reduce energy consumption in ordinary households. The total thermal efficiency for power generation and hot water supply reaches 85%, and compared with traditional thermal power generation-based energy supply system, a 20% reduction in CO<sub>2</sub> emissions can be expected. (According to calculations made by Honda in comparison with electricity from thermal power generation and hot water supplied from a gas-powered machine.)



## ■ Noise Reduction

### 1. Efforts to Reduce Noise

We introduced the following technologies to reduce noise from our major power products released in fiscal 2002.

#### [BF15D], [BF 20D]

By adopting Honda's own vibration dampening technology (pendulum-motion mounting system), these outboard engines achieve low vibration at the highest level in the class without the use of a balancer shaft. Also, the special nonlinear rubber mounts absorb vibrations, from the low-speed zone through the high speed zone. Furthermore, the adoption of a large-sized air silencer and water-cooling of the idling exhaust port area contribute to a reduction of intake and exhaust noise, thereby achieving a top-class noise reduction.

#### [UMK425]

The world's lightest 4-stroke engine, the GX25, which is used for the UMK425 trimmer, adopts the following technologies:

- Oil-immersed timing belt that reduces mechanical noise
- Lighter pistons



UMK425



# 2. Purchasing Domain

In the Purchasing Domain, Honda has set green purchasing guidelines, thereby increasing the proportion of materials and parts with less environmental impacts.

### Main targets for fiscal 2002 in Japan

- Compliance with the schedule set in Honda's chemical substance guidelines
- Reduction of suppliers' CO<sub>2</sub> emissions
- Reduction of suppliers' landfill waste
- Promotion of the acquisition of ISO 14001 certification by all suppliers

### Main achievements for fiscal 2002 in Japan

- Compliance with the EU Directive on End-of-Life Vehicles (to be applied from July 2003)
- Reduction by 6.5% in energy unit compared with the previous year (regarding affiliated companies)\*
- Reduction by 48% compared with fiscal 2000 (regarding affiliated companies)\*
- Acquisition by 293 companies (66% of the suppliers)

\*Affiliated companies: subsidiary companies and associated companies based on the Securities and Exchange Law

## Promotion of Green Purchasing p. 38

### 1. Green Purchasing Guidelines

In 2001, Honda set its green purchasing guidelines to aggressively promote the green procurement of materials and parts. (See the framework of Honda's green purchasing guidelines shown below.)

In cooperation with our suppliers, we started to deal with the specific management items and targets toward 2010.

#### 1) Management of chemical substances

As one of the major activities in fiscal 2002, we made a plan to comply with the EU Directive on End-of-Life Vehicles to be applied from July 2003, and implemented the plan as scheduled.

#### 2) Reduction of environmental impact caused by suppliers in manufacturing parts

In fiscal 2002, making full use of the Honda LCA System, we made efforts to reduce CO<sub>2</sub> emissions and landfill waste. As a result, CO<sub>2</sub> emissions from suppliers were reduced by 6.5% in energy unit compared with fiscal 2001. Also, landfill waste from suppliers decreased by 48% compared with fiscal 2000. These were made possible by cooperation between Honda and our suppliers.

In fiscal 2003, we will continue to promote the management of chemical substances and a reduction in the use of substances that cause environmental impact, according to our green purchasing guidelines.

#### 3) Promoting the acquisition of ISO 14001 certification by Honda's suppliers

In fiscal 2002, Honda worked towards a target of all its suppliers acquiring ISO 14001 certification. This has resulted in acquisition of certification by 293 companies, which account for 66% of all Honda suppliers.

### 2. Efforts in Relation to the Purchase of Spare Parts

#### 1) Recycling of used dies

Most dies for spare parts are made from iron, and end-of-life dies are already recycled. It is said that CO<sub>2</sub> emissions can be reduced to 1/4 by the recycling of iron, compared with the manufacturing of iron from ironstone.

It is desirable to progressively recycle dies to reduce environmental impact, but because different spare parts are manufactured from one single die, dies need to be stored for the remanufacturing of these parts. Therefore in the past, it was difficult to decide when to dispose of dies that were not currently being used, and a lot of dies were stored over long periods of time without being recycled.

In fiscal 2002, however, we started to aggressively recycle unused dies in cooperation with suppliers using the following method.

We provided suppliers with information on parts and the criteria to decide whether to dispose of their dies. Then, based on such information, the recycling of dies began, following standardized procedures.

#### Achievements in fiscal 2002

Number of dies disposed of: 51,000  
In terms of weight: 16,000 tons

### ◆ Framework of Honda's green purchasing guidelines

Honda green purchasing	Classification	Management item	Target
Products	Management of chemical substances contained in products (purchased parts)	Content of chemical substances in products (parts and materials)	Compliance with the schedule set forth in Honda's guidelines on chemical substances*
		CO <sub>2</sub> emission volume	2010: 6% reduction over 2000
Manufacturing	Management of environmental impacts by suppliers	Waste amount (reduction of landfill)	2007: Zero landfill
		Promoting environmental management systems at suppliers	2005: Completion in Japan 2008: Completion in other countries
Corporate system	Promoting environmental management systems at suppliers	Further acquisition of ISO 14001 certification	2005: Completion in Japan 2008: Completion in other countries

\*Honda's guidelines on chemical substances: The guidelines show the schedule for reducing, abolishing the use of, or replacing chemical substances with environmental impacts, including those regulated in Europe (lead, mercury, cadmium, hexavalent chromium) and those voluntarily regulated by Honda.



# 3. Production Domain

In the Production Domain, Honda aggressively reduces the use of energy and resources and promotes zero emission to develop Green Factories.

Main targets for fiscal 2002 in Japan

- Energy unit\*: 22.4 CO<sub>2</sub>-tons/¥100 million
- CO<sub>2</sub> emissions: 480,000 CO<sub>2</sub>-tons
- Incineration of waste: 56% reduction over fiscal 1998

Main achievements for fiscal 2002 in Japan

- Energy unit\*: 22.2 CO<sub>2</sub>-tons/¥100 million
- CO<sub>2</sub> emissions: 482,000 CO<sub>2</sub>-tons
- Incineration of waste: 54% reduction over fiscal 1998

\*Energy unit: energy consumption per unit of production output

## Promotion of Green Factories E p. 30

### 1. Energy and Resource Saving

#### Targets for 2002 on Promoting Energy Saving and Progress

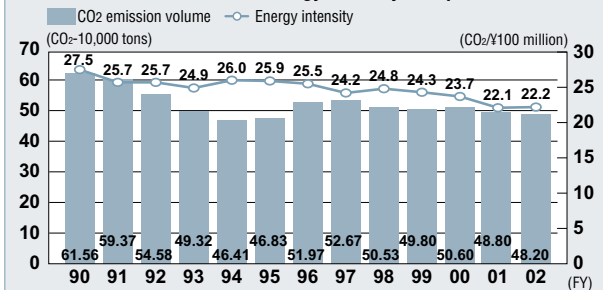
##### Targets

To reduce the energy unit to 22.4 CO<sub>2</sub>-tons/¥100 million (18.5% reduction compared with fiscal 1990)

##### Progress

In fiscal 2002, we succeeded in achieving the target shown above, reducing the energy unit to 22.2 CO<sub>2</sub>-tons/¥100 million, down 19.3% from the 1990 level.

#### CO<sub>2</sub> emission volume and energy intensity in Japanese factories



\*Although energy unit was expressed in kℓ/¥100 million in the previous environmental annual reports, it is now expressed in CO<sub>2</sub>-tons/¥100 million.

#### 1) Energy saving

Carbon dioxide emissions at Honda factories was 482,000 CO<sub>2</sub>-tons in fiscal 2002, down 1.2% from the previous fiscal year (488,000 CO<sub>2</sub>-tons), and down 21.8% over fiscal 1990. Emissions, however, were 0.4% higher than the target for fiscal 2002 (CO<sub>2</sub> emissions of 480,000 CO<sub>2</sub>-tons), influenced by an increase of 7% in production output over planned production. The following energy saving efforts were also sustained in fiscal 2002.

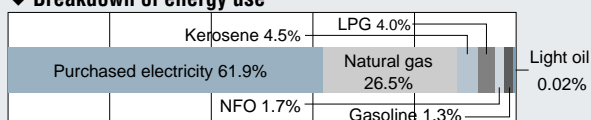
##### Energy saving efforts

- Reduction by streamlining production lines
- Reduction by adopting energy-saving valves for air blowers
- Reduction by introducing an inverter control to the air conditioner for canteens
- Reduction by introducing inverter control to hydraulic power units and to coating booths

##### Introduction of new energy sources

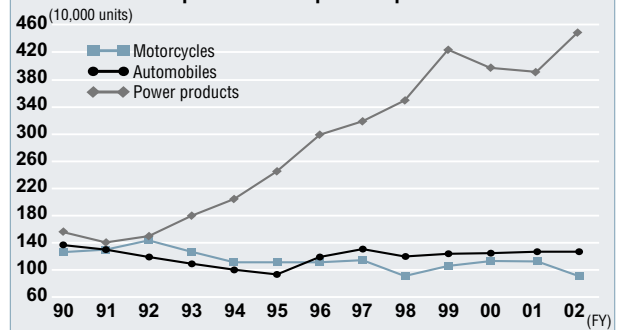
- Introduction of Cogeneration System No. 2
  - The Sayama Factory started operation of the system in July.
  - The Suzuka Factory started operation of the system in October.
- Installation of solar power generation systems
  - The Hosoe Plant completed installation at the end of March.
  - The Kumamoto Factory completed installation at the end of March.

#### Breakdown of energy use



At our factories, we will introduce new energy sources and promote energy saving by improving energy efficiency through LCA activities.

#### Transition in production output in Japan



Note 1: CO<sub>2</sub> emission volume and water consumption are influenced by changes in the production output.

Note 2: With effect from fiscal 1999, the buggy, which used to be classified as a power product, has been reclassified as a motorcycle.

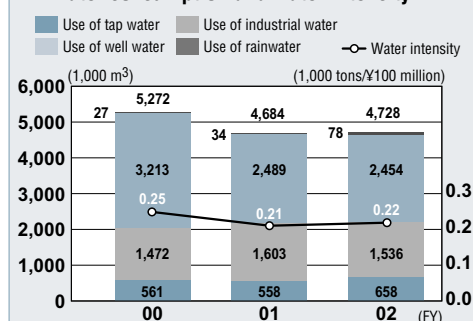
#### The following CO<sub>2</sub> conversion factors were used:

Electricity:	0.404 (CO <sub>2</sub> -ton/MWh)
Natural gas:	2.015 (CO <sub>2</sub> -ton/1,000 Nm <sup>3</sup> )
LNG:	1.174 (CO <sub>2</sub> -ton/1,000 Nm <sup>3</sup> )
Kerosene:	2.532 (CO <sub>2</sub> -ton/kℓ)
Gasoline:	2.246 (CO <sub>2</sub> -ton/kℓ)
Light oil:	2.576 (CO <sub>2</sub> -ton/kℓ)
LPG:	3.031 (CO <sub>2</sub> -ton/ton)
NFO:	2.716 (CO <sub>2</sub> -ton/kℓ)
Coke:	3.120 (CO <sub>2</sub> -ton/ton)

#### 2) Resource saving (Water consumption)

Water consumption at the domestic factories in fiscal 2002 totaled 4,728,000 m<sup>3</sup>. Although production output grew approximately 7% from the previous fiscal year, water consumption increased only by approximately 1%, which was achieved by the following measures.

#### Water consumption and water intensity



\*The table shown in the previous year's annual report included erroneous water consumption data, which has been corrected in this table.

#### Water saving measures taken in fiscal 2002

- Tochigi Factory and Saitama Factory: Streamlining the plants
- Kumamoto Factory: Improving the water circulation rate by the use of rainwater



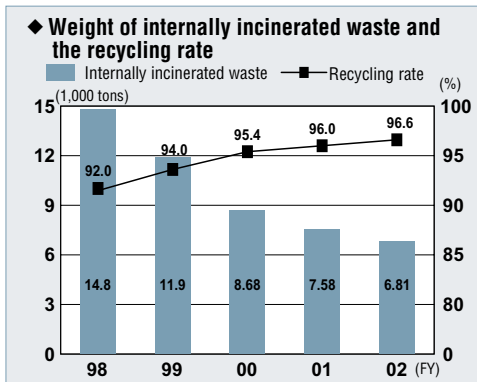
# 3. Production Domain

## 2. Zero Emissions

### 1) Reduction of waste (Byproducts)

Efforts toward zero landfill were continued at all the domestic factories in fiscal 2002. We are also making efforts to reduce the total amount of byproducts and the amount of waste disposed of by incineration.

The amount of waste disposed of by incineration was approximately 7,000 tons, reduced by 54%, thus failing to achieve the target of a 56% reduction over the fiscal 1998 level. This was due to an increase of approximately 7% in the actual production amount over the planned amount, which led to an increase in the total amount of byproducts, beyond our estimations. From now on, we will further reduce waste incineration by taking drastic measures to sort waste, and will make aggressive efforts to reduce the total amount of byproducts, notably by implementing measures to prevent the generation of waste.



$$\text{Recycling rate} = \frac{\text{Total amount of byproducts} - \text{amount incinerated}}{\text{Total amount of byproducts}} \times 100$$

$$\text{Total amount of byproducts} = \text{Total amount of waste} - \text{amount of internally concentrated liquid waste}$$

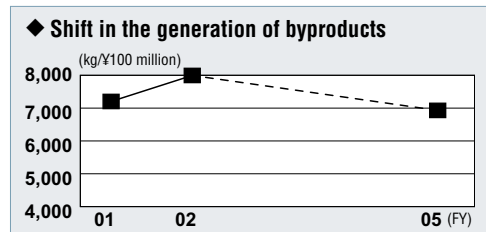
### ◆ Breakdown of waste associated with production activities

(Unit: 1,000 tons)

Type	Fiscal 1990	Fiscal 2001	Fiscal 2002
External landfill	18.1	0.0	0
Intermediate external disposal	8.2	0.033	0.057
Internal incineration	17.0	7.85	6.81
Internal concentration	0.0	6.39	4.45
Recycling	139.6	191.93	194.08
Total amount of byproducts	182.9	204.38	203.66

Excluding burnt residues

- The plan for restraining the generation of byproducts, which is made based on the Law concerning the Promotion of the Utilization of Recycled Resources, sets the target for fiscal 2005 as shown in the following graph. For fiscal 2002, metal waste increased by 10%, while total production amount increased by 7% compared with the previous year's levels. Waste from the molding process, however, decreased by 17%.



### 2) Prevention of air and water pollution

Air and water quality control is achieved by rigorous monitoring performed in accordance with our voluntary standards, which are more stringent than the regulations on gas emissions from combustion systems and the regulations on factory effluents. For specific measurement results, please refer to Factory Data on page 42.

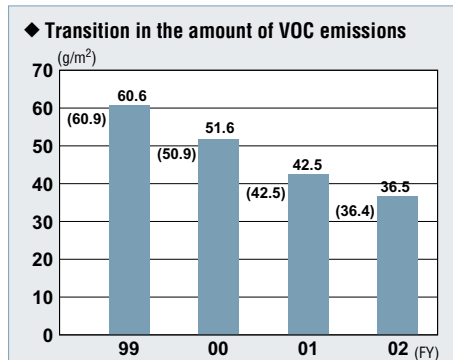
#### (1) Volatile organic compound (VOC)

We measured VOC emissions at the Saitama and Suzuka Factories, the VOC emissions from which were reported in the previous fiscal year's annual report, as well as at the Takanezawa Plant of the Tochigi Factory. In fiscal 2002, the average VOC emissions from these factories and plant was 36.5 g/m<sup>2</sup>, down 14% from the previous fiscal year. Such reduction was achieved by the following measures.

#### VOC reduction measures taken in fiscal 2002

<b>Saitama Factory</b>	Introduction of 4-staged bell painting/Thinner finish coating
<b>Suzuka Factory</b>	Improvement of coating efficiency/Improvement of the cleaning thinner recovery rate

The measures implemented for the automobile coating process will also be implemented for the motorcycle and power product coating processes in order to further reduce VOC emissions.



\*The figures without parentheses include VOC emissions from the Takanezawa Plant of the Tochigi Factory, while those with parentheses show the data for the Suzuka and Saitama Factories.

### 3) Chemical emission (PRTR)\*

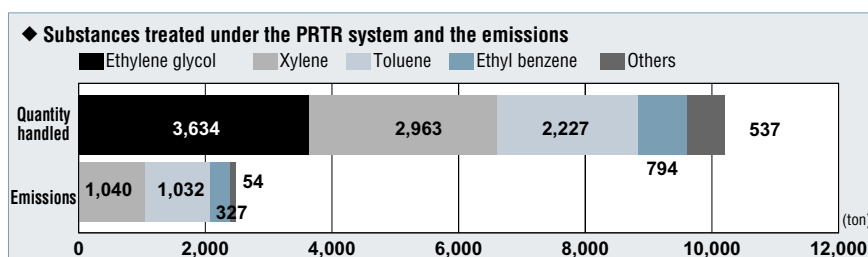
The table below gives the statistical results for fiscal 2002 for the substances falling within the scope of the PRTR Law. The treated amount was approximately 10,154 tons, up approximately 2% from the previous fiscal year. The emission levels discharged into the air/hydrosphere amounted to approximately 2,453 tons, down approximately 8% from the

previous fiscal year. We will further reduce the emission levels by setting targets. (Please see page 42 and subsequent pages for the data for each of Honda's factories, which newly include the data for Honda R&D Co., Ltd. and Honda Engineering Co., Ltd.)

