



Tire Business

# Commercial Tires Incorporating market changes to further strengthen business

In commercial tires, we will focus on the four themes of cost, services, digital transformation (DX), and expanded product lineup to capture market trends such as CASE and MaaS. We will search for M&A opportunities in the OHT (Off-highway tires) business, and aim for profitable growth in the truck and bus tires (TBR) business.



## OHT Business

### Summary of YX2023

In 2020, our consumer tire to commercial tire sales ratio was 3:2, while the global market ratio was an even 1:1. The acquisition of Trelleborg Wheel Systems Holding AB (TWS) in fiscal 2023 brought at ratio in line with the global market ratio of 1:1. In addition, the composition of our commercial tire business is now more heavily weighted toward more highly profitable OHT, with an OHT to TBR ratio of 2:1, the reverse of the global market's 1:2 ratio favoring TBR. This allowed us to achieve our grand strategy for the transformation of our Tire Business structure. In the OHT business, in addition to the organic growth of YOHT (Yokohama Off-Highway Tires), the acquisition of TWS has dramatically increased both our production capacity and sales revenue. As a result, we now have the industry's most comprehensive OHT product lineup.

### YX2026 growth strategy

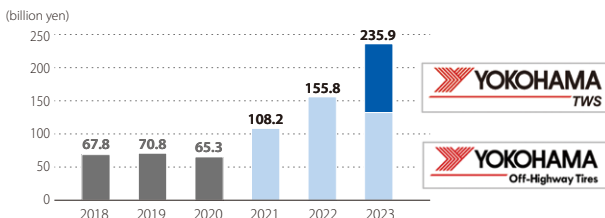
#### Our share and growth strategy

The OHT tire market size is currently about ¥4 trillion, and we expect it to expand at an annual growth rate of about 6%, compared to just 2% for the consumer tire market. We estimate agriculture & forestry machinery account for about 40% of global demand, and the Yokohama Rubber Group has the top share in these markets. During YX2026, we will further strengthen our market position by applying a multibrand strategy that leverages our production, sales, and technology strengths in each tier of this market segment.

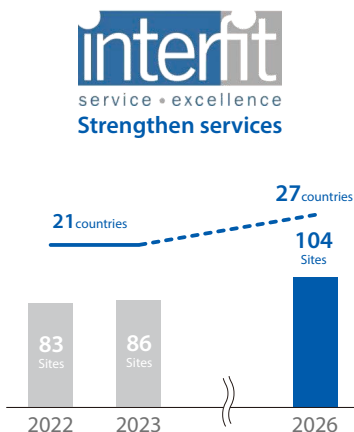
The next largest segment of the OHT market, with a 25% share, is industrial & port-use machinery. The Yokohama Rubber Group has the second largest share in this market segment, where we are aiming for profitable growth by expanding and strengthening our service network from 21 countries (current number) to 104 locations in 27 countries by 2026 through the enhancement of the Interfit service, a tire maintenance service provided by our professional staff.

In addition, we will consider "Programmatic M&A," in which we continuously consider and execute M&A to achieve "Hockey Stick Growth" in construction machinery and mining machinery, in which we have only a small market share, and in the OHT business as a whole, with the aim of achieving further growth.

