隔週刊『日本の名車コレクション』第12号

Legendary Japanese Cars マツダ サバンナ RX-7
名車の系譜 マツダ サバンナ RX-7 (2代目)
メーカー列伝 自動車メーカーの歴史 マツダ②
ジャパニーズカー発展史 憧れの名車たち②

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MAZDA **SAVANNA** RX-71978-1985

Savanna RX-7

Model	SA22C
Engine Name	12A
Displacement	573cc × 2
Maximum Output	130ps/7000rpm
Maximum Torque	16.5kg-m/4000rpm
Overall Length	4285mm
Overall Width	1675mm
Overall Height	1260mm
Wheelbase	2420mm
Vehicle Weight	1005kg

<image>





The retractable headlamps, a feature not seen in a Japanese car since the Toyota 2000GT, also garnered attention.

From the rear angle, the hatch featured an all-glass design, providing a wide rear view.

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A rotary-exclusive sports car emerged in a challenging time for high-performance vehicles

The debut of the first-generation Savanna RX-7 occurred in March 1978, during a time marked by the 1978 emissions regulations and the oil crisis.

Mazda's rotary engine was one of the first to meet the 1978 emissions regulations, following Honda's CVCC engine. This success was primarily due to the low NOx emissions characteristic of the rotary engine. However, while the rotary engine performed well in emissions compliance, fuel efficiency remained a significant weakness. During the oil shock and the subsequent sharp rise in gasoline prices, the demand for fuel-efficient vehicles grew, posing a major challenge for Mazda, known for its rotary engines.

Despite this challenging era for high-performance cars, Mazda chose to pursue "driving enjoyment" as the theme for the RX-7's development. The company decided to install the rotary engine, even if fuel efficiency was not its strength, in a highly specialized and enjoyable vehicle. While emissions regulations forced many domestic cars to suffer power reductions, the RX-7 was born to take advantage of the unique characteristics of the rotary engine, turning the oil crisis into an opportunity to showcase the engine's full potential.

A body designed specifically for the rotary engine

Until then, Mazda's vehicles were not designed specifically for rotary engines. Mazda also had models with reciprocating engines in its lineup. The first rotary-engine-only vehicle was the Cosmo Sport, which ceased production in 1972, but the Cosmo Sport was limited to only 1,176 units, making it more of a prototype. Thus, the RX-7 became Mazda's first massproduced rotary-engine-exclusive car. The entire design of the RX-7 was based on the premise of only installing a rotary engine.

The characteristics of the rotary engine are its compactness, light weight, high power, and smooth output characteristics. In developing the RX-7, a package was conceived where the rotary engine could fully demonstrate these advantages.

The RX-7's body style featured a low hood, simple and beautiful lines, and a cockpit-like canopy that resembled a jet fighter. It was unmistakably a "sports car" in appearance. However, at the time, Mazda avoided using the term "sports car" and instead used the phrase "rotary specialty". This was because it was the era of energy conservation, and creating a sports car could not be boldly announced. It was also said that the Ministry of Transport at the time did not permit the use of the term "sports car". Furthermore, the approval to make it a 2-seater was not granted, so the domestic version had rear seats, making it a 2+2, while the international version was a 2-seater.

In such a time, the RX-7's fresh and easily recognizable design felt like a beacon of hope. When he saw the design Kohei Matsuda, Mazda's president at the time, exclaimed "This is it. This is the kind of sports car I wanted to make".

This style was made possible because of its small rotary engine. At the same time, by placing the engine as close to the driver as possible, the front-rear weight distribution with two passengers was ideal at 50.7:49.3, contributing to its excellent handling. This made it a true "front-midship" package.

The drag coefficient (Cd) of 0.36 was revolutionary for its time, and the low hood, made possible by placing the rotary engine near the driver's seat, played a role in achieving it. The adoption of retractable headlights was another significant



The sleek rear angle is accentuated by the glass hatch, which can be lifted to access the luggage.



The dashboard area features a four-spoke steering wheel, exclusive to higher-grade models. The gauges are arranged with a sporty model in mind.

feature, becoming an iconic trait of the first-generation RX-7. This was also to realize the low hood line, but the decision to implement them came in the final stages of development, and the engineering team struggled to make it work. Subsequently, retractable headlights became a major trend, but this was the first instance since the Toyota 2000GT.

With its instantly captivating design, the RX-7 garnered acclaim internationally. Its highly refined design had a global appeal.

Equipped with the responsive and high-revving 12A rotary engine

The engine in the first-generation Savanna RX-7 was an improved version of the 12A rotary engine, previously featured in the Cosmo AP (second-generation Cosmo). It had a displacement of 573cc per rotor (two rotors) with a single four-barrel carburetor.

At the time, rotary engines were taxed at 1.5 times their actual displacement, equating to approximately 1800cc for tax purposes, though it performed on par with a 2000cc engine. The 12A engine in the RX-7 achieved 130 horsepower (gross) and had a remarkably smooth, high-revving capability. The RX-7's weight was around 1000 kg, comparable to a 1.6-liter car, which gave it sharp acceleration and allowed drivers to enjoy the engine power sensation that had been lost in the era of stringent emissions regulations.

The rotary engine held an advantage in meeting emission standards, producing low NOx levels. This allowed engineers to focus on managing hydrocarbons (HC) and carbon monoxide (CO) emissions, which were addressed through an oxygen-injected thermal reactor that reburned exhaust gases without sacrificing power.

In October 1979, the engine transitioned to a lean-burn system, adopting a standard catalytic converter instead of the thermal reactor to further improve fuel efficiency. In 1980, Mazda also improved the engine's sealing efficiency and reduced vehicle weight, achieving a fuel consumption of 9.2 km/L in the 10-mode Japanese test cycle for the 5-speed MT model.

