



GRAN TURISMO SPORT MAZDA RX-VISION GT3 CONCEPT



INTRODUCTION



Mazda recently became an official partner to the "FIA Gran Turismo Championship," which is competed using "Gran Turismo Sport" for Sony Interactive Entertainment's (SIE) PlayStation®4. At the same time, it announced the "Mazda RX-VISION GT3 CONCEPT" virtual race car jointly developed by Polyphony Digital and Mazda. Players from around the world who enjoy "Gran Turismo Sport" will be able to drive this car to their heart's content on all of the game's set courses from Friday, May 22.

"Gran Turismo Sport" is certified and promoted by the FIA (Fédération Internationale de l'Automobile) as an official platform of digital motor sport and, by supporting the "FIA Gran Turismo Championships" as an official partner, Mazda has obtained seed rights to participate in the world tournaments (world tours) scheduled to be held worldwide in the 2020 season. "Gran Turismo Sport" players who use Mazda vehicles, such as the RX-VISION GT3 CONCEPT, will have the opportunity to participate in the world final.

Mazda is aiming to acquire more Mazda fans through conveying the joy and pleasure of driving to a wider range of people who love "Digital Motor Sport." The company is also considering projects that will enable individuals to jump from the virtual world to the real (participatory motorsports*, etc.) in an effort to attract fans who hope to enjoy driving a real car in the future and would like to participate in actual world motorsports.

***Participatory motorsports supported by Mazda**

In Japan the "Roadster Party Race" series is flourishing. The series, which started in 2002 and continues today, is Japan's longest running one-make race and so far about 5,000 people have participated (as of May 2020, survey by Mazda). In the 2019 season a total of 120 participating vehicles entered the three series held in Northern Japan, East Japan, and Western Japan. The Roadster Party Race is a one-make series in which anyone can participate with a base grade, unmodified "Roadster NR-A" with a registration number. To ensure fairness, tires have designated sizes and brands. The vehicles are equipped with a roll cage and a full harness seat belt to ensure safety and, after the race, participants can drive home using the same vehicle, making it a car that is both convenient and sporty. Also, any contact made with other vehicles during the race results in zero points, a major feature that places significant importance on good sportsmanship.

In the United States, Mazda North American Operations established a ladder system based on the Spec Miata (MX-5 one-make race) series begun in the early 1990s. The series cultivates excellent drivers from each region and advances them up into higher categories. It has attracted around 10,000 participants from across the country. The "Global MX-5 Cup," which is a one-make series for the current fourth-generation MX-5, is developing into a semi-professional category competed in circuits across America.

MAZDA RX-VISION GT3 CONCEPT

Overview of the virtual "RX-VISION GT3 CONCEPT" race car

The "RX-VISION GT3 CONCEPT" is a virtual race car that appears in "Gran Turismo Sport." Based on the "Mazda RX-VISION," the car is modified in accordance with FIA GT3 race car vehicle regulations. The base vehicle "Mazda RX-VISION" is a concept car that was unveiled at the Tokyo Motor Show in October 2015. This vehicle took on the challenge of achieving the most beautiful front engine rear wheel drive (FR) sports car that Mazda could conceive of based on the "Kodo -Soul of Motion" design theme, and is equipped with a next-generation "Skyactiv-R" rotary engine (RE). The model represents the vision of a sports car that Mazda hopes to make a reality in the future.



[Main features of the RX-VISION GT3 CONCEPT]

- Taking advantage of the original vehicle's beautiful long nosed / short deck form, it goes further by employing a wider tread
- The front midship and transaxle rear wheel drive configuration achieves an ideal 48:52 front / rear weight distribution.
- Its excellent aerodynamic characteristics are optimized for handling performance and tire management.
- It is mounted with a "Skyactiv-R" 4-rotor engine that generates a maximum output of 570PS*
- It has double wishbone front and multi-link type rear suspension.
- Within Gran Turismo Sport it is a certified FIA GT3 vehicle, or category Gr.3, which is for conceptual models with similar specifications and performance.

