



## Safety for everyone in our mobile society

Honda's goal is greater safety for everyone in our highly mobile society. That's why our safety considerations go beyond protecting the people who use Honda cars and motorcycles to include the occupants of other vehicles, cyclists and pedestrians. We're tackling safety issues from both product and educational perspectives, working to ensure that our vehicles deliver the best possible safety performance while also promoting safe driving skills and awareness among our customers and society at large. Honda has always been strongly aware of the importance of *active safety*—the prevention of accidents before they occur—and has been proactively involved in promoting driving safety to address the human factor in accident prevention. Our proactivity is also amply displayed on the product side as well, as we lead the way in applying intelligent technology and introducing original preventive safety designs and devices.



## Automotive safety technology

### Applying a full range of innovative safety technologies to prevent accidents and minimize injuries

Honda has always been in the vanguard of safety, researching and developing its own advanced technologies and leading the way in bringing to market devices now employed in most automobiles. For example, we were the first automaker in Japan to introduce 3-point seatbelts, the Anti-lock Braking System and SRS airbags. And Honda continues to lead the way forward, creating technologies and devices that enhance safety at every stage, including accident prevention, hazard avoidance, injury minimization and post-accident measures. We support driving safety by developing and implementing leading-edge equipment and systems that feature intelligent technologies, including car bodies designed to help ensure occupant and pedestrian safety.

## Advances in Honda safety

	ACTIVE SAFETY			PRE-CRASH SAFETY	PASSIVE SAFETY		
	Accident Prevention	Hazard Avoidance	Pre-Crash Safety	Injury Minimization			Post-Accident
				Safety Body	Seatbelts	Airbags	
2000s	★2004 Intelligent Night Vision System 2003 AFS 2002 HiDS		★2003 Collision Mitigation Brake System (CMBS) + E-Pretensioners	2003 Advanced Compatibility Engineering body	2003 E-Pretensioner seatbelts	2002 Side curtain airbag system	2003 QQ Call
1990s	1997 High-intensity-discharge headlights	★1997 FWD VSA ★1997 EBD		1998 New collision safety body 1998 Pedestrian injury-reduction safety body 1993 Omni-directional collision safety body	1997 Pretensioner ELR seatbelts with load limiters ★1990 Seatbelt pretensioners	★1998 i-SRS airbag system for driver and front passenger ★1990 SRS airbag system for front passenger	1998 Collision detection door-lock release system
1980s		★1989 FWD TCS ★1987 4WS ★1982 ABS				★1987 SRS airbag system	
1970s	1979 Halogen headlights				1976 3-point ELR seatbelts		
1960s		1960 Disc brakes		1967 Monocoque body	★1964 3-point seatbelts		

★ World's first    ★ First in Japan



## ACTIVE SAFETY

Preventive safety technologies: helping drivers avoid accidents

### Prevention

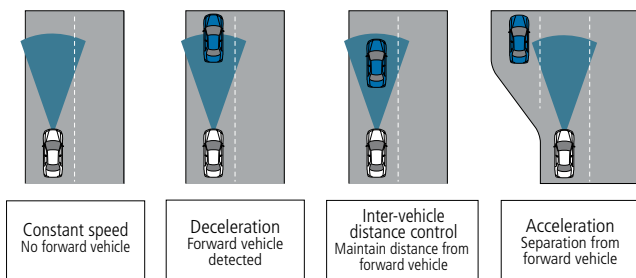
#### Driver support and accident prevention

#### Honda Intelligent Driver Support System (HiDS)

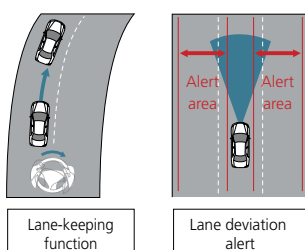
The Honda Intelligent Driver Support System combines Intelligent Highway Cruise Control (IHCC) which helps maintain a constant distance from the vehicle ahead, with Lane Keep Assist System (LKAS), which helps keep the vehicle in the correct lane to reduce the burden on the driver during highway driving.