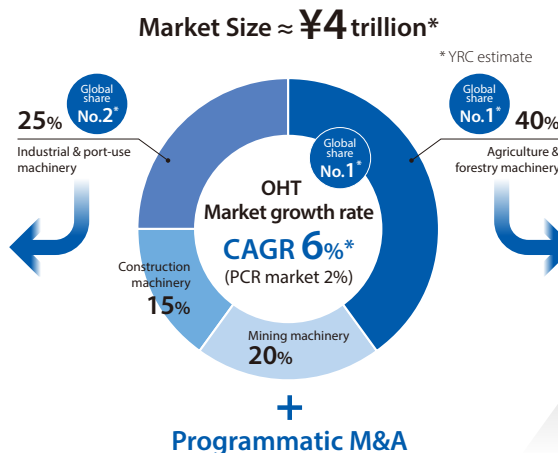
### OHT Sales Trend



### OHT Business Growth Strategy



Global Demand Composition Ratios of Off-highway Tires



### Multi-brand strategy



### Global network covering major markets

Y-TWS (Yokohama TWS) has 14 production bases in 9 countries: in Europe in Italy, the Czech Republic (3 bases), Latvia, Serbia, Slovenia; in North America in the US (2 bases); in South America (Brazil); in Asia (China (2 bases), and Sri Lanka (2 bases)), with Europe accounting for about 60% of the company's sales. By adding Y-TWS's strengths in Europe to the Yokohama Rubber Group's strengths in Japan, North America and Asia, the Group now operates in more than 120 countries on six continents and employs more than 15,000 people in the OHT business. With the establishment of this global network, we can expect further growth in this business.

As a service system, we have a customer service platform utilizing a field service management app, etc., and our specialized team provides tire services in 82 locations in 21 countries around the world.

### Use of DX

Y-TWS has developed the Adaptive Tire Management System (ATMS), which improves agricultural productivity by detecting working conditions such as load, pressure, and temperature in real time and constantly suggesting the optimal tractor vehicle settings. Y-TWS has also developed the Tire Pressure Management System (TPMS) for construction and port



ATMS: Real-time tire data for ultimate tractor performance

vehicles which constantly monitors air pressure and temperature to improve operational efficiency and ensure operator safety. Although we have developed similar remote monitoring systems for air pressure and temperature inside tires, the combination of Y-TWS's and Yokohama Rubber's DX knowledge will promote the provision of more convenient and efficient services.



TPMS: Digital tool for construction/port vehicles

### Priority measures in fiscal 2024

The OHT business faces a challenging environment in 2024, as evidenced by the worldwide sluggish demand for tires for installation on new OHT vehicles from the second half of 2023. Focusing on Y-ATG, the business unit behind the brands ALLIANCE, GALAXY, and PRIMEX which possesses strengths in the replacement tire market, we are working to increase our share in the replacement tire market and increase sales volume by strengthening efforts to address markets that were weak in the past, with the aim of achieving growth across the OHT business as a whole. In addition, the entire Yokohama Rubber Group is making full-fledged efforts to create synergies with TWS (currently Yokohama TWS), which we acquired in May 2023, and is also considering specific growth through "Programmatic M&A," a growth strategy for the OHT business, as set forth in YX2026.

### OHT Business Metrics, Results, and Targets

Metrics (KPIs)	Results			Targets
	FY2021	FY2022	FY2023	
Number of tire sizes that conform to Very High Flexion (VF) and Pressure Field Operation (PFO) standards*	129	176	252	FY2026: Total of 384 sizes

\* Standard for tires that can run at low pressure to minimize the impact on the roots of crops

## A Practical Example from Our Exploitation × Exploration Strategy

### Reducing Field Damage and Increasing Productivity with Tires That Comply with VF and PFO Standards

VF tires, which can support the same load at 40% less air pressure than conventional radial tires, serve as an indispensable tool for farmers to fight soil compression damage since they enable driving farm vehicles at low tire pressures. Some studies have suggested that soil compression can reduce yields because air and water flow is disrupted. Reducing soil compression has the advantage of improving productivity, which also leads to improved work and fuel efficiency.

We are also expanding our lineup of tires that comply with PFO standards that enhance the load carrying capacity of VF tires during low-speed operation. Tires equipped with PFO technology allow for farm vehicle operation at even lower tire pressures, further reducing soil compression.

In addition to VF tires, there are only a few tire makers in the world capable of supplying tires that comply with PFO standards. The Yokohama Rubber Group has an extensive lineup of tires that meet a wide range of needs. By providing high-quality tires trusted by users and comprehensive after-sales services, we will support the improving the productivity of farmers.