[Vehicle specifications]

Length x Width x Height (mm)	4,590 x 2,075 x 1,120
Wheelbase (mm)	2,700
Front and rear tread (mm)	1,720 / 1,760
Vehicle weight (kg)	1,250
Front and rear weight distribution	48:52
Engine type	Skyactiv-R Naturally aspirated 4-rotor engine
Displacement (cc)	2,600
Maximum output (PS / rpm)	570 / 9,000 *
Maximum torque (Nm / rpm)	540 / 7,500 *
Drive system	Front engine / rear wheel drive (FR)
Tyres and Wheels	Michelin 310 / 700 - 18

*The output and weight may change due to balance of performance (BoP) adjustments depending on the race.

[FIA GT3 category]

The FIA GT3 category is a vehicle standard for race cars based on commercially available 2-seater or 2+2-seater sports cars modified for racing and certified by the Fédération Internationale de l'Automobile (FIA). Many car manufacturers around the world have registered GT3 standard race cars and major international race series such as the GT World Challenge, based in Europe, and the IMSA series in the United States have adopted FIA GT3 vehicles as a main competition model. Numerous exciting races see FIA GT3 cars competing including the 24 Hours of Daytona, the 24 Hours of Spa-Francorchamps, the 24 Hours of Nürburgring, the Bathurst 12-hour, the 12 Hours of Sebring, and the Suzuka 10 hours. FIA GT3 vehicles require homologation (certificates) issued by the FIA, and modifications outside the permitted range are strictly limited. Furthermore, the race organizers carry out "BoP" (balance of performance) adjustments on the vehicles, and the engine power, vehicle weight, minimum ground clearance, etc are specified in detail for each vehicle type, to ensure fairness. Gran Turismo Sport also incorporates its own regulations in the Gr.3 category.

DESIGN STORY

RX-VISION GT3 CONCEPT design story

The "RX-VISION GT3 CONCEPT" is a co-creation of Mazda's designers and Polyphony Digital's digital modelers. The original "Mazda RX-VISION" was selected as the "Most Beautiful Concept Car of the Year" in the 33rd Festival Automobile International held in France in January 2016 and has been highly praised by countless people globally.

This design project started in the fall of 2019. An image sketch was released at the venue for the world final of the "FIA Gran Turismo Championship" held in Monaco in November of the same year where it was announced that the vehicle would be added to the 2020 update of "Gran Turismo Sport". From then on, the design was steadily polished, with frequent back and forth between Polyphony Digital and Mazda Design, and the modeling work progressed from there.

The RX-VISION GT3 CONCEPT accords with the FIA GT3 rules and performance requirements for race cars. While the original cabin and door shape are maintained in accordance with GT3 vehicle regulations, the front / rear tire treads have been expanded and it has received a wide fender. It is also equipped with a large engine hood outlet that improves both aerodynamic performance and cooling in the engine room, a front lower spoiler that controls cooling performance and front downforce, along with a rear spoiler and under diffuser that increases rear downforce and ensures rear wheel traction. The front projection area was minimized in order to improve the aerodynamics, and proportions were pursued that would reduce the vehicle height and set it lower. Weight reduction and a lower center of gravity were accomplished through removing unnecessary parts in the interior and replacing heavy materials. An ideal 48:52 front-rear weight distribution was also achieved. Each function within the cockpit was arranged with an emphasis on ease of operation during the race. In particular, the steering wheel uses a special design that improves operability. The interior layouts of all Mazda models are developed in the pursuit of superior ergonomics and have earned the cars a high reputation. Similarly, the RX-VISION GT3 CONCEPT prioritizes aspects such as seat shape, driving position, pedal arrangement and visibility during driving as essential items. Whether a road car or a virtual race car, Mazda cars all share the philosophy of being "human-centered".

Similar to mass production vehicle development, the RX-VISION GT3 CONCEPT began with design sketch work for each component, followed by 3D digital modeling, and then completion of a detailed final design. This Gr.3 virtual race car, designed to achieve a high level of competitiveness, was made possible through Polyphony Digital's state of the art modeling technology.