\*PRTR (Pollution Release and Register Transfer) system: Law concerning the reporting of releases into the environment of specified chemical substances and for promoting improvements in their management

#### ◆ Results of fiscal 2002 survey in Japan by Honda\*1

Substance No.*2	CAS No.	Name of substance	Quantity handled	Primary specified chemical substances		Notification items based on the PRTR Law [Unit: kg (Dioxins: mg-TEQ)]						
				Released into the air	Released into public water areas	Total released	To sewage	External disposal waste*3	Total transfer amount	Recycling*4	Quantity removed	Consumption (shipped amount)
1	—	Water-soluble zinc compounds	87,000	0	210	210	210	42,600	42,810	0	0	45,000
16	141-43-5	2-Amino ethanol	27,400	0	0	0	1,400	1,400	2,800	790	2,680	21,000
30	25068-38-6	Bisphenol A-type epoxy resin	128,600	52	0	52	0	2,260	2,260	0	4,900	121,500
40	100-41-4	Ethyl benzene	794,400	327,560	0	327,560	0	480	480	292,440	39,310	140,100
43	107-21-1	Ethylene glycol	3,634,000	12	0	12	0	4	4	0	0	3,634,000
44	110-80-5	Ethylene glycol monoethyl ether	3,500	1,900	70	1,970	0	0	0	0	1,500	0
63	1330-20-7	Xylene	2,963,000	1,040,500	0	1,040,500	0	25,100	25,100	986,072	97,700	755,000
198	100-97-0	Hexamethylen tetramine	6,000	0	0	0	0	0	0	0	6,000	0
224	108-67-8	1,3,5-trimethylbenzene	87,000	46,000	0	46,000	0	0	0	31,000	10,500	0
227	108-88-3	Toluene	2,227,000	1,032,000	0	1,032,000	0	5,800	5,800	78,700	98,900	1,060,000
230	—	Lead and its compounds	9,000	0	0	0	18	205	223	0	0	8,800
231	7440-02	Nickel	2,400	0	0	0	0	0	0	0	0	2,400
232	—	Nickel compounds	11,800	0	270	270	920	5,100	6,020	0	0	5,600
272	117-81-7	Bis Phthalate (2-ethyl-hexyl)	94,000	0	0	0	0	1,760	1,760	0	92	92,000
283	—	Hydrogen fluoride or its water-soluble salts	2,000	0	0	0	0	0	0	0	2,000	0
299	71-43-2	Benzene	52,000	130	0	130	0	0	0	740	960	50,100
307	—	Poly(oxyethylene)=alkylether	4,000	0	0	0	140	0	140	0	3,800	0
310	50-00-0	Formaldehyde*5	—	3,400	0	3,400	0	0	0	0	0	0
311	—	Manganese and its compounds	19,800	0	990	990	640	5,000	5,640	0	0	12,700
312	—	Molybdenum and its compounds	1,000	0	0	0	0	1,000	1,000	0	0	0
		Total (Unit: kg)	10,153,900	2,451,554	1,540	2,453,094	3,328	90,709	94,037	1,389,742	268,342	5,948,200
179	—	Dioxins (Unit: mg-TEQ)	—	65.80	0.30	66.10	0.40	2,307.70	2,308.10	0	0	0



\*1 Study conducted on 354 types of primary specified chemical substances falling within the scope of the law concerning the reporting of releases into the environment of specified chemical substances and for promoting improvements in their management (Law Promoting the Management of Chemical Substances). Substances treated on a scale of 1,000 kg or more.

\*2 Numbers of primary specified chemical substances falling within the scope of the Law Promoting the Management of Chemical Substances.

\*3 Amount recycled by paying the recycling costs

\*4 Amount sold to external recycling firms

\*5 The [-] in the "Quantity handled" column means "not applicable" because the substances are reaction products.

## Honda Green Conference

The Honda Green Conference is a big environmental event, held since 1999, to help further reduce the environmental impacts of the entire Honda Group. At the Conference, excellent examples of environmental conservation activities conducted at Honda's business sites are presented so that all the participants can share this useful information. Honda believes it important for all its factories, research facilities and suppliers to cooperate together to promote environmental activities, and encourages all those concerned to participate in the Conference. In fiscal 2002, the Fourth Honda Green Conference was held at the Global Plaza within the Tochigi R&D Center of Honda R&D Co., Ltd.

In addition to presentations by 16 teams selected by Honda business sites, the activities of Honda Manufacturing of Alabama (HMA) were also introduced as a special example from overseas. Honda will further increase the number of participants in the Green Conference to promote future environmental activities.

Speakers (Departments)	
Aichikiki Co., Ltd./Seki Plant	Tochigi Factory/Maoka Plant
F.tech Inc./Quality Assurance Office	Saitama Factory/Paint & Plastics Plant
Tanaka Seimitsu Kogyo Co., Ltd./Production Technology Department	Saitama Factory/Business Administration Division
Yamada Manufacturing Co., Ltd./Steering Division	Hamamatsu Factory/Power Product Plant
Honda Verno Hokkaido Co., Ltd.	Suzuka Factory/Paint & Plastics Plant
Honda R&D Co., Ltd./Tochigi R&D Center	Suzuka Factory/Business Administration Division
Honda Engineering Co., Ltd./Tochigi Technology Center	Kumamoto Factory/Engine Plant
Parts Operations	Special example/Alabama Plant
Manufacturing, Sales, Inventory, and Distribution Management	



# 4. Transportation Domain

In the Transportation Domain, Honda has introduced environmental management systems and improved transportation efficiency by energy-saving driving and modal shift, in order to reduce CO<sub>2</sub> emissions through green logistics. Also, to reduce the amount of packaging waste, we are aggressively promoting the use of returnable packaging materials.

Main targets for fiscal 2002 in Japan

- Introduction of environmental management systems to the major four transportation companies
- Improvement in transportation efficiency: CO<sub>2</sub> emission of 126,400 CO<sub>2</sub>-tons (for transport of completed automobiles)

Main achievements for fiscal 2002 in Japan

- ISO 14001 certification acquired by three out of four major companies. Introduction of a unique environmental management system by one company
- Improvement in transportation efficiency: CO<sub>2</sub> emission of 125,058 CO<sub>2</sub>-tons (for transport of completed automobiles)

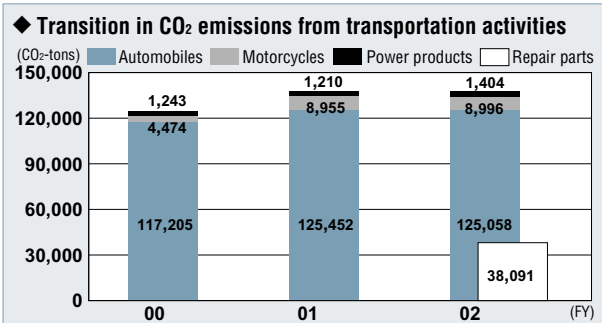
## Promotion of Green Logistics p. 40

### 1. Introduction of Environmental Management Systems to Transportation Companies

In the Transportation Domain, our efforts concentrated on the establishment of environmental management systems. As a result, among our four affiliated transportation companies, three are ISO 14001 certified, and the remaining one has implemented its own environmental management system.

### 2. Improving Transportation Efficiency

In fiscal 2002, we took on-site measurements of CO<sub>2</sub> emissions from the transportation of repair parts, in addition to those from the transportation of automobiles, motorcycles and power products. As a result, total CO<sub>2</sub> emissions from transportation amounted to 173,549 CO<sub>2</sub>-tons.



### CO<sub>2</sub> emissions from the transportation of completed automobiles: 125,058 CO<sub>2</sub>-tons

By encouraging affiliated transportation companies to promote energy-saving driving and the replacement of old vehicles with new ones to improve average fuel economy, we attempted to reduce CO<sub>2</sub> emissions from the transportation of Honda products. CO<sub>2</sub> emissions from the transportation of completed automobiles decreased by 2% compared with the fiscal 2001 level, while the total CO<sub>2</sub> emission from transportation was only reduced by 0.3%, partly due to an increase in the number of vehicles owned by the transportation companies.

In the future, we will expand transportation by ship (modal shift) to further reduce CO<sub>2</sub> emissions from the transportation of our products. The following main measures were taken in fiscal 2002.

#### Main measures

- Expansion by seven routes of joint transportation by truck with other companies

#### CO<sub>2</sub> reductions due to measures to improve the transportation efficiency (rate of increase in total emissions < rate of increase in the transportation amount) (fiscal 2002)

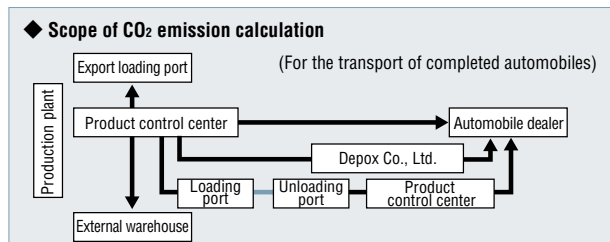
Item	Target	Time started	Reduction (in CO <sub>2</sub> -tons)
Joint transportation by truck with other companies	Automobiles	October 2002	624
Total reduction			624

### CO<sub>2</sub> emissions from the transportation of completed motorcycles: 8,996 CO<sub>2</sub>-tons

Although the number of motorcycles transported within Japan increased by 6%, CO<sub>2</sub> emissions from the transportation of these motorcycles increased by only 0.5%, thanks to the measures taken by transportation companies, including the promotion of energy-saving driving methods and the replacement of old vehicles with new ones to improve average fuel economy.

### CO<sub>2</sub> emissions from the transportation of repair parts: 38,091 CO<sub>2</sub>-tons

For CO<sub>2</sub> emissions from the transportation of repair parts, we could achieve a reduction of 3,751 CO<sub>2</sub>-tons, beyond the reduction target of 837 CO<sub>2</sub>-tons. This remarkable reduction was achieved by combining the operations of the warehouses in the Hamamatsu District with those in the Sayama and Suzuka Districts, thereby achieving a CO<sub>2</sub> emission reduction of 3,373 CO<sub>2</sub>-tons.



### 3. Cleaner Exhaust Gases from Transportation

In order to comply with the ordinances on environmental conservation enacted by the Tokyo Metropolitan Government and three neighboring prefectural governments, Honda's affiliated transportation companies are introducing diesel particulate filters (DPFs) and low emission vehicles. Honda has examined the measures taken by its transportation companies to ensure compliance with the ordinances.



Diesel particulate filters (DPFs)

## Reduction of Packaging Materials by Product

E p. 41

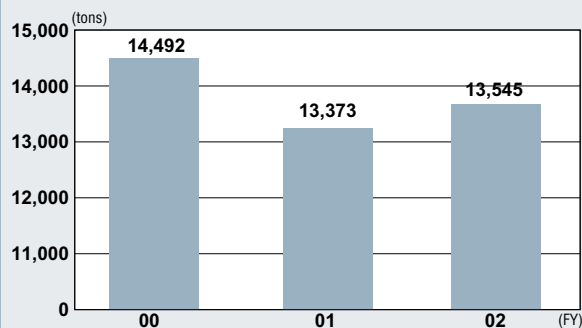
### 1. Activities to Reduce Packaging Materials Used for Repair Parts

#### 1) Reduction in the use of packaging materials for repair parts

In fiscal 2002, the total use of packaging materials for repair parts amounted to 13,545 tons, up 172 tons on the previous fiscal year.

Such a rise was caused by an increase in the sales of parts. As a result of taking the following measures to minimize the use of packaging materials, we could save the use of packaging materials by 250 tons in fiscal 2002.

#### ◆ Transition in the use of packaging materials for repair parts



#### 2) Activities to reduce packaging materials

##### Example of reducing the use of cardboard for packaging materials



Before improvement



After improvement

#### Reduction of packaging materials

- Reduction in the use of cardboard
- Use of more compact packaging materials for larger-sized parts (1996 model parts: bumpers, bonnets, fenders, and doors)
- Replacement of cardboard boxes used for odd-lot items with plastic bags and change in materials used for making cardboard boxes to reduce the unit weight of packaging materials

### 2. Activities to Reduce Packaging Materials Used for Knock-down (KD) Parts\*

\*Knock-down parts refer to parts for knock-down shipments (unassembled sets of parts for delivery overseas for assembly at the overseas destination).

#### 1) Expanded use of returnable internal containers

By using returnable internal containers for the export of parts to the United Kingdom, the amount of cardboard materials used for export was reduced by 340 tons.

#### 2) Expanded use of returnable external cases

In countries where we use returnable external cases, these cases accounted for 75% of the total cases (10 countries) used for transportation. In fiscal 2002, the application of returnable external cases was not expanded to other countries.

#### 3) Development of new-type returnable cases

We developed new pallet-type returnable cases to export transmissions to the United Kingdom. In the past, materials used for securing the contents of the cases, such as styrene foam and cardboard were locally disposed of as waste, but presently, almost no waste is generated in the transportation process.



New-type returnable cases

### 3. Export of Completed Motorcycles

We are using returnable cases for exporting completed motorcycles to Europe and promoting the use of non-cardboard packaging materials (using only steel cases) for export to other areas. For the import of completed motorcycles from China, we have achieved zero waste in the transportation of scooters through the use of returnable pallets.



Motorcycles returnable pallets

#### ◆ Reduction of packaging materials in the export of completed motorcycles (in fiscal 2002)

- Reduction in the use of steel materials: 2,400 tons
- Reduction in the use of cardboard materials: 800 tons

### 4. Transportation of Power Products

By using returnable steel cases instead of the combined use of one-way steel cases and cardboard cases for the domestic transportation of medium and large-sized outboard engines, we have been able to reduce the use of steel and cardboard materials.

#### ◆ Reduction of packaging materials in the transportation of power products (in fiscal 2002)

- Reduction in the use of steel materials: 7 tons
- Reduction in the use of cardboard materials: 3.7 tons



# 5. Sales Domain

In the Sales Domain, we are in the process of introducing Honda's own environmental management system to Honda automobile dealers and are making efforts to ensure appropriate disposal of end-of-life products and substances such as CFC12 or HFC134a. We are also extending similar activities to the motorcycles and power products areas.

Main targets for fiscal 2002 in Japan

- Expansion of Best Green Dealers to 1,650
- Expansion of Honda Dream Stores
- Establishment and full-scale implementation of the Green Dealer Certification System for power products

Main achievements for fiscal 2002 in Japan

- Expansion of Best Green Dealers to 1,607
- Opening of 11 environmentally friendly Honda Dream Stores
- Certification granted to one dealer and the starting of the certification process by another dealer

## Promotion of Green Dealers (Automobiles)

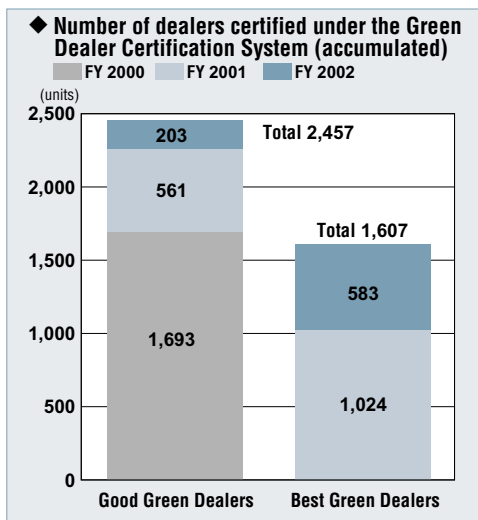
E p. 42

### 1. Introduction of Environmental Management Systems

We have been promoting the introduction of environmental management systems to Honda automobile dealers and in fiscal 2002, the dealers shown in the table below were certified as "Good Green Dealers" or as "Best Green Dealers" under the Green Dealer Certification System.\*

From now on, we will expand the number of dealers certified as "Best Green Dealers" and further encourage dealers to reduce CO<sub>2</sub> emissions.

\*This proprietary environment management system has been established by Honda on the basis of know-how obtained through acquisition of ISO 14001 certification. The Honda Green Dealer Certification System is implemented in two steps. The Good Green Dealer Certification is awarded on the criteria of compliance with legal regulations and improving the environment, whereas the Best Green Dealer Certification, which is on a higher level, is awarded on the criterion of improving environmental efficiency.



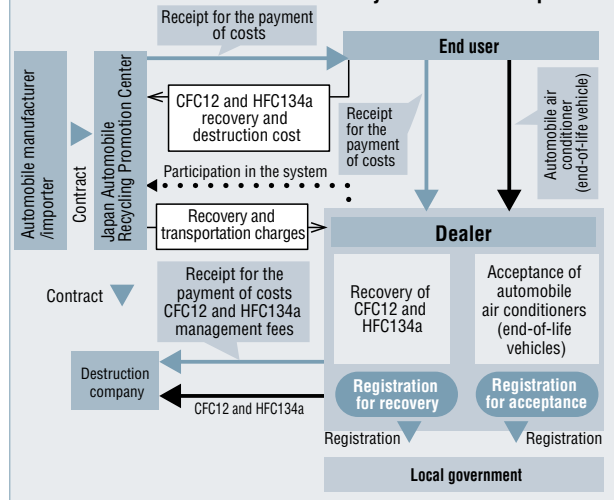
### 2. Proper Disposal of End-of-Life Vehicles

#### 1) Proper disposal of CFC12 and HFC134a

To comply with the CFC Collection and Destruction Law of Japan, enforced in October 2002, we promoted registration with local governments as a company engaged in the acceptance and recovery of CFC12 and HFC134a.

	Target	Number of registrations	Registration rate
Registrations for acceptance (new and used automobile sales bases)	2,547	2,547	100%
Registrations for recovery (service bases)	2,484	2,141	86.2%

#### ◆ Flow of CFC12 and HFC134a recovery and destruction process



#### 2) Compliance with the Automobile Recycling Law

The Automobile Recycling Law of Japan was promulgated in July 2002. In order for Honda dealers to smoothly comply with the law, which is scheduled to be implemented in December 2004, Honda featured the recycling of automobiles in two issues of *GD Press*, to provide dealers with the latest information, including a detailed explanation of the law, the schedules of the explanatory meetings on the law to be held by relevant administrative agencies, and the activities of related organizations and industries. We will continuously update the information available about the law.



### 3. Other Activities

#### 1) Creation of guidelines for the proper management of substances falling within the scope of the PRTR Law

In order to enable Honda dealers to fulfill their social responsibility of reducing the environmental impacts caused by the use of chemical substances, we published guidelines for the proper management of substances falling within the scope of the PRTR Law, and distributed copies to all our sales bases in March 2003.

The guidelines outline the management procedures for dichlorofluoromethane (CFC12), ethylene glycol (LLC\*), xylene and toluene, which are handled, stored, and disposed of by dealers.

\*LLC: long life coolant

#### 2) We implemented the following measures to promote environmental improvement activities at dealers based on our environmental management systems.

- Distribution of the Green Dealer Guide to all the dealers (in March 2002)
- Distribution of posters encouraging CO<sub>2</sub> emission reduction to all dealers (in June 2002)
- Distribution of a brochure showing the measures concerning CO<sub>2</sub> emission reduction to all dealers (in June 2002)
- Publication of four issues of *GD Press* (environmental information magazine for dealers)
- Participation in the Honda Green Conference (by Honda Verno Hokkaido)



## Expansion of Environmental Commitment to the Motorcycle and Power Products Areas

### 1. Motorcycles

#### 1) Distributor

Preparation for the second ISO 14001 recertification was completed at the Osaka Branch of Honda Motor Cycle Japan. In the second year after the acquisition of certification, the motorcycle company made efforts and achieved 5% reductions on the previous year's energy consumption and waste generation levels. As its main measures, the company encouraged employees to turn off electricity as often as possible and promoted idling stops for the vehicles used for its business.

As a result, the company achieved an approximately 13% reduction in energy consumption in terms of monetary value. Also, by drastically sorting waste, generation of waste was reduced by approximately 20%. Furthermore, the company established a system to steadily reduce its environmental impacts by making employees more aware of the environmental issues.