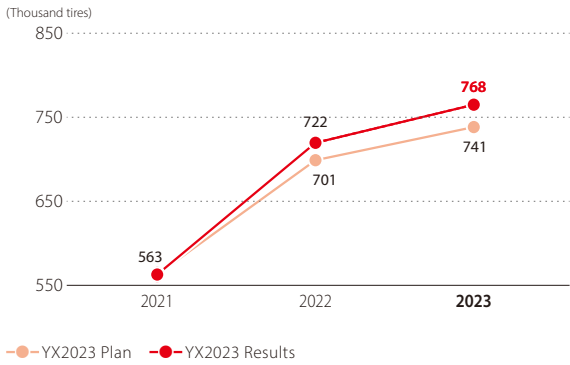
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TBR Business

Summary of YX2023

In the TBR business, we achieved our production plan for the Mississippi Plant in the US which was set in YX2023, and became profitable in fiscal 2023. However, the sales volume remained at 98% of the 2018 level due to the severe market environment in Europe and the US in fiscal 2023.

Production plan and results of the Mississippi Plant in the US



YX2026 growth strategy

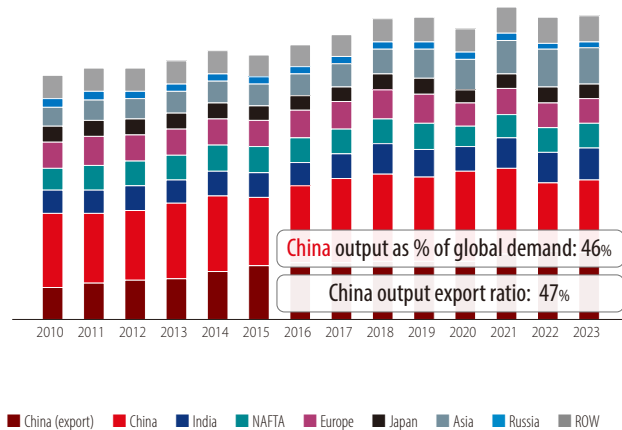
Market conditions and growth strategy

In the TBR business, Chinese tire makers are expanding their production of truck and bus tires more than that of consumer tires, with Chinese tire makers accounting for almost half of global production, half of which is exported. In contrast, European and US governments are enforcing strict protection policies with anti-dumping and countervailing duties of up to 88.03% in the US and 51.00% in the EU (according to our research), which results in a demand gap. We will aim for profitable growth by strengthening sales in countries and regions where these measures are supporting the maintenance of appropriate pricing.

In response to this situation, quantitative targets have been established in YX2026, and we are aiming for sales revenue of ¥131.9

Global TBR/LTR Tire Production Trend

(YRC estimates)



billion, business profit of ¥14.8 billion, and business profit margin of 11.2% in fiscal 2026 compared to the fiscal 2023 results of ¥103.6 billion, ¥4.1 billion yen, and 4.0%, respectively.

T.M.S (Tire Management System)

T.M.S is a service for the safe and efficient use of tires. Since its launch in 2003, more than 40,000 vehicles have been installed with the service.

T.M.S uses information from tire inspections and sensors attached to tires in its cloud database to provide customers with safe, efficient, and economical tire operation methods, retreading, etc., that are appropriate for the condition of their tires.

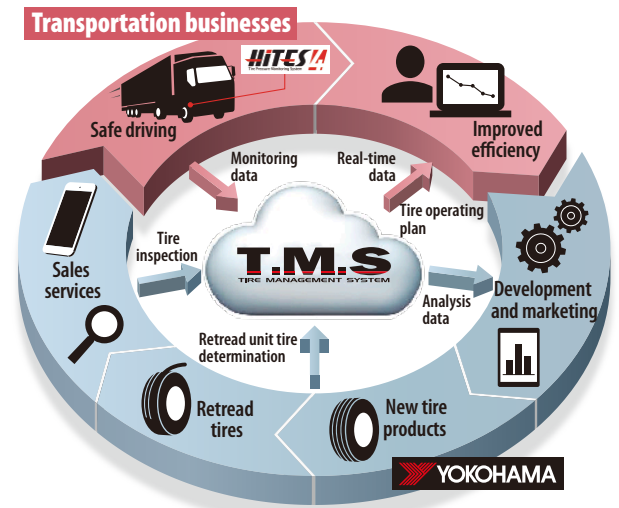
In addition to information and data input being compatible with new digital devices that will be implemented in society in the future, it is also possible to import tire inspection data using conventional analog methods, making the system highly redundant.