[Chief designer's message]



RX-VISION GT3 CONCEPT Chief Designer
Mazda Motor Corporation
Design Division Advanced Design Studio

Norihito Iwao

Joined Mazda in 1993. Exterior designer for the CX-5, CX-3, and has also worked on show cars, concept cars, etc. While he was stationed at Mazda Design Studio in North America for 3 years from 2012, he was in charge of the LM55 VISION's conceptual work.

After that, he served as chief designer for the Mazda RX-VISION (2015), the Mazda VISION COUPE (2017) and the RX-VISION GT3 CONCEPT.

We set out to design the most aesthetic and fast GT3 race car in the world based on the FR-sport concept Mazda RX-VISION, that was crowned the "Most Beautiful Concept Car of the Year" in France in January 2016. Focusing especially on the exterior, we sought to eliminate waste, and pursue functional beauty. Developing a design with soul is not only essential for mass-produced cars and concept cars but was also integral for this virtual race car. This time Mazda's exterior and interior designers worked together with Polyphony Digital's digital modelers to build this car in the spirit of co-creation.

The "human-centered" development concept is common to all Mazda vehicles, beginning right from the initial design stages. At Mazda's Design Headquarters, starting from the directors, there are numerous car lovers, many of whom are closely acquainted with the "Gran Turismo" series and motorsports. So, we progressed with design work while consulting with these individuals on how the car should perform and be operated during races, while at the same time envisioning how it would actually run on the race track. Balancing the beauty of its appearance with its function and performance as a race car, while at the same time also satisfying all the regulations, was like trying to thread a needle. I truly want to thank all those at Polyphony Digital who shared our aspirations and met our numerous revision requests.

Ultimately, we were able to create this RX-VISION GT3 CONCEPT, which embodies our ideal conception for a vehicle in the virtual world and will be the car to beat in "Gran Turismo Sport". I hope that everyone around the world will enjoy driving it.

[RX-VISION GT3 CONCEPT]



GRAN TURISMO SPORT

Overview of "Gran Turismo Sport"

"Gran Turismo" is a series of driving simulation games developed by Polyphony Digital for Sony Interactive Entertainment's PlayStation®. The first game was released as a CD-ROM in 1997 and as the platform became more powerful and increased its connectivity, it became possible to race against other players online. The latest release, "Gran Turismo Sport," is exclusively for online use.

Famous sports cars from all over the world appear in the "Gran Turismo" series. A wide variety of car models are included, reaching a number of approximately 300. The categories range from compact road cars to super cars, to racing cars, and even luxury cars that are not typically considered within the scope of motorsports. Also, many concept cars, exclusive Gran Turismo vehicles and prototype machines that have been developed by automakers and tuner companies are also included.

The circuits built into the game include fictional original tracks and city courses, along with existing race tracks whose characteristics have been accurately reproduced with advanced digital technology. These include the stage for the 24 Hours of Le Mans, the Circuit de la Sarthe, Germany's Nürburgring, Belgium's Spa Francorchamps circuit, the Laguna Seca Raceway in California and so on. Japanese tracks featured in the game include Fuji Speedway, Suzuka Circuit, Autopolis, and Tsukuba circuit.

"Gran Turismo Sport" features steering, acceleration, brake, and stability control, along with other advanced driving assistance functions that enable anyone, young or old, to be able to enjoy the game. Furthermore, the game allows the driver (player) to change the settings of the chosen vehicle, including tire selection, ABS and traction control settings, and independent suspension adjustments such as vehicle height and spring strength. This level of realism sees more than a few professional drivers who compete in the 24 Hours of Le Mans and Nürburgring using "Gran Turismo Sport" for simulated practice before going into the actual race. It is not uncommon today for car manufacturers to use "Gran Turismo" to implement driver development programs that produce real race car drivers. It can be said that "Gran Turismo Sport" is not only a platform for young gamers to play at home but is a full-fledged racing simulator for learning real sports driving that can be transferred into the real world.

