

pressinformation





a sports car like no other

The arrival of the Mazda RX-8 comes at a great time in Mazda's history. When production begins in early 2003, we, as a company, will have travelled nearly half the course laid out in our Millennium Plan. The Millennium Plan was established in November 2000, at a time when Mazda was at a crossroads – our line of quality products lacked global appeal and the organization was in need of an overhaul. Now, thanks to a five-year, forward-looking, product-led strategy, Mazda is on course to be a stronger company that is differentiated in the marketplace and able to deliver sustainable, profitable growth. With certain confidence, I can say that, as I write these remarks, Mazda is back on track and able to deliver brilliant product like the RX-8.

Central to the creation of the Millennium Plan was an inward look at the soul of Mazda. We asked the most obvious question: *What is Mazda's role in the automotive world?* In answering, it became clear to us that Mazda's future could be seen in its past. Stylish, insightful, spirited automobiles; that is our history, and that will be our future.

With the Millennium Plan as our roadmap, we are now reaching our milestones. Last year, we delivered the best-ever, year-on-year profit turnaround in the company's 82-year history. We ended FY2001 in the black and expect to deliver further growth and success in FY2002.

As of FY2002, our success is being fueled by strong product. Our product philosophy – a central theme of the Millennium Plan – gives form to Mazda's DNA and is based on three attributes: *distinctive design, exceptional functionality and responsive performance and handling*. This philosophy is summed up in two

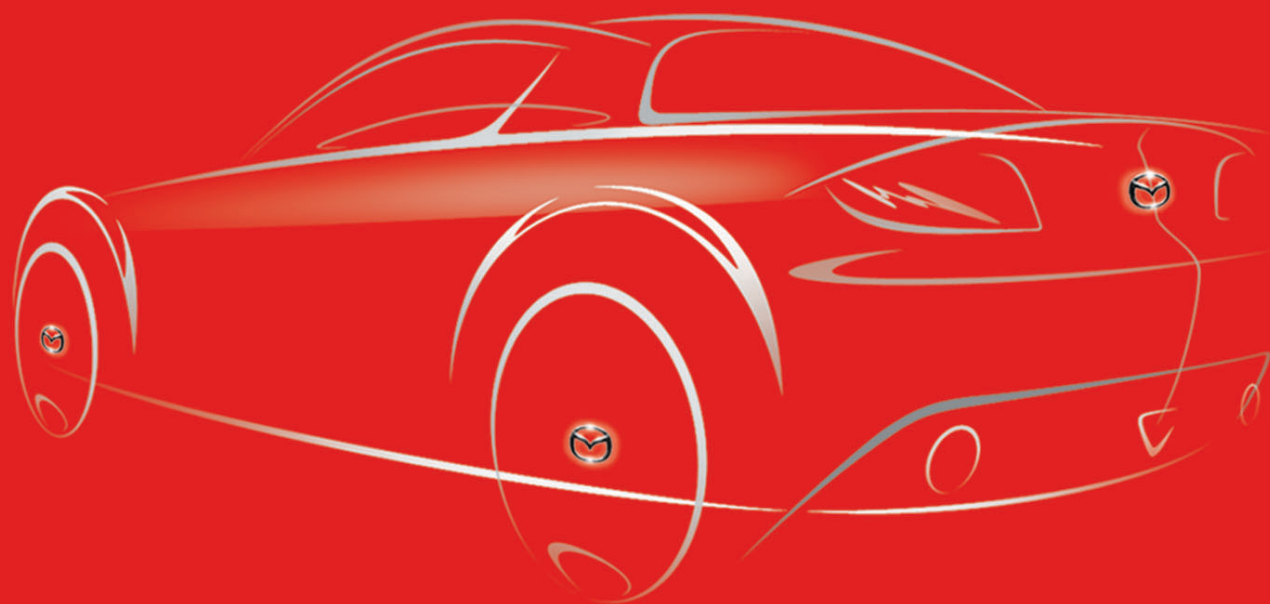


words: *Zoom-Zoom*. But it's more than words. It's a deep understanding that Mazda is unique in the industry. We cannot be all things to all people. And we will not try. Mazda can, and will, meet the desires of like-minded customers who believe cars are more than a means of traveling from A to B; customers who have never lost the thrill of motion.

New-generation products like the Mazda6 (Atenza, as it is known in Japan) and Mazda2 (Demio) have been created under this product philosophy. Take one drive in either vehicle, and the philosophy comes alive. And now comes the Mazda RX-8, a genuine sports car in a totally new four-door, four-seater layout. It is the next, new-generation Mazda, and the very soul of this great and proud company.

Lewis Booth

Representative Director
President and CEO



press information index

overview 01

3	message from N. Katabuchi
6	mazda sports car DNA
9	driving dynamics
10	design
11	packaging
12	craftsmanship
13	safety & environment
14	flowchart of RX-8 features

driving dynamics 02

21	main message
24	advanced front midship
27	renesis rotary engine
36	rotary engine production
39	powertrain
43	high rigidity body
47	suspension & steering
55	brake system

design 03

59	main message
63	exterior design
67	interior design

packaging 04

73	main message
76	four-door four-seater
78	storage spaces & interior details
83	audio & dvd navigation system

craftsmanship 05

87	main message
91	quality construction
92	functional elegance
95	customer delight

safety & environment 06

101	main message
105	active safety
106	passive safety
109	other advanced safety features
113	environment protection

personalities / product data 07

118	personalities
122	product data
125	dimensions

image resources 08

129	overview
130	driving dynamics
133	design
134	packaging
137	craftsmanship
138	safety & environment
139	personalities / product data





message from N. Katabuchi	3
mazda sports car DNA	6
driving dynamics	9
design	10
packaging	11
craftsmanship	12
safety & environment	13
flowchart of RX-8 features	14

“the Mazda RX-8 should light up the sports car community with its handling. that is the thing about the RX-8 I am most proud of.”

At university I studied the internal combustion engine, and I also enjoyed gymkhanas and rallying. But what really gave my interest in cars and motor sports the biggest boost was the “golden age of Japanese GT racing” that was going on at the time. In particular, it was the fierce battle between the rotary engine Savanna and the Nissan Skyline GT-R. Then in 1973, I decided to work for Mazda as I was so interested in the company. After all, they had developed the RX-3 (production name: Savanna GT), a car that achieved incredible speed in races.

After joining Mazda, I worked on basic development of program design and later moved on to the pre-program section involved in the development of the Mazda 323, a car the company entered in WRC events. Another career highlight for me was the RX-EVOLV program, and we unveiled that concept car at the 1999 Tokyo Motor Show. In addition to myself, a great many research and development people at Mazda gave input to our next-generation sports car, each offering their own unique insights.

The aim of the RX-8 project was to give form to the RX-EVOLV concept and we, the developers, had to clarify core hardware issues



starting with the car’s platform. We intended to give the world a kind of sports car that had never been seen before – a four-door, four-seater with a centre-opening Freestyle door system—and I had to grapple with all kinds of views and opinions as to the definition of a “sports car”. Being the midwife of the RX-8, I was confronted with the challenge of its new possibilities. But nothing came close to the excitement I felt at the car’s birth.

片岡 昇

Noboru Katabuchi
RX-8 Program Manager



message from N. Katabuchi	3
mazda sports car DNA	6
driving dynamics	9
design	10
packaging	11
craftsmanship	12
safety & environment	13
flowchart of RX-8 features	14



driving pleasure for all - the force behind mazda's place in sports car history

Mazda's history of sports car design and production began in 1967 with the Cosmo Sport. The low-slung, two-door sports car was powered by a rotary engine, a unique, compact and strong powerplant into which Mazda invested its faith, and even its life-blood. In the years since the launch of the Cosmo Sport, Mazda has continued to pursue new designs and technologies in a constant effort to bring the sheer delight of driving a sports car to a larger circle of drivers.

In 1968, Mazda's Cosmo Sport was put the test in competition in the gruelling "Marathon de la Route" endurance race at the Nurburgring. The hearty coupe finished fourth overall and signalled the beginning of Mazda's ongoing involvement in all forms of motor sports.

The RX-7 was launched in 1978, and matured into the second-generation version in 1985. In 1989, Mazda brought out the MX-5, a lightweight, open-top roadster that reintroduced the world to traditional sports car values and succeeded in becoming the most popular lightweight open two-seater sports car of all time – a production mark recognized by Guinness World Records of the U.K. The third-generation RX-7 was unveiled in June 1991 – the same year the now-famous four-rotor Mazda 787B became the first Japanese car ever to grab overall victory in the 24 Hours of Le Mans.

Mazda's determination to offer an increasing number of car buyers the unique driving pleasures found in a sports car continues to fuel our product development team. The RX-7 – a thoroughbred, high-performance car – and the MX-5/Miata – a lightweight roadster – were both

developed according to the values of their respective categories.

And this development tradition continues with the Mazda RX-8.

The Mazda RX-8 was created through the pursuit of a genuine sports car with a totally new, four-door, four-seat format that delivers sports car values, passenger comfort and driving pleasure. In concrete terms, the car offers unique and unmistakable styling; high-end, sharp and responsive performance that assures driving pleasure; and overall practicality that greatly exceeds other sports cars in terms of passenger accommodations, cost-performance and utility.

To realize these unprecedented goals, the RX-8 team pursued the following six key factors:

- Sports car values that assure driving pleasure
- Innovative, modern styling
- Practicality and functionality to accommodate four occupants
- Revolutionary driving quality that guarantees both handling and comfort
- Next-generation craftsmanship dedicated to customer delight.
- Focused concern for safety and the environment.

By combining these key values into a single product, Mazda is writing a new chapter in its sports car history, realizing fresh values for the sports car genre in a new format. The Mazda RX-8 answers the demands of sports car enthusiasts who pursue performance driving but are not willing to forego comfort, convenience and practicality.



1967: Mazda Cosmo Sport



1978: Mazda RX-7



1989: Mazda MX-5



1991: Mazda 787B



overview driving dynamics 02



Everything about the Mazda RX-8 is new: the highly rigid body, the refined suspension, the quick steering. The all-new rotary engine is smoother, stronger and considerably more drivable.

To achieve the high expectations for driving dynamics, Mazda developed a dedicated, all-new platform for the next-generation rotary engine. The new rotary engine – RENESIS – is extremely compact and, compared to the Mazda RX-7, is mounted lower and further to the rear of the vehicle in what Mazda calls an ‘advanced front midship layout.’ The overall dynamics are a testimony to the full benefits of Mazda’s approach to vehicle development; Mazda DNA can be felt in every turn.

RENESIS – mazda’s next-generation rotary engine:

RENESIS is an all-new approach to the Mazda Rotary Engine (RE). The naturally-aspirated, twin-rotor engine employs side intake and exhaust ports and features approximately 30% more intake area than previous rotary engines, realizing greatly reduced intake-flow resistance. The engine’s three-stage intake system and electronic throttle delivers power output unparalleled in a naturally aspirated unit. Fuel-efficiency and emissions are also substantially improved over the previous rotary engines. RENESIS is available in two variations: the High Power for sporty driving and the Standard Power for regular driving purposes.

advanced front midship engine layout: The compact nature of RENESIS and the absence of a turbo induction system (as found on previous rotary models) keeps the engine’s overall height down to 338 mm (13.3 in), or approximately equal to that of the transmission. This reduced height also allows a shift in the engine location,

approximately 60 mm (2.4 in) rearward and 40 mm (1.6 in) downward. Additionally, the engine’s location and size allowed the dashboard to be moved forward a full 80mm (3.1 in), delivering the ‘advanced front midship layout’ Mazda’s designers and engineers were after.

The fuel tank is located centrally, fore of the rear half-shafts, contributing to both the vehicle’s near-perfect weight distribution and its 5% reduction in yaw inertia moment compared to the RX-7. These advances in design and weight distribution combine to produce sharp and controlled handling characteristics that encourage driving enjoyment.

high-rigidity body and newly developed chassis:

Key to exceptional dynamics is the vehicle’s highly rigid yet lightweight body. The design incorporates a high-mount backbone frame in the upper part of the transmission tunnel as well as numerous cabin reinforcements. Overall, Mazda was able to achieve greater body stiffness than comparable sports cars with the same wheelbase.

The Mazda RX-8 employs double wishbone front suspension and a multi-link rear suspension. The suspension delivers exceptional tracking accuracy, controllability and reassuring stability on a variety of road surfaces. In addition, RX-8 employs electric-motor assist for the rack-and-pinion power steering. The system delivers optimal feedback of road information to the driver. Braking is handled by four ventilated disk brakes.

overview design 03



With the Mazda RX-8, the design team set out to create a completely new sports car, yet never lost sight of historic cars like the RX-7, the MX-5/Miata and even the Cosmo Sport.

The dynamic styling of the Mazda RX-8 was developed in an effort to clearly communicate the vehicle's key attributes of low weight, exceptional handling, performance and a pleasing ride. From the outside, the design's dynamic tension and pared down lines belie the cabin's exceptional interior space. Inside, carefully selected materials, intelligent space utilization, intuitive controls and an overall feeling that is comfortably snug gives concrete form to Mazda's desire to create a sports car with entirely new values.

exterior design: The overriding exterior design theme was "Athletic Tension." This approach was used to convey a feeling of expectation or pent-up energy ready to be released, much like an athlete waiting for the starter's gun. The design team focused on weight reduction, aerodynamics and modern proportioning, while shaping the car to evoke three main attributes: dynamic form, stability and tension.

Dynamic Form is evident in the powerful continuity of surfaces beginning at the front air intake and running aft, along the body sides to the trunk lid. The desired look is not expressed in two-dimensional character lines, but in three-dimensional relief, conveying dynamic power from all angles.

Stability is the basis of good sports car design. The cabin achieves a compact look by virtue of its Freestyle door arrangement, yet still offers space for four adults. This compact-looking

cabin comes together with the pronounced, aggressive front fenders to shift visual mass downwards, creating low-slung proportions that communicate a feeling of great stability.

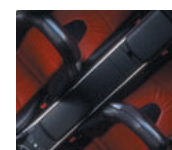
Tension is expressed by trimming body mass to produce an extremely taut form. With the elegance of an athlete, RX-8 also features mechanical overtones in the headlamp and rear combination lamp design. The rotor-shaped power bulge in the hood and subtle shaping in the roof work in contrast to convey an overall feeling of tension on the body surface.

interior design: The design theme called for a "Comfortably Snug" interior that expressed the very latest in refined sports car tastes. The spacious cabin, viewed from four opened doors, conveys a look of vitality and comfort and complements the emotional impact of the car's exterior.

The strong impression of vitality is largely due to the continuity of form, starting from the bonnet's power bulge, flowing through the dashboard and center console and reaching on to rear parcel shelf. At the same time, the aluminium accents on the center console impart an impression of mechanical strength.

The instrument panel is split into three sections: left, center and right. Each section is cast with textures, color accents and soft materials chosen according to purpose, expressing a modern, comfortable ambience and refined quality.

overview packaging 04



The Mazda RX-8 presents a genuine sports car form, yet still accommodates four adults. Vehicle entry is nearly effortless, thanks to efficient packaging and unique Freestyle door system.

The objective was clear: create a four-door, four-seat sports car. The innovative packaging of the Mazda RX-8 offer unprecedented values in a sports car: the excitement of spirited performance combined with the flexibility of having room for four adults and luggage. The vehicle's long wheelbase and the space and packaging benefits of the exceptionally compact RENESIS engine are obvious, but Mazda's designers also employed numerous techniques to provide a comfortable interior for four adults. The overall packaging ensures practicality and brings the appeal of a Mazda sports car to a wider group of motoring enthusiasts.