So far, we have been conducting demonstration tests of new ICT using T.M.S with car-sharing companies and taxi companies. In March 2023, we started EV bus demonstration tests. Moving forward, we aim to further expand our solution services to solve customers' problems using the latest digital technologies.



Tire Management System (T.M.S)

<p>T.M.S installed <b>41,711</b> vehicles * As of December 2023</p>	Safety
	Efficiency
	Economy

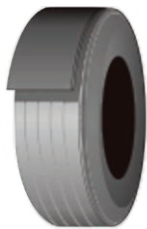


### Strengthening products and services that support sustainable transportation

Yokohama Rubber aims to achieve "Contribute to a decarbonized and recycling-oriented society, while increasing profits" providing products and services that support this effort. For example, we have an extensive lineup of retread tires that use Yokohama Rubber's existing tire tread patterns and compounds. Retread tires are tires used to replace worn tread rubber to restore tire functions for tire reuse, contributing to a recycling-oriented society.

In addition, Ultra Wide Base Tires, which allow a two-wheel set on a truck to be replaced with a single-wheel, not only minimizes maintenance but also reduces weight per axle, resulting in increased payload capacity.

In response to the growing demand for B2C delivery and transportation, which has been increasing in recent years, we are actively investing in increasing production and product development of light truck tires with excellent fuel efficiency and tread life performance, as well as small diameter and large load tires.



Retread tire



Ultra Wide Base Tire

### Priority measures in FY2024

As the transportation industry faces a serious labor shortage due to the so-called "2024 problem," we will actively propose measures so that we can help with this issue as a tire maker.

Yokohama Rubber is developing a digital inspection tool that simplifies and automates the task of tire inspection, which must currently be performed using human hands, and aims to implement it in society as soon as possible. New digital technologies will be linked with T.M.S to meet the needs of our customers.

At the same time, tires that meet the performance requirements of BEV buses, which have been increasing globally in recent years, will be given the "E+" mark and launched in the whole world.

E+ tires are designed for high load capacity and high torque performance with EVs. In addition to improving durability and tread life in response to barrier-free curbs, the Company will also improve retread performance, thereby contributing not only to decarbonization but also to a recycling-oriented society.



An example of eco-friendly vehicles equipped with E+ tires

### TBR Business Metrics, Results, and Targets

Metrics (KPIs)	Results			Targets
	FY2021	FY2022	FY2023	
Utilization of tire management/maintenance services (T.M.S) using DX				FY2026:
Number of vehicles registered in T.M.S (cumulative)	25,201	35,936	41,711	50,000
Number of tires inspected	279,244	330,605	361,239	450,000 tires per year

### A Practical Example from Our Exploitation × Exploration Strategy

#### Yokohama Rubber Begins Supplying Tires for the EV Buses of a Major Public Transport Company in Spain

Transports Metropolitans de Barcelona (hereinafter "TMB"), a major Spanish public transport company that is supporting the popularization of EVs, has decided to start supplying the 120U all-position tire, our tire specifically designed for city buses. The 120U, which successfully met the strict requirements demanded through public bidding, is capable of withstanding the unique needs of EVs such as increased acceleration and increased vehicle weight. This tire was the result of many years of research and development with TMB experts, which resulted in improved road contact, tread life, traction performance in wet and snowy conditions, and improved safety performance due to a significantly improved casing. We will continue to contribute to the diverse logistics needs and environmental management of transport companies.