FIA GRAN TURISMO CHAMPIONSHIPS

Overview of the "FIA Gran Turismo Championships"

There are a number of global "Gran Turismo Sport" users who have outstanding driving skills that are active as sponsored professional players. The FIA (Fédération Internationale de l'Automobile) has taken note of the high level of competition in "Gran Turismo Sport" and has certified the Gran Turismo Championship as an official FIA World Championship since the 2018 season.

Mazda has now become an official partner to this championship that anyone can participate in using the "Sport Mode" option for "Gran Turismo Sport" on the PS4®. Players who participate in the online series races held in each region, Europe, Middle East, Africa, North America, Asia, Oceania, and Latin America, and finish at the top of the rankings by autumn (northern hemisphere) this year will be certified as "Star Players." Star players will be limited to users who are over 18. Those selected, will have the opportunity to participate in a world tour where top ranking players from all over the world come together and compete at venues throughout the globe, including in Europe and the United States. Furthermore, this competition consists of a "Nations Cup", in which participants represent their country / region and participate individually, and a "Manufacturer Series" where drivers race on behalf of a specific brand.

A total of 12 teams, including official partners such as Mazda, along with top manufacturers from around the globe can participate in the Manufacturer Series world tour. (25 manufacturers participated in 2019)

Mazda is hoping to increase the number of players participating in the Manufacturer Series using the RX-VISION GT3 CONCEPT and, through this, assemble excellent players to compete in the World Series who can then enter the World Finals as Mazda representatives. Winning teams in the World Final will be honored at the FIA Prize Giving Ceremony scheduled to be held in Monaco in December 2020.



FIA Gran Turismo Championship World Tour (2019)



Logo of the FIA Gran Turismo Championship Manufacturer Series

GRAN TURISMO and MAZDA

History of collaboration between the "Gran Turismo" series and Mazda

Mazda sports cars that were featured in the first "Gran Turismo" (PlayStation®) that was released in 1997, included the Eunos Roadster, the Eunos Cosmo, and the Enfini RX-7. The Mazda 787B, the first Japanese car to take overall victory at the 24 Hours of Le Mans, became available from the 2001 release of Gran Turismo3 A-spec (PlayStation®2). The 2004 release of Gran Turismo4 (PlayStation®2) included the addition of Mazda's first RE-equipped car, the Cosmo Sport, which competed in international races in Europe. Furthermore, between January and February 2011, a Mazda 787B stealth model (a virtual model with carbon black bodywork) was made available for a limited time.

The collaboration between the "Gran Turismo" series and Mazda has deepened even further since 2014. At the request of Gran Turismo's developer, Polyphony Digital, Mazda participated in the "Vision Gran Turismo" project, which saw the involvement of automobile manufacturers from all over the world. The Mazda LM55 VISION Gran Turismo is a virtual LMP1 prototype racing car created by Mazda designers. It was released for download as a Christmas present for Gran Turismo fans and Mazda fans all over the world. This game-only model utilized "Kodo -Soul of Motion" design and paid its respects to the Mazda 787B. It was envisioned as "a model that will aim to completely conquer the 24 Hours of Le Mans in the future". A 1/1 full scale model of this virtual race car was produced and, at the 2015 Goodwood Festival of Speed (UK), for which Mazda acted as the host brand, the model was placed high up on the center monument in front of Goodwood House, along with the Mazda 787B show car, creating a truly unforgettable sight for all those who attended.

The "Atenza Gr.3" which is based on the Mazda 6 Skyactiv-D that made its debut in the American Grand-Am GX series in 2013, has been modified according to FIA GT3 regulations and appears in "Gran Turismo Sport". Since 2018 many Japanese players have been competing in the "FIA Gran Turismo Championship" using this model.



The full scale model of the LM55 VISION Gran Turismo (2015)



The center monument at the Goodwood Festival of Speed (2015)

MAZDA MOTORSPORTS HERITAGE

Mazda Motorsports Genealogy

Mazda has long been recognized as a brand active in motorsports, especially in Western markets. The high-speed performance of the Wankel rotary engine (RE), which was first commercialized in a Japanese car in 1967, demonstrated durability and reliability, and Mazda itself participated in many endurance races from the late 1960s to the early 70s to display its high-level of performance. The RE "Mazda 787B" became the first Japanese car to take overall victory at the 1991 24 Hours of Le Mans (France). The RE's reputation of having exceptional performance is known throughout the world.