#### 2) Dealers

In March 2002, we opened Honda Dream Tachikawa in Tachikawa City, Tokyo as the first Honda Dream Store, which is a new type of store for sports bikes. With the opening of this store, we started to develop Green Dealers for motorcycles.

Aiming to establish a marketing and service network of 200 Honda Dream Stores throughout Japan, we opened 11 stores in fiscal 2002. In fiscal 2003, we will further increase the number of Honda Dream Stores, linking the network of these stores with the Green Dealer System.

Honda Dream Stores	
•Proper disposal of end-of-life motorcycles from the acceptance of worn out motorcycles from customers, and parts and oil from the repair and inspection of customers' motorcycles	Completed in fiscal 2002
•Measures to reduce environmental impacts caused by sales activities	Examining the introduction of an original EMS in fiscal 2003

### 2. Power Products

In fiscal 2002, under the theme of strengthening the measures to respond to social requests for the environment, we made efforts to make our dealers the best green dealers in the industry and encouraged them to issue manifests concerning the disposal of industrial waste. As a result, one company was certified as a Honda Green Dealer, and another started the process to receive this certification. Also, 34 dealers introduced manifest systems. We will implement more measures to expand the number of Honda Green Dealers, and encourage our 150 agents, including the sales offices for power products, to issue manifests.

# 6. Disposal and Recycling (3R) Domain

Honda gives priority to the recyclability of its products. Based on the 3R (reduce, reuse, and recycle) concept, we carefully selected materials and structures for our products at the product development stage.

Main targets for fiscal 2002 in Japan

- Improvement of recyclability

Main achievements for fiscal 2002 in Japan

- Motorcycles and automobiles: achievement of 90% or more recyclability for models newly released or changed in fiscal 2002
- Outboard engines: achievement of 95% recyclability for the BF15D and BF20D outboard engines

## ● Automobiles

### ■ 3R Design E p. 46, p. 47

#### 1. 3R Evaluation System

Since fiscal 2001, based on the advanced 3R evaluation system, we have been evaluating and improving the 3R design of newly developed models.

#### 2. Design for Reduction

##### (Reduction of Waste Generation)

For the Accord, released in October 2002, the following measures were taken as designs for reduction.

##### 1) Measures for weight reduction

Construction modification	Downsizing the fastened part of the connecting rod by the adoption of very strong connecting rod bolts
	Integration of the cylinder block with the lower block
	6-speed manual transmission
Material changes	Thinner aluminum wheels achieved by the "multigate" method
	Adoption of lightweight sound-proofing materials
	Adoption of aluminum rear knuckles

##### 2) Longer lives of consumables

Engine oil	10,000 km → 15,000 km
LLC (long life coolant)	Interval: 3 years → 11 years
Oil filter	20,000 km → 30,000 km
ATF	Interval: 40,000 km → 80,000 km

#### 3. Design for Recyclability

For all the models newly released or changed in fiscal 2002, we achieved 90% or more recyclability by implementing the following measures:

##### 1) Design for easier dismantling

##### Example of construction modification (Accord)

- Discontinuing the use of screws through vibration welding of the air conditioner duct to the instrument panel
- Using a resin trim cord for fixing the front seat surface instead of using C-rings

##### Example of integrated parts

- Crankshaft
- Connecting rod

##### 2) Standardization of resin materials (Promotion of olefin resin)

For all of the new models and changed models released in fiscal 2002, highly recyclable olefin resins are now used for the injection-molded interior parts. Also, material identification marks are displayed on all the resin parts large enough for such labeling.

#### Standardization of resin materials

Promoting the use of olefin resin	
Trunk decoration	Bumper face
Pillar decoration	Air conditioning unit
Instrument panel	Door lining
	Others

##### 3) Use of recycled materials (resins)

In fiscal 2002, we used 3.2 kg of recycled resins for the Accord, and will further increase the use of recycled materials.

## ■ Reduction in Substances with Environmental Impacts

### 1. Reduced Use of Lead

Honda is making progress in reducing its use of lead. The new models released in fiscal 2002 used 1/3 or less lead than was used in 1996. Especially for the Accord, the use of lead was reduced to 1/10, by implementing the following new measures in addition to the measures already being taken.

#### Additional measures taken for the new Accord

- Adoption of lead-free electrodeposition coating materials
- Use of lead-free wheel balancers

### 2. Reduced Use of Other Substances with Environmental Impacts

Honda has been replacing other substances with environmental impacts based on its guidelines on chemical substances.

### 3. Reduction in HFC134a

We developed an air conditioner reducing the use of HFC134a by approximately 10% as compared with the fiscal 1995 level and adopted it for 17 out of 27 models as of 2002. While 650 g of HFC134a was used for an old Accord, 550 g (less 100 g) is used for the new Accord. Regarding air conditioners without HFC134a,

- We are gathering information to understand the industry's movements and the current level of technology.
- We are working towards the practical use of vehicles loading such air conditioners.

## ● Motorcycles

### ■ 3R Design

#### 1. 3R Evaluation System

Since 1992, Honda has been checking each of its new models with its advanced 3R evaluation system in order to improve 3R-related performance.

#### 2. Design for Reduction (Reduction of Waste Generation)

##### 1) Weight reduction

We made efforts to introduce foam resin to reduce the weight of motorcycles, thereby reducing their environmental impact. Foam resin is already applied to the seat bottom plate of the Pantheon, a motorcycle released in January 2003.



##### 2) Longer life

The domestic use of Honda's original puncture-proof technology called "tuffup tube" reached one million in August 2000, and further expanded to as many as 1.7 million in April 2003, thus showing steady growth. We are promoting these tubes on a global scale, including local production in India and Brazil.

#### 3. Design for Recyclability

##### 1) Improved recyclability

We have been expanding the use of weldable, hollow aluminum die cast frames, including its application in the CBR600RR, released in fiscal 2002.



##### 2) Use of recycled resin

We are also expanding the adoption of recycled resin to fenders and under-covers. For the CB1300SF, released in fiscal 2002, approximately 7.7 kg of recycled resin is used.

### ■ Reduction in Substances with Environmental Impacts

#### 1. Reduction in the Use of Lead

- For paints used at our factories, we completed replacement with lead-free paints.
- We have started to replace adhesives with lead-free ones.
- We have started to replace stabilizers used for elastomers with lead-free ones.
- We launched the global application of lead-free wheel balancers, domestic use of which started in 2003.
- We have started to replace wire harnesses and printed board solder with lead-free ones.

- Application of lead-free free-cutting steel\* was further expanded, and this steel is used for the crankshafts of almost all the models equipped with in-line 4-cylinder engines (50% of all models). We will further expand this use to models equipped with V-type 2 cylinder engines.

Models released in fiscal 2002 in which the free-cutting steel is applied	CBR600RR (released in March 2003)
	CB400SF (released in January 2003)
	CB600F HORNET (released in February 2003)
	CB1300SF (released in February 2003)

\*Free-cutting steel: Steel to which other metal elements (usually sulfur or lead) have been added to make cutting easier.

#### 2. Reduction in Other Substances with Environmental Impacts

Honda has been replacing these substances based on its guidelines on chemical substances.

- (1) We started to replace the surface treatment steel sheets containing little hexavalent chromium in December 2002 (for bearings, etc.)
- (2) We discontinued the use of cadmium for relay contacts.

## ● Power Products

### ■ Design for Recyclability

Honda's goal is to make 95% of all parts and materials used in the manufacturing of power products recyclable by 2004. To make it easier to identify the materials, we are marking all plastic parts, down to the very smallest ones.

##### 1) Improved recyclability

The recyclability rate of the BF15D and BF20D reached 95% (according to Honda's own calculation criteria).

##### 2) Use of recycled resin

For the BF15D and BF20D outboard engines, released on May 25, 2002, resins recycled from the nets used for fishing salmon and trout are used as the material for various resin parts.

### ■ Reduction in Substances with Environmental Impacts

#### 1. Reduction in the Use of Lead

Honda is promoting the use of lead-free harnesses, paints and carbon brushes in motors, and has adopted lead-free crankshafts in the GX middle-sized engine for generic use.

#### 2. Reduction in the Use of Other Substances with Environmental Impacts

We are promoting the use of cadmium-free contacts, etc., based on our guidelines on chemical substances.



# 6. Disposal and Recycling (3R) Domain

Honda is aggressively engaged in research to develop technologies for the dismantling of end-of-life products and material recycling technology. Our efforts also concentrate on increasing the recovery of parts, including end-of-life bumpers, on the expansion of their recycling and reuse, and on improvements in actual recycling rate.

Main targets for fiscal 2002 in Japan

- Expansion of Honda Recycle Parts
- Support for the achievement of 95% or more actual recycling rate

Main achievements for fiscal 2002 in Japan

- No expansion in the use of recycled parts
- Improvements to the vehicle turnover device for dismantling
- Making specific plans for dismantling lines
- Treatment of parts difficult to dispose of

## Increasing the Recovery, Recycling, and Reusing of Parts E p. 48

### 1. Expansion of Honda Recycle Parts Business

In July 2001, we started selling "Honda Recycle Parts," which included reused parts as well as the highly functional recycled parts that had been sold since 1998, such as the torque converters.

#### ◆ History of Honda Recycle Parts

	1998	1999	2000	2001	2002
Recycled parts	Remanufacturing business			Honda Recycle Parts	
Reused parts				Honda Recycle Parts	

#### 1) Recycled parts

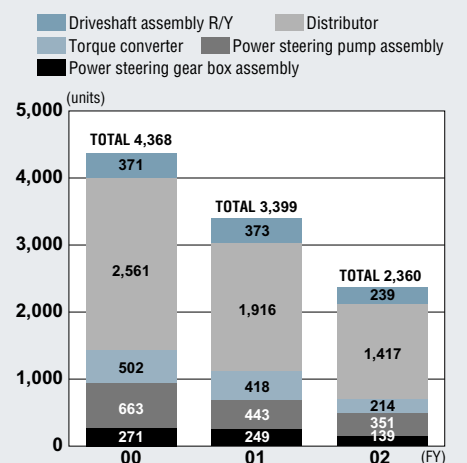
##### (1) Expansion of the lineup

In fiscal 2002, as in the previous fiscal year, we examined the sale of new recycled parts to be sold as Honda Recycle Parts. However, since we could not obtain satisfactory results concerning technologies, production functions, or performance, we did not market any new items in the fiscal year. We will make further efforts to improve the performance and functionality of recycled parts.

##### (2) Sales results

Sales of recycled parts have decreased year on year. This is due to a decrease in the number of existing models that can make use of recycled parts. We will expand the number of models that can make use of recycled parts and will develop new items for recycled parts.

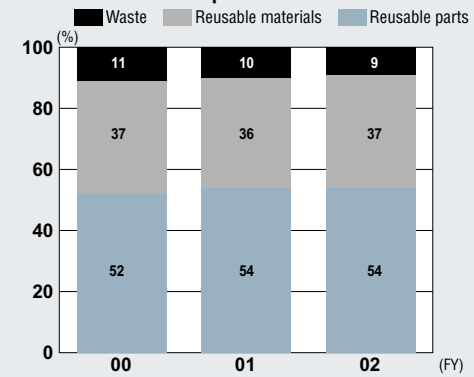
#### ◆ Transition in the sales of recycled parts in Japan



### (3) Present reuse of parts

The following table shows the present reuse of parts recovered for use as recycled parts. By promoting the reuse of parts and recycling of materials, we achieved a reuse rate of 90% or more.

#### ◆ Rate of reuse in Japan



#### 2) Reused parts

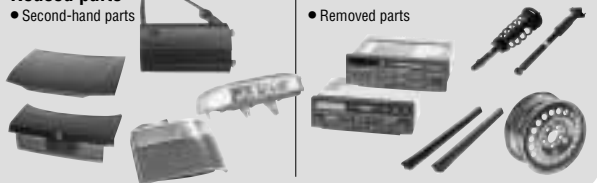
In July 2001 in the Kanto District and in January 2002 in the rest of Japan, it was made possible to order reused parts and genuine parts at the same time through the existing Honda genuine parts distribution channel, to ensure convenience for purchasers.

Reused parts comprise second-hand parts (16 items) that are selected and removed from end-of-life vehicles two generations before, and removed parts (9 items) that are taken away to install optional parts. In fiscal 2003, we will make efforts to expand the number of models to which reused parts are applied.

##### Recycled parts



##### Reused parts



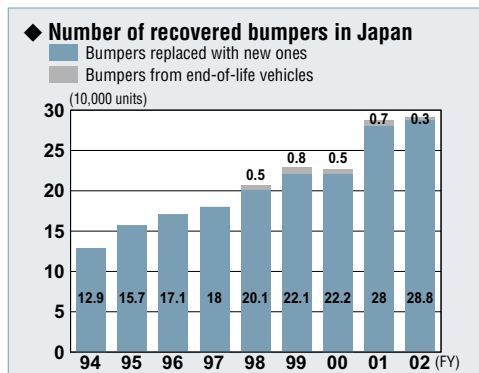
Honda Recycle Parts

## 2. Recovery and Recycling of Bumpers

Also in fiscal 2002, we recovered bumpers from Honda automobile dealers as well as from general servicing and repair companies. As a result, in fiscal 2002, as much as 1,498 tons of recycled resin were used. As part of measures to expand the use of recycled resin, the types of recovered bumpers made from recycled resin were increased by 13 to total 76.

**Number of bumpers recovered in fiscal 2002 and the amount of resin recovered: 291,086 bumpers, 1,018 tons**

Bumpers replaced for repair: 288,161 bumpers, 1,008 tons  
End-of-life vehicle bumpers: 2,925 bumpers, 10 tons

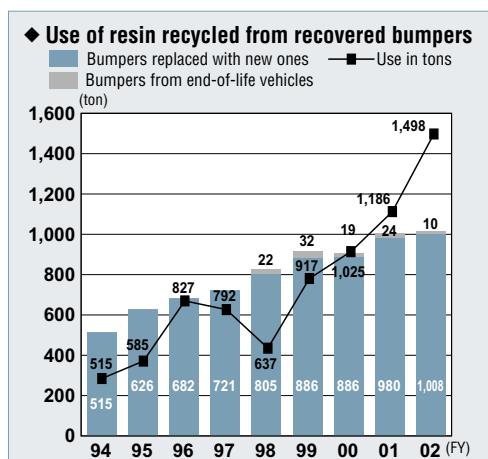


**Use of recycled resin: 1,498 tons\***

\*The use of recycled resin exceeds the amount of resin recovered because the former includes the use of resin recovered from bumpers found defective in the production process and the recycled resin stored since the previous year.

### Products made from the recycled resin

Automobiles: splash shield, splash guard, bumper for repair, etc.  
Motorcycles: under cover



## Activity Results of the Dismantling Verification Center

### 1. Evaluation of the Ease of Vehicle Dismantling

According to the Manual for Evaluating the Ease of Vehicle Dismantling published two years ago, we evaluated three models for ease of dismantling in fiscal 2002. We obtained data on ease of dismantling regarding liquids, parts containing substances with environmental impacts, recycled materials, reused parts, and recyclable parts such as those made from resin, and standardized the data collection process. Furthermore, to comply with the law on the recycling of end-of-life vehicles to be enforced in the near future, the Manual has been further improved to enable more detailed analysis concerning ease of vehicle dismantling.

### 2. Infrastructure Supporting Technology

#### 1) Improvement of the vehicle turnover device for dismantling

Honda's own vehicle turnover device for dismantling proved its effectiveness in the market, and in 2002, the device was further improved to add more functions.

For example, a platform was added to receive front/rear suspensions, and a machine to collect rear glass and a machine to remove bumpers were also added to improve the efficiency of the vehicle turnover device. At the same time, the device's weight was reduced for cost reduction.

#### 2) Promotion of recycling technologies in the market

There are still many problems to be resolved to ensure effective recycling based on the market principle.

To solve such problems, Honda has been developing more efficient dismantling methods and optimal disposal and recycling methods. Specifically, we have developed an efficient method to remove bumpers, increased the recovery rate of liquids, and improved the working environment regarding on-vehicle airbag operations. The results will be utilized from time to time to give support to those involved in recycling in the market.



Vehicle turnover device



On-vehicle airbag operations

\*Measurement of the actual recycling rate:

It was verified that we achieved a recycling rate of 90% or more as a result of providing vehicle turnover devices for dismantling as an infrastructure supporting technology. According to an evaluation of the industry's actual recycling rate made by the Industrial Structure Council of Japan, the Japanese automobile industry achieved a recycling rate of 85%. We did not measure the actual recycling rates of Honda vehicles for fiscal 2002, because we already had sufficient data.

# 7. Administration Domain

Honda has been actively conducting environmental activities in the Administration Domain at its Head Office building in Aoyama and at other offices. From now on, we will further promote environmental activities in our daily businesses.