Firstly, to assure sufficient headroom, designers lowered the cabin floor by carefully considering the location of the exhaust manifold, catalytic converter and related components. The hood and instrument panel were also lowered as much as possible for a less obstructed view, which in turn allowed for a lower seating position, the trademark of a good sports car. The deep, comfortable seats place occupants very low the floor, adding to the amount of headroom above. To ensure adequate knee clearance for rear-seat passengers, designers also concentrated on the shape of the front seat backs, reducing cushion thickness and sculpting a form that provides both comfortable seating and a firm lateral support. Additionally, the front seat slide rails are optimally positioned for fore/aft adjustments, allowing sufficient leg and foot room for rear-seat passengers.

center-opening, Freestyle door system: The RX-8's body shell has no center pillars and features Mazda's Freestyle door system, with the front and rear doors opening from the center. The front doors fully open to a hinge angle of 67 degrees while the rear doors swing open to 80 degrees. The absence of center pillars provided the expected large door opening, making entry and exit supremely easy.

With safety in mind, Mazda designers employed the latest computer techniques along with crash test data to assure safety in the event of a side impact collision. Mazda expects to achieve top safety ratings in side-impact protection tests around the world.

trunk sized for practical use: At 300 liters (VDA), the deep trunk of the Mazda RX-8 accommodates two golf bags or two medium-sized suitcases, enough space for a weekend trip with two couples or a family of four. The cabin also features a number of innovative storage solutions. Cup-holders in the console boxes, large door pockets and other convenient storage receptacles are placed throughout, and, thanks to the unique Freestyle door arrangement, access for loading and unloading the rear section of the cabin is exceptionally easy.

overview craftsmanship 05



Mazda strives for the highest standards of craftsmanship. Our aim is to present the look, feel and performance that discerning customers expect in the world's finest cars.

With the Mazda RX-8, Mazda set a course of craftsmanship-based procedures that have resulted in an entirely new level of perfection. In addition to achieving precision fit, functional elegance and overall feeling of quality, the RX-8 ventures into new areas of customer delight that, until now, were not part of Mazda's sports car genre. The RX-8 has a refined build quality that brings unprecedented delight to the customer and offers exceptional enjoyment whenever the vehicle takes to the road.

basic build quality: To give the RX-8's exterior the highest quality finish, Mazda made certain that body panels and other exterior parts were fitted precisely, with minimal gaps. With the interior, particular focus was applied to the texture and feel of the many unique surfaces and, where appropriate, areas of the cabin were invested with soft-textured materials. At the same time, a unified look and feel was developed for material color, grain and texture, with close attention paid to how each and every visibly surface interacts.

Mazda designers also focused on the appearance of the engine compartment, creating a cover befitting the outstanding performance of the RENESIS engine, systematically conforming the cover to the height and shape of the engine parts it conceals.

functional elegance: In developing the seats, Mazda used advanced ergonomic research techniques to analyze the causes of fatigue and then built in optimal support to counteract these conditions. The result is a seat shape that is both comfortable and perfectly suited to sporty driving. Visibility is also an important factor. To reduce eye fatigue, indirect blue illumination is part of the innovative lighting logic for the meter cluster. And to achieve the ideal layout of the instrument panel's central section, Mazda engineers and designers made extensive use of a driving simulator to help determine the ideal location of the audio and climate control displays.

customer delight: The RX-8 offers increased levels of driving excitement and satisfaction. The steering wheel, shift lever and pedals are crafted with a uniform feel, delivering optimal operating load and direct, consistent feel. Activematic automatic-transmission models are equipped with paddle shift levers on the steering wheel for easy finger and thumb operation.

The High Power specification RX-8 features finely crafted aluminum pedals, while the steering wheel paddle shifters have a unique composition with the look of metal, but the same temperature characteristics as leather so they can be touched even when the cabin heats up in hot weather.

overview safety & environment 06



The Mazda RX-8 features innovative safety technologies that compliment the cars overall performance and, ultimately, bring fun and excitement to a wider range of drivers.

The Mazda RX-8 was developed to deliver high levels of performance, but also provide the core benefits of both active and passive safety. Active safety mainly concerns the brakes and their ability to provide the stopping power required for high-performance driving. On the passive safety front, Mazda recognized that the RX-8 must deliver world-class collision safety performance in spite its Freestyle door design. To address environmental concerns, the new RENESIS engine achieves Mazda's lowest emissions levels and highest fuel efficiency for a rotary engine. The car's environmental impact is also reduced due to positive measures taken to advance recycling and other ecology-conscious practices.

active safety worthy of a genuine sports car: The RX-8 comes standard with large-diameter disc brakes, four-wheel anti-lock brakes (ABS) and Electronic Brake Distribution (EBD), which helps maximize stopping performance. Additionally, Dynamic Stability Control (DSC) is available on all models; it is a switchable system that can be shut off to enable advanced driving techniques when conditions are suitable. All these measures allow drivers to experience the excitement of a genuine performance car backed by extremely reliable active safety.

passive safety: With its specially designed, crashworthy Mazda Advanced Impact Distribution and Absorption System, the RX-8 achieves world-leading safety levels. Crash worthiness is particularly

sound at the vehicle's sides, which, in spite of the absence of center pillars, exhibit crash safety on a par with traditional four-door sedans.

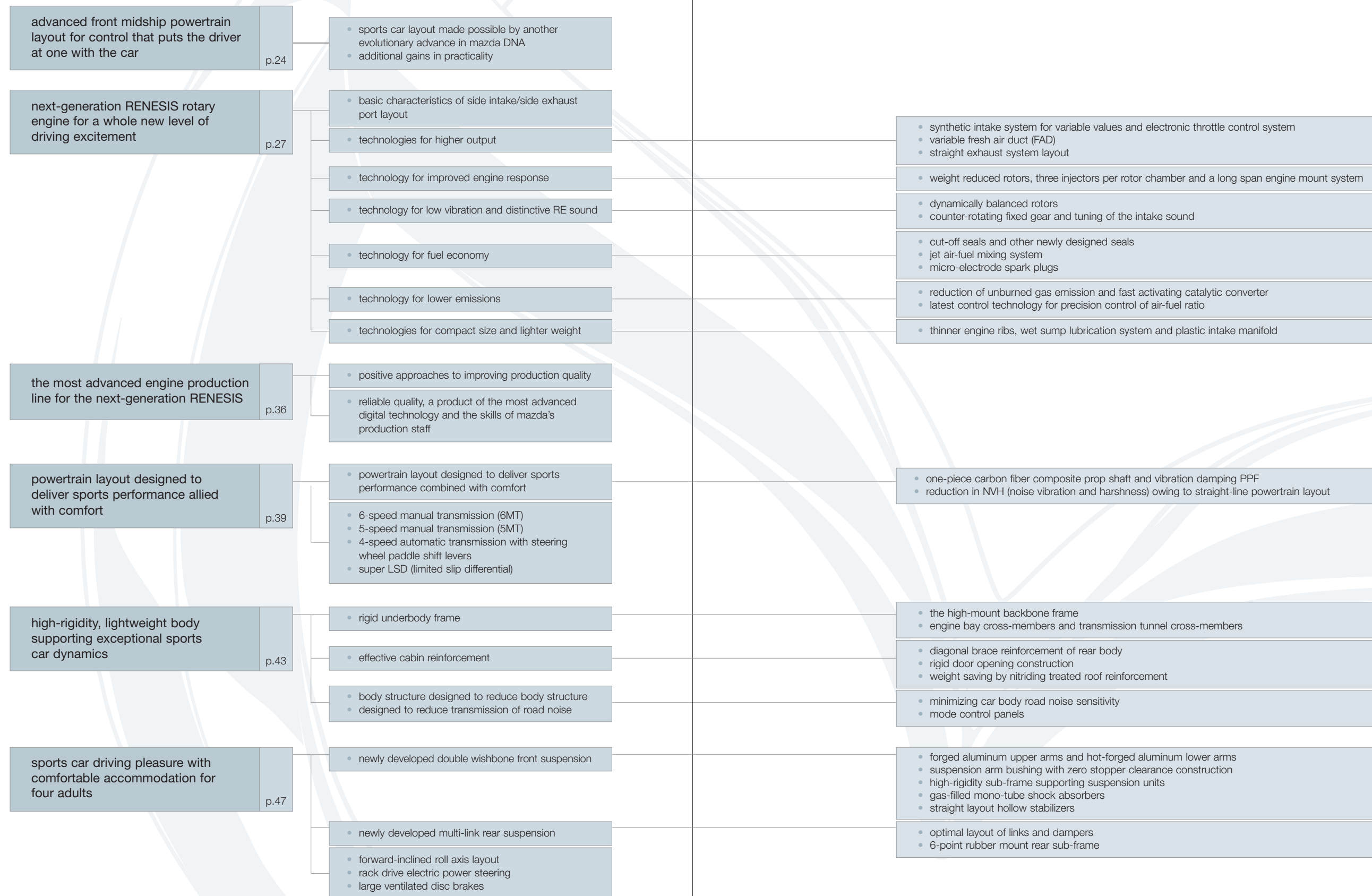
The RX-8 is equipped with a dual-stage Supplemental Restraint System (SRS) airbag on the driver's side and standard SRS airbag system on the passenger's side. In addition, SRS curtain airbags and side airbags are also provided. The front seats are equipped with a whiplash restraining mechanism to minimize the chance of neck injury in a rear-end collision. To reduce the potential for foot and leg injury to the driver during a frontal collision, the RX-8 is equipped with an intrusion-minimizing brake pedal. Additionally, top tether ISOFIX-compliant child seat anchors are standard.

concerns for the environment: The next-generation RENESIS engine, with its side intake and exhaust porting and other technical breakthroughs, achieves a vast improvement over previous Mazda rotary engines in terms of fuel economy and exhaust emissions. The new engine also employs an extensive number of recyclable thermoplastics parts. Parts made of composites are dismantled and the re-usable plastic recycled into components, contributing to environmental care and conservation of resources. In regard to materials that exact a toll on the environment, Mazda plans to reduce the use of lead by as much as one third of the current level by 2005, in line with the Japanese government's domestic target.

flowchart of Mazda RX-8 features

driving dynamics

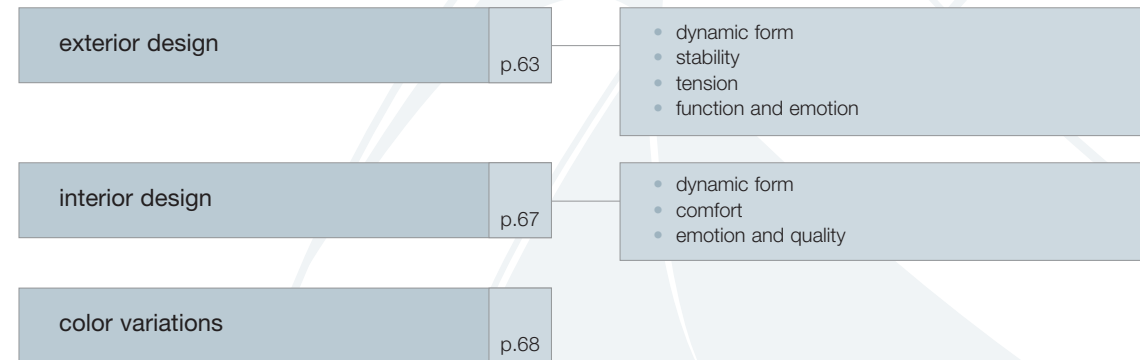
sports car values and functions supporting sporty driving pleasures



flowchart of Mazda RX-8 features

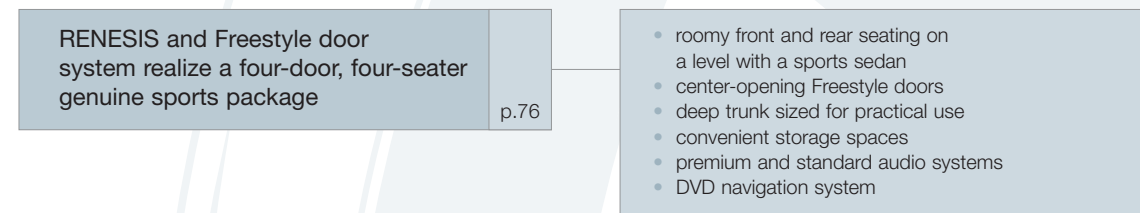
design

sports car styling innovation: the product of mazda DNA



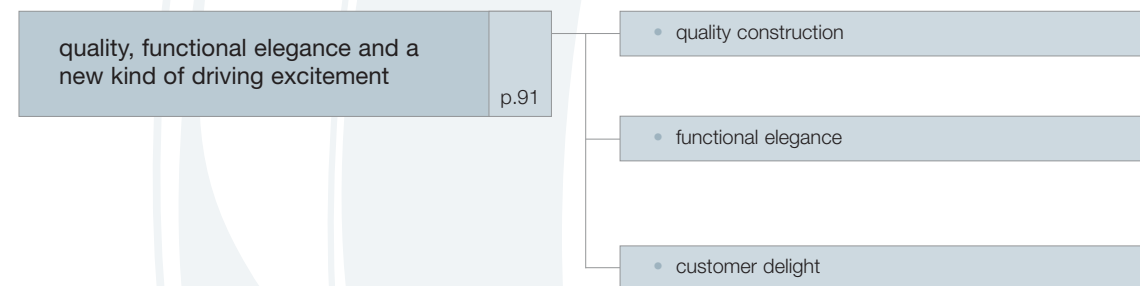
packaging

unique sports car packaging with space for four adults



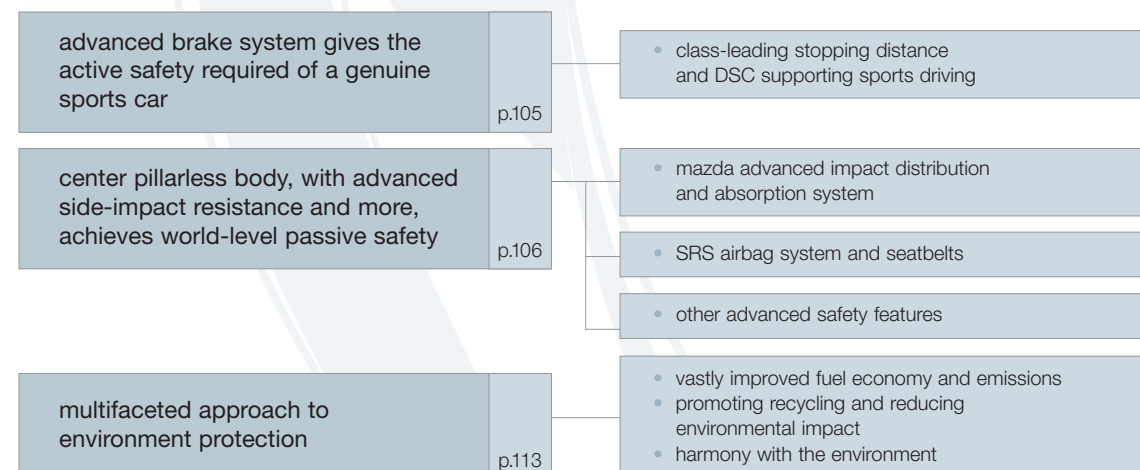
craftsmanship

build quality with next-generation craftsmanship and an accent on customer delight



safety & environment

safety supporting the revolution in sports-car pleasure, multifaceted measures that protect the environment



- exterior finish quality
- carefully-selected interior materials
- sleek engine compartment design

- seat design based on human-centered engineering
- driving simulator testing of the instrument panel's central section layout
- gate-type AT shift pattern, rotor-image MT shift knob
- uniform operating feel for all controls

- steering wheel paddle shifter (activematic)
- meter design
- indirect door illumination and lamps built into the side mirrors to illuminate foot area
- new style sun visors
- aluminum finish for authenticity

- 4W-ABS and EBD (electronic brake-force distribution)
- DSC (dynamic stability control)

- frontal collisions
- side impacts
- rear-end impacts

- dual stage deployment driver's and passenger's side SRS airbag
- SRS curtain and front side airbags
- pretensioner mechanism (front seatbelts)
- load limiter mechanism (front seatbelts)

- intrusion-minimizing brake pedal
- front seats with reduced whiplash
- top tether ISO-FIX child seat anchors (left and right rear seats)
- soft, impact-absorbing interior
- diagonal brace prevents luggage intrusion
- impact-absorbing cone structure aluminum hood



sports car values and functions supporting dynamic performance and driver exhilaration



The Mazda RX-8 is a new concept four-door sports car with comfortable seating for four adults. By questioning the values of traditional sports cars, Mazda has put the four-door four-seater RX-8 in a class entirely its own.