[RE race car European expeditions]

Not long after the Cosmo Sport (mounted with a 10A rotary engine) was launched in the market, Mazda participated in the 1968 "Marathon de la Route" (Nürburgring, Germany). In their first entry into this challenging race, in which it was said to be difficult just to get to the finish line, the Mazda car finished 4th overall. It left a strong impression on the European motorsport officials. From 1969, the Familia Rotary Coupe (export name R100 Coupe) was used in touring car races across Europe. In the 1970 "24 Hours of Spa Francorchamps" (Belgium), Mazda, which entered four Familia Presto rotary coupes, saw one of their cars more than hold its own against the European powerhouse teams and run in the lead for up to 20 hours, before ultimately falling back due to technical troubles. This saw it dubbed the "Little Giant" for its capacity to give the most prominent teams a run for their money, cementing its image in the European market. In 1981, the Mazda UK and Mazda Factory supported TWR Racing (UK) entered a first-generation RX-7 into the 24 hours of Spa Francorchamps and achieved the first ever overall victory for a Japanese car in the history of the race.



The 24 hours of Spa Francorchamps (1970)

[Success in races in Japan]

From 1971 Mazda, which had gained confidence through its European expeditions, decided to focus on competition in touring car races, which was the most popular category in Japan at that time. The immediate task at hand for the Mazda works team was to defeat rival cars equipped with inline 6 cylinder 2.0L DOHC engines that at the time were considered unbeatable. After the Capella Rotary Coupe and Savanna, with their small size, took victories seemingly without breaking a sweat, subsequent touring car races became almost exclusive venues for Mazda RE cars. With fewer components and an ease of tuning for more power, RE mounted Mazda cars, with their excellent durability and low running cost, were easy-to-use base cars for young and talented racing drivers. A large proportion of the young drivers who propelled Japanese motorsports into the modern age from the 1980s onwards took on touring car races for private team's driving Savannas. Among these drivers were many who achieved excellent results in international races in their later careers, including in Formula 1 races and the 24 Hours of Le Mans. The Savanna set a record 100 wins in the Fuji TS touring car race series in 1976.

Furthermore, along with touring car races, RE cars attracted many drivers in the Fuji Grand Champion (GC) series. By having Mazda contract drivers such as Yoshimi Katayama, Yojiro Terada, and Takashi Yorino join the GC series, Mazda was able to make various technical breakthroughs that would later be useful for the development of Group C cars that would compete in the 24 Hours of Le Mans.



Savanna RX-3s at Fuji Speedway (1977)



Fuji Grand Champion car equipped with a 13B engine (1978)

[RE whirlwind that blew through the IMSA]

In the early 1970s Mazda RE vehicles were introduced to the North American market and were hit by the oil shock that occurred not long after, resulting in sluggish sales. However, the first RX-7 (known as the Savanna RX-7 in Japan) released in March 1978 — a 2+2 sports car with a slant nose that fully utilized the unique characteristics of RE vehicles — broke through the slump, making a huge splash at the IMSA's (International Motor Sports Association) renowned "24 Hours of Daytona" setting it apart from its competition. The Mazda Works Team and Mazda North America debuted two IMSA GTU (2.0L or less sports car) specification RX-7s at Daytona in 1979 and achieved a remarkable 1-2 finish in the GTU class. The news spread throughout the United States almost instantly and not only did numerous amateur racers choose the RX-7, a large number of influential teams and tuners in the US began competing for victory by tailoring the RX-7 to race specifications. As a result, the RE vehicles' momentum swept the IMSA series. The RX-7 took the IMSA GTU category series championship for 8 consecutive years beginning from 1980, and took the IMSA GTU class victory for 12 consecutive years at the 24 Hours of Daytona between 1982 and 1983. Furthermore, in 1990 an RX-7 GTO mounted with a 4-rotor engine recorded the 100th IMSA win for a single model.



