

# Research and Development

## Value Creation: Meeting the Needs of Customers Worldwide



The goal of research and development is to present true value to customers through preeminent technology. In pursuit of Nissan's corporate vision, "Enriching people's lives," we are committed to promoting technologies leading to a brighter tomorrow. The Alliance with Renault has strengthened our R&D capabilities immeasurably. Building common platforms, powertrains, engines and transmissions has produced excellent synergy and developmental efficiency. Nissan will continue this method of innovation, formulating new technologies and providing greater value to our customers.

### Nissan Advanced Crash Laboratory

The Nissan Advanced Crash Laboratory, located in Oppama, Kanagawa Prefecture, performs highly advanced accident simulations. The objective of this facility is to improve driver safety in crashes and rollover accidents. Various types of crash situations are carefully re-created, helping us devise new accident countermeasures that enhance the safety of our vehicles and passenger-protection.



Site of crash experiment at the Nissan Advanced Crash Laboratory

### The Continuously Variable Transmission: Effectively Reducing CO<sub>2</sub> Emissions

The continuously variable transmission, or CVT, allows an engine to run at optimal levels, balancing out acceleration and changes in speed while enhancing fuel efficiency. Currently, Nissan is the only automaker in the world that provides CVT-equipped vehicles in all segments, ranging from compact cars to large sedans. The CVT efficiently reduces fuel consumption and CO<sub>2</sub> emissions. We are aiming to maximize this asset and expand the rollout of CVT-equipped vehicles worldwide.



The XTRONIC CVT

### Nissan's Next-Generation V6 Engines

The next-generation VQ35HR and VQ25HR V6 engines are specifically developed for rear-wheel-drive vehicles. The VQ engines deliver "smooth transition" and effortless acceleration to top-in-class engine speeds of 7,500 revolutions per minute. The seamless acceleration and superb responsiveness give the driver greater control over the vehicle, resulting in an exhilarating driving experience. The new VQ engines also rank at the top of their class for fuel economy, while dramatically lowering CO<sub>2</sub> emissions, thus qualifying them as Super Ultra-Low Emission Vehicles (SU-LEVs).



The next-generation VQ35HR V6 engine

### New Driver Support Systems

We developed the new "Around View Monitor" to give drivers a bird's-eye view display of the area around the vehicle. The "Car Wings" service uses the latest Vehicle Information and Communication System data and traffic report data to help drivers anticipate traffic jams and identify the quickest route to their desired destination. We are looking to further enhance driver support systems in pursuit of our customer's comfort, convenience and driving pleasure.



The new "Car Wings" driver support system