IHCC with Vehicle Speed and Inter-Vehicle Distance Control Functions



LKAS operation



#### Adaptive Front Lighting System (AFS)

When going around a curve or turning the corner at an intersection, the headlights swivel in coordination with steering to illuminate a larger area of the road surface ahead throughout the curve.



AFS operation

#### Intelligent Night Vision System

During nighttime driving, the Intelligent Night Vision System displays an image obtained from two far infrared cameras and alerts the driver when it detects a pedestrian, using visual and audio cautions.

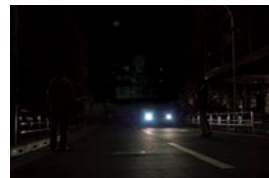


Image as seen by naked eye



Image seen through Intelligent Night Vision System

#### Hazard avoidance

#### Vehicle control to avoid imminent danger

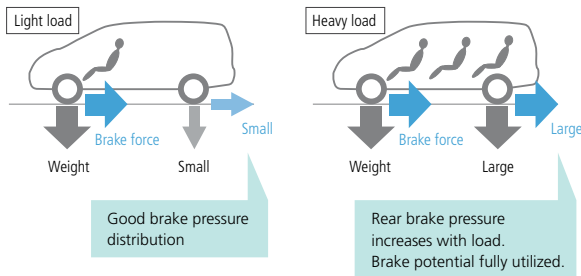
#### Anti-lock Braking System (ABS)

During emergency braking on wet roads, snow or other slippery surfaces, a computer helps implement swift and precise brake pumping to prevent wheel lock.

### Electronic Brake-force Distribution system (EBD)

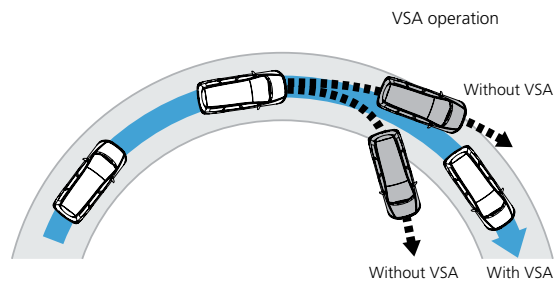
EBD electronically controls front/rear brake pressure distribution according to front/rear weight distribution. This system improves braking stability and performance, particularly with heavy loads.

EBD operation



### Vehicle Stability Assist system (VSA)

VSA combines a sideslip control system with ABS and Traction Control System (TCS) to assist the driver in maintaining control during sudden maneuvers.



### Honda ASV-3 Advanced Safety Research Vehicle

The Advanced Safety Vehicle (ASV) was developed to help prevent accidents and reduce injuries by employing advanced technologies to create an intelligent vehicle with significantly improved safety performance. The Honda ASV-3 advanced safety research vehicle, unveiled in 2005, was designed to exchange positional information with other vehicles using Inter-Vehicle Communication technology. (For more information, see p11.)



## PRE-CRASH SAFETY

Advanced safety technologies bridging the gap between active and passive safety

### Collision Mitigation Brake System (CMBS)

#### + E-Pretensioners

The system uses millimeter-wave radar to predict collisions and provides brake assist as well as retracting seatbelts, prompting the driver to take action to avoid an accident and helping to mitigate occupant injuries and vehicle damage in the event of an accident.



Close to vehicle ahead: If the car ahead is too close (and the system calculates that there is a risk of collision), the driver is prompted to take preventive action with audio and visual warnings.



Closer to vehicle ahead: If the distance between the two vehicles further diminishes, the system applies light braking and provides a tactile warning by gently retracting the driver's seatbelt.



Collision imminent: If an accident appears to be unavoidable, the system applies strong braking and firmly retracts both driver's and passenger's seatbelts to hold occupants in place and lessen vehicle damage.