Fundamental to this new concept is the preservation of values and functions that create the kind of driving excitement only a genuine sports car can deliver. In developing the RX-8, Mazda refined these values and functions to their limits.

All of Mazda's accumulated expertise in designing and building premium sports cars was brought to bear in the development of the RX-8, particularly its advanced front midship, rear drive, low center-of-gravity layout with 50:50 weight distribution, low yaw inertia moment and lightweight body structure.

The new compact RENESIS engine was essential to the realization of our next-generation, advanced front midship sports car platform.

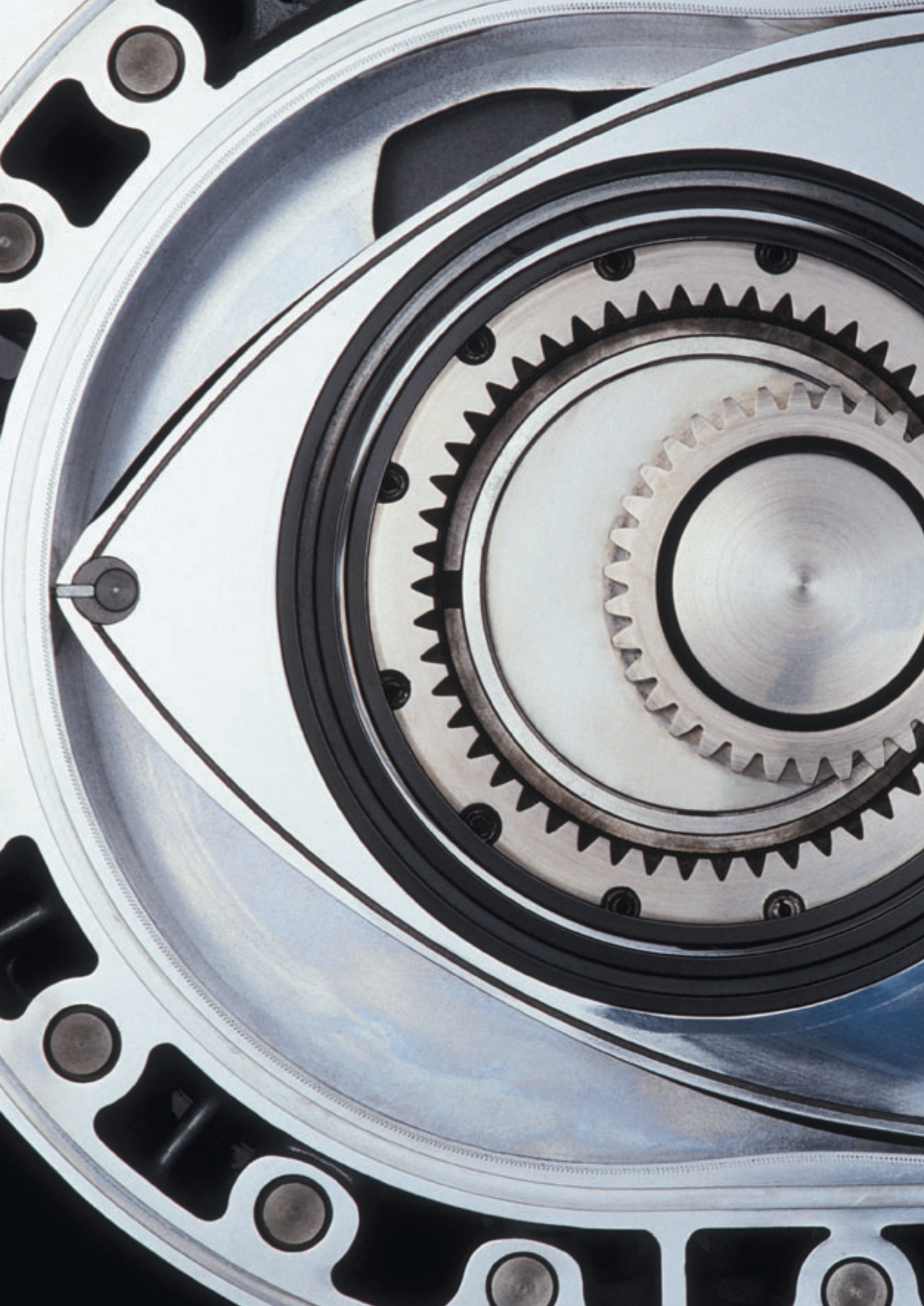
The double wishbone front suspension and long-arm multi-link rear suspension layout deliver superior handling stability, allied with a comfortable ride unprecedented in a sports car. The Freestyle door system and body structure with no center-pillar are key technologies behind the four-door four-seater format, and also contribute to the high level of body rigidity. The resulting dynamics make the Mazda RX-8 an unmistakably genuine sports car.

advanced front midship	24
renesis rotary engine	27
rotary engine production	36
powertrain	39
high rigidity body	43
suspension & steering	47
brake system	55

advanced front midship	24
renesis rotary engine	27
rotary engine production	36
powertrain	39
high rigidity body	43
suspension & steering	47
brake system	55



The advanced front midship layout also enabled designers to lower the hood height, opening up a clearer forward/downward view for the driver. The shape of the front fenders also lets drivers know more precisely the contours of RX-8's front end, which is essential for sportier driving and also practical for everyday purposes.



next-generation renesis rotary engine for a whole new level of driving excitement

The RENESIS engine powering the Mazda RX-8 has its origins in the MSP-RE that was unveiled at the 1995 Tokyo Motor Show as the power unit for the RX-01 concept sports car. The name RENESIS was given to the engine in the 1999 iteration of the RX-EVOLV. Thereafter, RENESIS, which stands for “the rotary engine’s GENESIS,” was carefully prepared for series production as the powerplant for the RX-8.

RENESES—an engine replete with innovative technologies such as side intake/side exhaust porting—is a 654 cc x two rotor unit that generates 250 PS (184 kW) maximum power at 8500 rpm and 216 N.m (22.0 kg-m) maximum torque at 5500 rpm*. RENESIS also shows substantial improvement over the engine installed in the previous RX-7 in terms of fuel-efficiency and emissions.

By capitalizing on the intrinsic benefits of the RENESIS rotary engine – namely, low weight, compact size and high performance – Mazda succeeded in developing the RX-8, a wholly new concept four-door four-seater genuine sports car.

* Figures are for the High Power version. Maximum power output is the specification for Japan and North America. Please see the table below for details.

basic characteristics of side intake/side exhaust port layout

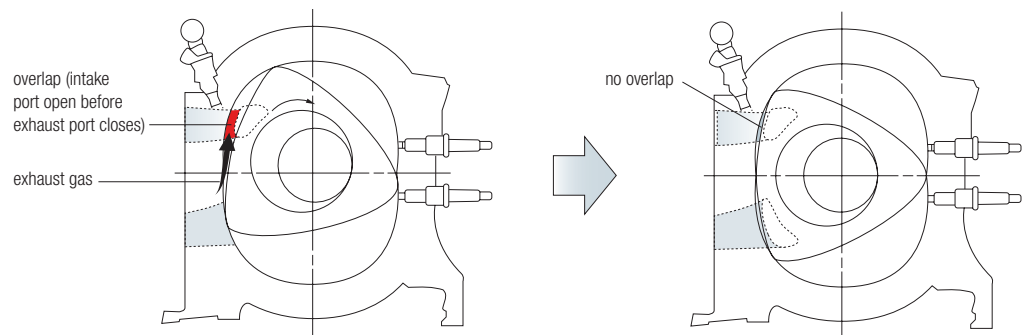
The key technology of RENESIS is its side exhaust port configuration, with the exhaust ports relocated to the rotary chamber side housing, where the intake ports are also located.

The chief advantage of this layout is that it allows elimination of intake/exhaust port timing overlap. This measure ensures that exhaust gas is not retained and carried over to the next intake cycle, thereby promoting more stable combustion and better fuel economy. The engine also has two exhaust ports per rotor chamber, giving RENESIS almost twice the exhaust port area of its predecessor. With ample exhaust port area assured, delaying the opening of the exhaust ports affords RENESIS a longer expansion cycle, for improved thermal efficiency, power output and fuel economy.

Another major advantage of the side exhaust port is that it allows engineers more freedom to optimize port profiles. With RENESIS, both the six-port High Power version and four-port Standard Power version have almost 30% more intake port cross-sectional area than the previous engine. Additionally, the intake port close timing has been extended, resulting in increased charging volume and more power.

engine performance:

	high power unit		standard power unit	
	japan USA australia	europa	japan USA australia	europa
max. power (provisional data)	184kw(250PS/247HP) @8500rpm	177kw(240PS) @8200rpm	154kw(210PS/207HP) @7200rpm	141kw(192PS) @7000rpm
max. torque (provisional data)	216Nm(22.0kg-m/ 159 lb-ft)@5500rpm	211Nm @5500rpm	222Nm(22.6kg-m/ 164 lb-ft)@5000rpm	220Nm @5000rpm
rev limit	9000rpm		7500rpm	



intake/exhaust layout: peripheral exhaust (conventional RE)

intake/exhaust layout: side exhaust (RENESIS)

With the previous engine, unburned gases (hydrocarbons) were voided from the combustion chamber via the peripheral port. With the side-exhaust ports of the RENESIS, unburned gases are retained for burning in the next combustion cycle, further reducing regulated emissions.

technologies for higher output

synthetic intake system for variable valves: The side-intake/side-exhaust port RENESIS gains 30% in intake port area over the previous engine, and this, combined with the delayed intake port close timing, makes for a sizable increase in charging volume resulting in greater power output. The engine also incorporates innovative technology designed to boost filling efficiency.

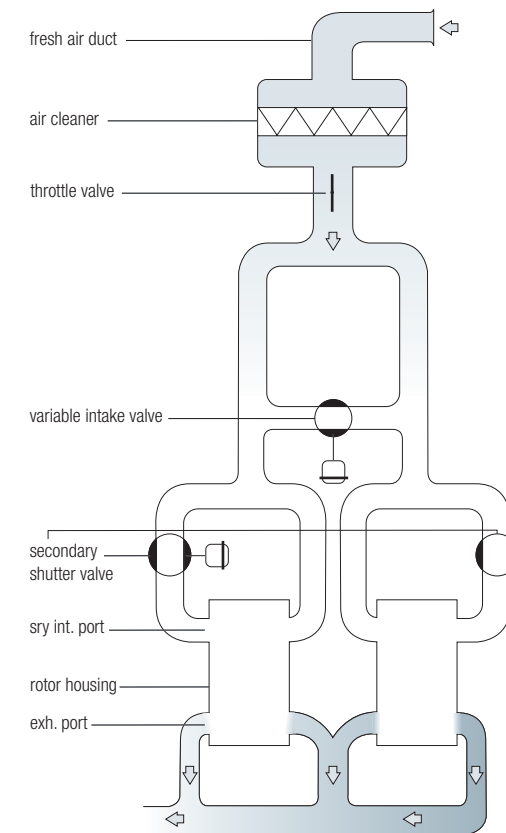
The High Power specification engine has three intake ports per rotor chamber: primary, secondary and auxiliary (giving a total of six intake ports for the twin rotor RENESIS engine), with each subject to different timing. The variable intake control system operates opening/closing of the secondary and auxiliary intake ports. RENESIS also takes full advantage of the incoming air's dynamic

charge effect to boost charging for more substantial low-to-mid range torque, as well as increased torque and power output at higher engine speeds. The intake system on the Standard Power unit, which is tuned for the superb driveability at regular rpm, has two intake ports per rotor, for a total of four intake ports are controlled by the opening/closing of a variable intake valve governing use of the secondary intake port. For even more accurate control, RENESIS incorporates an electronic throttle control system that optimizes intake control in response to feedback of sensors monitoring the degree and speed of accelerator pedal operation.

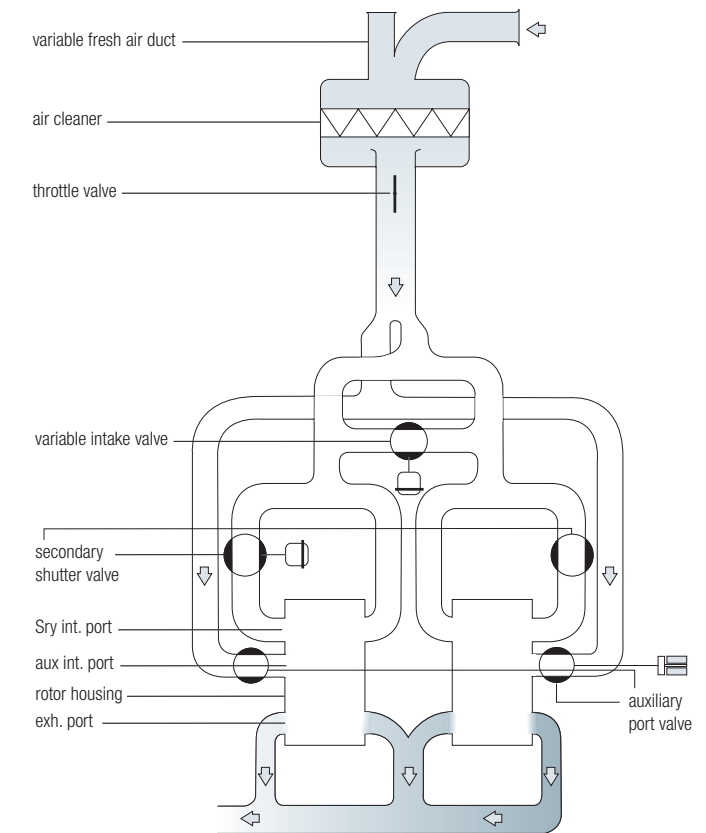
variable fresh air duct (FAD): The High Power specification engine incorporates a variable fresh air duct in addition to a large, low resistance air cleaner. At around 7250 rpm, a shutter valve opens to shorten the intake manifold upstream of the air cleaner. The shutter valve works in tandem with the variable intake valve to boost torque and power at high engine speeds. The fresh air duct is partially inserted into the air cleaner and enables an optimal length intake system by valve opening/closing.

synthetic intake system for variable valves (High Power unit):

variable fresh air duct	closed		open
auxiliary port valve	closed		open
variable intake valve	closed		open
secondary shutter valve	closed	open	
engine rpm	3750	6250	7250 rpm