Main targets for fiscal 2002 in Japan

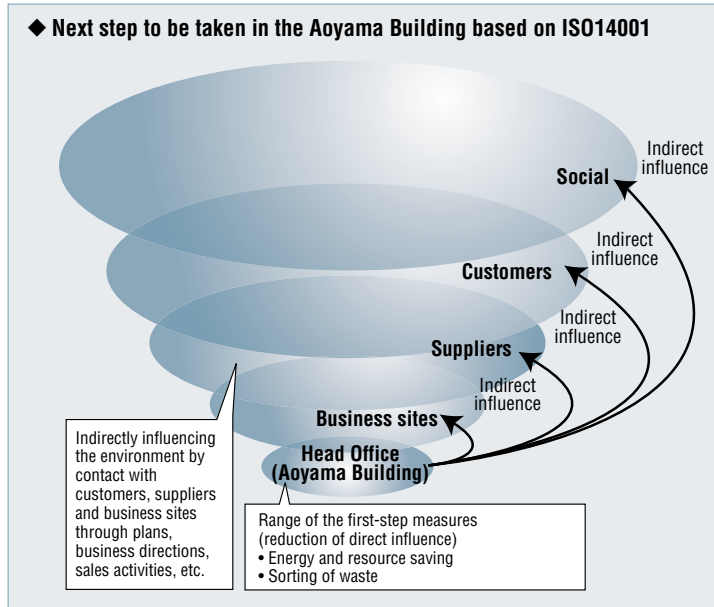
- Introduction of environmental viewpoints to daily business

Main achievements for fiscal 2002 in Japan

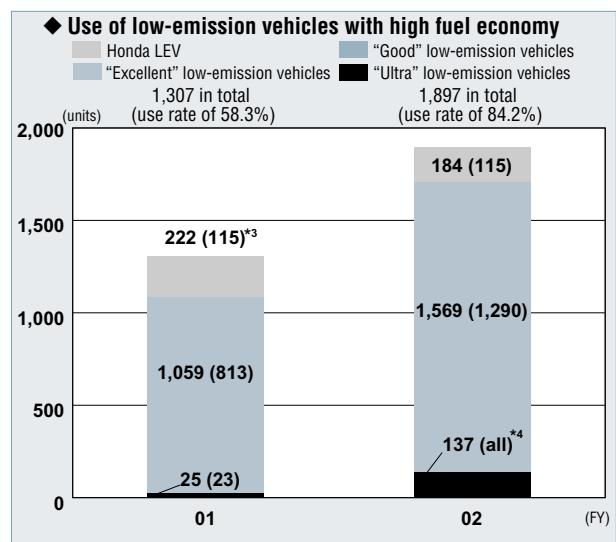
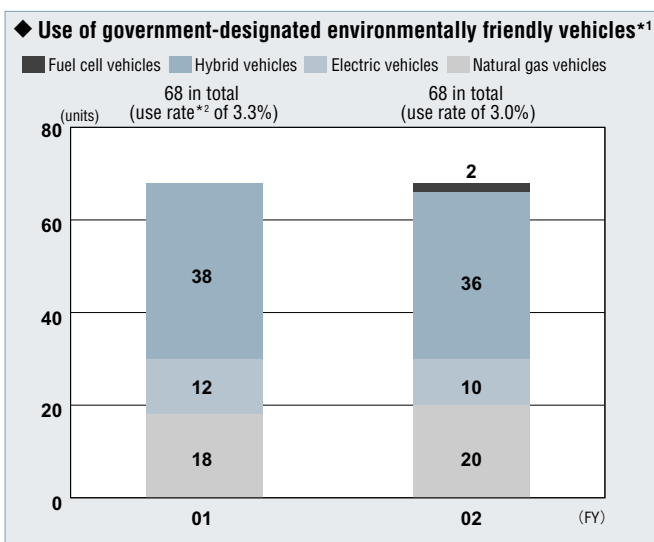
- Experimental implementation of new measures at model departments

## Promotion of Green Offices E p. 44

Honda's Aoyama Head Office acquired ISO 14001 certification in November 1999, and has since been committed to reducing the environmental impacts caused by its business activities. Employees are now engaged in activities to reduce their environmental impacts as part of their office work, and the environmental impacts directly caused by the Head Office reduced to a certain level. To promote further achievements, in fiscal 2002, new measures were implemented on an experimental basis to introduce environmental viewpoints into daily business activities, based on the recognition that the business activities conducted inside the Head Office are indirectly causing remarkably large environmental impacts outside the office. In September 2002, the Head Office building was inspected for its ISO 14001 recertification regarding conventional office activities and the new environmental measures being adopted within its business activities. It acquired recertification in November of the same year.



Related Data: Use of environmentally friendly/low-emission vehicles as company-owned cars at the main business sites



\*1 Non-gasoline vehicles meeting the government's green procurement criteria. For gasoline powered vehicles, see \*4.

\*2 The use rate is the ratio of environmentally friendly vehicles or low emission vehicles to all the vehicles owned by business sites (2,063 in fiscal 2001 and 2,247 in fiscal 2002).

\*3 The figure in parentheses shows the number of vehicles meeting the fuel efficiency standards of Japan for fiscal 2010.

\*4 Of "Ultra" low-emission vehicles, those meeting the fuel efficiency standards for Japan for fiscal 2010 also meet the government's green procurement criteria.



# Social Activities

In the area of social activities, we are promoting global nature conservation activities facilitated by the Green Renaissance Office, and our business sites are conducting cooperative activities with local communities. Also, through various media, including the Internet and printed brochures, and by holding related events, we are disseminating diverse environmental information to society at large.

## Green Renaissance Activities E p. 58

### 1. Support Reforestation Activities in Japan

Honda has been supporting and participating in a reforestation project titled "Riverhead Forest (Tone River) Revitalization Project by Volunteers." This event for the conservation and revitalization of nature through afforestation is held by the CCC Creative Plant's Gunma Project at the source of the Tone River and in the upper reaches of the Minakami-Naramata Dam. In fiscal 2002, a total of 76 Honda employees participated as volunteers in the thinning out\* of alders in July and in the planting of beech trees in October.

In the future, Honda business sites will lead the activities to support domestic reforestation in each region.



\*Thinning out: to fell trees except those to be cultivated

Thinning out (reforestation activity conducted in Minakami)

### 2. Plans for the Reforestation of Deserts in China—the "Joyful Forest" Project

The "Joyful Forest" Project was started in 2000, to contribute to preventing rapid desertification through sand-arresting afforestation in the Horchin Desert in the Autonomous Region of Mongolia in the People's Republic of China. Since its start, Honda has been giving financial support and dispatching volunteers to the project and has been participating in the formulation of the specific projects.

In fiscal 2002, the fourth volunteer afforestation project took place from May 18 to 25, and the fifth from September 14 to 21. Three years from the start of planting activities, the participants of the project could see that the "Joyful Forest" was indeed successfully growing. In the fifth project, before volunteers started planting trees, a seminar on desertification and afforestation was held outdoors in the desert for pupils of a local elementary school. Pupils earnestly listened to the lecturer.

Honda gave financial support for the elementary school to construct a new dormitory building. As a result, the construction work, which had been suspended due to a lack of financial resources, restarted and the new dormitory building was completed to provide pupils with a better learning environment.



Carrying water by bucket relay

### 3. Eco Wagon

The Eco Wagon is a program, mainly designed for children, to help them experience and study nature. Honda holds this event in cooperation with the retired Honda employees, visiting schools in a Honda wagon loaded with natural materials obtained from the sea and mountains. In fiscal 2002, a total of 10,600 persons participated in the program. In particular, we received a lot of requests from elementary and junior high schools to hold this program for the "comprehensive study class" started in these schools in April 2002, and we held it as a class on the environment in cooperation with teachers. Of the programs held, approximately 80% provided participants with the opportunity to actually touch natural materials such as thinned wood, and the teachers and pupils participating in the programs stated their desire to participate in them again in the future.

In fiscal 2001, as the second step in the Eco Wagon program, an "Eco Wagon Expeditionary Party" was held to provide participants with the opportunity to be in contact with nature in different seasons. The tour was held quarterly in the "Hello Woods" within Twin Link Motegi in spring, summer, fall, and winter.

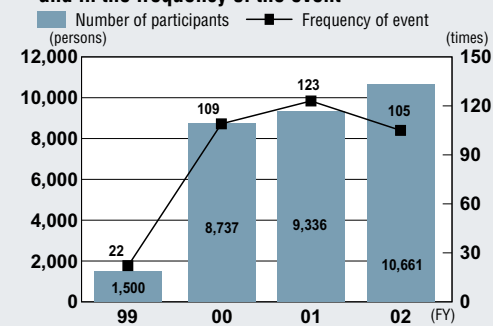


Parents and children experiencing woodworking together



Searching for beetle larvae in the winter

#### ◆ Transition in the number of Eco Wagon participants and in the frequency of the event





# Social Activities

## Support to NGOs and Environment-Related Foundations

In fiscal 2002, the Philanthropy Office gave support to 5 organizations engaged in environment-related social activities.

## Cooperative Activities with Local Communities

Every Honda business site is in the process of implementing environmental exhibitions, cleaning operations and taking part in local environmental events in a general commitment toward cooperation with the local communities. In fiscal 2002, we conducted activities, setting the theme of "Let's review our lifestyles for the future" especially for "Environment Month." Also, in continuation from the previous fiscal year, various activities were conducted to attain the objectives of "cooperative activities in closer harmony with local communities" and "enhancement of the environmental morale of employees." The number of local environmental events in which Honda employees participated totaled 35, and these were participated in by a total of approximately 270,000 people. The environmental exhibitions held by Honda business sites, in which each person demonstrated their own ways of commitment to the cooperation with their local communities, attracted an increasing number of exhibitors and participants from local communities. Thus Honda's cooperative activities have certainly taken root in local communities.

## Cooperation in Environmentally Friendly Vehicle Fairs and Support for Environment-Related Seminars

Honda has exhibited its environmentally friendly vehicles at environment-related events held mainly by the national and local governments, and has given support to environment-related seminars held at such fairs. In fiscal 2002, we exhibited our vehicles at or gave support to a total of 21 environment-related events.



Environmentally Friendly Vehicle Fairs

## Other Activities

Honda is also conducting various other social activities besides its environment-related ones.



## Environment-Related Prizes and Awards Won by Honda

Name of prize	Sponsored by	Prize winner	Date of award
Awarded the Best Paper Award for the development of an engine for the CIVIC GX	International Association for Natural Gas Vehicles (IANGV)	Honda R&D Co., Ltd.	January 2002
Officially commended by the Minister for its contribution to the prevention of global warming through the use of the GX390K1 natural gas engine	Japan's Ministry of the Environment	Wholesalers' cooperative associations of marine products and vegetables in Sapporo	December 2002
Awarded the Nihon Keizai Shimbun Award (Best Product Award) of the 2002 Nikkei Excellent Product and Service Awards for the FCX	Nihon Keizai Shimbun, Inc.	Honda Motor Co., Ltd.	February 2003
Awarded the Masuda Award of the Nikkan Kogyo Shimbun's 2002 Best Ten New Products Prize	Nikkan Kogyo Shimbun, Ltd.	Honda Motor Co., Ltd.	January 2003
Awarded the Fujisankei Communications Group Prize of the 12th Global Environment Award for the FCX and environmental conservation activities	Fujisankei Communications Group and The Japan Industrial Journal	Honda Motor Co., Ltd.	January 2003
Awarded the Minister of Economy, Trade and Industry Prize of the Fiscal 2002 Energy Saving Awards for the CIVIC Hybrid	Energy Conservation Center, Japan (ECCJ)	Honda Motor Co., Ltd.	February 2003
Awarded the Energy Conservation Center, Japan Chairman's Prize at the Fiscal 2002 Commendation for Outstanding Examples of Energy Saving	Energy Conservation Center, Japan (ECCJ)	Honda Motor Co., Ltd. Sayama Plant of Saitama Factory	February 2003

# Environmental Communication

As an integral part of our environmental management commitment, we are engaged in a wide range of communication activities to enhance mutual understanding between Honda and our stakeholders, including our customers and the local communities where our factories and offices are located.

We also provide a range of environmental information to the general public through various media and the Internet.

## 1. Establishment of a Liaison Section

Liaison Sections are set up based on the environmental management system to coordinate communications at the local level in dealing with opinions and requests from residents in the community. Every factory and office also organizes environmental exhibitions as part of their cooperative activities with the local communities in which they operate.

## 2. Dissemination of Environmental Information through the Media and Events

Honda discloses environmental information related to its corporate activities by the following means.

<b>Brochures</b>	<ul style="list-style-type: none"> <li>• Honda Environmental Annual Report (Environmental annual report)</li> <li>• Honda ECOLOGY (Description of environmental commitment)</li> <li>• Publication of other booklets on environmental topics</li> </ul>
<b>Internet</b>	<ul style="list-style-type: none"> <li>• Honda Web Site <a href="http://www.world.honda.com/environment/">http://www.world.honda.com/environment/</a> (Disclosure of a full range of environment-related information, including the above brochures)</li> </ul>
<b>Facility</b>	<ul style="list-style-type: none"> <li>• FAN FUN LAB <a href="http://www.honda.co.jp/fanfunlab/">http://www.honda.co.jp/fanfunlab/</a> (Environment-related exhibition at the Twin Link Motegi facility)</li> <li>• HELLO WOODS <a href="http://www.honda.co.jp/hellowoods/">http://www.honda.co.jp/hellowoods/</a> (Field events letting participants experience nature through play in which nature at the Twin Link Motegi is a key element)</li> </ul>
<b>Event</b>	<ul style="list-style-type: none"> <li>• Cooperation with environmentally-friendly vehicle fairs, etc. (Positive participation in various events organized by central and local government authorities and by companies)</li> <li>• Holding environmental exhibitions</li> <li>• Presentation events for the announcement of new vehicles and/or new technology</li> </ul>
<b>Advertising</b>	<ul style="list-style-type: none"> <li>• Corporate advertising (e-TECH)</li> <li>• Product advertising/product catalogues</li> </ul>

**Environment**

Go to Honda Ecology [PDF DOWNLOAD](#)  
 Go to Honda Environmental Annual Report 2002 [PDF DOWNLOAD](#)  
 Go to Honda Environmental Annual Report 2001 [PDF DOWNLOAD](#)

**Thinking of new ways to preserve the global environment**

Honda is committed to reducing the carbon footprint of every stage in the product life cycle, from research and development through manufacture, sale, usage and disposal.

At Honda, we believe that conserving the natural environment is of the utmost importance. In 1990 we released the Honda Environment Statement, and in 1999 we held our first World Environment Conference, providing a forum where delegates from Honda facilities around the world could compare to discuss approaches to environmental conservation.

We plan to equip our motorcycles with 4-stroke engines, which have significantly cleaner exhaust emissions and better fuel efficiency than two-stroke models. In the realm of automobiles, we have manufactured hybrid models that run on electricity and gasoline, as well as making strides to limit the environmental impact of gasoline-fueled vehicles by introducing cleaner engine technology. Natural gas and fuel cell vehicles are currently at the prototype stage. Many of our power products are now available with clean, compact, 4-stroke engines, which are finding applications in all sorts of equipment, ranging from hand-held grass cutters to generators and large outboard engines.

Honda is also proactively pursuing technology supporting automobile recycling: consumable parts are recycled, products are made in single-material modules for easier recycling, and our automobiles are designed for easy disassembly. To give but a few examples, in 1996, all Japan's Honda dealers and affiliated factories joined forces in launching a nationwide network for the collection and re-use of bumpers. In 2000, this network extended to membership to entrust our parts suppliers, and the recycling of a wide range of parts.

Our Honda production facility in Misaki-etsu, which opened in the summer of 2003, manufactures outboard motors based on flexible automation. The "stacked-boat, assembly-line" factory (a sandblasting equipment included) holds an anti land pollution to a primary. Rainwater is filtered and recycled to eliminate reliance on the local water supply, and natural sewage sources are used whenever possible. Fitting the facility to fit in with the natural setting on the shores of Lake Hamana. (Shown in photo: water filtration plant.)

**Making our operations transparent**

Another of Honda's crucial features is our policy of transparency in our operations. All our facilities throughout Japan, and our major manufacturing facilities overseas, have obtained ISO 14001 certification - an internationally recognized set of standards for environmental management systems. We also issue the "Honda Environmental Annual Report", detailing the Company's environmental activities and achievements for each fiscal year, and the publication "HONDA ECOLOGY", giving particulars of our environmental conservation activities.

**Water Reuse Treatment**

Water Reuse Treatment Plant in Thailand

Water being released into the tropical industrial park's central water supply system. Water is recycled for the production of automobile components. The plant is a state-of-the-art facility and was used for its design expertise, for reducing the plant's energy and other expenses. The plant was granted ISO 14001 certification in 2000.

**Green Deal Advantage project**

Launched in 1999, the goal is to cut Honda dealerships all the feedback to saving the customer and the company by having all Honda dealerships (ISO 14001 certified) based on environmentally responsible general of used car, removal, repair, refinishing, and other measures.

**The Honda Environment Statement**

As a responsible member of society, we are committed to fully disclose the good environment. Honda makes detailed efforts to contribute to better health and preservation of the global environment in each stage of its corporate activities, and is proud of the fact that of our activities.

The logo, representing our beautiful, peaceful earth, the engine and the deep blue sea and the clear blue sky, symbolizes Honda's growing engagement in environmental conservation.

**Green Dealer**

Honda Worldwide site  
<http://www.honda.com>  
 Copyright © 2003 Honda Motor Co., Ltd. All rights reserved.

## Environmental Data by Products Sold in Japan

Note: Only data for models with a large sales turnover is given. For data on all our products please refer to the following URL:  
<http://world.honda.com/environment/2003report/index.html>

### [Automobiles] Environmental Data for New Models and Remodeled Automobiles Sold in Japan in Fiscal 2002 (Major models)

Model name		Fit	Mobilio Spike	Accord	Accord	Accord Wagon	Fit Aria	MDX	
Main type listed		1.5T	A	EuroR	20EL	24E	1.5W	EXCLUSIVE	
Marketing date		2002.9.13	2002.9.19	2002.10.11	2002.10.11	2002.11.28	2002.12.21	2003.3.15	
Type		LA-GD3	LA-GK1	LA-CL7	UA-CL7	UA-CM2	LA-GD8	UA-YD1	
Engine (motor) type		L15A	L15A	K20A	K20A	K24A	L15A	J35A	
Total engine displacement (cm <sup>3</sup> )		1,496	1,496	1,998	1,998	2,354	1,496	3,471	
Running gear	Type of drive line	FF	FF	FF	FF	FF	FF	4WD	
	Transmission	Honda Multimatic S (with prosmatic/ 7-speed mode)	Honda Multimatic S (with prosmatic/ 7-speed mode)	6MT	Electronically controlled 5-speed AT (S Matic)	Electronically controlled 5-speed AT (S Matic)	Honda Multimatic S (continuously variable automatic transmission)	Electronically controlled 5-speed AT	
Vehicle weight (kg)		1,010	1,240	1,390	1,390	1,500	1,060	2,030	
Emission gas concentration	Level approved under MLIT's low-emission vehicle approval system*		☆☆	☆☆	☆☆	☆☆☆	☆☆☆	☆☆	☆☆☆
	Figures reported to MLIT, measuring mode 10-15 (g/km)	CO	0.50	0.50	0.60	0.50	0.50	0.50	0.50
		HC	0.04	0.04	0.04	0.02	0.02	0.04	0.02
		NOx	0.04	0.04	0.04	0.02	0.02	0.04	0.02
	Figures reported to MLIT, measuring mode 11 (g/test)	CO	9.0	9.0	14.0	10.0	10.0	9.0	10.0
		HC	1.10	1.10	1.10	0.55	0.55	1.10	0.55
NOx		0.70	0.70	0.70	0.35	0.35	0.70	0.35	
Fuel economy	10-15 mode (km/ℓ)		20.0	17.2	11.8	13.8	13.0	20.0	7.8
	CO <sub>2</sub> emissions (g/km)		117.9	137.1	199.9	170.9	181.4	117.9	302.4
	Compliant with 2010 Fuel Economy Standard		○	○	—	○	○	○	○
Designation of local government-designated low-emission vehicle	7 prefectures/cities incl. Tokyo		○	○	○	○	○	○	○
	6 prefectures/cities in the Kyoto-Osaka-Kobe area		○	○	○	○	○	○	○
	Sapporo City		○	○	—	○	○	○	○
Vehicles liable to green tax system		—	—	—	○	○	—	○	
Noise level (examined by MLIT)	Exhaust noise near the outlet (dB (A))/Engine (rpm)		86/4,350	86/4,350	87/5,000	87/4,500	83/4,125	84/4,125	81/4,350
	Acceleration noise (dB (A))		74	74	74	74	74	73	75
	Constant speed pass-by noise (dB (A), 50km/h)		68(50)	67(50)	69(50)	69(50)	69(50)	68(50)	70(50)
Air conditioner	Refrigerant HFC134a consumption (g)		450g	500g	550g	550g	550g	450g	750g
Lead consumption	JAMA's 2000 target met (1/2 of 1996)		○	○	○	○	○	○	○
	JAMA's 2005 target met (1/3 of 1996)		○	○	○	○	○	○	○