## PASSIVE SAFETY

Collision safety technologies that minimize injuries in the event of an accident

### Injury minimization

Softening impacts to minimize injuries in collisions



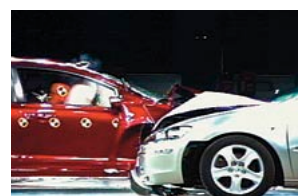
### Side curtain airbag system

In a side collision, side curtain airbags protect vehicle occupants of all sizes, from children to adults, against head and neck injuries. The side curtain airbag deploys over a wide area to offer protection to both front and rear seat occupants, especially against head impacts to the center pillar.



### New collision safety design body

Honda has been an industry leader in adopting body designs that ensure a high level of collision safety, employing its original G-force control technology to reduce the force transmitted to occupants while maintaining a strong survival zone.





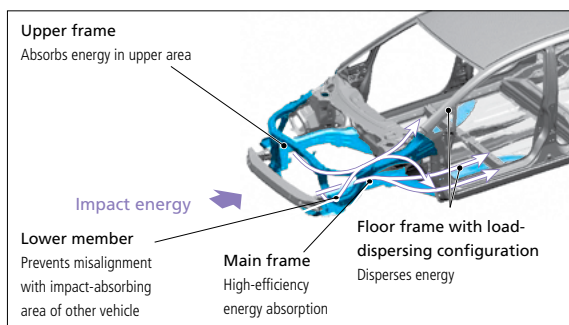
### Pedestrian injury-reduction body

Honda's pedestrian injury-reduction body features a hood that deforms to absorb the force of a collision, lessening the impact on a pedestrian's head and preserving a space between the hood and rigid engine components, as well as hood hinges and other parts that deform to help absorb impact. The latest design expands the areas of injury reduction to include a pedestrian's lower limbs, which are especially prone to serious injury.



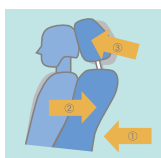
### Advanced Compatibility Engineering (ACE) body

The Advanced Compatibility Engineering body was developed to disperse the force of a collision and efficiently absorb impact energy, while preventing misalignment with the impact-absorbing frame members of another vehicle in a collision. High-efficiency energy absorption in the engine compartment ensures high levels of occupant protection, and at the same time helps reduce damage to the other vehicle.



### Active headrests

Rear-end collisions forcefully press occupants back into the seat, activating a link mechanism in the seatback that moves the headrest forward to support the head.



- 1 Collision from rear
- 2 Occupant's body is forced back into the seat, pressing on a plastic plate built into the seatback
- 3 Parallel linkage operates, pushing the headrest up and forward

## Crash safety testing

### Crash testing that replicates real-world conditions

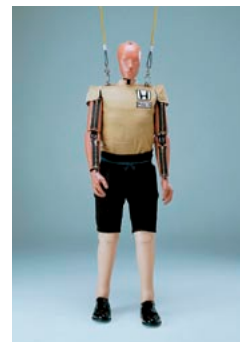
#### The world's first indoor omni-directional Real World Crash Test Facility

To replicate actual crash conditions as faithfully as possible, Honda performs crash tests with cars of different sizes colliding with each other at various angles. Crash tests using Honda's pedestrian dummies help in the collection of more accurate data for research and analysis.



#### Development of world's first pedestrian dummy

In 1998, Honda unveiled the world's first pedestrian crash-test dummy for use in analyzing what happens when a pedestrian is struck by a car. The results were used to determine which parts of the car contribute to pedestrian injury. This helped us design automobile bodies that lessen head injuries in the event of a collision. Honda's 2nd-generation pedestrian dummy was unveiled in 2000. Its legs, which replicated human anatomical structure right down to the menisci in the knees, allow researchers to study serious injuries to the lower limbs.