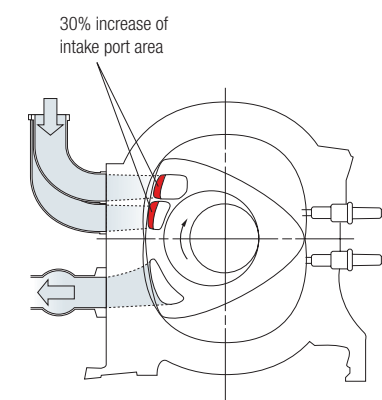


intake system for standard power unit

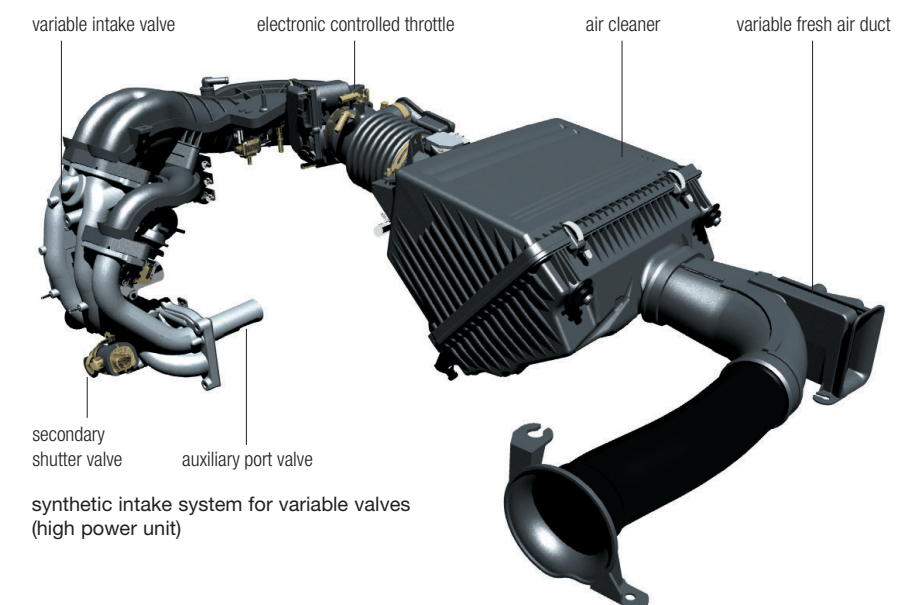


intake system for high power unit

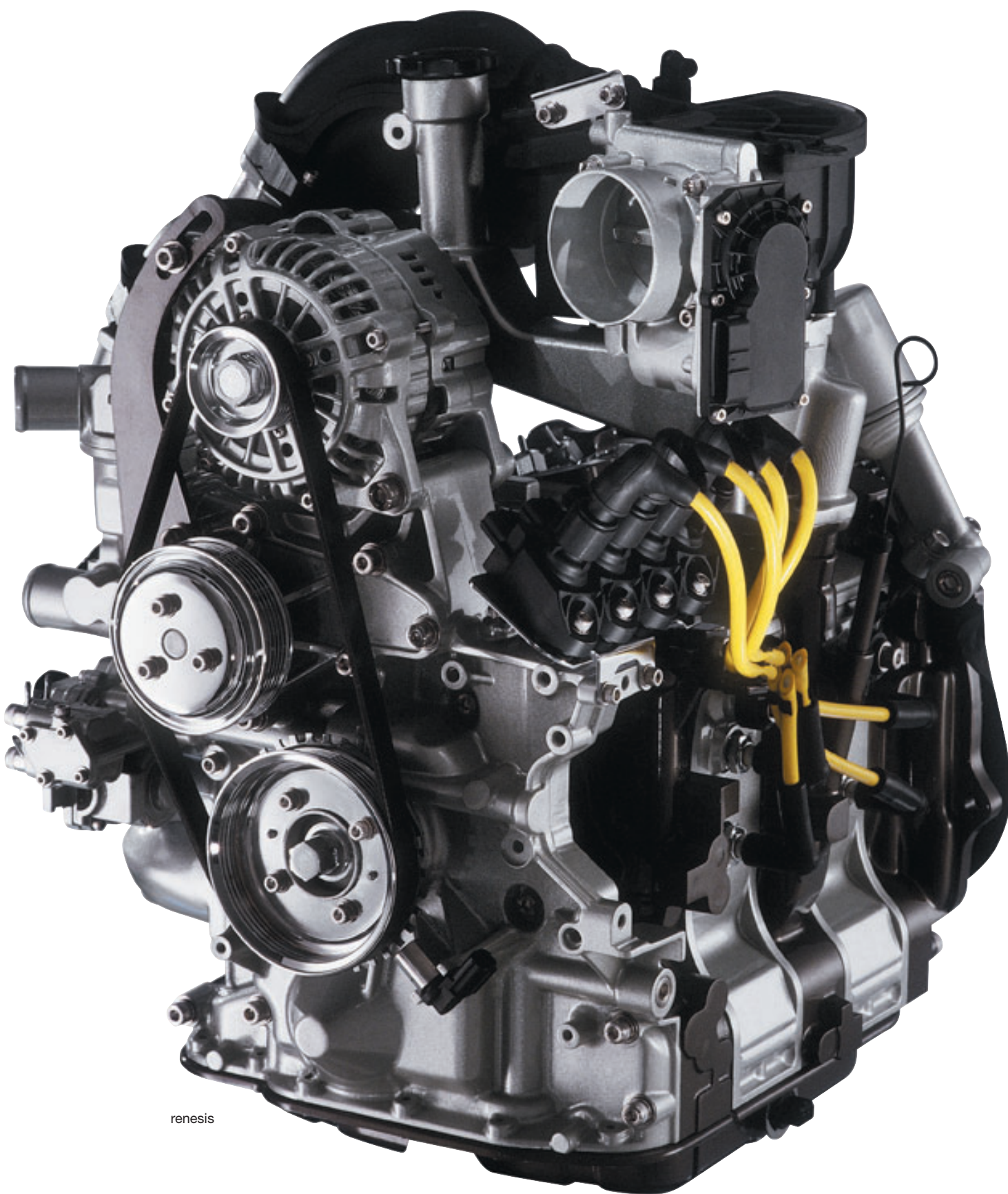
higher intake air mass flow resulting from a 30% increase of intake ports area



increase of intake port area



synthetic intake system for variable valves (high power unit)



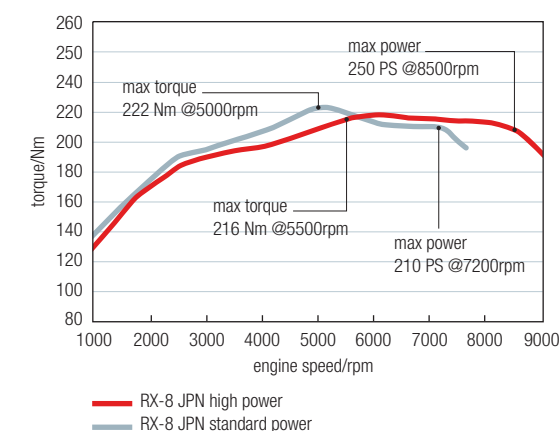
renesis

straight exhaust system layout: To achieve a smooth flow of exhaust gases, the RENESIS exhaust system, including the exhaust manifold, was made as straight as possible. The system employs large diameter exhaust pipes and a high capacity main silencer with the inlet pipe located straight through the center of the silencer body to reduce flow resistance. These measures contribute to the engine's high power output.

technology for improved engine response

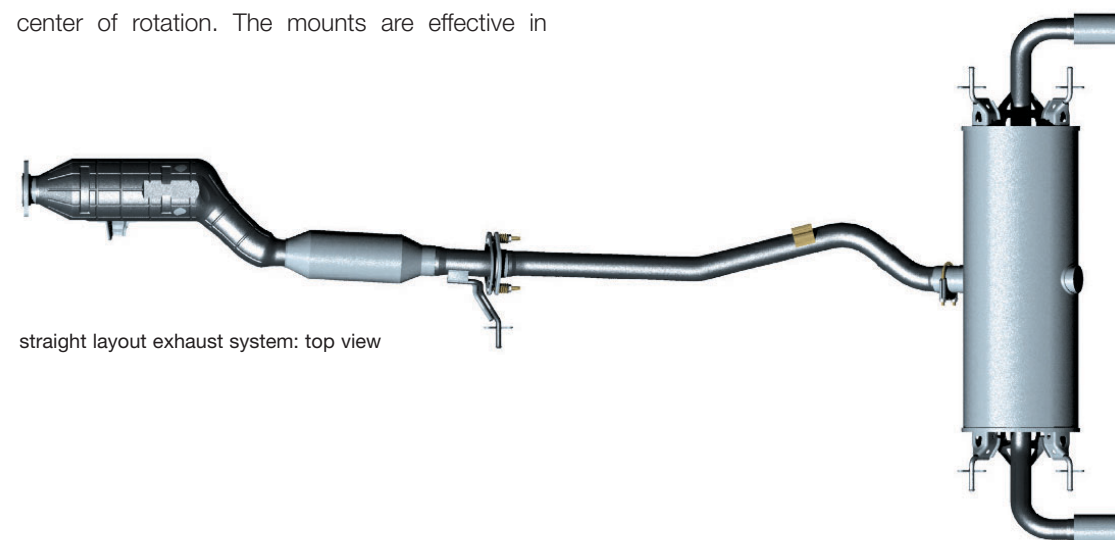
Lightweight rotor, three injectors per rotor, and long-span engine mount: The previous 13B-REW engine generated its maximum power output at 6500 rpm, whereas the RENESIS power peak comes in at 8500 rpm. This step-up to a higher revving engine was achieved by virtue of an 11 percent reduction in rotor weight. Additionally, the flywheel weight has been reduced by some 20 percent compared with the previous engine. Combined, these weight-saving measures reduce inertia to assure the quick response befitting a genuine sports car engine.

RENESIS also features three injectors per rotor chamber for improved fuel atomisation and employs an electronically controlled throttle and 32-bit PCM (Powertrain Control Module) for more precise control of air-fuel metering and sharper throttle response. Additionally, the engine uses a long span engine mount system with extremely long members extending laterally from the rotors' center of rotation. The mounts are effective in



engine performance curves

suppressing engine vibration, allowing more direct transmission of power to the drive system and contributing to the vehicle's fast response and improved NVH.



straight layout exhaust system: top view

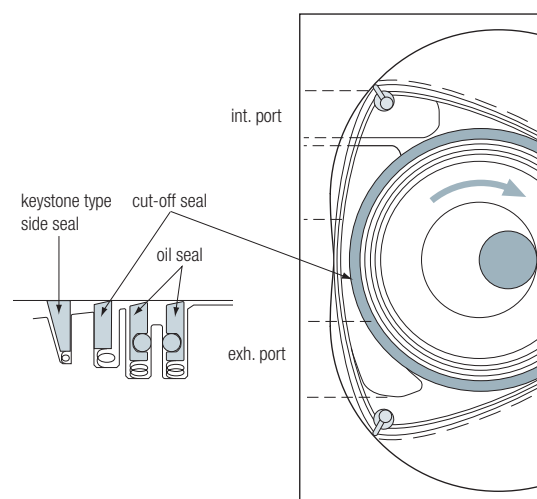
technology for low vibration and distinctive RE sound

dynamically balanced rotors: To further refine the superior balance of the twin-rotor configuration, Mazda shifted from the previous static balance setting, and instead adopted dynamic balance calculated from the mass of oil entering the rotors. This improvement, together with the effect of the long span engine mount system (mentioned previously) realizes extremely low vibration during acceleration.

counter-rotating fixed gear and tuning of the intake sound: With the previous rotary engine, the direction of rotation of the fixed gear locating the rotors in the front and rear housing was the same for both rotors. With RENESIS, the direction is reversed for front and rear rotors, achieving smoother rotation and reduced gear noise. Mazda also tuned the intake to give a satisfyingly sporty sound.

technology for fuel economy

In addition to more stable combustion afforded by the side exhaust ports, as well as improved breathing efficiency, RENESIS also shows a

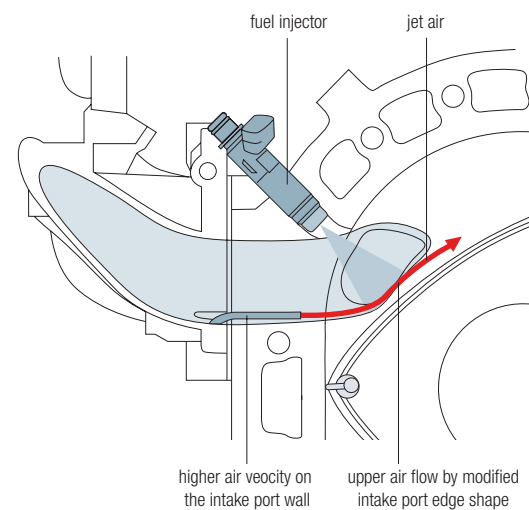


renesis oil and gas seals

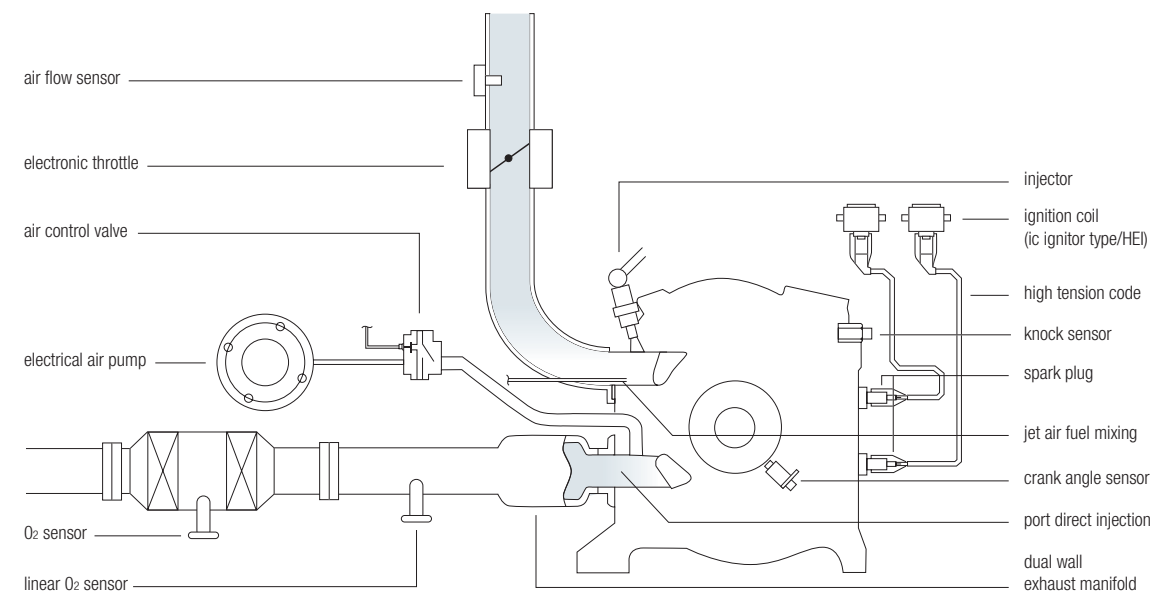
significant gain in fuel-efficiency through the use of the following new technologies.

newly designed seals: RENESIS employs a new cut-off seal located between the rotor's dual oil seals and side seal. This sealing arrangement eliminates blow-by between intake and exhaust ports and prevents carry-over of exhaust gas to the next intake cycle. Side seals are a new keystone-type with wedge-shaped section. Exhaust gas build-up against the side seal can easily cause carbonization, but with the wedge-shaped or cuneiform side seal, the seal shape is optimized to remove carbon. The shape is also more congruent to its opposed frictional surface, achieving much better sealing proficiency.

jet air-fuel mixing system: This system is installed in intake ports to promote spray, atomisation and mixing of air and fuel. The system emits a jet of air from a constricted tube in the intake port that effectively speeds the flow of fuel over the intake port walls and boosts atomization of fuel particles adhering to the walls. The lower end of the intake port is also shape-optimized to induce transport of atomized fuel along the air stream towards the spark plug.



jet air fuel mixing

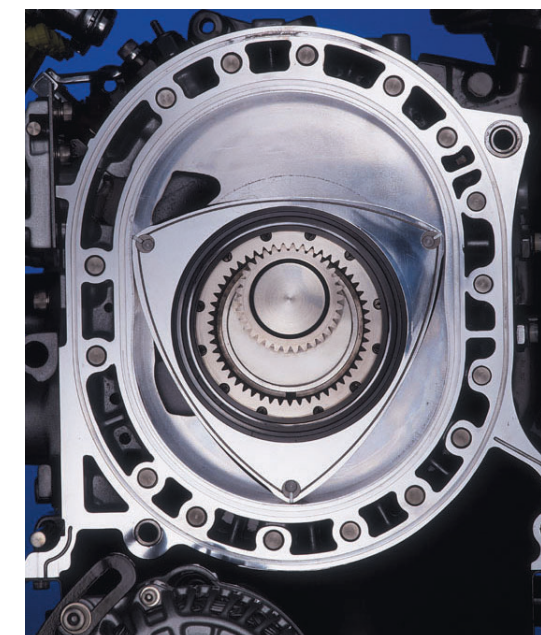


low emissions technology

micro-electrode spark plugs: The last technology employed in aid of fuel economy for the RENESIS engine is the micro-electrode spark plug. This spark plug uses a small side electrode and thick gauge central electrode with an extremely fine tip that promotes stable ignition of lean air-fuel mixtures. Also, by maintaining a lower temperature for side and central electrodes, the plug achieves high heat-resistance. The tip of the central electrode, which was previously of platinum, is now made of longer-lasting iridium.