\*☆☆ indicates approved excellent low-emission vehicles, ☆☆☆ indicates approved ultra low-emission vehicles

#### Automobile Exhaust Emissions Standards of Japan

Item	2000 exhaust emissions standards	
	10-15 mode (g/km)	11 mode (g/test)
CO (carbon monoxide)	0.67	19.0
HC (hydrocarbons)	0.08	2.20
NOx (nitrogen oxides)	0.08	1.40

#### 2010 Fuel Economy Standards of Japan (Gasoline-Powered Passenger Vehicle)

Vehicle weight / Taxable weight (kg)	-702	703-827	828-1,015	1,016-1,265	1,266-1,515	1,516-1,765	1,766-2,015	2,016-2,265	2,266-
10-15 mode fuel consumption (km/ℓ)	21.2	18.8	17.9	16.0	13.0	10.5	8.9	7.8	6.4

#### Noise Regulation Values of Japan

Exhaust noise near the outlet	standard value	dB(A)	96
Acceleration noise	standard value	dB(A)	76
Constant speed pass-by noise	standard value	dB(A)	72

#### Ministry of Land, Infrastructure and Transport in Japan :

##### Low Emission Vehicle Approval Standard

Item	25% emission reduction level against the FY 2000 standards (Good Low Emission Vehicle)		50% emission reduction level against the FY 2000 standards (Excellent Low Emission Vehicle)		75% emission reduction level against the FY 2000 standards (Ultra Low Emission Vehicle)	
	10-15 mode (g/km)	11 mode (g/test)	10-15 mode (g/km)	11 mode (g/test)	10-15 mode (g/km)	11 mode (g/test)
CO (carbon monoxide)	0.67	19.0	0.67	19.0	0.67	19.0
HC (hydrocarbons)	0.06	1.65	0.04	1.10	0.02	0.55
NOx (nitrogen oxides)	0.06	1.05	0.04	0.70	0.02	0.35

## [Motorcycles] Environmental Data for New Models and Remodeled Motorcycles Sold in Japan in Fiscal 2002 (Major models)

Model name	XL230	Today	CB1300 SUPER FOUR	Fusion	XR250	Solo
Marketing date	2002.04.10	2002.08.08	2003.02.07	2003.02.28	2003.02.28	2003.03.14
Type	BA-MC36	BA-AF61	BC-SC54	BA-MF02	BA-MD30	BA-AC17
Engine model/type	MD33E air-cooled 4-stroke	AF61E air-cooled 4-stroke	SC54E water-cooled 4-stroke	MF01E water-cooled 4-stroke	MD17E air-cooled 4-stroke	AC17E air-cooled 4-stroke
Total engine displacement (cm <sup>3</sup> )	223	49	1,284	244	249	49
Transmission	Constant mesh	5-speed return	—	5-speed return	—	6-speed return
	Continuously variable	—	Continuously variable	—	Continuously variable	—
Vehicle weight (kg)	120	75	254	169(170)	133(137)	77
Emission gas concentration	CO (g/km)	10.5	10.5	9.1	10.5	10.5
	HC (g/km)	1.40	1.60	1.40	1.40	1.60
	NOx (g/km)	0.24	0.26	0.21	0.26	0.24
Fuel consumption rate (km/ℓ)	60km/h constant speed test value	40.0	—	25.0	40(41)	—
	30km/h constant speed test value	—	65	—	—	95
Noise level (values examined by MLIT)	Exhaust noise near the outlet dB(A)	94/84(3500rpm)	84/81(4000rpm)	94/85(3500rpm)	94/85(3750rpm)	94/83(4000rpm)
	Acceleration noise dB(A)	73/72	71/70	73/72	73/72	73/72
	Constant speed pass-by noise dB(A)	71/69(40km/h)	65/63(18km/h)	72/68(50km/h)	71/68(40km/h)	71/67(40km/h)

### Motorcycle Exhaust Emissions Standards of Japan

Item	Regulation values	
	4-stroke	2-stroke
CO (Carbon monoxide) g/km	13.0	8.00
HC (Hydrocarbons) g/km	2.00	3.00
NOx (Nitrogen oxides) g/km	0.30	0.10

### Noise Regulation Values of Japan (Effective on and after October 1, 2001)

Item	Class A motorcycle 50cc or less	Class B motorcycle Over 50cc to 125cc or less	Light vehicle Over 125cc to 250cc or less	Small vehicle Over 250cc
	Constant speed pass-by noise, Standard value dB(A)	65	68	71
Exhaust noise near the outlet, Standard value dB(A)	84	90	94	94
Acceleration noise, Standard value dB(A)	71	71	73	73

Main data are values submitted in the type certification application form in accordance with the Road Vehicle Act.

## [Power Products] Environmental Data for New Models and Remodeled Products Sold in Japan in Fiscal 2002 (Major models)

Category	Small generator	Outboard motor	Snow plow	Mower (UMK 425)	Gas engine water pump	Small tiller	
Marketing date	02.04.15	02.05.25	02.07.01	02/07-	03.02.20	03.03.01	
Type name	HRG415/HRG415H	BF20D	Snowra iHS1180i	UMK425H	WB20XT	FF300 Salad	
Type	HGR415C 1MAAF	BAMJ	SABJ*GX340	HACJ(U) HADJ(L)	WABT	FAJJ	
Engine type	Air-cooled, 4-stroke single-cylinder OHC vertical	Water-cooled, 4-stroke double-cylinder OHC	Air-cooled, 4-stroke single-cylinder OHV	GX25 air-cooled, 4-stroke single-cylinder OHC	GX120 air-cooled, 4-stroke single-cylinder OHC	GXV57 air-cooled, 4-stroke single-cylinder OHV vertical	
Total engine displacement (cm <sup>3</sup> )	135	350	337	25	118	57	
Weight (kg)	Dry weight:31.5 Equipped weight:33.0	S:46 L:49 UL:51.6	238(245)	Dry weight:5.25(5.1) Equipped weight:6.05(5.9)	21	45.5(47.5)	
Fuel economy	Continuous operation time capability	—	—	—	—	—	
	Fuel consumption rate (ℓ/h)	—	—	—	1.0	—	
	Fuel consumption rate [g/kWh(g/PS-h)] (at continuous rated output)	313g/kW-Hr	337g/kW-Hr	337g/kW-Hr	340g/kW-Hr	—	354g/kW-Hr
Emission gas concentrations	EPA Phase 2 compliance with multipurpose engine emission standards*1	○	(Not applicable)	○	○	○	
	CARB Tier 2 compliance with multipurpose engine emission standards*1	○	(Not applicable)	○	○	○	
	Compliance with the voluntary standards of the Japan Land Engine Manufacturers Association	○	(Not applicable)	(Not applicable)	○	○	○
	EPA 2006 compliance with marine engine emission standards*1	(Not applicable)	○	(Not applicable)	(Not applicable)	(Not applicable)	(Not applicable)
	CARB 2008 compliance with marine engine emission standards*1	(Not applicable)	☆☆☆*3	(Not applicable)	(Not applicable)	(Not applicable)	(Not applicable)
	Compliance with Europe Bodensee Regulation Stage 1*2	(Not applicable)	○	(Not applicable)	(Not applicable)	(Not applicable)	(Not applicable)
	Compliance with Europe Bodensee Regulation Stage 2	(Not applicable)	—	(Not applicable)	(Not applicable)	(Not applicable)	(Not applicable)
	Compliance with the 2006 voluntary standards of the Japan Boating Industry Association	(Not applicable)	○	(Not applicable)	(Not applicable)	(Not applicable)	(Not applicable)
CO [g/kWh (g/HP-h)]	519	—	519	519	519	519	
HC+NOx [g/kWh (g/HP-h)]	16.1	20.09	—	50	16.1	50	
Noise Level	EU noise level [dB(A)]*4	96	(Not applicable)	107	110	101	
	Actual noise level [dB(A)]	94	(Not applicable)	106	109	99	

\*1 Similar models have obtained an emissions permit in the US, but products marketed in Japan are not guaranteed to meet those standards.

\*2 Similar models have obtained an emissions permit in Europe, but products marketed in Japan are not guaranteed to meet those standards.

\*3 Similar models have obtained a permit for California's 2008 emissions control in the US (☆☆☆), but products marketed in Japan are not guaranteed to meet those standards.

### Noise:

\*4 Similar models have obtained a noise permit in the EU, but products marketed in Japan are not guaranteed to meet those standards.

### ● Multipurpose Engine Emissions Standards

Item	Stationary less than 66cc <sup>*1</sup>	Stationary from 100cc to 225cc <sup>*2</sup>	Stationary from 225cc to 1000cc <sup>*3</sup>
	Applicable models	FF3300 Salad UMK425	HRG415 HRG465
EPA regulations (Phase-2) (g/kW-hr)	CO	610	610
	HC	50	16.1
	NOx	50	12.1

\*1 Regulation standards since 2001 \*2 Regulation standards from 2003

\*3 Regulation standards since 2001 (CO) and from 2005 (HC and NOx)

Item	Stationary, below 66cc <sup>*4</sup>	Stationary from 65cc to 225cc <sup>*5</sup>	Stationary from 225cc to 1000cc <sup>*5</sup>
	Applicable models	FF3300 Salad UMK425	HRG415 HRG465
CARB Tier2 regulations (g/bhp-hr)	CO	400	410
	HC	54	12
	NOx	54	9

\*4 Regulation standards since 2000 \*5 Regulation standards from 2002

The voluntary standards of the Japan Land Engine Manufacturers Association (g/kWh)	Unmobile engine equipment		
	less than 66cc	100cc- 225cc	Over 225cc
Applicable models	FF3300 Salad UMK425	HRG415 HRG465	HS980i HS1180i
2003 primary standards (new engine regulations)	CO	519	519
	HC	50	16.1
	NOx	50	13.4
2008 secondary standards (in-use regulations)	CO	610	610
	HC	50	16.1
	NOx	50	12.1

\* Regulation standard within a defined accumulated operation time.

### ● Marine Engines Emissions Standards

Applicable models	BF15D	BF20D	
	Power (kW)	11.0	14.7
2006 EPA regulations (g/kW-hr)	HC+NOx	59.8	56.1
2006 voluntary standards of Japan Boating Industry Association (g/kWh)	HC+NOx	59.8	56.1
2008 CARB regulations (g/kW-hr)	HC+NOx	21.5	20.2
Europe Bodensee Regulation Stage 1 (g/kW-hr)	CO	540	650
	HC	22	23
	NOx	25	37

## Data of Japanese Factories

(Supplementary explanation) The tables are based on measurements taken between April 2002 and March 2003.

**Water Quality** - Items given are those substances for which measurements are required by the Water Pollution Control Law and bylaws of local government authorities.  
 - The listed data had been obtained by statistical processing of our monthly data. Measurements of substances not listed here are conducted on an ongoing basis to ensure that they are in line with regulatory standards.

**Air Quality** - Items given are those substances for which measurements are required by the Water Pollution Control Law and bylaws of local government authorities.  
 - The equipment measured includes boilers, drying ovens, incinerators etc.

### Honda Motor Co., Ltd.

#### Water Quality, Air Quality, PRTR

#### Saitama Factory

- Address: 1-10-1 Shin-Sayama, Sayama City, Saitama Prefecture
- Established: 1964
- Main products: Legend, Odyssey, Accord etc.
- Number of employees: 5,310 (as of March 31, 2003)
- Water discharge points: Sewage system (domestic and industrial wastewater), Iruma River (indirect cooling water)
- ISO 14001 acquired: January 1998

#### Water quality Domestic/industrial wastewater (sewage system)

Item	Unit	Regulation standards (incl. agreed standards)	Voluntary regulation standards	Measurement results	
				Maximum (minimum)	Average
Hydrogen ion concentration	pH	5-9	5-9	7.8(6.0)	6.83
Biochemical oxygen demand (BOD)	mg/ℓ	600	360	330(110)	219
Suspended solids (SS)	mg/ℓ	600	360	46(4.9)	25
Oil content	mg/ℓ	30	18	16(5.9)	9.6
Copper and its compounds	mg/ℓ	3	2	Below detection limit	Below detection limit
Zinc and its compounds	mg/ℓ	5	3	0.4(0.2)	0.28
Soluble iron and its compounds	mg/ℓ	10	6	Below detection limit	Below detection limit
Soluble manganese and its compounds	mg/ℓ	10	6	0.9(0.7)	0.8
Fluorine content	mg/ℓ	8	5	1.1(1.1)	1.5
Cadmium and its compounds	mg/ℓ	0.1	0.06	Below detection limit	Below detection limit
Cyanides	mg/ℓ	1	0.6	Below detection limit	Below detection limit
Lead and its compounds	mg/ℓ	0.1	0.06	0.058(Undetected)	0.024
Chromium (VI) compounds	mg/ℓ	0.5	0.03	Below detection limit	Below detection limit

Note: Please refer to the following URL for more information on cooling water discharged to rivers:  
<http://world.honda.com/environment/2003report.html>

#### Air quality

Item	Unit	Regulation standards (incl. agreed standards)	Voluntary regulation standards	Measurement results	
				Maximum (minimum)	Average
Particulates	g/Nm <sup>3</sup>	0.1	0.05	0.006(0.002)	0.0023
		0.2	0.1	0.002	0.002
		0.25	0.125	0.006(0.002)	0.003
Nitrogen oxides	ppm	130	75	51	51
		150	75	70(19)	50
		180	90	23(18)	20
		230	115	110(21)	51
		250	125	120	120
Hydrogen chloride	mg/Nm <sup>3</sup>	500	200	52(32)	42
Sulphur oxides	Nm <sup>3</sup> /h	8.05	4.03	0.27	0.27
Dioxins	ng-TEQ/Nm <sup>3</sup>	5.0	0.1	0.041	0.041

#### PRTR listed substances

(Unit: kg)

Substance	Volume handled	Volume discharged		Volume transferred		Recycling	Volume 100 disposed	Volume consumed (transferred to products)
		Atmosphere	Public waters	Sewage	Waste disposal sites outside company			
Soluble zinc compounds	25,000	0	0	210	4,100	0	0	21,000
Bis Phenol A epoxy resins	61,000	0	0	0	1,900	0	4,900	54,000
Ethyl benzene	430,000	180,000	0	0	0	160,000	31,000	60,000
Ethylene glycol	1,800,000	0	0	0	0	0	0	1,800,000
Xylene	1,300,000	450,000	0	0	0	490,000	61,000	270,000
1,3,5-Trimethyl benzene	24,000	18,000	0	0	0	0	6,200	0
Toluene	1,100,000	610,000	0	0	0	25,000	80,000	430,000
Lead and its compounds	5,100	0	0	18	85	0	0	5,000
Nickel compounds	5,800	0	0	920	3,200	0	0	1,800
Bis (2-ethylhexyl) phthalic acid	78,000	0	0	0	1,600	0	92	76,000
Benzene	27,000	41	0	0	0	0	960	26,000
Polyoxyethylene alkyl ether	1,400	0	0	140	0	0	1,200	0
Formaldehyde	—	2,300	0	0	0	0	0	0
Manganese and its compounds	7,800	0	0	640	2,900	0	0	4,300
<b>Total</b>	<b>4,865,100</b>	<b>1,260,341</b>	<b>0</b>	<b>1,928</b>	<b>13,785</b>	<b>675,000</b>	<b>185,352</b>	<b>2,748,100</b>
Dioxins (unit: mg-TEQ)	—	2.1	0	0	290	0	0	0

Note: The Wako Plant, which was covered in last year's report, is not included in this report because of functional consolidation.

## Tochigi Factory Takanezawa Plant

- Address: 2900 Kami-Takanezawa Ohaza, Takanezawa Cho, Shioya Gun, Tochigi Prefecture
- Established: 1990
- Main products: NSX, S2000, Insight

- Number of employees: 397 (as of March 31, 2003)
- Water discharge point: Gogyo River via Haga Industrial Park Joint Treatment Plant
- ISO 14001 acquired: September 1997

### Water quality

Item	Unit	Regulation standards (incl. agreed standards)	Voluntary regulation standards	Measurement results	
				Maximum (minimum)	Average
Hydrogen ion concentration	pH	5.8–8.6	5.8–8.6	7.4(6.9)	7.2
Biochemical oxygen demand (BOD)	mg/l	25	12.5	2.4(0.1 or less)	0.4
Chemical oxygen demand (COD)	mg/l	25	12.5	10.5(6.1)	7.2
Suspended solids (SS)	mg/l	50	25	6.4(1.0 or less)	0.7
Oil content	mg/l	5	2.5	1.7(0.5 or less)	0.49
Zinc and its compounds	mg/l	5	2.5	0.3(0.1 or less)	0.1 or less
Nitrogen content	mg/l	20	10	19(9.5)	15.5
Phosphorous content	mg/l	2	1	0.4(0.1 or less)	0.23

### Air quality

Item	Unit	Regulation standards (incl. agreed standards)	Voluntary regulation standards	Measurement results	
				Maximum (minimum)	Average
Particulates	g/Nm <sup>3</sup>	0.2	0.1	0.002 or less	0.002 or less
				0.3	0.15
Nitrogen oxides	ppm	180	90	70	63
				230	115

### PRTR listed substances

Substance	Volume handled	Volume discharged		Volume transferred		Recycling	Volume disposed	Volume consumed (transferred to products)
		Atmosphere	Public waters	Sewage	Waste disposal sites outside company			
Ethyl benzene	5,400	1,100	0	0	350	0	530	3400
Ethylene glycol	62,000	0	0	0	0	0	0	62,000
Ethylene glycol monoethyl ether	3,500	1,900	70	0	0	0	1,500	0
Xylene	40,000	8,500	0	0	2,100	72	1,700	28,000
Toluene	69,000	12,000	0	0	1,000	12,000	1,300	42,000
Benzene	1,100	21	0	0	0	0	0	1,000
Total	181,000	23,521	70	0	3,450	12,072	5,030	136,400

(Unit: kg)

## Tochigi Factory Mohka Plant

- Address: 19 Matsuyama Cho, Mohka City, Tochigi Prefecture
- Established: 1970
- Main products: Engine parts, suspension parts etc.