## Post-accident measures

### Minimizing post-accident dangers

#### QQ Call

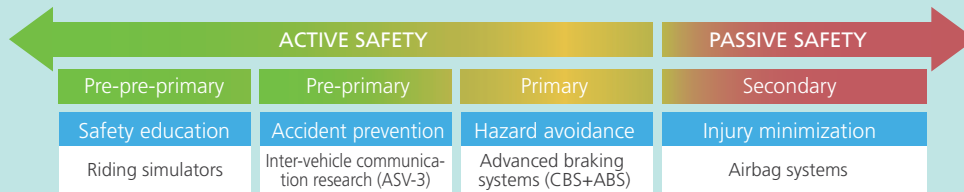
QQ Call is an optional emergency road assistance service for members of Honda's InterNavi Premium Club in Japan. The call center is available 24 hours a day, 365 days a year to contact emergency services on behalf of the driver and provide quick and comprehensive assistance in the event of an accident.



## Motorcycle safety technology

### Research and development for enhanced motorcycle safety

We're working to make motorcycles even safer and more fun. As the world's leading motorcycle manufacturer, we pursue research and development on every aspect of safety technology. Our efforts focus on active safety, including riding safety education, accident prevention and hazard avoidance, and passive safety for the minimization of injuries and vehicle damage.



## ACTIVE SAFETY

### Safety education

Honda has developed original riding safety training products and technologies, such as the Riding Simulator, which allows riders to experience danger in safety. The Riding Trainer is a more compact and affordable implementation of this interactive training technology. Honda is expanding the availability of both products, distributing them mainly to motorcycle dealerships in Japan and overseas.



### Accident prevention

The Honda ASV-3 motorcycle, unveiled in September 2005, is designed to be easier to detect and provide the rider better visibility. Equipped with front and rear cameras that relay information to a display to help the rider anticipate and avoid accidents, the vehicle also features a design that is easier for other riders and drivers to spot. Honda's efforts to improve traffic safety continue through research in inter-vehicle communication. (For more information, see p11.)



### Hazard avoidance

Honda is developing advanced braking systems such as the Combined Brake System (CBS) and the Anti-lock Braking System (ABS) to ensure more effective braking. In accordance with its August 2004 commitment, Honda is expanding the number of motorcycles available with these features in accordance with the characteristics of the models and the regions in which they are sold.

### August 2004 Commitment

- Honda will equip all new 250cc class or larger touring and sports motorcycles and large scooters with an advanced combined brake system, incorporating a conventional brake with an Anti-lock Braking System by the end of 2007.
- By the end of 2010, all Honda motorcycles 250cc class or larger, except off-road models, will be equipped with this type of brake. On- and off-road models will be equipped with ABS.

## PASSIVE SAFETY

### Injury minimization

The motorcycle airbag is the product of many years of research and development at Honda. We took full advantage of advances in automobile airbag technology, but developing this new device also required that we overcome a number of important issues specific to motorcycles, including analysis of collision conditions. (For more information, see page 12.)



### Signatory to the European Road Safety Charter

The European Road Safety Charter, one of the initiatives being implemented by the European Commission in its effort to cut traffic fatalities in half by 2010, challenges governments and corporations to take voluntary measures beyond those required by law. Honda became a founding signatory in April 2004, committing to expanding the application of its Advanced Braking Systems for motorcycles. Then, in November 2005, Honda signed an addendum committing the company to supply 1,000 Riding Trainers by 2007. Honda has taken a position appropriate for Europe's leading motorcycle manufacturer—treating safety as the top priority.



European Commission Road Safety Committee Chairman and Yasuhisa Maekawa, then Vice President of Honda Motor Europe, at the signing ceremony.