technology for lower emissions

reduction of unburned gas emission and fast activating catalytic converter: The RENESIS engine retains unburned hydrocarbons from one cycle for combustion in the next – a process that vastly reduces emission of unburned gases in the exhaust. In addition, on starting the engine, secondary air is supplied to the exhaust port by an electric pump. Delivering secondary air in the gap between the dual exhaust ports promotes



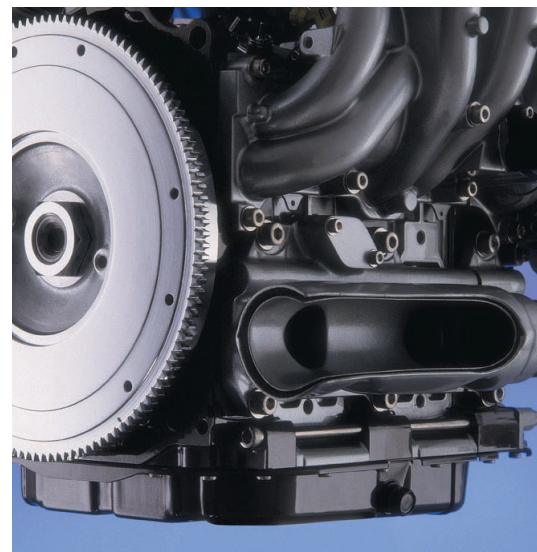
mixing of exhaust gas with secondary air to promote re-burning. Furthermore, RENESIS has a dual skin exhaust manifold that maintains the temperature of burned gases and ensures that exhaust temperature rises sharply on starting, for

faster activation of the high-performance catalytic converter and consequently lower emissions.

latest control technology for precision control of air-fuel ratio: The fuel metering system for the RENESIS engine is also new. Firstly, the previous intake manifold pressure-sensing system for metering air intake volume has been replaced with the hot wire air-flow meter type for more precise metering. Also, the single-loop air-fuel ratio feedback control employing an O_2 sensor located upstream of the catalytic converter has been replaced with a double-loop system featuring O_2 sensors upstream and downstream of the catalytic converter. The upstream O_2 sensor is a linear type achieving straight-line response to a wide-range of air-fuel ratios, promoting precise fuel control from idling to high engine speeds. Combined with the exhaust gas re-burning system (mentioned previously) this reduces exhaust emissions to one tenth the amount recorded for the previous rotary engine.

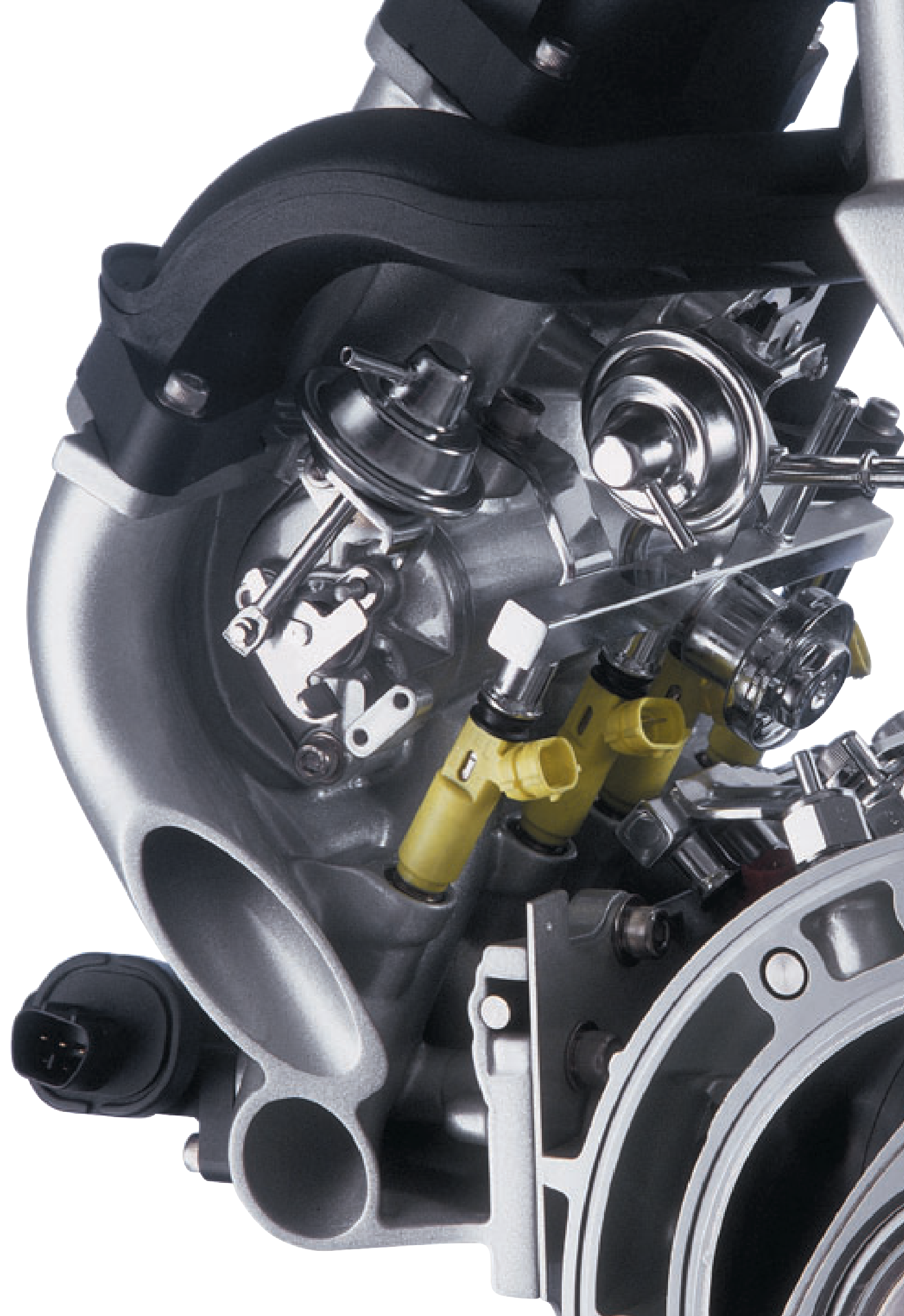
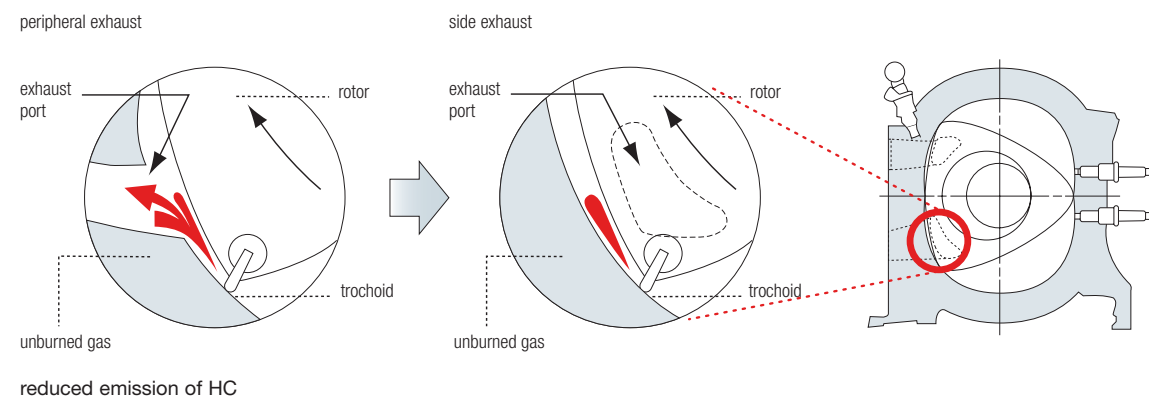
technologies for compact size and lighter weight

thinner engine ribs, wet sump lubrication system and plastic intake manifold: Mazda employed supercomputer analyses to reduce the thickness of supporting ribs for the engine side housing and other areas while maintaining high rigidity. Additionally, approximately half the length of the



reduced oil pan thickness

long intake manifold is now made of plastic. Mazda also cut weight by eliminating the mounting bracket for the air conditioner's condenser, replacing it with a direct-mount arrangement. Measures such as these, combined with further downsizing of equipment helped reduce overall engine weight. RENESIS also has a wet sump lubrication system with oil pan depth reduced by about 40 mm (1.6 in) to approximately half that of the previous RE. Taken together, the inherently compact size of the naturally aspirated RENESIS engine, plus these extensive downsizing and lightweighting measures, have yielded an engine weight on a par with the all-aluminum in-line four cylinder engine.



the most advanced engine production line for the next-generation RENESIS

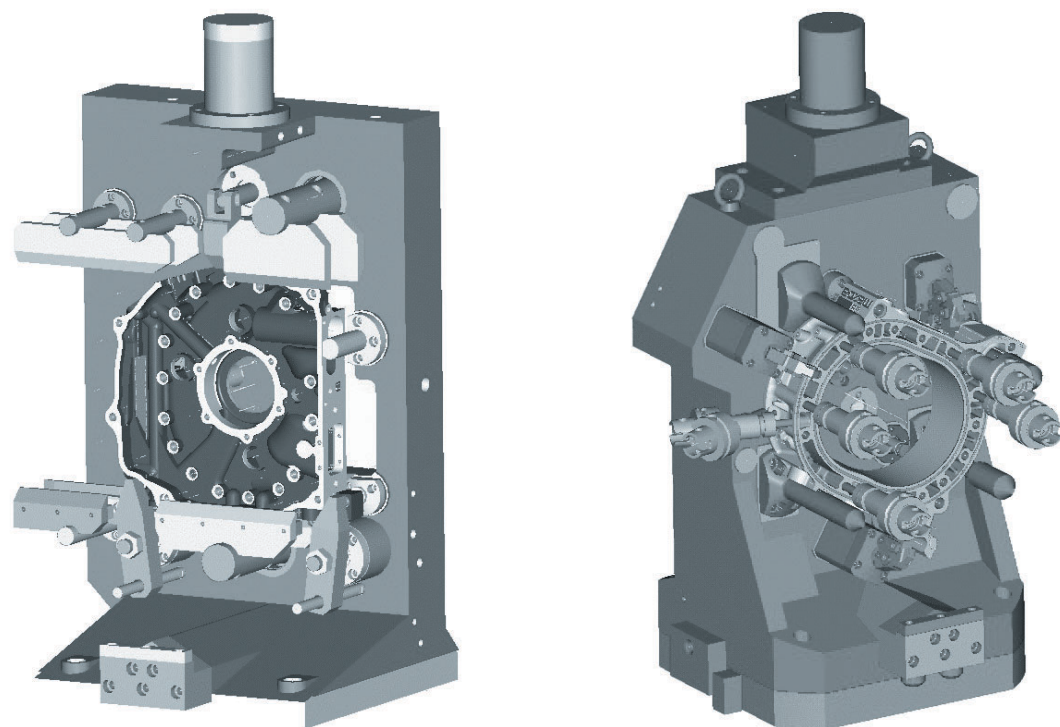
Mazda began developing rotary technology in 1961, and since the late seventies has been the world's only rotary engine manufacturer to depend entirely on manufacturing technology and equipment developed in house. A good example is the Mazda Digital Innovation (MDI) project which allows the company to conduct virtual simulations of RENESIS manufacturing, maximizing the potential performance of the engine by enabling high precision and quality production engineering.

positive approaches to improving production quality

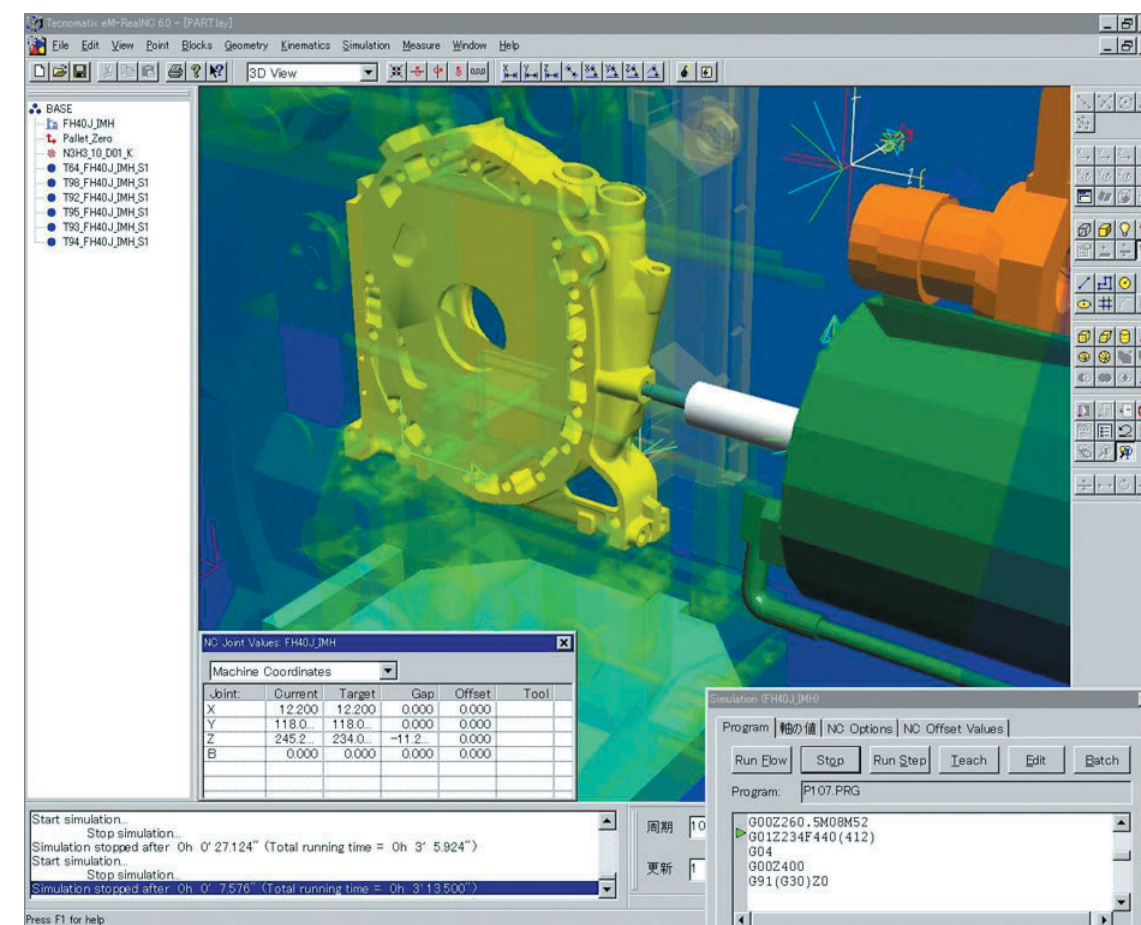
In 1994, Mazda introduced Total Productive Maintenance (TPM), the brainchild of the Japan

Plant Maintenance Association, to its production lines. Thanks to TPM, Mazda has raised the efficiency of its production department and advanced the organization of its quality assurance and other key aspects of the manufacturing process.

Since 1996, the company has been pursuing what it calls the Mazda Digital Innovation (MDI) project, which involves integration of CAD/CAM systems from design through production. By employing the most advanced 3-D information systems, Mazda has revolutionized its entire research and development organization. In the case of the RENESIS project, Mazda used MDI to implement virtual simulations of machining processes in production engineering.