- Number of employees: 1,125 (as of March 31, 2003)
- Water discharge point: Kokai River via Gogyo River
- ISO 14001 acquired: September 1997

### Water quality

Item	Unit	Regulation standards (incl. agreed standards)	Voluntary regulation standards	Measurement results	
				Maximum (minimum)	Average
Hydrogen ion concentration	pH	5.8–8.6	5.8–8.6	8.4(6.7)	7.6
Biochemical oxygen demand (BOD)	mg/l	20	10	8.6(Less than 0.5)	3.2
Suspended solids (SS)	mg/l	40	20	8.0(Less than 0.1)	2.8
Oil content	mg/l	5	2.5	1.0(Less than 0.1)	0.47
Zinc and its compounds	mg/l	5	2.5	1.8(Less than 0.05)	0.39
Soluble iron and its compounds	mg/l	3	1.5	0.6(Less than 0.05)	0.15
Colon bacillus colony count	No./cm <sup>3</sup>	3,000	1,500	67(0)	5.7
Phosphorous content	mg/l	16	8	0.1(0.005 or less)	0.03
Cyanides	mg/l	1	0.5	0.05 or less	0.05 or less

### Air quality

Item	Unit	Regulation standards (incl. agreed standards)	Voluntary regulation standards	Measurement results	
				Maximum (minimum)	Average
Particulates	g/Nm <sup>3</sup>	0.3	0.15	Less than 0.005	Less than 0.005
Nitrogen oxides	ppm	180	135	98(54)	71.3
Sulphur oxides	K value	8	6.4	Less than 0.1	Less than 0.1

### PRTR listed substances

Substance	Volume handled	Volume discharged		Volume transferred		Recycling	Volume disposed	Volume consumed (transferred to products)
		Atmosphere	Public waters	Sewage	Waste disposal sites outside company			
Soluble zinc compounds	33,000	0	100	0	33,000	0	0	0
Xylene	33,000	0	0	0	0	0	0	33,000
Molybdenum and its compounds	1,000	0	0	0	1,000	0	0	0
Total	67,000	0	100	0	34,000	0	0	33,000

(Unit: kg)

Note: The Haga Plant, which was covered in last year's report, is not included in this report because of functional consolidation

## Data of Japanese Factories

**Hamamatsu Factory** ●Address: 1-13-1 Aoi Higashi, Hamamatsu City, Shizuoka Prefecture  
 ●Established: 1954  
 ●Main products: Motorcycles, power products, automatic transmissions for automobiles etc.

●Employees: 3,623 (as of March 31, 2003, including Hosoe Plant)  
 ●Water discharge point: Isaji River, Danzu River (rainwater only)  
 ●ISO 14001 acquired: March 1998 (automobile, motorcycle factory), April 1997 (power products factory)

### Water quality Factory wastewater (sewage)

Item	Unit	Regulation standards (incl. agreed standards)	Voluntary regulation standards	Measurement results	
				Maximum (minimum)	Average
Hydrogen ion concentration	pH	5.7-8.7	5.7-8.7	7.9(7.3)	7.45
Biochemical oxygen demand (BOD)	mg/l	300	150	148(29.7)	110
Suspended solids (SS)	mg/l	300	150	109(23.8)	101
Oil content	mg/l	35	17.5	4.5(Less than 2.5)	2.8
Zinc and its compounds	mg/l	5	2.5	0.52(Less than 0.05)	0.1
Soluble iron and its compounds	mg/l	10	5	—	—
Fluorine content	mg/l	15	7.5	—	—
Lead and its compounds	mg/l	0.1	0.05	0.03(Less than 0.01)	0.03
Dioxins	pg-TEQ/l	10	5	3.4	3.4

Note: Please refer to the following URL for more information on cooling water discharged to rivers:  
<http://world.honda.com/environment/2003report.html>

### Air quality

Item	Unit	Regulation standards (incl. agreed standards)	Voluntary regulation standards	Measurement results			
				Maximum (minimum)	Average		
Particulates	g/Nm <sup>3</sup>	0.10	0.05	Less than 0.02	Less than 0.02		
				0.20	0.10	0.02(Less than 0.02)	0.005
				0.25	0.125	0.02	0.02
Nitrogen oxides	ppm	150	75	73(37)	57		
				180	90	84(14)	33.2
				250	125	90	90
Hydrogen chloride	mg/Nm <sup>3</sup>	700	350	240	240		
				80	40	Less than 2.5	Less than 2.5
Sulphur oxides	Nm <sup>3</sup> /h	2.45	1.44	0.12	0.12		
Dioxins	ng-TEQ/Nm <sup>3</sup>	5	2.5	0.13	0.13		
				10	0.1	0.019(0.00059)	0.0098
Chlorine	mg/Nm <sup>3</sup>	30	15	Less than 0.8	Less than 0.8		
Fluorine compounds	mg/Nm <sup>3</sup>	3	1.5	1.8(Less than 0.7)	0.45		

### PRTR listed substances

Substance	Volume handled	Volume discharged		Volume transferred		Recycling	Volume disposed	Volume consumed (transferred to products)
		Atmosphere	Public waters	Sewage	Waste disposal sites outside company			
2-amino ethanol	3,300	0	0	1,400	1,400	0	580	0
Ethylbenzene	15,000	460	0	0	130	2,200	0	12,000
Ethylene glycol	230,000	12	0	0	4	0	0	230,000
Xylene	190,000	72,000	0	0	23,000	11,000	0	82,000
Toluene	130,000	16,000	0	0	4,800	16,000	0	98,000
Nickel	2,400	0	0	0	0	0	0	2,400
Benzene	4,900	20	0	0	0	740	0	4,100
Total	575,600	88,492	0	1,400	29,334	29,940	580	428,500
Dioxins (unit: mg-TEQ)	—	1.6	0	0.4	7.7	0	0	0

(Unit: kg)

**Hamamatsu Factory Hosoe Plant** ●Address: 5794-1 Kiga Aza Ohtsubo, Hosoe Cho, Inasa Gun, Shizuoka Prefecture  
 ●Established: 2001  
 ●Main products: Outboard engines

●Employees: Included as Hamamatsu Factory employees (as of March 31, 2002)  
 ●Water discharge point: Lake Hamana (rainwater only)

### Water quality

No applicable facilities

### Air quality

Item	Unit	Regulation standards (incl. agreed standards)	Voluntary regulation standards	Measurement results	
				Maximum (minimum)	Average
Particulates	g/Nm <sup>3</sup>	0.10	0.05	Less than 0.02	Less than 0.02
Nitrogen oxides	ppm	150	75	70	57

**Suzuka  
Factory**

- Address: 1907 Hirata Cho, Suzuka City, Mie Prefecture
- Established: 1960
- Main products: Civic, Fit etc.

- Employees: 7,690 (as of March 31, 2003)
- Water discharge point: Suzuka River
- ISO 14001 acquired: February 1998

**Water quality**

Item	Unit	Regulation standards (incl. agreed standards)	Voluntary regulation standards	Measurement results	
				Maximum (minimum)	Average
Hydrogen ion concentration	pH	5.8–8.6	5.8–8.6	7.4(6.6)	7.0
Biochemical oxygen demand (BOD)	mg/ℓ	Maximum 65/ average 50	25	22(4)	10
Chemical oxygen demand (COD)	kg/day	200.1	200.1	147(16)	88.1
Suspended solids (SS)	mg/ℓ	Maximum 90/ average 70	Maximum 90/ average 70	30(9)	19
Oil content	mg/ℓ	1	1	1(0.5 or less)	0.7
Copper and its compounds	mg/ℓ	1	0.5	Undetected	Undetected
Zinc and its compounds	mg/ℓ	5	2.5	0.37(0.04)	0.16
Soluble iron and its compounds	mg/ℓ	10	5	3.32(0.46)	1.78
Soluble manganese and its compounds	mg/ℓ	10	5	1.38(0.15)	0.88
Total chromes	mg/ℓ	2	1	Undetected	Undetected
Fluorine content	mg/ℓ	8	4	2.3(1.1)	1.68
Colon bacillus colony count	No./cm <sup>3</sup>	3,000	1,500	240(Undetected)	38
Nitrogen content	mg/ℓ	Maximum 120/ average 60	15	12.8(3.2)	9.0
Phosphorous content	mg/ℓ	Maximum 16/ average 8	1.5	1.42(0.34)	1.1
Cadmium and its compounds	mg/ℓ	0.1	0.05	Undetected	Undetected
Cyanides	mg/ℓ	1	0.5	Undetected	Undetected
Lead and its compounds	mg/ℓ	0.1	0.05	Undetected	Undetected

**Air quality**

Item	Unit	Regulation standards (incl. agreed standards)	Voluntary regulation standards	Measurement results	
				Maximum (minimum)	Average
Particulates	g/Nm <sup>3</sup>	0.05	0.025	Less than 0.001	Less than 0.001
		0.10	0.050	0.04	0.011
		0.20	0.100	0.067	0.012
Nitrogen oxides	ppm	70	35	30.8	22.1
		150	75	58.4	37
		180	90	79	27.1
		200	100	40.8	40.8
		230	115	65.6	18.6
Hydrogen chloride	mg/Nm <sup>3</sup>	700	350	74	23.4
Sulphur oxides	K value	14.5	7.25	0.28	0.084
Dioxins	ng-TEQ/Nm <sup>3</sup>	10	0.1	0.14	0.055

**PRTR listed substances**

(Unit: kg)

Substance	Volume handled	Volume discharged		Volume transferred		Recycling	Volume disposed	Volume consumed (transferred to products)
		Atmosphere	Public waters	Sewage	Waste disposal sites outside company			
Soluble zinc compounds	29,000	0	110	0	5,500	0	0	24,000
2-amino ethanol	1,100	0	0	0	0	0	1,100	0
Bis Phenol A epoxy resins	65,000	0	0	0	360	0	0	65,000
Ethyl benzene	310,000	120,000	0	0	0	130,000	7,100	58,000
Ethylene glycol	1,500,000	0	0	0	0	0	0	1,500,000
Xylene	1,100,000	320,000	0	0	0	440,000	21,000	300,000
Hexamethylene tetramine	6,000	0	0	0	0	0	6,000	0
1,3,5-Trimethyl benzene	63,000	28,000	0	0	0	31,000	4,300	0
Toluene	830,000	350,000	0	0	0	24,000	15,000	440,000
Lead and its compounds	3,900	0	0	0	120	0	0	3,800
Nickel compounds	6,000	0	270	0	1,900	0	0	3,800
Bis (2-ethylhexyl) phthalic acid	16,000	0	0	0	160	0	0	16,000
Hydrogen fluoride and soluble salt	2,000	0	0	0	0	0	2,000	0
Benzene	19,000	48	0	0	0	0	0	19,000
Polyoxyethylene alkyl ether	2,600	0	0	0	0	0	2,600	0
Manganese and its compounds	12,000	0	990	0	2,100	0	0	8,400
Formaldehyde	—	1,100	0	0	0	0	0	0
Total	3,965,600	819,148	1,370	0	10,140	625,000	59,100	2,438,000
Dioxins (unit: mg-TEQ)	—	61.0	0.3	0	1,400	0	0	0

## Data of Japanese Factories

### Kumamoto Factory

- Address: 1500 Hirakawa Ohaza, Ohzu Machi, Kikuchi Gun, Kumamoto Prefecture
- Number of employees: 2,817 (as of March 31, 2003)
- Established: 1976
- Water discharge point: Kikuchi River via Hyuga River and Koushi River
- Main products: Mini vehicle engines, tractors etc.
- ISO 14001 acquired: November 1997

#### Water quality

Item	Unit	Regulation standards (incl. agreed standards)	Voluntary regulation standards	Measurement results	
				Maximum (minimum)	Average
Hydrogen ion concentration	pH	5.8-8.6	6.5-7.9	8.0(7.1)	7.8
Biochemical oxygen demand (BOD)	mg/ℓ	7	3.5	2.9(Less than 0.5)	1.5
Suspended solids (SS)	mg/ℓ	10	5	4(Less than 1)	2.8
Oil content	mg/ℓ	1	0.5	Less than 0.5	Below detection limit
Copper and its compounds	mg/ℓ	0.3	0.15	Less than 0.02	Less than 0.02
Zinc and its compounds	mg/ℓ	1.5	0.75	0.13(0.07)	0.10
Soluble iron and its compounds	mg/ℓ	3	1.5	0.11(<0.05)	0.06
Soluble manganese and its compounds	mg/ℓ	Should not be detected	Below detection limit	Below detection limit	Below detection limit
Total chromes	mg/ℓ	0.1	0.05	0.03(Less than 0.02)	0.025
Cadmium and its compounds	mg/ℓ	Should not be detected	Below detection limit	Below detection limit	Below detection limit
Lead and its compounds	mg/ℓ	Should not be detected	Below detection limit	Below detection limit	Below detection limit
Chromium (VI) compounds	mg/ℓ	0.05	0.025	Below detection limit	Below detection limit

#### Air quality

Item	Unit	Regulation standards (incl. agreed standards)	Voluntary regulation standards	Measurement results	
				Maximum (minimum)	Average
Particulates	g/Nm <sup>3</sup>	0.05	0.025	0.004(<0.001)	0.001 or less
		0.1	0.05	0.003(<0.001)	0.001 or less
Nitrogen oxides	ppm	180	90	74(4)	39
		230	115	27	27
Hydrogen chlorides	mg/Nm <sup>3</sup>	700	350	15	15
Sulphur oxides	K value	6.42	3.21	0.15	0.15
Dioxins	ng-TEQ/Nm <sup>3</sup>	10	0.1	0.064	0.064

#### PRTR listed substances

(Unit: kg)

Substance	Volume handled	Volume discharged		Volume transferred		Recycling	Volume disposed	Volume consumed (transferred to products)
		Atmosphere	Public waters	Sewage	Waste disposal sites outside company			
2-amino ethanol	23,000	0	0	0	0	790	1,000	21,000
Bis Phenol A epoxy resins	2,600	52	0	0	0	0	0	2,500
Ethyl benzene	34,000	26,000	0	0	0	240	680	6,700
Ethylene glycol	42,000	0	0	0	0	0	0	42,000
Xylene	300,000	190,000	0	0	0	45,000	14,000	42,000
Toluene	98,000	44,000	0	0	0	1,700	2,600	50,000
Total	499,600	260,052	0	0	0	47,730	18,280	164,200
Dioxins (unit: mg-TEQ)	—	1.1	0	0	610	0	0	0

## Groundwater

### Results of Groundwater Measurements Taken at Plants and Factories in Japan in Fiscal 2002

Substance	Environmental standard	Branch		
		Saitama Factory	Tochigi Factory Takanezawa Plant	Tochigi Factory Mohka Plant
Chromium (VI)	0.05mg/l or less	Less than 0.005	Less than 0.04	Less than 0.04
Lead	0.01mg/l or less	Less than 0.005	Less than 0.005	Less than 0.005
Cadmium	0.01mg/l or less	Less than 0.001	Less than 0.001	Less than 0.001
Total mercury	0.0005mg/l or less	Less than 0.0005	Less than 0.0005	Less than 0.0005
Alkyl mercury	Should not be detected	Less than 0.0005	Less than 0.0005	Less than 0.0005
Total cyanides	Should not be detected	Less than 0.1	Less than 0.1	Less than 0.1
PCB	Should not be detected	Less than 0.0005	Less than 0.0005	Less than 0.0005
Selenium	0.01mg/l or less	0.001-less than 0.001	Less than 0.002	Less than 0.002
Fluorine	0.8mg/l or less	Less than 0.2	Less than 0.2	Less than 0.2
Boron	1.0mg/l or less	Less than 0.1	0.04~0.02	0.35-less than 0.01
Arsenic	0.01mg/l or less	Less than 0.001	Less than 0.005	Less than 0.005
Benzene	0.01mg/l or less	Less than 0.001	Less than 0.001	Less than 0.001
Nitrate nitrogen and nitrite-nitrogen*1	10mg/l or less	8.9-less than 0.1	Less than 0.3	1.5-less than 0.3
Dichloromethane	0.02mg/l or less	Less than 0.002	Less than 0.002	Less than 0.002
Tetrachloride carbon	0.002mg/l or less	Less than 0.0002	Less than 0.0002	Less than 0.0002
1,2-dichloroethane	0.004mg/l or less	Less than 0.0004	Less than 0.0004	Less than 0.0004
1,1-dichloroethylene	0.02mg/l or less	Less than 0.002	Less than 0.002	Less than 0.002
Cis-1,2-dichloroethylene	0.04mg/l or less	Less than 0.004	Less than 0.004	Less than 0.004
1,1,1-trichloroethane	1.0mg/l or less	0.001-less than 0.0005	Less than 0.002	Less than 0.002
1,1,2-trichloroethane	0.006mg/l or less	Less than 0.0006	Less than 0.0006	Less than 0.0006
Trichloroethylene	0.03mg/l or less	0.002-less than 0.001	Less than 0.003	Less than 0.003
Tetrachloroethylene	0.01mg/l or less	0.0034-less than 0.0005	Less than 0.001	Less than 0.001
1,3-dichloropropane	0.02mg/l or less	Less than 0.0002	Less than 0.0002	Less than 0.0002
Thiram	0.002mg/l or less	Less than 0.0006	Less than 0.0006	Less than 0.0006
Simazine	0.002mg/l or less	Less than 0.0003	Less than 0.0003	Less than 0.0003
Thiobencarb	0.02mg/l or less	Less than 0.002	Less than 0.002	Less than 0.002
Organic phosphorus compound*2	Should not be detected	Less than 0.1	—	—

Substance	Environmental standard	Branch		
		Hamamatsu Factory	Suzuka Factory	Kumamoto Factory
Chromium (VI)	0.05mg/l or less	—	Less than 0.04	Less than 0.005
Lead	0.01mg/l or less	—	Less than 0.005	Less than 0.001
Cadmium	0.01mg/l or less	—	Less than 0.001	Less than 0.001
Total mercury	0.0005mg/l or less	—	Less than 0.0005	Less than 0.00005
Alkyl mercury	Should not be detected	—	Undetected	Less than 0.0005
Total cyanides	Should not be detected	—	Undetected	Less than 0.001
PCB	Should not be detected	—	Undetected	Less than 0.0005
Selenium	0.01mg/l or less	—	Less than 0.001	Less than 0.001
Fluorine	0.8mg/l or less	—	Less than 0.1	0.08-less than 0.08
Boron	1.0mg/l or less	—	0.04	0.01-less than 0.01
Arsenic	0.01mg/l or less	—	Less than 0.005	Less than 0.001
Benzene	0.01mg/l or less	—	Less than 0.001	Less than 0.001
Nitrate nitrogen and nitrite-nitrogen*1	10mg/l or less	—	0.87-less than 0.01	—
Dichloromethane	0.02mg/l or less	—	Less than 0.002	Less than 0.002
Tetrachloride carbon	0.002mg/l or less	—	Less than 0.0005	Less than 0.0002
1,2-dichloroethane	0.004mg/l or less	—	Less than 0.0004	Less than 0.0004
1,1-dichloroethylene	0.02mg/l or less	—	Less than 0.002	Less than 0.002
Cis-1,2-dichloroethylene	0.04mg/l or less	—	Less than 0.004	Less than 0.004
1,1,1-trichloroethane	1.0mg/l or less	0.0032-less than 0.0005	Less than 0.001	Less than 0.03
1,1,2-trichloroethane	0.006mg/l or less	—	Less than 0.0006	Less than 0.0006
Trichloroethylene	0.03mg/l or less	0.017-less than 0.002	Less than 0.002	Less than 0.003
Tetrachloroethylene	0.01mg/l or less	0.0032-less than 0.0005	Less than 0.0005	Less than 0.001
1,3-dichloropropane	0.02mg/l or less	—	Less than 0.0002	Less than 0.0002
Thiram	0.002mg/l or less	—	Less than 0.0006	Less than 0.0006
Simazine	0.002mg/l or less	—	Less than 0.0003	Less than 0.0003
Thiobencarb	0.02mg/l or less	—	Less than 0.002	Less than 0.002
Organic phosphorus compound*2	Should not be detected	—	—	Less than 0.1

\*1 Not included in the new law. \*2 Underwater standard in the new law (2003.2.25)

● The figures in the chart are the certified measurements of a measurement company, and have been listed with no amendment.

