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For immediate release

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## **Yokohama Rubber and Zenrin begin practical testing of tire sensor attached to tire's inner surface**

Tokyo—The Yokohama Rubber Co., Ltd., announced today that it has begun practical testing of a tire sensor attached to the tire's inner surface. Testing is being conducted in collaboration with Zenrin on a nationwide basis using test vehicles outfitted with sensor-attached tires.

The tests are being conducted using a tire sensor being developed by Yokohama Rubber and an in-vehicle device developed by Alps Alpine Co., Ltd., that has been attached to the test vehicles with Zenrin's cooperation. The practical tests will confirm the durability of the sensors attached to the tires' inner surface and the ability of a newly developed system (Tire air Pressure Remote access System = TPRS) to remotely monitor tire pressure using the in-vehicle device. In addition, Yokohama Rubber aims to realize a new value-added tire-related business that provides tire pressure information and GPS location data along with Zenrin's abundant map information.

Yokohama Rubber's TPRS is a response to changes in the automobile industry, such as CASE\*<sup>1</sup> and MaaS\*<sup>2</sup>. The current practical test of the system aims to determine its merits for vehicle maintenance staff, including labor-saving effects during tire maintenance, more precise tire management, and more efficient tire maintenance planning. The test will also consider the system's benefits for vehicle owners, such as its contribution to safe vehicle operation and improved fuel efficiency. Using TPRS, Yokohama Rubber aims to establish a new business model that contributes to driver safety and enhances the economic efficiency of vehicle operation.

TPRS enables real-time remote monitoring of tire pressure, temperature, and vehicle location. In addition to contributing to significant labor-saving during tire maintenance, TPRS will help prevent irregularities in inspection results, detect potential accident-causing abnormalities, and improve fuel efficiency by ensuring maintenance of proper tire pressure, etc. System data is saved in a cloud server in real time.

The CASE and MaaS initiatives included in Yokohama Transformation 2023 (YX2023), Yokohama Rubber's medium-term management plan for fiscal years 2021–2023, include the promotion of a new tire solutions service based on the development of a SensorTire (Internet of Things [IoT] tire) with sensing functionality and stronger, more flexible service capabilities. In February 2021, Yokohama Rubber announced its SensorTire Technology Vision, a medium- and long-term technological development vision for passenger car tire sensors. The aim of this new vision is to provide continued support for the safe and sound movement of people while also addressing changes in mobility demand by providing data obtained from IoT tires fitted with sensing functionality to drivers and operators of a diverse range of automobile-related services. To achieve the goals of this vision, Yokohama Rubber is conducting practical testing with partners from various industries.

\*1: An acronym for Connected, Autonomous, Shared & Services (short for car-sharing and related services, or in some cases sharing only), and Electric (for e-cars).

\*2: Mobility as a Service. The provision through packaged search, reservation, payment, and other related functions of optimal combinations of public transport and other mobility services for addressing the mobility needs of local residents and of travelers.

# Tire air Pressure Remote access System

SIM/GPS-equipped in-vehicle communication device

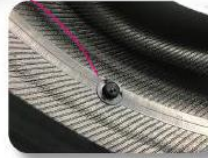
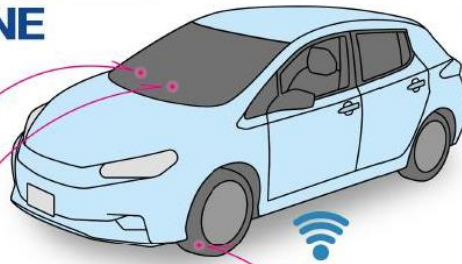
Tire air pressure & GPS location data

**ALPS/ALPINE**



Drivers can check tire pressure at any time, and the device sounds an alarm and displays a warning when an abnormality occurs.

In-vehicle display



Tire pressure data is transmitted to the in-vehicle communication device and display, enabling the vehicle manager and the driver to detect tire pressure problems at an early stage, thus enhancing operational safety.

Air-pressure sensor attached on tire's inner surface



Data transmission



Vehicle managers have access to air-pressure status and driving history of numerous vehicles

**ZENRIN**  
**YOKOHAMA**

The photos and illustrations in this release are representations of a system under development. The actual devices and system structure may differ from those shown here.