MDI used in rotor manufacturing & 3D jig design



simulation for numerical control machining process

reliable quality—a product of the most advanced digital technology and the skills of mazda's production staff

An example of Mazda's advanced use of digital technology can be found in the machining of the engine's rotors. Three dimensional design data is received from the engine development team and employed to create 3-D data for a metal die for casting. Based on this 3-D data, computer simulations are used to analyse and check the precision, quality and efficiency in the rotor casting and machining. Also, with regard to cutting and other machining processes, 3-D simulations are used to optimize the design

of cutting tools and jigs throughout the entire manufacturing process.

To achieve the critical finish quality of side seals, cut-off seals and related components of the rotary chamber, the unique skills of our production staff, honed through years of experience in rotary engine building, is used to painstakingly check each and every item throughout the manufacturing process.

By merging tradition with our vision of future technologies, Mazda has secured enormous gains in both the precision and efficiency of the equipment used in the manufacture of its rotary engines, realizing yet another major advance in performance and quality with the innovative RENESIS.

powertrain layout designed to deliver sports performance allied with comfort

During development of the Mazda RX-8, the company pursued both the high performance demanded of a genuine sports car, as well as refined ride quality for everyday driving needs. To this end, the powertrain incorporates a one-piece carbon fiber composite prop shaft and other components designed to suppress vibration and achieve a light, short-throw shift feel for manual-transmission-equipped cars. Cars equipped with the Standard Power engine feature paddle shift levers on the steering wheel to assure sharp operation for the four-speed transmission Activematic (for Japan, USA and Australia).

one-piece carbon fiber composite prop shaft and vibration damping PPF

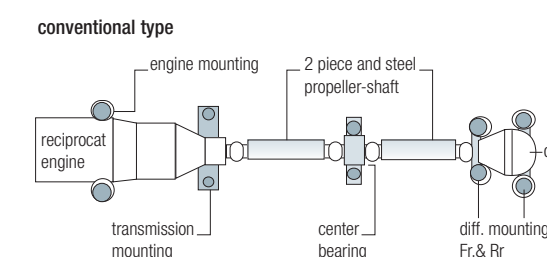
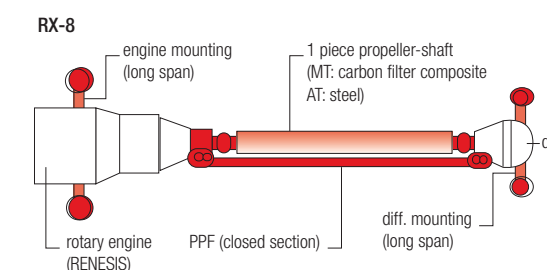
The longer and heavier the prop shaft, the lower its resonant frequency, and the more likely it is to cause vibration problems when the vehicle is travelling at high speed. For this reason, the prop shaft is usually split into two sections connected by a center bearing. But this kind of construction invites extra weight, the enemy of good sports car design. Furthermore, attaching the center bearing to the floor of the car encourages transmission of prop shaft vibration.

To overcome this problem, manual transmission models employ a lightweight one-piece prop shaft composed of steel, carbon fiber and high-strength plastic (AT cars use a steel prop shaft), and the transmission and differential are mounted on a rigid Power Plant Frame (PPF). This arrangement not only weighs about five kg (11.0 lbs) less than a conventional two-piece prop shaft, it also eliminates the need to attach the prop shaft to the vehicle floor. The result is a substantial reduction in NVH levels.

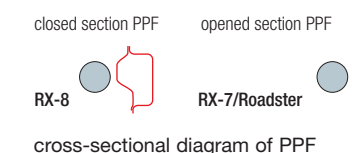
Additionally, the PPF is equipped with dynamic dampers that control resonance and have a closed section structure, improving the direct, linear acceleration feel in response to accelerator pedal inputs.

reduction in NVH owing to straight-line powertrain layout

If the universal joint connecting the prop shaft to the differential is set at an angle, it tends to generate noise as engine torque transmitted to the differential fluctuates. With the RX-8, there is no bend angle of the universal joint: instead, the transmission, prop shaft and differential are



comparison showing power-train layouts & mounting systems



cross-sectional diagram of PPF

configured in a straight line, whether viewed from the top or sides. This linear layout suppresses power-train noise and vibration.

In addition, the engine mount span of 716 mm (28.0 in) is increased by 266 mm (10.4 in) over that of the RX-7, and the differential mount span of 423 mm (16.6 in) is increased by 72 mm (2.8 in). These increases help reduce overall powertrain NVH levels.

six speed manual transmission (6MT)

The High Power specification RX-8 is equipped with a close-ratio six speed manual transmission. The total gear ratio is lower than that of the five speed, assuring that the engine's power output potential is fully realized for driving enjoyment.



6 speed manual transmission



4 speed automatic transmission

- Large capacity triple-cone synchromesh is employed for gears 1, 2 and 3 to lighten shift operation so that gear-change is accomplished quickly, with short throws.
- A push type reverse mechanism is employed, enabling a shift to reverse gear only when the shift lever is pushed down, for surer reverse shift action.

five speed manual transmission (5MT)

In Standard Power specification cars for sale In Japan and Europe, the RX-8 is equipped with a 5MT designed to balance driving performance with good fuel economy.

- The 5MT is equipped with linked triple-cone synchro for gears 1, 2 and 3, to lighten shift feel. In addition, the 5MT is fitted with a low-friction material between rod end pushball and detent spring, offering a smooth, crisp shift action.
- The upshift 1 ~ 2 return spring rate has been lowered and set load increased to achieve a more positive shift feel between 1 – 2 and 5 – Reverse to neutral (more certain neutral feel).

four speed automatic transmission with steering wheel paddle shift levers

In Standard Power models for Japan, North America and Australia, a 4AT with paddle shift levers mounted on the steering wheel is available. Paddle shifters deliver a shift response similar to that of a stick-shift, befitting a sports car of this caliber.

- The 4AT incorporates optimal speed-change hydraulic pressure control based upon engine torque signal feedback; a large clutch capable of absorbing shift-shock; and torque-down control to efficiently reduce engine torque during transmission speed changes. These advances greatly improve main shift lever and paddle shift lever response during downshifts, achieving a sharper, more immediate shift feel.
- Real-time feedback control optimises shifting in response to continuously changing driving

conditions. The 4AT's control system also includes a learning function for high efficiency and precision, and implements fine settings of hydraulic pressure for each speed-change phase, achieving an exceptionally smooth and refined shift feel adapted to the individual's driving pattern.

- A slope-control function switches the shift pattern according to whether the car is travelling up or down gradients. When travelling uphill, the system continuously calculates power in reserve, and prevents upshift if it determines power is lacking. This helps to achieve smooth hill-climbing. When travelling down a gradient, the on-board computer estimates the gradient, and implements optimal downshift control in response to driving conditions, eliminating the necessity for frequent brake operation.
- The 4AT has a short shift lever stroke, particularly between N (Neutral) and D (Drive Range), for a sporty shift feel. Additionally, the system incorporates steering wheel-mounted paddle shifters offering easy fingertip operation. The driver presses the switch to shift down and pulls the switch back to shift up.

super limited slip differential (LSD)

The sports-dedicated LSD installed in the RX-7 had a high TBR* at 2.6 ~ 3.0 and was designed for exceptionally skilled drivers. For the RX-8, Mazda



activematic paddle shift

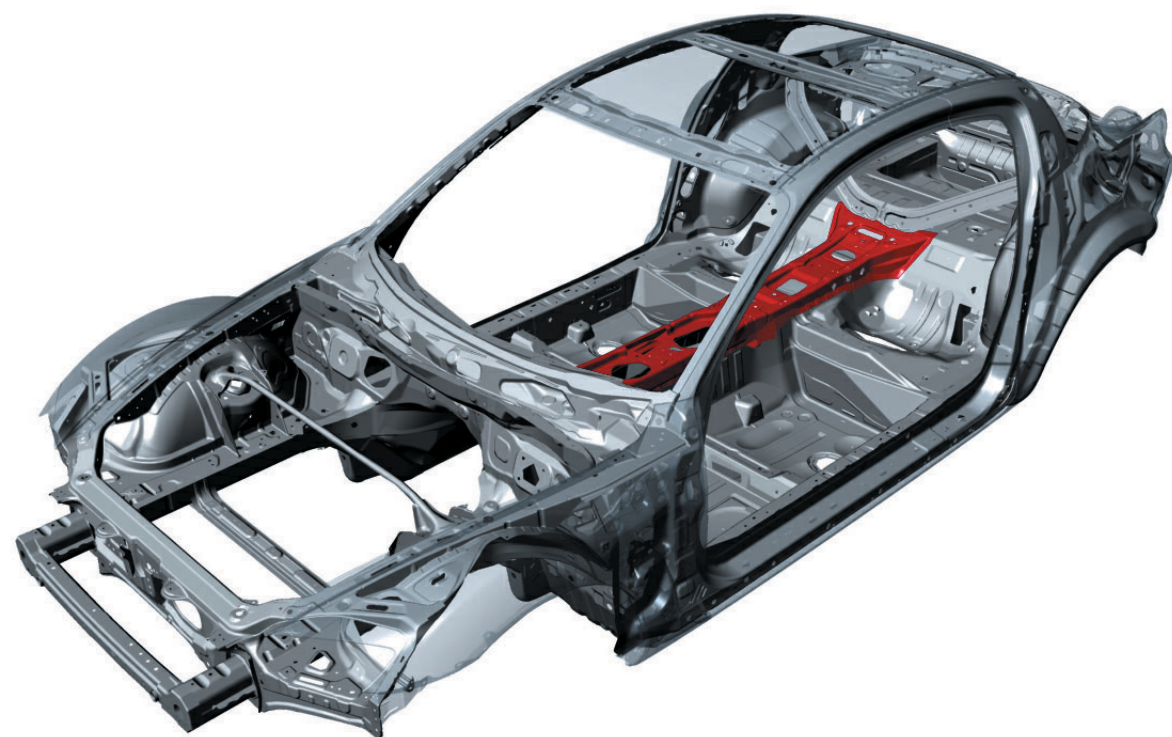
developed a torque-sensing Super LSD to support enjoyable and safe driving over a wider range of conditions, from everyday maneuvering to forceful driving-at-the-limit. Super LSD has a low TBR of 2.0, which assures predictably smooth vehicle behaviour during fast cornering and on low friction** road surfaces, and improves stability during off-the-line acceleration and straight-running.

Super LSD is fitted as standard on High Power specification cars, and is available as an option or standard in different markets on Standard Power cars.

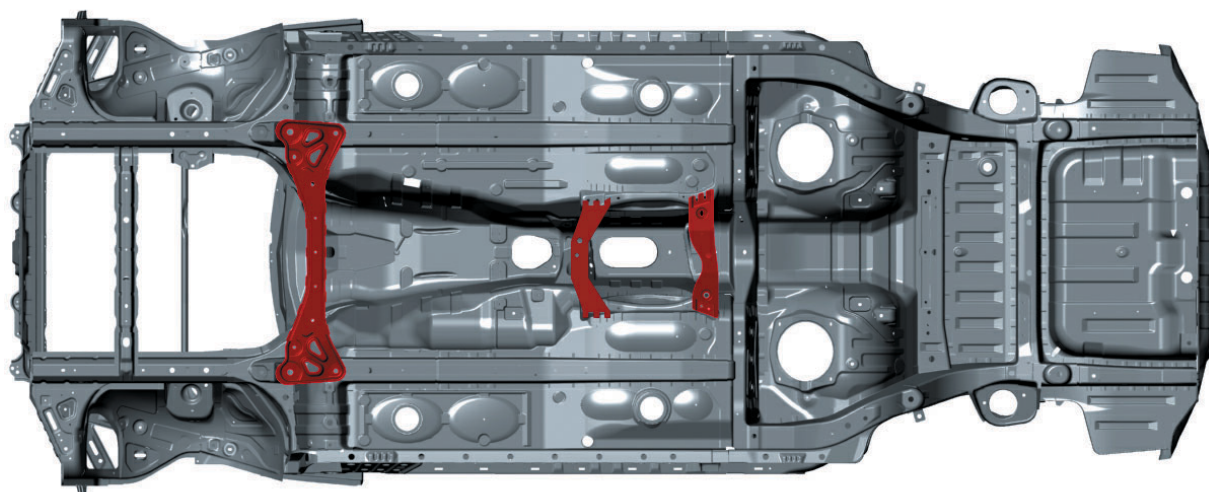
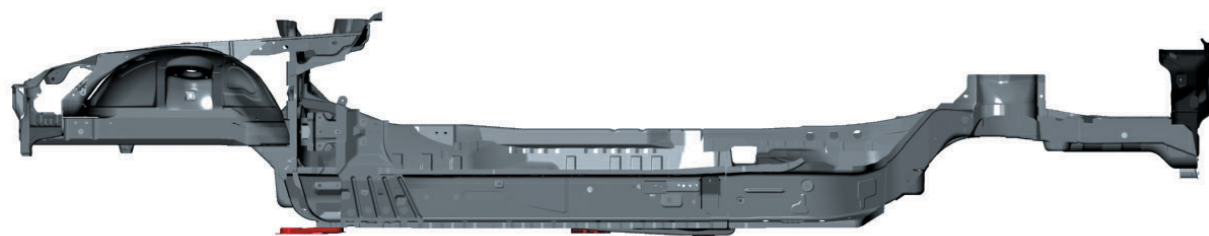
* TBR: Torque Bias Ratio
Characteristic that indicates the level of differential control.
TBR is expressed as high m torque/low m torque.

gear ratios / japan specification:

	6MT high power	5MT standard power	4AT activematic standard power
1st	3.760	3.483	2.785
2nd	2.269	2.015	1.543
3rd	1.539	1.391	1.000
4th	1.187	1.000	0.694
5th	1.000	0.806	—
6th	0.843	—	—
reverse	3.564	3.288	2.272
final	4.444	4.300	4.300



entire body frame with high static flexural and torsional rigidity with high-mount backbone frame



underbody frame including trans tunnel crossmembers fitted to reinforce body stiffness

high-rigidity, lightweight body supporting exceptional sports car dynamics

With the RX-8, Mazda aimed to give the body shell high static flexural and torsional rigidity, while adding localized reinforcements – the result of dynamic analyses – to assure body stiffness and handling stability that belies the center-pillarless construction.

Prototypes were put through driving tests on the proving ground and subjected to four wheel multi-axial excitation simulations on the test bench; measurements were taken of dynamic deformation of each part of the body and used in analyses aimed at improving handling stability. Engineers employed computer analysis to map the distribution of deformation energy experienced during driving, and the results were used to effectively bolster rigidity and reduce weight.

Based on information obtained in testing and analysis, engineers devised a suitably rigid underbody frame and cabin reinforcements to give the RX-8 a body that, in terms of rigidity and low weight, surpasses those of comparable sport sedans of the same wheelbase.

rigid underbody frame

High-mount backbone frame: The upper part of the transmission tunnel is a rigid, closed-section high-mount backbone frame running horizontally from the front of the vehicle to the rear, and joined to the main frame front and back. This structure greatly improves flexural and torsional rigidity.