## Broadening our commitment to traffic safety— for our customers and for society

Honda provides driving safety leadership training to all sales personnel in Japan and has implemented a Rainbow Dealer certification system to recognize dealerships that offer driving safety seminars. In order to reduce the number of traffic accidents, Honda is acting in many ways to pass on safety expertise to customers. We have established eight Traffic Education Centers in Japan where we provide hands-on workshops designed to meet the diverse needs of drivers and riders, and also children and the elderly—all those who share the road. In order to improve the effectiveness of traffic safety education, Honda is also proactively engaged in developing educational programs for drivers, and training equipment such as the Honda Driving Simulator. Honda is engaged worldwide in a growing range of traffic safety initiatives, offering both traffic safety training and advanced products.

### Honda dealerships nationwide educating customers to help protect them from traffic accidents

#### Automobile dealers (Rainbow Dealer system)

Rainbow Dealers work to pass on safe-driving skills to customers to help them enjoy driving in comfort and safety, and also seek to function as a focal point for driving safety promotion in the community. All of the certified Rainbow Dealer automobile dealerships in Japan (about 2,400 locations) focus on offering their customers quality safety seminars and driver training. Driving instruction and safety guidance are provided by dealership personnel who have qualified either as Safety Coordinators (about 18,000 individuals) or Chief Safety Coordinators (about 3,500 individuals).



Safety seminar



Driving school



Riding school



Traffic safety publications

#### Motorcycle dealers (Safety Support Dealer system)

At our certified Safety Support Dealer motorcycle dealerships, qualified personnel help customers enjoy riding in greater comfort and safety. These dealerships work closely with their communities to become the focal point for driving safety initiatives. By expanding the Safety Support Dealer network, we're working to promote rider safety. We also aim to provide timely information on matters like traffic law reform governing the carrying of passengers on freeways and on licensing for riders of automatic transmission motorcycles. Also, in fiscal 2006 Honda certified about 30 Honda Dream dealers, which offer sports bikes. The goal is to continue certifying more Honda Dream dealers to get the safety message out to everyone.

For more information: <http://world.honda.com/safety/>

## Traffic Education Centers: safety education for all who share the road

Traffic Education Centers at eight locations in Japan offer hands-on learning programs developed on the basis of many years of experience. During fiscal 2006, some 70,000 people received training at the centers, including those seeking motorcycle and automobile licenses as well as a wide range of people of all ages—from small children and high school students too young to drive, to senior citizens. The centers aim to offer all those who share the road lifelong traffic safety education, with a variety of programs from fun motorbike seminars for parents and kids to safety seminars for seniors, all designed to help people learn the rules of the road and travel safely.

### Safety education for individuals of all generations

Traffic safety education is offered to people of all ages, from small children to high school students studying for their driver's licenses, to senior citizens.



Bicycle workshop for elementary school children



Safety seminar for seniors

## Honda Driving School (HDS) and Honda Motorcyclist School (HMS): giving learners a chance to experience danger in safety

A variety of courses are provided to meet the needs of all riders and drivers.



A skid control course at HDS



Tandem training at HMS

## Traffic Safety Forums: safety education for groups

Traffic Safety Forums, held annually at our Traffic Education Centers, provide opportunities for corporate and other groups to present case studies of safety initiatives, and for researchers to report their findings. In addition to presentations and lectures, interested parties are invited to participate in hands-on workshops on such safety-related topics as driver concentration testing.



## Working closely with the community to make traffic safety a part of everyone's life

### Original educational program

Honda recognizes the importance of lifelong traffic safety education in making our mobile society safer. We're working to develop traffic safety education materials appropriate to each local community and designed for everyone from senior citizens to young children—tomorrow's safety-conscious drivers. One program called Ayatorii\*, has been under development in cooperation with Suzuka City since 1993. Along with picture books for 4–5-year-olds, more advanced programs for 8–10-year-olds, and the Ayatorii Bicycle School for children from preschool to elementary school age, a Life-long Ayatorii course is now offered for cyclists and senior-citizen pedestrians. These programs are a fixture in Suzuka, and have been praised for the educational effectiveness of their awareness-raising approach.