<Legend>

• Undetected, less than ( ): figures are the minimum detectable by the measuring equipment, and indicate that nothing was detected.

• — : items for close inspection during fiscal 2003.

## Data of R&D Centers and Technical Center in Japan

Honda R&D Co., Ltd.

### Wako R&D Center

- Address: 1-4-1 Chuo, Wako City, Saitama Prefecture
- Established: 1960 (spin-off from Honda Motor Co., Ltd.)
- Main Products: General automobile research (design and research of automobiles and various basic research and development)
- Water discharge point: final treatment facilities located on the right-side bank of the Arakawa (sewage system)

#### Water quality

Item	Unit	Regulation standards (incl. agreed standards)	Voluntary regulation standards	Measurement results	
				Maximum (minimum)	Average
Hydrogen ion concentration	pH	5.0-9.0	5.0-9.0	8.8(7.3)	8.5
Biochemical oxygen demand (BOD)	mg/ℓ	600	300	190(18)	73
Suspended solids (SS)	mg/ℓ	600	300	180(19)	83.8
Oil content	mg/ℓ	30	15	4.3(2)	3.5
Nitrogen content	mg/ℓ	240	120	70(11)	30
Phosphorous content	mg/ℓ	32	16	5(1)	2.3

#### Air quality

Item	Unit	Regulation standards (incl. agreed standards)	Voluntary regulation standards	Measurement results	
				Maximum (minimum)	Average
Particulates	g/Nm <sup>3</sup>	0.1	—	0.01 or less	0.01 or less
Nitrogen oxides	ppm	150	—	75(17)	46
Hydrogen chloride	ppm	—	—	—	—
Sulphur oxides (K value)	m <sup>3</sup> N/h	9	—	0.01 or less	0.01 or less

#### PRTR listed substances

(Unit: kg)

Substance	Volume handled	Volume discharged		Volume transferred		Recycling	Volume disposed	Volume consumed (transferred to products)
		Atmosphere	Public waters	Sewage	Waste disposal sites outside company			
Ethyl benzene	1,400	100	0	0	40	0	0	1,300
Xylene	8,400	970	0	0	240	0	0	7,200
Toluene	13,000	580	0	0	350	0	6	12,000
Total	22,800	1,650	0	0	630	0	6	20,500

### Asaka R&D Center/ Asaka Higashi R&D Center

- Address: 3-15-1 Senzui, Asaka City, Saitama Prefecture
- Established: 1973
- Main Products: Research and development of motorcycles and power products
- Water discharge point: final treatment facilities located on the right-side bank of the Arakawa (sewage system)

#### Water quality

Item	Unit	Regulation standards (incl. agreed standards)	Voluntary regulation standards	Measurement results	
				Maximum (minimum)	Average
Hydrogen ion concentration	pH	5.0-9.0	5.8-8.6	8.6(6.8)	7.7
Biochemical oxygen demand (BOD)	mg/ℓ	600	420	300(4.2)	152.1
Suspended solids (SS)	mg/ℓ	600	420	350(3.3)	176.6
Phenol	mg/ℓ	5	3.5	0.06(0.05)	0.055
Copper and its compounds	mg/ℓ	3	2.1	0.04(0.02)	0.03
Zinc and its compounds	mg/ℓ	5	3.5	0.15(0.09)	0.12
Soluble iron and its compounds	mg/ℓ	10	7	0.21(0.08)	0.15
Soluble manganese and its compounds	mg/ℓ	10	7	0.02(0.02)	0.02
Total chromes	mg/ℓ	2	1.4	0.4(0.1 or less)	0.1
Nitrogen content	mg/ℓ	240	168	130(74.2)	102.1
Phosphorous content	mg/ℓ	32	22.4	7.8(4.25)	6

#### Air quality

Item	Unit	Regulation standards (incl. agreed standards)	Voluntary regulation standards	Measurement results	
				Maximum (minimum)	Average
Particulates	g/Nm <sup>3</sup>	—	0.15	0.005(0.005)	0.005
Nitrogen oxides	ppm	—	125	73(36)	54.5
Sulphur oxides	K value	9	0.32*	0.0035(0.0013)	0.0024

\*Converted value

#### PRTR listed substances

(Unit: kg)

Substance	Volume handled	Volume discharged		Volume transferred		Recycling	Volume disposed	Volume consumed (transferred to products)
		Atmosphere	Public waters	Sewage	Waste disposal sites outside company			
Ethyl benzene	7,800	170	0	0	240	0	7,400	0
Xylene	37,000	320	0	0	440	0	36,000	0
Toluene	68,000	1,000	0	0	1,400	0	65,000	0
Benzene	2,400	0.5	0	0	0	0	2,400	0
Total	115,200	1,491	0	0	2,080	0	110,800	0

## Tochigi R&D Center

- Address: 4630 Shimotakanesawa, Haga Machi, Haga Gun, Tochigi Prefecture
- Established: 1982 (Tochigi Laboratory, Wako Research Center)
- Main Products: General automobile research (design, trial production and testing of engines, bodies and chassis)
- Water discharge point: Nomoto River via Haga Industrial Park Treatment Center(domestic and industrial water)

### Water quality

Item	Unit	Regulation standards (incl. agreed standards)	Voluntary regulation standards	Measurement results	
				Maximum (minimum)	Average
Hydrogen ion concentration	pH	5.6–8.6	5.6–8.6	7.6(6.5)	7.3
Biochemical oxygen demand (BOD)	mg/ℓ	25	17.5	2.2(0.1)	0.8
Chemical oxygen demand (COD)	mg/ℓ	25	17.5	8.2(5.2)	6.7
Suspended solids (SS)	mg/ℓ	50	35	2.8(0.2)	1.1
Oil content	mg/ℓ	5	3.5	0.5(0)	0.2
Zinc and its compounds	mg/ℓ	5	5	0.21(0.18)	0.2
Soluble iron and its compounds	mg/ℓ	3	3	0.07(Undetected)	Undetected
Soluble manganese and its compounds	mg/ℓ	3	3	0.02(Undetected)	Undetected
Nitrogen content	mg/ℓ	20	20	19(12)	15.8
Phosphorous content	mg/ℓ	2	2	0.39(0.07)	0.2

### Air quality

Item	Unit	Regulation standards (incl. agreed standards)	Voluntary regulation standards	Measurement results	
				Maximum (minimum)	Average
ItemParticulates	g/Nm <sup>3</sup>	0.2	0.14	0.005 or less	0.005 or less
		0.25	0.175	0.007 or less	0.007 or less
		0.3	0.21	0.001 or less	0.001 or less
Nitrogen oxides	ppm	180	126	94(56)	71
		230	161	68 or less	68 or less
		250	175	110(65)	87.5
Hydrogen chloride	ppm	700	490	70(67 or less)	68.0
Dioxins	ng-TEQ/Nm <sup>3</sup>	10	0.1	0.3	0.3

### PRTR listed substances

Substance	Volume handled	Volume discharged		Volume transferred		Recycling	Volume disposed	Volume consumed (transferred to products)
		Atmosphere	Public waters	Sewage	Waste disposal sites outside company			
Ethyl benzene	80,000	1,300	0	0	1,100	0	77,000	0
Xylene	400,000	7,500	0	0	6,500	0	380,000	0
1,3,5-Trimethyl benzene	21,000	310	0	0	0	0	21,000	0
Toluene	810,000	14,000	0	0	9,700	0	780,000	0
Benzene	25,000	400	0	0	350	0	24,000	0
Total	1,336,000	23,510	0	0	17,650	0	1,260,400	0
Dioxins (unit: mg-TEQ)	–	14	0	0	86	0	0	0

## Honda Engineering Co., Ltd.

### Tochigi Technical Center

- Address: 6-1 Hagadai, Haga Machi, Haga Gun, Tochigi Prefecture
- Established: 1990
- Main Products: General machinery and equipment (machine tool, development, design and manufacture of dies)
- Water discharge point: Nomoto River via Haga Industrial Park Treatment Center (domestic and industrial water)
- ISO 14001 acquired: July 1997

### Water quality

Item	Unit	Regulation standards (incl. agreed standards)	Voluntary regulation standards	Measurement results	
				Maximum (minimum)	Average
Hydrogen ion concentration	pH	5.6–8.6	5.6–8.6	8.1(7.2)	7.5
Biochemical oxygen demand (BOD)	mg/ℓ	25	12.5	18(0.5)	2.7
Chemical oxygen demand (COD)	mg/ℓ	25	12.5	18(4.1)	6.7
Suspended solids (SS)	mg/ℓ	50	25	7.9(for less)	2.1
Zinc and its compounds	mg/ℓ	5	5	0.06	0.06
Soluble manganese and its compounds	mg/ℓ	10	10	0.02(0.01)	0.015
Total chromes	mg/ℓ	2	2	0.3(0.02or less)	0.16
Nitrogen content	mg/ℓ	20	10	6.8(2.5)	4.3
Phosphorous content	mg/ℓ	2	1.4	1.5(0.5)	0.96

### Air quality

Item	Unit	Regulation standards (incl. agreed standards)	Voluntary regulation standards	Measurement results	
				Maximum (minimum)	Average
Particulates	g/Nm <sup>3</sup>	0.2	0.1	0.005 or less	0.005 or less
		0.3	0.15	0.005 or less	0.005 or less
Nitrogen oxides	ppm	180	90	59(5.1 or less)	30.5
Hydrogen chloride	ppm	40	20	3.3	3.3
Sulphur oxides	m <sup>3</sup> N/h	1.51	0.76	0.16 or less	0.16 or less

### PRTR listed substances

Substance	Volume handled	Volume discharged		Volume transferred		Recycling	Volume disposed	Volume consumed (transferred to products)
		Atmosphere	Public waters	Sewage	Waste disposal sites outside company			
Xylene	5,400	68	0	0	390	0	4,700	0
Toluene	12,000	95	0	0	240	0	11,000	0
Nickel compounds	530	0	0.30	0	530	0	0	0
Total	17,930	163	0.30	0	1,160	0	15,700	0
Dioxins (unit: mg-TEQ)	0	0.01	0	0	0	0	0	0

## Data of Overseas Factories

### North America

Item	Company name	Honda of America Mfg., Inc. (HAM)				Honda Transmission Mfg., of America Inc.
		Marysville Auto Plant	Marysville Motorcycle Plant	East Liberty Auto Plant	Anna Engine Plant	
	Country	United States of America	United States of America	United States of America	United States of America	United States of America
	Main product	Automobiles	Motorcycles, ATV	Automobiles	Engines	Automobile parts
Energy	Electricity (1,000 kWh)	249,774	16,761	122,618	212,691	31,216
	Natural gas (1,000 kcf)	1,365	220	839	555	86
Water	Water usage (1,000 gal.)	257,409	28,255	131,853	111,839	6,211
Waste	Landfill (US ton)	2,568	332	1,355	5,859	215
	Other Waste Treatment (US ton)	32	0	10	276	0
	Recycle (US ton)	9,540	1,073	1,019	17,560	381
ISO 14001 acquired		1998.12	1998.12	1998.8	1998.12	1998.6

Item	Company name	Honda Power Equipment Mfg., Inc.	Honda of South Carolina Mfg.	Honda Mfg. of Alabama L.L.C.	Honda of Canada Mfg.(HCM)		Honda de Mexico S.A.de C.V.
		United States of America	United States of America	United States of America	Plant 1	Plant 2	
	Country	United States of America	United States of America	United States of America	Canada	Canada	Mexico
	Main product	Power products	4-wheel ATV	Automobiles	Automobiles	Automobiles	Motorcycle, automobile and power product parts
Energy	Electricity (1,000 kWh)	12,641	23,385	19,544	80,697	90,749	18,854
	Natural gas (1,000 kcf)	39	42	564	452	763	92
Water	Water usage (1,000 gal.)	2,911	7,938	140,896	67,610	119,673	52,262
Waste	Landfill (US ton)	166	2,675	0	924	1,081	0
	Other Waste Treatment (US ton)	3	0	0	47	96	0
	Recycle (US ton)	966	3,088	3,306	2,253	2,371	5,767
ISO 14001 acquired		2002.5	In progress	In progress	1998.9	1999.10	1999.12

Note: kcf= 1,000 cubic feet  
US ton= 2,000 (lb) pounds

### South America

Item	Company name	Moto Honda da Amazonia LTDA.	Honda Automoveis do Brasil LTDA.
		Brazil	Brazil
	Country	Brazil	Brazil
	Main product	Motorcycles	Automobiles
Energy	Electricity (1,000 kWh)	69,188	10,931
	Diesel oil (ℓ)	422,124	0
	LPG (kg)	1,295,615	0
	Kerosene (ℓ)	3,959,431	0
	Gasoline (ℓ)	331,411	180,000
Water	Mains water (m³)	13,800	0
	Well water (m³)	723,184	81,211
Waste	Total waste (ton)	22,888	3,083
	Recycled waste (ton)	17,466	2,775
	Incinerated on-site (ton)	4,415	277
	Stored on-site (ton)	155	0
	Disposed on-site (ton)	852	30
	Disposed at external landfill (ton)	0	1
ISO 14001 acquired		1998.10	—

### Europe

\*Including thermal recycling

Item	Company name	Honda of the U.K. Manufacturing Ltd.	Honda Europe N.V.	Honda Belgium N.V.	Honda Italia Industriale S.P.A. (ATTESA)
		United Kingdom	Belgium	Belgium	Italy
	Country	United Kingdom	Belgium	Belgium	Italy
	Main product	Automobiles, engines	Distribution of completed automobiles and parts	Automobile parts	Motorcycles, power products
Energy	Electricity (1,000 kWh)	129,630	7,306	9,442	7,353
	Fuel (ℓ)	0	58,789	80,803	0
	Natural gas (m³)	18,770,944	96,403	254,635	1,320,662
	LPG (kg)	0	0	0	0
	Steam (GJ)	0	0	11,903	0
	Total (1,000 kWh)	347,157	7,922	16,691	21,801
CO <sub>2</sub> (ton)	97,071	2,381	4,057	7,014	
Water	Water usage (m³)	434,037	11,539	7,247	19,844
Waste	Recycled waste (ton)	14,025	2,212	1,205	381
	Disposed at external landfill* (ton)	2,200	0	263	343
	Total waste (ton)	16,225	2,211	1,468	833
ISO 14001 acquired		1998.3	1998.3 (Completed automobile distribution)1999.6 (HE)	1997.3	1999.1

## Europe

Item	Company name	CIAPS.PA.	Montesa Honda S.A.	Honda Turkiye A.S.	Honda Europe Power Equipment S.A.
	Country	Italy	Spain	Turkey	France
	Main product	Motorcycle parts	Motorcycles	Automobiles	Power products
Energy	Electricity (1,000 kWh)	1,027	3,166	2,332	1,294
	Fuel (ℓ)	0	0	5,950	0
	Natural gas (m³)	103,725	42,387	0	249,682
	LPG (kg)	0	0	692,255	0
	Steam (GJ)	0	0	0	0
	Total (1,000 kWh)	2,162	3,630	11,182	0
CO <sub>2</sub> (ton)		797	2,072	3,342	713
Water	Water usage (m³)	1,570	22,440	56,630	7,437
Waste	Recycled waste* (ton)	315	636	81	805
	Disposed at external landfill (ton)	12	108	48	129
	Total waste (ton)	327	744	129	935
ISO 14001 acquired		1999.6	1998.12	1999.12	1999.1

\*Including thermal recycling

## Asia and Oceania (Results from January 2002 to December 2002)

Item	Company name	Honda Automobile (Thailand) Co., Ltd.	Thai Honda Mfg. Co., Ltd.	Asian Autoparts (Thailand) Co., Ltd.	Honda Cars Philippines Inc.	Honda Philippines Inc.	Honda Siel Cars India Ltd.	Hero Honda Motors Ltd.
	Country	Thailand	Thailand	Thailand	Philippines	Philippines	India	India
	Main product	Automobiles	Motorcycles, power products	Parts for Automobiles, Motorcycles, Power products	Automobiles	Motorcycles, power products	Automobiles	Motorcycles
Energy	Electricity (kWh)	35,817,995	33,737,800	16,956,000	8,248,855	4,108,364	3,171,510	5,520,578
	Crude oil (ℓ) *1	— *3	0	3,930,681	549,301	977,318	2,070,060	14,873,783
	LPG (kg) *2	993,240	1,786,951	141,915	537,577	393,705	450,020	1,867,165
CO <sub>2</sub> (ton)		— *3	31,581	24,504	7,615	6,140	9,055	49,513
Waste	Reused/recycled (ton)	10,777.58	4,317.4	1,115	1,886	646.956	1,120.86	5,230.8
	Disposed on-site (ton)	103.8	1,893	99.3	163.3	7,981	146.464	589.2
	Disposed at external landfill (ton)	256.37	45.3	864.8	65	5,487		56.3
	Total waste (ton)	11,137.75	6,255.7	2,079.1	2,114.3	14,114.956	1,267.324	5,876.3
ISO 14001 acquired		1998.12	1998.12	2001.12	1998.12	In progress	2001.4	1999.6

\*1 Oils converted as crude oil \*2 Gases converted as LPG \*3 The final figure will be posted on our Web site after calculation

Item	Company name	Honda Motorcycle & Scooter India (Private) Ltd.	Honda Siel Power Products Ltd.	P.T.Honda Prospect Motor	P.T.Astra Honda Motor Inc.	Honda Atlas Cars (Pakistan) Ltd.	Atlas Honda Ltd.	Honda Vietnam Co., Ltd.
	Country	India	India	Indonesia	Indonesia	Pakistan	Pakistan	Vietnam
	Main product	Motorcycles	Power products	Automobile parts	Motorcycles	Automobiles	Motorcycles	Motorcycles
Energy	Electricity (kWh)	4,014,806	1,845,060	16,608,900	53,245,849	4,574,760	3,015,685	19,717,800
	Crude oil (ℓ) *1	28,687	269,773	1,958,935	2,755,587	497,655	716,865	239,306
	LPG (kg) *2	464,804	12,118	43,101	362,668	0	446,464	2,244,191
CO <sub>2</sub> (ton)		4,240	2,029	16,891	45,296	3,650	4,648	9,812
Waste	Reused/recycled (ton)	1,988.23	490.84	1,763.19	4,257	1,694	2,194	2,926
	Disposed on-site (ton)	37.68	21.56	0		59.75	102	1,176.2
	Disposed at external landfill (ton)			237.76	1,150		152	2,926.0
	Total waste (ton)	2,025.91	512.4	2,000.95	5,407	1,753.75	2,448	4,102.2
ISO 14001 acquired		2002.12	1999.12	In progress	2000.9	In progress	—	2001.9

\*1 Oils converted as crude oil \*2 Gases converted as LPG

\*Data for Armstrong Auto Parts SDN. BHD. is currently being closely checked.