The high-mount backbone frame was made possible by the RX-8's advanced front midship powertrain layout and lower engine mounting location, which provided adequate space in the upper part of the center tunnel. This frame arrangement was displayed at the 1995 Tokyo Motor Show in the RX-01 concept, a sports car



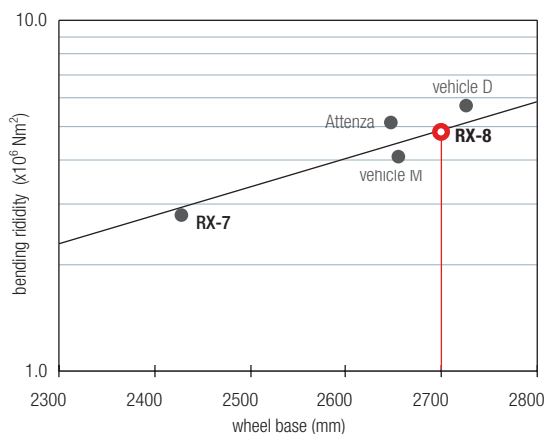
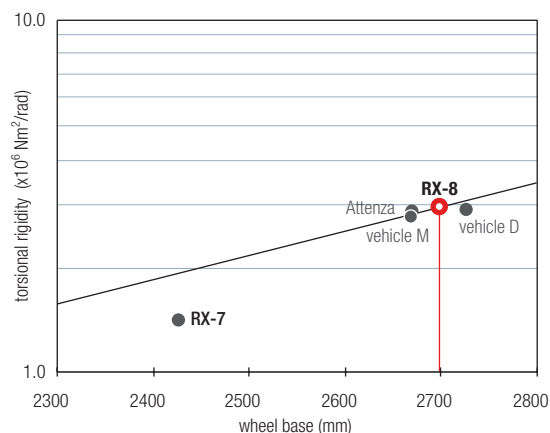
powered by the MSP-RE, predecessor of the new RENESIS engine.

engine bay and transmission tunnel cross-members

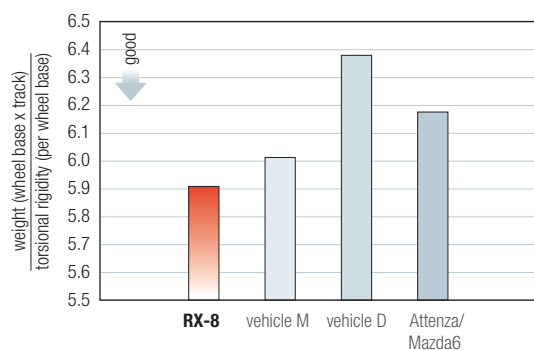
The underbody makes maximum use of high tensile strength (~590 MPa) steel in critical locations to assure sufficient rigidity, and Mazda also reduced floor panel thickness wherever possible as a weight-saving measure. The optimized layout and large sectional area, primarily of the backbone frame, ensure a highly rigid platform, and the advanced front midship powertrain configuration enables installation of cross members connecting the frame, near the suspension installation area in the engine compartment, adding rigid lateral support to the front suspension. In addition, three cross members are fitted across the lower, open end of the transmission tunnel with the effects of substantially reducing the time to the torsional deformation peak during steering inputs, and contributing to an improved feeling of handling stability. The RX-8 is also equipped with a cross member joining the front suspension towers (left to right) to strengthen the front damper supports and bolster stiffness around the front end of the car body.

effective cabin reinforcement

rigid door opening construction: The RX-8 also uses a high strength construction for the formed side paneling of the door openings. Ring shaped tailored blanks, formed from five steel sheets of optimal thickness welded together, provide local



global static rigidity of body structure



high-rigidity and lightweight body

reinforcement where needed for the side panel inner. The panel inner also contains tailored blanks formed from three steel sheets by the same process to provide added stiffness for the door opening and cabin.

diagonal brace reinforcement of rear body: A V-shaped diagonal brace substantially improves stiffness of the rear body. The V-shaped brace extends from the rear end of the high-mount backbone frame and fits to the rear damper top mounts, greatly improving damper support stiffness and rear body torsional rigidity.

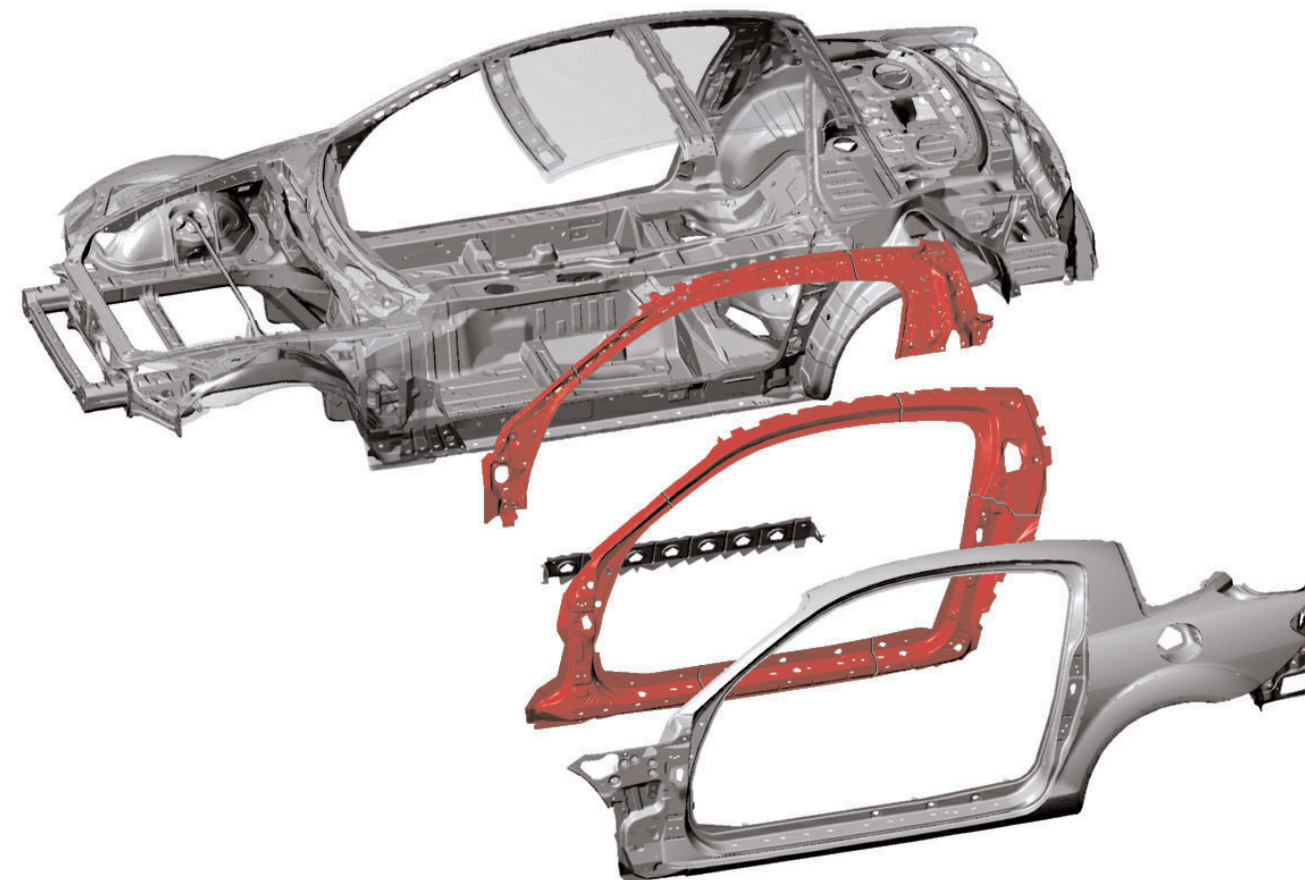
weight saving by nitriding treated roof reinforcement: The reinforcement crossing the center of the roof is made of press-formed regular steel sheet that has been subjected to nitriding* to increase its tensile strength to 1000 MPa. This treatment permits the use of thinner steel sheet to realize a weight reduction of approximately 1 kg (2.2 lbs) while maintaining the roof's side-impact resistance and roof crush strength.

* Heat treatment that bonds the titanium and nitrogen content of steel sheet.

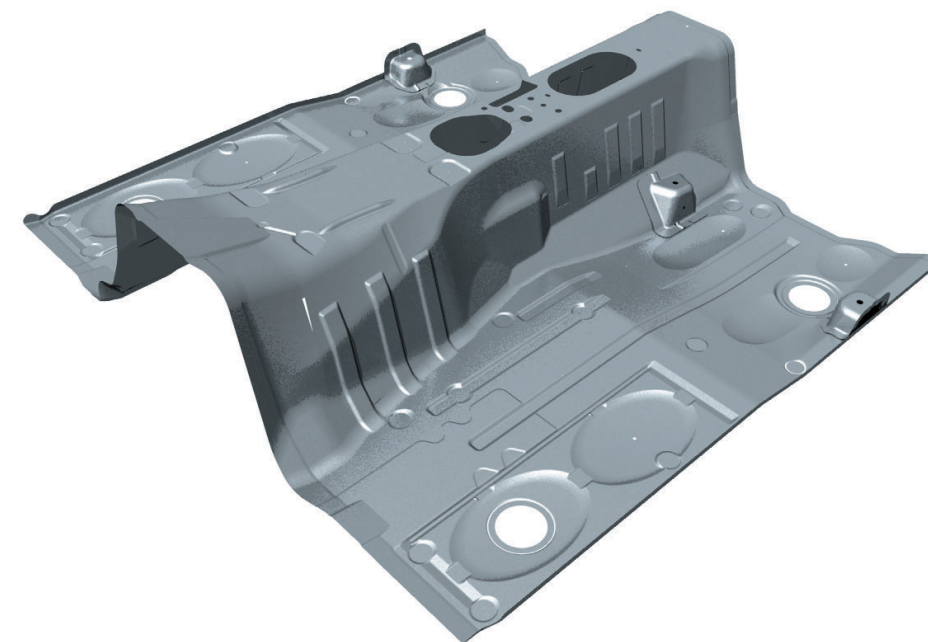
body structure designed to reduce transmission of road noise

minimizing road noise sensitivity: Mazda conducted extensive Computer Aided Engineering (CAE) studies aimed at optimizing the structures of the front and rear suspension mounts to improve overall stiffness and reduce transmission of vibrations from the suspension to the car body.

mode control panels: To suppress amplification of road noise caused by sympathetic resonance of floor panels with road vibrations, Mazda uses the same mode control panels found in the Mazda6. These newly developed floor panels incorporate pairs of depressions or concave lobes that vibrate at the same frequency but in opposite phase, to effectively cancel road noise transmission.



rigid construction around doors providing added stiffness for the door opening and cabin



newly developed mode control floor panels that effectively cancel transmission of road noise



peak sports car driving performance with comfortable accommodation for four adults

To realize the concept of a new four-door four-seater sports car, Mazda designed the RX-8's chassis to deliver unprecedented driving excitement through exceptional handling and control, while thoroughly suppressing road noise and vibration for a comfortable ride.

The RX-8 uses double wishbone front suspension and long link, multi-link rear suspension. This suspension arrangement assures close compliance with the road surface under all driving conditions, achieving excellent control and stability. The highly rigid rear sub-frame also incorporates six rubber mounts to improve handling stability and isolate road noise.

Additionally, the RX-8 is equipped with newly developed electric power-assist, rack-and-pinion steering that transmits just the right amount of road information back to the driver. The RX-8 is fitted with large 18-inch diameter tires and aluminum alloy wheels, and 17-inch ventilated front disc brakes (Sports Suspension version) that provide ample stopping power for sports driving.



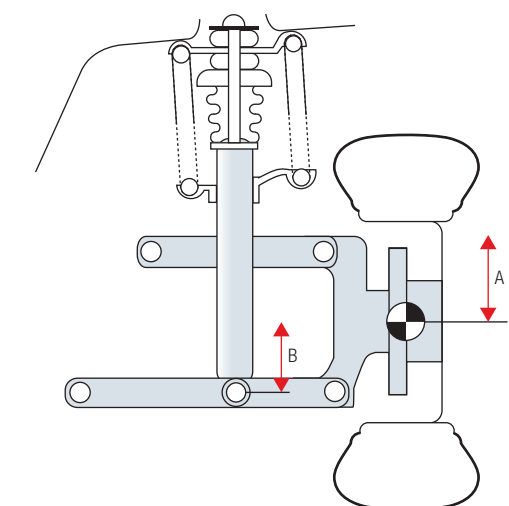
large 18-inch diameter tires and aluminium alloy wheels

newly developed double wishbone front suspension

The low hood design enabled by the advanced front midship powertrain layout allows the use of Mazda's newly developed in-wheel type double wishbone front suspension. Upper and lower arms are mounted on a highly rigid sub-frame, and the long arms ensure linear alignment changes during jounce and rebound of the front wheels.

To obtain linear compliance in response to external forces, upper and lower arm bushings have been given a new zero stopper clearance structure.

Additionally, the front suspension employs monotube gas-filled dampers with large diameter pistons, and the damper lever ratio* has been raised to improve damping efficiency. These measures assure sufficient damping force even with slight piston strokes and help realize closer compliance with the road surface over a wide range of conditions.

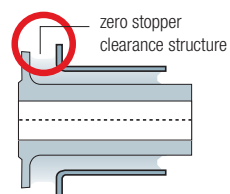


damper lever ratio: Lever ratio is b/a

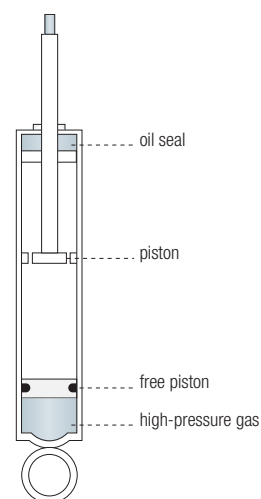
* Damper Lever Ratio: Ratio of damper stroke against wheel jounce/rebound.

forged aluminum upper arms and hot-forged aluminum lower arms: For high strength and low weight, the suspension's upper arms are forged aluminum and the lower arms hot-forged aluminum. Upper and lower arm lengths of 215 and 339.3 mm (8.5 and 13.3 in) respectively are each about 32 mm (1.3 in) longer than those of the RX-7. These dimensional revisions yield linear alignment changes right up to the suspension limit, achieving exceptional controllability over diverse road and driving conditions.

suspension arm bushing with zero stopper clearance construction: Mazda developed zero stopper clearance rubber for upper/lower arm mounts of ball joints on the axle side and on the sub-frame side. The rubber bushings are fitted with a sleeve that is integrated with the inner pipe of the stopper. With the new bushing construction, a stopper operates to suppress arm movement in the longitudinal direction caused by forces acting



zero stopper clearance construction bushing



cross sectional drawing of mono-tube damper

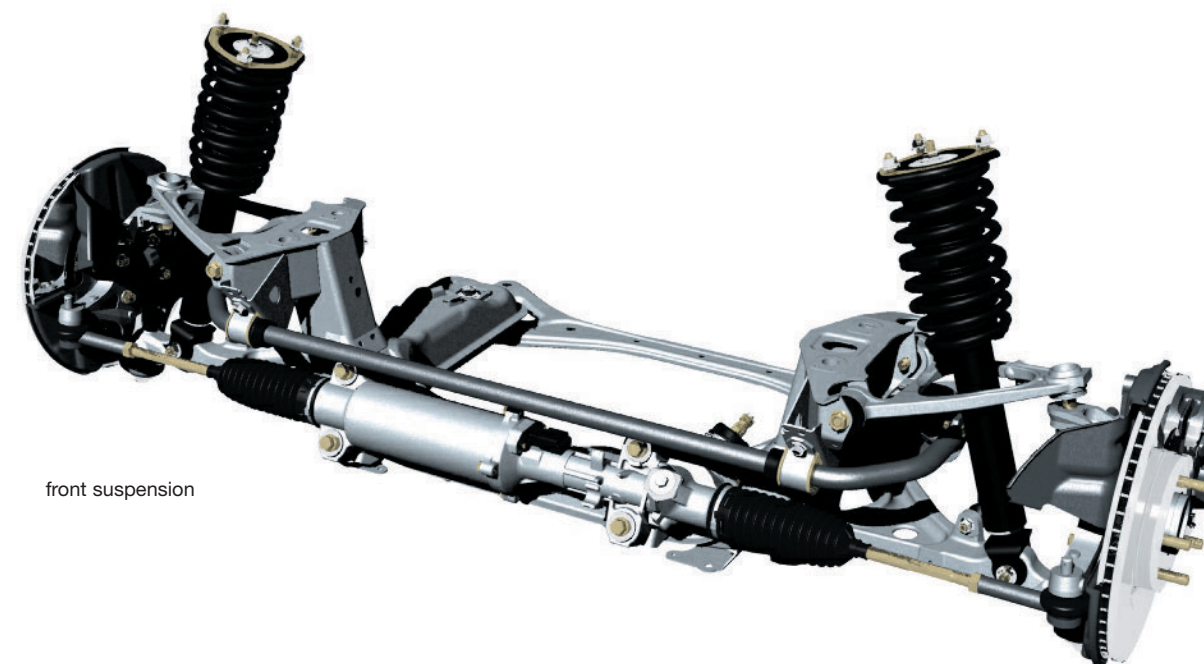
on the front wheels, and assures linear spring characteristics from the onset of its action to maintain optimal control of compliance at all times.

high-rigidity sub-frame supporting suspension units: Mounting critical front suspension components on a lightweight, rigid sub-frame ensures extreme support stiffness and alignment precision for the RX-8's front suspension. The sub-frame is composed of a cross-member on which the upper and lower suspension arms are mounted, an integrated main member extending fore and aft to the right and left of the cross member and a transverse member attached to the rear end of the main member.