The suspension used a front strut design, while the rear adopted a fourlink rigid setup with a Watts linkage. This conventional rear suspension layout suited export markets and had already proven itself in the Savanna GT (RX-3) and Capella Rotary.

The steering system was a

recirculating ball type, chosen for its light handling without power assist and reduced kickback from the road, a feature that was beneficial at a time when power steering was not standard. Upon release, the RX-7 was offered with both a 5-speed manual and a 3-speed automatic transmission.

With a minor update, the RX-7 introduced a rotary turbo engine

The first-generation Savanna RX-7 had an impressive model span of eight years, and the most notable update within this period was the addition of a turbo engine model in September 1983. Rotary engines and turbos were inherently compatible, but launching a rotary-turbo model at the time of the RX-7's debut was risky due to the oil crisis and the demand for fuel efficiency. Mazda had steadily improved the engine's fuel economy, finally introducing a turbocharged version.

The rotary turbo engine had previously debuted in the Cosmo, but the RX-7's turbo unit was newly designed, with the turbine diameter reduced from 62mm to 57mm, and blade shapes optimized. With the turbo, the engine power increased to 165 horsepower, which was



The front seats are bucket seats. The top-grade "Limited" model featured seats upholstered entirely in fabric.



Although it has a 2+2 seating arrangement, the car is primarily designed for two occupants. As a result, the rear seats are very tight and unsuitable for adults.

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ample for the RX-7's lightweight 1,020 kg body, achieving a powerto-weight ratio of 6.18 kg/ps. This turbocharged RX-7 exhibited the rotary's trademark smooth rev-up plus explosive acceleration with minimal turbo lag.

With the turbo model, the tire size was upgraded from 185/70R13 to 205/60R14, and power steering was added to manage the larger tires. The suspension featured adjustable shocks with eight settings, and the rear stabilizer bar was thinned to enhance stability despite the axletype rear suspension.

In terms of design updates, a minor facelift in November 1980 introduced urethane bumpers with an integrated air dam, improving the drag coefficient (Cd) from 0.36 to 0.34. When the turbo model was added, the RX-7 also received door mirrors and 60-profile tires, in compliance with regulatory changes. The aluminum wheels, initially ordered from Italy's Campagnolo, could be swapped for custom wheels designed in the shape of a rotary engine, which became a coveted feature.

The RX-7 name, following the tradition of the Savanna RX-3, represents "R" for Rotary, "X" for the future's possibilities, and "7" as both the development code and a nod to "lucky seven." Mazda retained the "Savanna" name, partly to reflect a model change rather than an entirely new vehicle in the era of the oil crisis. The RX-7 played a critical role for Mazda, solidifying its financial footing alongside the Familia, which debuted in 1980.

To consumers, the RX-7 represented a long-awaited highperformance car amid emissions regulations and the oil crisis. With domestic sales reaching 471.009 units, it was a remarkable success for its vehicle class. In the U.S., although the RX-7 was dubbed the "Poor Man's Porsche", to denote an affordable alternative to highend sports cars, it outperformed the emission-restricted Porsche 924 and garnered high praise. The RX-7 also found popularity among careerdriven women, seen as a stylish car suited to their needs and status.



The turbo model introduced in 1983. The Turbo GT-X came standard with speed-sensitive power steering and other features.



The "SE series" introduced in 1979. The interior was upgraded to a luxurious specification, and the removable 2-way roof became a topic of interest.



Due to the compact engine, a front midship layout was achieved by positioning the engine behind the front axle.



All grades come with manual window regulators for the door windows. Power windows were available from the SE series.



The 5-speed MT shift has the reverse gear located at the bottom right. A control case was developed specifically for the RX-7, and the shift lever is short for easy grip.



The electric mirror controller, located on the right side of the steering wheel, is standard on Limited.

A rotary-exclusive model suitable for racing and rallying

The first-generation Savanna RX-7, with its lightweight design and front-midship layout, proved to be well-suited for racing and rallying.

Its racing debut came in 1979 at the Daytona 24 Hours in America, where it secured victory in the GTU class with drivers Yoshimi Katayama, Koji Yorino, and Yojiro Terada, and finished 5th overall. The fact that a GTU class race car placed 5th overall was a remarkable achievement. In Europe, it also won the 1981 Spa 24 Hours.

The RX-7 made its first attempt at the Le Mans 24 Hours in 1979 but failed to qualify. However, it completed the race for the first time in 1982, finishing 14th overall. Although it didn't achieve notable results at Le Mans, the experience gained from the RX-7's participation and its rotary engine became a legendary part of Mazda's racing history, laying the foundation for the 1991 Le Mans victory with the 787B, the first and only win by a Japanese car and a rotary engine.

The RX-7 also made an impact in rallying from the start. In 1979, it won four Group 2 class categories at the Monte Carlo Rally. In 1981, it placed 11th overall at the RAC Rally. Additionally, in 1984, equipped with the 13B rotary engine, which would later appear in the second-generation RX-7, it finished 9th in the Acropolis Rally and placed 3rd overall in the same event the following year. Considering this was an era dominated by 4WD vehicles, the RX-7's 3rd place finish in an FR configuration was a remarkable achievement, demonstrating the car's excellent balance and handling.

The RX-7 rally car's appearance also became popular, evoking the look of the Lancia Stratos. Moreover, the rotary engine's compact size and smooth performance made the RX-7 beloved by many amateur racers and rally enthusiasts.



The image is from the Acropolis Rally. Mazda participated in overseas races early on and showcased the potential of its cars.