RX-7s at the Daytona 24 hours (1979)

[24 Hours of Le Mans Challenge]

In 1970 a Mazda RE equipped car took on the challenge of racing in the renowned 24 Hours of Le Mans, regarded by many to be the pinnacle of endurance races in the world. A Belgian private team entered a Chevron B16 Mazda that mounted a 10A engine midship into a commercial prototype chassis but early in the race they were forced to retire due to technical issues. In 1974, Mazda Auto Tokyo, a Japanese dealer team, competed with a two-seater open sports car mounted with a 12A engine. However, they encountered consecutive issues and were unable to complete the race. Using these early disappointments as a catalyst, Mazda's official team, Mazda Auto Tokyo (which would later become "Mazdaspeed") developed a vehicle modified from the first-generation RX-7, and began to take on the challenge of Le Mans again from 1979. However, the task would not prove easy and they had to wait until 1982 for their first race completion. When Mazdaspeed was officially launched the following year, the newly developed prototype car, the "Mazda 717C" took Group C Junior class victory at Le Mans in 1983. While a three-rotor engine had been developed by Mazda since 1986, from 1988 the team began entering race cars mounted with 4-rotor engines into the 24 Hours of Le Mans held at Circuit de la Sarthe. In 1989, three 4-rotor engine mounted vehicles took overall 7th, 9th, and 12th place, demonstrating the high reliability of Mazda RE cars. However, overall victory still remained elusive. Meanwhile, an extremely ambitious command was issued from the executive leading the development department of Mazda at the time, stating "Our goal is to take overall victory at Le Mans." This led to a lot of performance improvement proposals being gathered from several development engineers. In this way, the development team of Mazdaspeed and Mazda formed one racing unit and put all their efforts into development of their race car. The fruit of this effort was the Mazda 787B. At the 1991 24 Hours of Le Mans, the last year the RE was able to compete at Le Mans due to changes in vehicle regulations, the Mazda 787B completed the race without issue and became the first Japanese car to take overall victory at the prestigious race.



The 24 Hours of Le Mans (1991) winning Mazda 787B

[Mazda Motorsports continues to thrive in North America]

Heading into the 2000s, Mazda Motorsports, which had temporarily lost some momentum, saw Mazda North America reignite its flame. Against the background of the RX-7's success and the rise of the Spec Miata series (competed with the MX-5), an RX-8 GT equipped with a 20B 3-rotor engine was entered into the Grand-Am series, which now included the renowned 24 Hours of Daytona. The RX-8 GT took GT class victory at the Daytona race in 2008 and 2010. Riding on this energy, the number of RX-8 GTs gradually increased in number and for a time made up the majority of vehicles competing in that class in 2010. The car went on to take the Grand-Am GT Series championship. However, after production of the RX-8 was ceased in 2012, the car was withdrawn from the series and, instead, a Mazda 6Skyactiv-D mounted with a Skyactiv-D diesel turbo engine made its debut. This vehicle became the 2013 Grand-Am GX class champion. In 2014, the Grand-Am series was integrated with the American Le Mans series and so Mazda North America began competing in the prototype category of the IMSA's newly established United Sports Car Championship (USCC), the top category of the series. From 2015, the team competed with vehicles equipped with 2L inline 4-cylinder turbo engines, and then from the 2017 season, when new vehicle regulations came into effect, they entered the originally developed "Mazda RT24-Ps" that incorporated Kodo -Soul of Motion design. In 2019, while racing in the IMSA WeatherTech Sports Car Championship held throughout the United States, the team achieved their first victory and went on to take three consecutive victories after that, cementing their place as one of the top competing teams.



The Mazda RT24-P took the 2nd at the 24 Hours of Daytona (2020)

MAZDA CARS in GRAN TURISMO



Cosmo Sport (L10B)



2nd Generation RX-7(FC3S)



3rd Generation RX-7(FD3S)



4th Generation Roadster (ND5RC)



Mazda 787B



LM55 VISION Gran Turismo



Atenza Gr.3 (Eligible for the FIA Gran Turismo Championships)