Item	Company name	Honda Autoparts Mfg. SDN. BHD.	Dongfeng Honda Auto Parts Co., Ltd.	Dongfeng Honda Engine Co., Ltd.	Guangzhou Honda Automobile Co., Ltd.	Wuyan-Honda Motors (Guanzou) Co., Ltd.	Jialing-Honda Motors Co., Ltd.	Honda Mingdong Generators Co., Ltd.
	Country	Malaysia	China	China	China	China	China	China
	Main product	Automobile parts	Automobile parts	Automobile parts	Automobiles	Motorcycles	Motorcycles	Power products
Energy	Electricity (kWh)	3,217,210	14,723,236	8,978,288	47,718,000	14,388,973	5,285,036	949,795
	Crude oil (ℓ) *1	14,494	24,506	92,422	1,664,682	2,879,587	408,750	61,662
	LPG (kg) *2	6,055	18,000	214,790	1,355,210	196,783	148,239	5,569
CO <sub>2</sub> (ton)		2,528	10,307	7,126	41,665	18,212	5,155	841
Waste	Reused/recycled (ton)	62.87	1,182	1,000	13,534	2,560	251	64
	Disposed on-site (ton)	0	0	0	0	0	0	3
	Disposed at external landfill (ton)	0	3,390	300	1,488	1,223	333	13
	Total waste (ton)	62.87	4,572	1,300	15,022	3,783	584	80
ISO 14001 acquired		In progress	In progress	In progress	2001.11	2002.10	In progress	In progress

\*1 Oils converted as crude oil \*2 Gases converted as LPG

## The Americas

### HTM's Technical Center in Ohio Wins Multiple Awards for Energy-Saving Design

Honda Transmission Manufacturing of America, Inc. (HTM)'s Technical Center in Russells Point, Ohio was recognized with three prestigious awards for energy efficiency in fiscal 2002: the 2002 Governor's Award for Excellence in Energy Efficiency, the American Council of Engineering Companies (ACEC) of Ohio's Grand Award, and the "Energy User News" 2002 Energy Efficient Building Award.

The \$1.9 million, 1,490 square-meter facility, which opened in October 2001, reflects Honda's commitment to reducing overall emissions to the environment. The Technical Center was designed to achieve 50% reduction in energy costs. Its simple yet flexible layout maximizes efficiency in use of space and incorporates 10 key energy-saving technologies into its design and construction. These are: high r-value insulation, geothermal heating and cooling, radiant floor heating, direct digital controls, operable windows with low "e-coat" and two-pane glass, five sets of skylights, light shelves on south-facing windows, high-efficiency lamp fixtures, occupancy sensors, and an automatic light dimming control system.

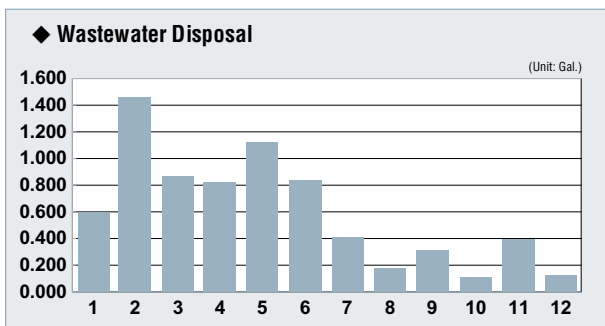
Innovative design and effective use of these technologies allowed the Technical Center to meet or exceed all its energy efficiency targets.



Award ceremony

### Die Cast Lube Recycling System Cuts Wastewater

Honda Power Equipment Mfg., Inc., a manufacturer of lawnmowers and general purpose engines based in Swepsonville, North Carolina, uses a die cast lube that significantly reduces the volume of wastewater trucked offsite. Since the new system was introduced, the amount of wastewater produced has fallen by 75%. As additional die machines come on-stream, more die lube will be recycled, cutting the amount of virgin die lube by about 45%, which translates to a cost savings of \$35,000 to \$40,000 annually.



### Honda of America Manufacturing Promotes Environmental Education for Youth

At Honda, we are proud of our environmental protection and conservation efforts. But being an environmentally sensitive company means more than just manufacturing low-emission cars or saving energy. It also means making a contribution by raising environmental awareness in the community. That is why Honda of America Mfg., Inc. is a sponsor of the Indian Lake Watershed Project Nature Center Program in Ohio. The program hosts some 700 to 1,000 elementary school students annually. Among the activities the students enjoy at these hands-on nature studies are collecting water samples and using microscopes, which gives them an opportunity to learn about ecosystems. They also get a close-up look at plant and animal life, as well as state and local history. By giving young people a greater appreciation of the natural world and of history, Honda is helping to ensure a better future for us all.

### HCM in Canada Hosts Environmental Seminar for Suppliers

Honda of Canada Mfg. (HCM), Honda's Canadian production base, held an environmental seminar on January 30, 2003 to encourage its suppliers to reduce CO<sub>2</sub> emissions. The seminar, entitled "Save Your Energy," was held as part of the company's green purchasing activities, with a focus on energy conservation. It was aimed at helping participants to understand the environmental issues involved in energy conservation, raising awareness of government policy and support measures, sharing experiences of energy management and conservation activities in the auto and auto parts sectors, and learning about renewable energy options.

Welcoming the 41 attendees from 29 suppliers, members of HCM's environmental group and the facilities department took the opportunity to provide direction to suppliers and to outline their joint environmental efforts, including use of returnable packaging and reduction of trailer shipments. Two supplier companies, along with the Automotive Parts Manufacturers' Association, and Ontario Power Generation also gave highly informative presentations. The presentations were followed up by a lively discussion of environmental issues. The HCM Supplier Environmental Seminar provides a unique opportunity for HCM suppliers to further enhance their important role in Honda's environmental activities.



## Europe

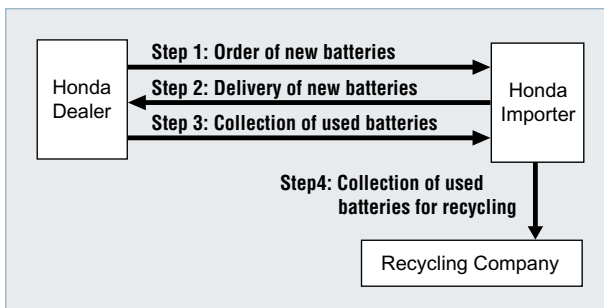
### IMA Battery Recovery System Instituted for Europe

The Integrated Motor Assist (IMA) system, which was adopted for the four-door CIVIC model, was launched in the British market in May 2003. This highly-fuel-efficient model will soon be available in continental Europe.

The CIVIC Hybrid uses a similar IMA system to those of models released in the Japanese and US markets. The CIVIC Hybrid has the highest fuel economy in its class and an ultra-low CO<sub>2</sub> output of 116 g/km, according to EU exhaust testing standards.

Despite its outstanding fuel efficiency and clean-burning engine, however, an important environmental challenge remains: how to dispose of the car's IMA batteries (NiMH) when they need to be replaced. To address this problem, Honda has established IMA waste battery recovery systems in each European country, including the UK. Dealers collect used batteries from customers. Honda then picks up these batteries and sends them to a recycler. Dealers bear almost no recovery cost under this system, and when they order new batteries, dealers are always reminded that used batteries can be recovered free of charge.

The system varies from country to country, but Honda is committed to ensuring proper recovery and recycling of used batteries throughout the continent, while at the same time minimizing recovery-related costs to car buyers and dealers.

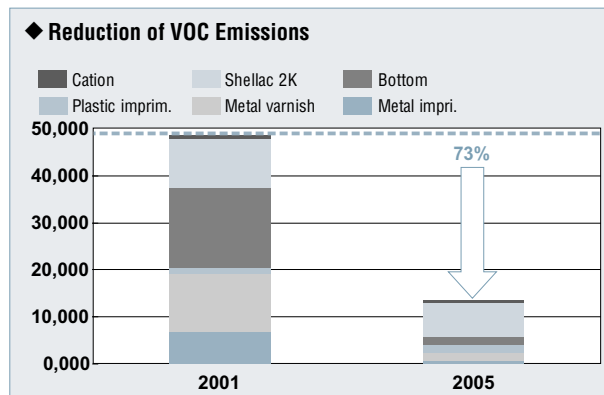


### Montesa Honda Battles VOC Emissions

Montesa Honda S.A. in Barcelona, Spain is working hard to exceed EU emissions standards for volatile organic compounds (VOCs). Under the new standards, which were adopted by Spain in April 2001, factories must cut emissions of VOCs by 73% (see chart). New facilities have until October 2005 to meet these stricter standards. Older facilities have until October 2007.

VOC's consumption (tons/year)	Emission limit (% Solvent consumption)
5 - 15	25
>15	20

At Montesa Honda, VOCs are produced mainly in the treatment of metallic and plastic surfaces. Motesa Honda is examining the use of water based paints on motorcycles to meet these challenging targets. This will result in VOC emissions of no more than 15% of total solvent consumption by 2005, which puts the facility ahead of schedule and well below legal limits.



### Honda Turkey Cuts Food Waste, Beautifies Facilities

Honda Turkiye A.S. is killing two birds with one stone by donating excess food from its canteen at its factory in Kocaeli to a nearby dog shelter. In the past such waste went straight to the landfill, but by analyzing its menu items and consumption patterns more carefully to reduce excess food, and donating what is left over to the dog shelter, the canteen is helping both to reduce waste and to care for "man's best friend."

And in an effort to make its production facility more attractive to both associates and its neighbors, Honda Tukiye is making extensive landscaping improvements, planting over 300 trees and flowers in a desert area with relatively little natural vegetation. The plants are watered with treated wastewater from the plant—which is also used in the fire prevention system—helping to cut costs and reducing water consumption by some 3,900 cubic-meters per year.



## ■ Asia & Oceania

### **Honda Automobile Thailand launched a recycling system for recovered bumpers and used the recycled resin to make genuine Honda parts.**

The Service department of Honda Automobile Thailand Co. (HATC) examined the establishment of a similar system as the one successfully implemented in Japan for the recovery and recycling of bumpers, and in fiscal 2001 started to verify the feasibility of such a system in Thailand. In October 2002, the department started to use resin recycled from recovered bumpers as the materials for genuine parts for the NewCity. (Refer to the photo: used for lock knob rod protectors, etc.)



Pellets of resin recycled from recovered bumpers



Genuine parts for the NewCity



Solar tower

### **Proper disposal of CFC12 (China)**

Guangzhou Honda Automobile Co., Ltd. is aggressively promoting the proper disposal of CFC12 and HFC134a at its contracted factories, where machines to recover these substances have been introduced. At present, 113 factories, which account for approximately 80% of all the contracted factories, have already introduced these machines. The company is aiming to introduce them to all of its contracted factories in the future.



Recovery of CFC12 at a contracted factory

### **Thai Honda Manufacturing started to conduct surveys on solar power generation by installing a solar tower.**

In August 2002, Thai Honda Manufacturing Co., Ltd. (THM) installed a solar tower using next-generation thin-film solar cells made by Honda Engineering Co., Ltd. Compared with Japan, Thailand has more hours of sunshine, and is eminently suitable for solar power generation. THM will conduct surveys on electricity generated in Thailand throughout the year, which will contribute to the future development of a full-scale solar power generation system. The tower's power generation capacity is 4kWh, which is equivalent to approximately 4% of the electricity consumed by the company. The electricity generated by the tower is supplied to the convention hall.

## ■ Persons Responsible for Commitments

<b>Sales and Services</b>	Automobile sales:	Shoji Azuma Masao Koike
	Motorcycle sales:	Ko Yamaguchi
	Power product sales:	Hiromichi Noji
	Parts sales:	Kazuyuki Ariyoshi
<b>Purchasing</b>	Automobile purchasing:	Tomonao Osaka
<b>Factory and Office Operations</b>		
	General Environmental Administrator	
	Saitama Factory:	Hideshi Obata
	Tochigi Factory:	Hiroshi Sato
	Hamamatsu Factory:	Yukihiko Takamura
	Suzuka Factory:	Mitsuharu Iwasaki
	Kumamoto Factory:	Yukihiro Tsurunishi
	Head office:	Nobutaka Okabe
<b>Logistics</b>	Products and K.D. parts:	Mitsuhiro Chiba
<b>Administration</b>	Administration:	Nobutaka Okabe
	Personnel:	Noboru Kamimura
	Public Relations:	Hiroshi Oshima
<b>Secretariat</b>	Environment and Safety Planning Office:	Keiichi Mitobe

Note: As of May 2003

## ■ External Verification

For the reasons given below, we have not obtained any external verification.

1. No guidelines have been established for external verification.
2. The qualifications required of the verification organizations are not clear.

We will continue to examine the details and timing of external verification, paying attention to the progresses made in relation to the items described in the above.

The results presented in this Report have been collected by each of the active departments concerned and endorsed within the Japan Environmental Committee's system. Data relating to the factories has been checked by environmental audits, and surveillance inspections under ISO 14001.

For all inquiries concerning the contents of this report, please contact us at the following address:

**Environment and Safety Planning Office**  
**Tel. 81-3-5412-1155 Fax. 81-3-5412-1154**



# HONDA



This report is printed on nonwood paper made from 100% bagasse (cane trash) using waterless soy-based inks.

**Honda Motor Co., Ltd.**

1-1, 2-chome Minami-Aoyama, Minato-ku, Tokyo  
Published : August 2003

©(R)(M)(A) 30000308



# Results of the Questionnaire and Interviews on the Honda Environmental Annual Report 2002

## Questionnaire:

Conducted from July 2002 to April 2003 (74 replies in total)

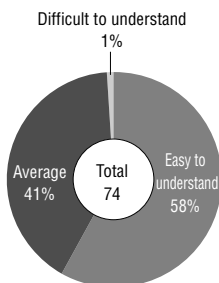
## Interviews\*:

Conducted from November to December 2002 (9 interviews in total)

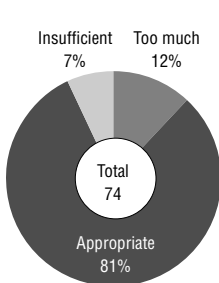
\*We selected nine persons from those who replied to the questionnaire to interview on the subject of what they thought of the report and Honda's environmental conservation activities

## Major Findings

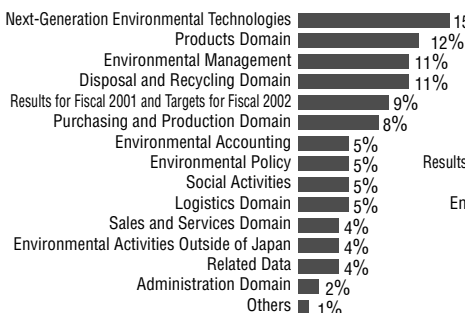
### Intelligibility



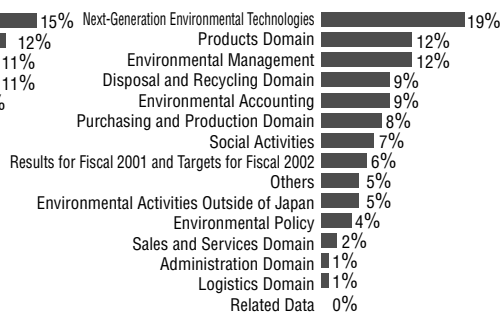
### Amount of information



### Parts found most interesting



### Part that needs to be improved



The results show that our readers are more interested in next-generation environmental technologies and want more information about such technologies. Accordingly, we will disseminate more information about these technologies in Honda ECOLOGY and at our Web site. To avoid the duplication of information, the Honda Environmental Annual Report 2003 does not include information on next-generation environmental technologies.

## Main Opinions and Requests from Our Readers and Honda's Responses

### Opinions and Requests regarding Honda Environmental Annual Report 2002

- "Would like to know the environmental impacts caused by the entire group."
  - We added the information about Honda R&D Co., Ltd. and Honda Engineering Co., Ltd. to the Japanese Factory Data (page 48).
- "The Specific Targets to be Achieved and Results, and Results and Targets for the Fiscal Years should be presented in a more readable layout."
  - The sections are now presented in two facing pages (pages 8 and 9).
- "Some combinations of colors make it difficult to read the text."
  - We carefully chose colors for graphs and tables to ensure readability.
- "The layouts vary by article."

### Requests regarding Honda's Environmental Conservation Activities

- Aggressive promotion of LCA
- Advanced measures for 3R (reduce, reuse and recycle) in the product development and design phases
- Further promotion of energy-saving activities in the production process
- Implementation of more measures to reduce total emissions in the expanding Asian market
- Promotion of environmental measures on a global scale
- Further promotion of new local transport systems

The opinions you have kindly presented to us are of immense value to use in our future environmental conservation activities and the disclosure of Environmental Information, including the Honda Environmental Annual Report.

We sincerely thank you for your cooperation.

## We hereby request all our readers to let us have the benefit of their opinions and ideas.

Our Honda Annual Environmental Report 2003 presents a summary of the results of our environmental commitments in fiscal 2002 from the viewpoint of the life cycle of our products. Our goal is to give details of our commitments and activities in the most concise manner in concrete figures and data that measure up to objective evaluation.

We will strive to enrich the content of our Report by giving full consideration to your opinions, ideas and advice.

To help us achieve this goal, we would be most grateful for your cooperation in completing the questionnaire on the back of this leaf and sending it back to us.

# FAX: 81-3-5412-1154

You can answer the questionnaire also on our Web site.

[world.honda.com/environment/2003report/report\\_enq.html](http://world.honda.com/environment/2003report/report_enq.html)