

February 7, 2008

**Toyota Advances Brake Assist with Navigation Link**  
**—Latest Technology Further Supports Driver Safety—**

Tokyo — TOYOTA MOTOR CORPORATION (TMC) announced today that its Brake Assist, which helps apply proper braking power, can now—as a world's first<sup>\*1</sup>—coordinate with a vehicle's navigation system.

TMC's latest Brake Assist engages when a driver suddenly applies the brakes in response to stop-sign-proximity warnings provided by the navigation system through its display screen and aurally. The navigation system is able to provide the warnings by drawing on stop-sign information contained within its map data. The Brake Assist optimally adjusts the braking force based on both vehicle-position information (obtained using a rear-mounted camera) and the actual force with which the driver has applied the brakes. TMC hopes that this new technology, developed in conjunction with Aisin AW CO., Ltd., Zenrin Co., Ltd. and Toyota Mapmaster Incorporated, will help reduce collisions at intersections; it intends to offer it on vehicle models scheduled for launch in Japan in the near future.

The development of the navigation-linked Brake Assist follows TMC's development in June 2007 of the world's first system to employ car navigation-system map data to warn drivers both visually and aurally of stop signs ahead—a system TMC enhanced in September 2007 by adding an aural warning that is activated when the driver does not begin to decelerate upon nearing the stop line.

As a part of its efforts to realize sustainable mobility, TMC intends to strengthen its traffic safety initiatives in the future through: 1) the development of even safer vehicles and technologies based on TMC's Integrated Safety Management Concept<sup>\*2</sup>, 2) participation in the creation of a safe traffic environment and 3) activities designed to educate people in traffic safety, thereby contributing to the complete elimination of traffic casualties, which can be viewed as the ultimate hope of a society that values mobility.

\*1. As of January 2008, according to TMC survey.

\*2. TMC's safety technology and vehicle development concept, aimed at realizing vehicles that do not cause accidents by combining safety technologies and systems to provide optimal driving support based on actual driving conditions

**Outline of Stop-sign Warning System and Navigation-linked Brake Assist**

Type of Support	Function	Activation Timing
Stop-sign alert	Alerts driver visually and aurally to stop signs	Approx. 100m before stop sign
Stop-sign reminder warning	Issues voice warning to driver in event driver has not begun decelerating	Approx. four seconds before expected arrival at stop sign
Navigation-linked Brake Assist	Optimally adjusts braking force for braking aimed at stopping at stop signs	When driver suddenly applies brakes following reminder warning

Note: The system is currently limited to stop signs at intersections where smaller roads meet roads with four lanes or more in Tokyo's 23 wards and the cities of Yokohama, Nagoya and Osaka. TMC plans to expand the area covered by the system in the future.

**Stop-sign Warning Display (available only in Japanese for the Japanese market)**



Navigation system display screen

This red, triangular symbol represents a Japanese stop sign. It appears in the upper-right corner of the navigation system's display screen as a visual warning that the driver is approaching a stop sign.

### Sequence of System Operation

A rear-mounted camera picks up road markings in advance of a stop sign; the markings are cross-referenced against navigation-system data to accurately calculate the distance remaining before the stop sign.

