

Toyota Developing Hydrogen Engine Technologies Through Motorsports

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Toyota City, Japan (April 22, 2021)—Toyota Motor Corporation (Toyota) announced today that it is developing a hydrogen engine in an effort to move toward a carbon-neutral mobility society. It has installed the engine on a racing vehicle based on Toyota's Corolla Hatchback, which it will enter in competition under the ORC ROOKIE Racing banner. The first race will be the Super Taikyu Series 2021 Powered by Hankook Round 3 NAPAC Fuji Super TEC 24 Hours Race on May 21-23.

By honing its prototype hydrogen engine in the harsh environment of motorsports, Toyota aims to contribute to the realization of a sustainable and prosperous mobility society. Fuel cell electrified vehicles (FCEVs) such as Toyota's Mirai use a fuel cell in which hydrogen chemically reacts with oxygen in the air to produce electricity that powers an electric motor. Vehicles with hydrogen engines generate power through the combustion of hydrogen using fuel and injection systems that have been modified from those used with gasoline engines. Except for the combustion of minute amounts of engine oil during driving, which is also the case with gasoline engines, hydrogen engines emit zero CO₂ when in use.

Combustion in hydrogen engines occurs at a faster rate than in gasoline engines, resulting in improved responsiveness. While having excellent environmental performance, hydrogen engines also have the potential to

relay the fun of driving, including through sounds and vibrations.

Toyota has long engaged in the innovation of engine technology. It is also applying the technologies that it has continued to refine through its participation in motorsports to production vehicles, with the GR Yaris launched last September being one example. And when it comes to safety, Toyota intends to apply the technologies and know-how that it has accumulated through the development of fuel cell vehicles and the commercialization of the Mirai.

Plans are for the hydrogen-engine-powered race vehicle announced today to be fueled during races using hydrogen produced* at the Fukushima Hydrogen Energy Research Field in Namie Town, Fukushima Prefecture. While aiming to expand hydrogen infrastructure by promoting hydrogen use, Toyota intends to continue advancing efforts for economic recovery and revitalization of the Tohoku region together with all parties concerned.

Toyota has been strengthening its efforts toward achieving carbon neutrality by aiming to promote the use of hydrogen through the popularization of FCEVs and numerous other fuel-cell-powered products. By further refining its hydrogen-engine technologies through motorsports, Toyota intends to aim for the realization of an even better hydrogen-based society.

Engine overview

Displacement	1,618 cc
Type	In-line 3-cylinder turbo with intercooler
Fuel used	Compressed hydrogen

*In cooperation with the New Energy and Industrial Technology Development Organization (NEDO) and Japan's Ministry of Economy, Trade and Industry

SUSTAINABLE DEVELOPMENT GOALS

Toyota Motor Corporation works to develop and manufacture innovative, safe and high-quality products and services that create happiness by providing mobility for all. We believe that true achievement comes from supporting our customers, partners, employees, and the communities in which we operate. Since our founding over 80 years ago in 1937, we have applied our Guiding Principles in pursuit of a safer, greener and more inclusive society. Today, as we transform into a mobility company developing connected, automated, shared and electrified technologies, we also remain true to our Guiding Principles and many of the United Nations' Sustainable Development Goals to help realize an ever-better world, where everyone is free to move.

SDGs Initiatives: <https://global.toyota/en/sustainability/sdgs/>