\* Ayatorii is derived from a Japanese acronym meaning 'simple explanations for traffic safety awareness'.



Traffic safety teaching materials



A lesson in progress



### Activities to support traffic safety leadership in the community

Society looks to driving schools not only for driver training for beginners, but also as a source of community traffic safety education. Every year, Honda hosts the All-Japan Instructors' Safety Competition to provide driving instructors from around Japan an opportunity to polish their skills and exchange information. The fifth such event, held in 2005 at the Suzuka Circuit Traffic Education Center, attracted the largest number of participants to date, with 196 instructors from 88 schools around Japan competing to demonstrate the superiority of their safe-driving skills.



All-Japan Instructors' Safety Competition

### New driving safety education programs: improving skills by raising awareness

To further improve the effectiveness of driving safety education, Honda is developing new educational programs that focus on the driver. Our approach is to develop students' awareness of problems in their own driving that could lead to accidents and encourage them to come up with solutions and implement them independently. Our programs are designed to take advantage of the Honda Driving Simulator and other interactive technology to allow the student to objectively examine his or her driving behaviors with video and data feedback.

### Driving safety for senior drivers

In a driving safety education program for senior drivers that is currently in the trial phase, video cameras capture the student's driving so that it can be analyzed with an instructor, giving students the opportunity to recognize issues with their own driving and come up with solutions with the guidance of their instructor. Workbooks and danger prediction training materials are available to help maintain awareness after the completion of the course.



A lesson in progress

### Driving safety education using driving simulators

Developed in cooperation with Professor Hiroo Ota of the Tohoku Institute of Technology, the Hazard Prediction Course is primarily for young drivers, who have higher accident rates. The course uses Honda Driving Simulators to review and analyze driving habits. Its effectiveness was confirmed in a study in September 2005, when young drivers who completed it exhibited greater sensitivity to danger and improved driving behavior compared to those who had not taken the course. And Honda Driving Simulators are used not only as driving safety training devices, but also in research by universities and corporations on issues in ergonomics, and road and traffic engineering.



Honda Driving Simulator

## Traffic safety initiatives worldwide

Honda is sharing its traffic safety knowledge and experience in 21 countries including Japan. Currently 19 Traffic Education Centers operate in 13 countries. A diverse range of traffic safety initiatives has been designed to suit local patterns of automobile and motorcycle usage, road conditions and licensing systems, and function in concert with other local dealership activities.

### New initiatives in traffic safety

#### ● China — Guangzhou Honda Automobile

In China, where the number of automobiles is on the rise, one of Honda's affiliates has initiated safe driver education for its associates so that they can act as good examples in guiding their customers.



#### ● Russia — Honda Motor RUS

Two Honda Motor RUS associates were trained at a Traffic Education Center in Japan in October 2005 to form the nucleus of a new Rainbow Dealer system established in Russia in April 2006.



### Reinforcing motorcycle rider safety

#### ● Turkey — Honda Turkiye

Traffic safety activities in Turkey follow a two-pronged strategy: guidance is offered to customers at dealerships and hands-on rider education is available at the Traffic Education Center for police, corporate clients and the general public.



#### ● Pakistan — Atlas Honda

Honda Riding Advisors are stationed at all motorcycle dealerships in Pakistan, helping to promote safe riding by offering safety advice, one-day training sessions and other initiatives.



### Instructors from 11 countries attended the 9th Safety Japan Instructors' Competition—the largest turnout ever

The Safety Japan Instructors' Competition presents an opportunity for safety instructors from Japan and abroad to polish their teaching skills and exchange information. The ninth event, in 2005, featured the largest international turnout ever, with 29 participants from 13 companies in 11 countries, including Indonesia, Australia, South Korea, Singapore, Thailand, China, Turkey, Pakistan, France, Vietnam and Malaysia.



### Driving safety promotional activities around the globe



- Traffic Education Centers: 19 in 13 countries
- Active countries: 20