マルチパスウェイワークショップ SUBARUの取り組み

Multipathway Workshop Subaru's Initiatives

MULTIPATHWAY WORKSHOP



Our responsibility as carmakers is to create a carbon-neutral world. There is more than one way to achieve this goal.

Subaru is a relatively small company.

The products we make are passenger cars in the so-called C- and D-segments, from the Impreza to the Ascent.

The support of customers who choose our offerings in this segment has made Subaru what it is today.

To achieve carbon neutrality and create products that customers prefer, we believe that a small company like ours must take a different approach to other firms.

In these uncertain times, we need the flexibility and expandability to handle any changes that arise.



Subaru has always earned the support of customers through differentiation.

A differentiation strategy is about creating something distinct that stands out from the crowd.

When building compact cars half a century ago, Subaru opted for horizontally-opposed engines.

In truth, horizontally-opposed engines are tricky to deal with. On the other hand, being compact from front to back makes them well suited to building AWDs.

As you can see here, we are able to achieve AWD with a very simple powertrain.

This is a major technical asset.

Today, Subaru's car manufacturing is making the most of these advantages. In markets outside of Japan, every Subaru vehicle, aside from FR BRZ, is all wheel drive.

No other company does this.

And in addition to AWD performance, we have also reached new heights in areas such as collision safety and superior visibility, thanks to our unique packaging.

Since the beginning, at Subaru we have always been driven by the desire to offer customers greater enjoyment and peace of mind.



This commitment has delivered happiness to many customers and enabled cars to enrich their lives.

For this, we are truly grateful and, as part of the Japanese auto industry, proud that we have been able to deliver happiness to customers around the world.

The horizontally-opposed engine and AWD are about more than just history or originality; these are the core technologies that underpin our cherished values of "enjoyment and peace of mind," and have become the symbol and icon of Subaru.



The focus of our technical development is to achieve carbon neutrality while retaining the horizontally-opposed engine and superior AWD packaging.

Today, I would like to introduce the new hybrid system we plan to announce this year.



Hybrid systems can be broadly divided into three types.

The first is the parallel hybrid, used in the current e-BOXER, in which the motor's output is added to that of the engine.

Another type is the series system, in which the engine serves as a generator and the motor drives the wheels.

And finally, series-parallel systems that combine the two.

The reliable driving and offroad performance of Subaru's AWD stems from precise control of the mechanically coupled front and rear wheels through the propeller shaft.

For our next-generation hybrid system, we developed a series-parallel hybrid capable of boosting environmental performance without sacrificing the things that have always made Subarus great.



The system inherits Subaru's unique Symmetrical AWD layout with two motors built into the transmission, one for drive and the other to generate power.



In addition, by mounting the power control unit (PCU) in the engine bay, we secured fuel tank space equal to that of a gasoline vehicle.



This was made possible by the compact horizontally-opposed engine. Moving forward, we are exploring ways to further raise environmental performance based on this next-generation hybrid system.

As part of these efforts, we have built a dedicated plant in Kitamoto, Saitama, to manufacture transaxles for the hybrid system.

In the past, this plant produced general-purpose engines.

2017年 9月 汎, September 2017 Pro 2019年 3月 車: March 2019 Pro 2022年12月 リニ December 2022 Rer 2024年 秋 次: Fall 2024 Pro

産果懐器事果人呂嬰作所より増玉嬰作所(北本)へ移転 Industrial Products Div. relocated from Omiya Plant to Saitama Plant (Kitamu 汎用エンジン生産販売終了 Production and sales of general-purpose engines ended 車載エンジン生産販売終了 Production and sales of vehicle engines ended リニューアル工事開始 Renovation of the Kitamoto Plant started 次世代ハイブリッドシステム用トランスアクスル生産開始予定 Production of transaxles for the next-gen. hybrid system scheduled to begin

北本工場コンセプト Vision of the Kitamoto Plant

地域と共存し、従業員の「働きがい」が高い愛される工場の実現 Creating a beloved plant that coexists with the local community and maintains high job satisfaction for employees.

MULTIPATHWAY WORKSHOP

From this fall, the Kitamoto Plant will begin producing transaxles for the new hybrid system.

Working with the concept of creating a plant beloved by both employees and local communities, we have introduced various initiatives focused on quality, diversity, and logistics.

These initiatives will contribute to protecting and creating jobs for the 5.5 million people in Japan's auto industry, and serve as a first step in putting Subaru's monozukuri innovations at the global forefront.



Our quality-focused initiatives will harness visualization (IoT systems) to gather productivity and quality information in real time, improving both aspects by preventing irregularities and enabling line management that does not rely on individual discretion.

Through our diversity initiatives, we are seeking to engage and empower women. In terms of physical aspects, we have used 3D virtual plant reproductions to assess and optimize workloads, applying specific ergonomic standards for women.

On the intangible side, we have introduced fixed day shift schedules and other measures to assist with balancing work and childcare, and strengthened consultation services and other support systems.

In logistics, we are tackling challenges in the transportation industry by eliminating the role of truck drivers in loading/unloading goods and boosting efficiency by upgrading truck ports and loading/unloading areas.



In our work with carbon-neutral fuels, Super Taikyu has served as a platform for technical dialogue with like-minded partners also using CN fuels, where we have discussed our challenges and pathways for overcoming them.

As a result, we proposed and produced new CN fuels that have been jointly refined.

Currently, Toyota, Mazda, and Subaru are all conducting bench testing under the conditions we have determined,based on the market environment.

Moving forward, we will discuss how differences in our engines affect the various issues.

At Subaru, we have been verifying the impact of various CN fuels on parts, functions, and exhaust emissions, exploring approaches for improvement, and studying CN fuel compositions that can be made available for the market.



Subaru will continue to develop horizontally-opposed internal combustion engines.

To create a future for these engines,

we are using the Super Taikyu Series to pursue the development of new technologies and the people who sustain them.

In the 2024 season, we will introduce a new vehicle (High Performance X Future Concept), work on making turbo engines compatible with CN fuels and improving AWD controls, and develop other future-oriented technologies for both ICEs and BEVs.



Inheriting Subaru's distinct identity, the next-generation hybrid system will equal or outperform gasoline vehicles in every respect, from environmental and driving performance to quietness and practical features.

As the new power unit that will underpin future Subarus, this system has expanded our options alongside conventional gasoline and mild hybrid vehicles.

The next-generation hybrid system will cater to all situations, from everyday transport to active lifestyles, spurring customers' curiosity to try new things, visit new places, and travel further.