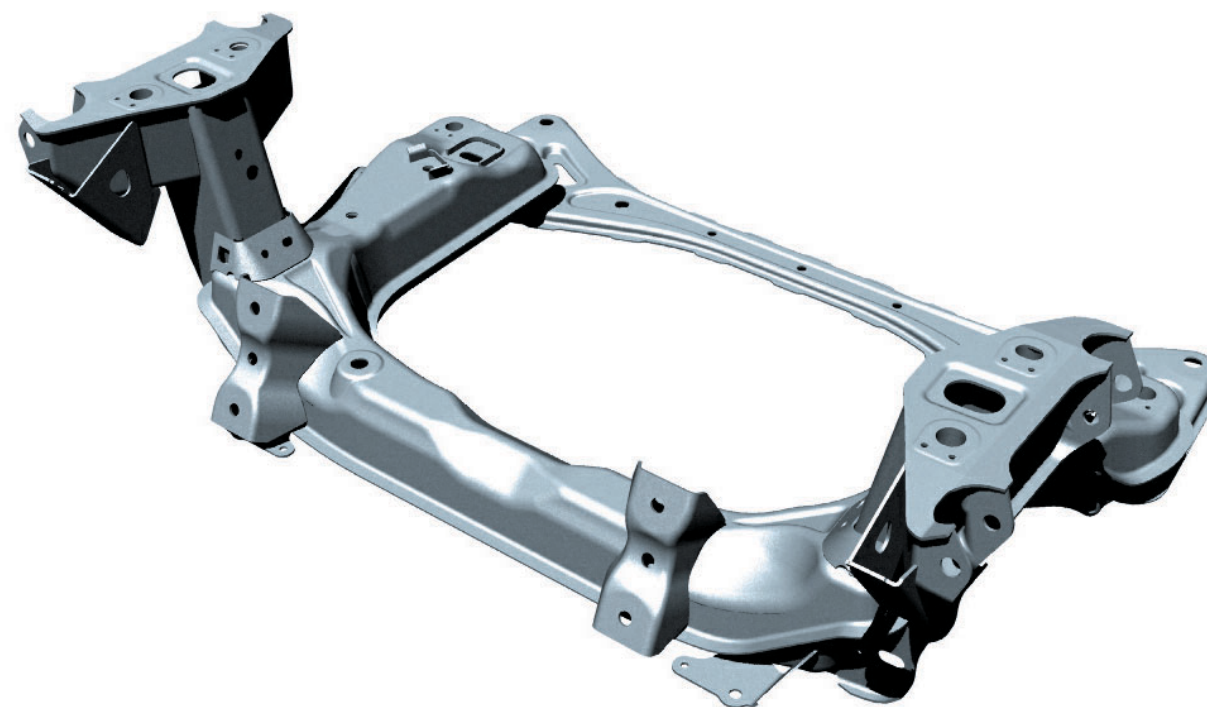
When viewed from above, the sub-frame reveals a closed square structure, and together with the transverse member has eight rigid mounting locations for the car body. The sub-frame assures an extremely stiff suspension support and accurate alignment.

gas-filled monotube shock absorbers: The RX-8 employs short-stroke, gas-filled monotube shock absorbers to assure freedom from cavitation and stable damping performance under the harshest driving conditions. To obtain heightened response to hydraulic pressure fluctuations as well as assured damping and stroke feel, the dampers have a highly reliable, two-piece orifice valve construction, larger diameter pistons and larger hydraulic fluid duct (port area) than previous models. The piston port is given a larger diameter for improved ride comfort, with piston diameter at 45 mm (1.8 in) and damper rod diameter at 12.5 mm (0.5 in).

straight layout hollow stabilizers: Thanks to the advanced front mid-ship powertrain layout with the compact lightweight RENESIS engine mounted aft of the front wheel center line, front stabilizers could be given an extremely efficient straight layout. Stabilizers are mounted to the sub-frame on the car body side, and both ends fitted by a ball-joint linkage to a lower suspension arm.



front suspension



the front sub-frame assures and extremely stiff suspension support and accurate alignment.



newly developed multi-link rear suspension

the Mazda RX-8 employs a new multi-link (five links per side) rear suspension system: Links have extended length and are optimally arranged to maintain correct geometry and compliance to keep tires in stable contact with the road at all times, helping achieve superior handling stability, ride comfort and low road noise. The rear suspension was designed with a damper lever ratio of almost 1.0 to assure compliance on all kinds of road surface and generate damping force even with the slightest of piston strokes.

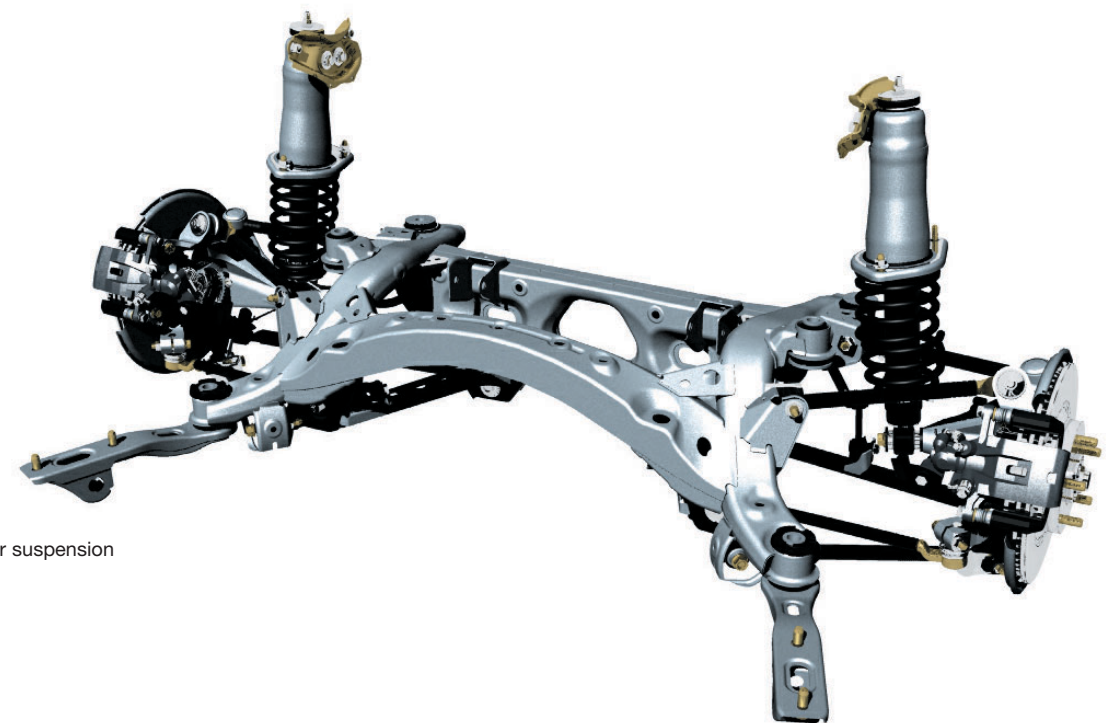
Coil springs are located below the floor, and spring lateral force against the damper rod has been lowered to minimize friction. As with the front suspension, gas-filled monotube shocks with a large diameter piston are used for the rear suspension. The rear suspension also uses a newly developed six point rubber mount system for the sub-frame. This arrangement assures rigid

support for the links as well as a more comfortable ride with low road noise.

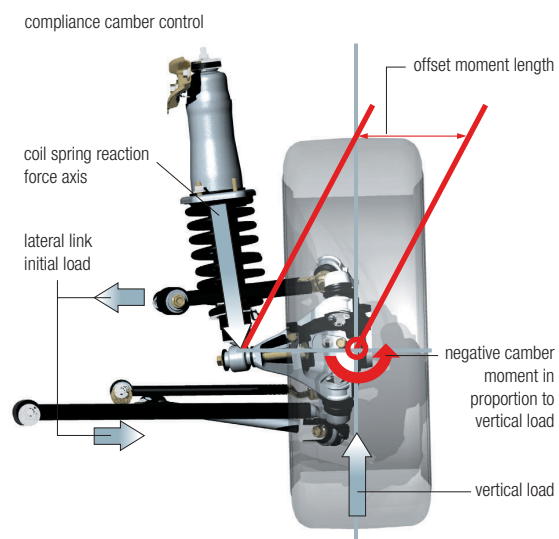
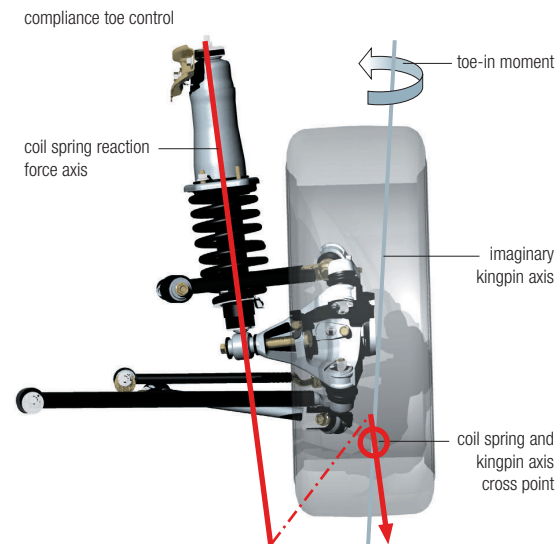
optimal layout of links and dampers: Keys to the success of the RX-8's multi-link suspension are the types of link used and their optimized locations relative to the dampers.

1. compliance toe control

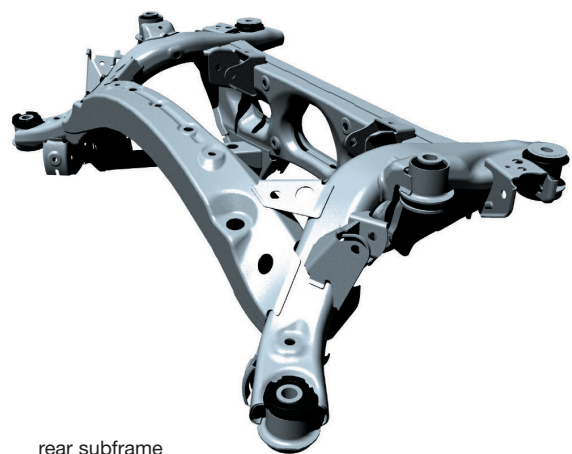
The rear dampers are attached to the car body at the top and at the bottom, to the hot-forged aluminum hub carrier. The damper's center line (damper axis) intersects the hypothetical king pin axis on the outer side and aft of it, as determined by the layout of the five suspension links. With this suspension geometry, the damper reaction force to the jounce and rebound of the rear wheels generates a moment that keeps the wheel oriented



rear suspension



compliance control system



rear subframe

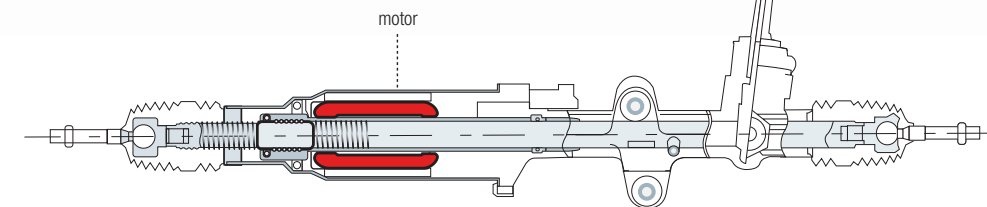
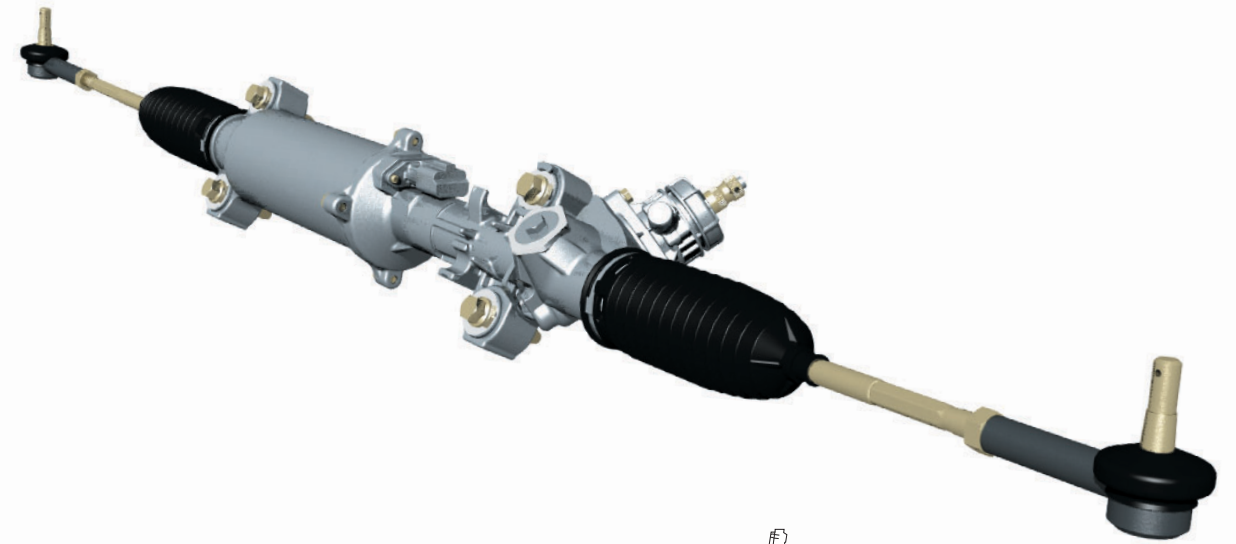
to the inside of its advancing direction of travel, with the hypothetical king pin axis as its center (toe in). Incorporating toe control in this way helps to maintain tenacious and stable tire grip at all times.

2. compliance camber control

Forces pushing the hub carrier joint section towards the outside of the car body – in the negative camber direction – always acts on the upper and lower lateral links. This is due to the positioning of the damper. With this arrangement, and since the rubber bushing at the mount point between the lateral link and the sub-frame is always pushed towards the link side, the insensitive region of the bushing, close to its center, is not used. The results are minimized response lag to steering inputs and reduction of parasitic movements of the wheels in response to external disturbances.

At 289.6 mm (11.4 in), the upper lateral link is 76 mm (3.0 in) longer than its counterpart, the double wishbone's upper arm on the RX-7. The lower lateral link's length, at 529 mm (20.8 in), is 173 mm (6.8 in) longer than the lower arm on the RX-7. In particular, extending the lower lateral link reduces torsional load on the sub-frame mount bushings during jounce and rebound of a rear wheel, thereby achieving smoother link action.

six point rubber mount rear sub-frame; The sub-frame (unified welded structure) on which the rear suspension is mounted comprises two boomerang-shaped members, to which cross members are bolted fore and aft. Each boomerang-shaped member is fitted with three zero stopper clearance rubber mounts laid out in the form of a 3-dimensional triangle, located at the front, middle and rear. This innovative construction assures high camber stiffness to resist twisting of the sub-frame due to lateral force inputs, and allows use of more pliant rubber mounts. The results are enhanced handling

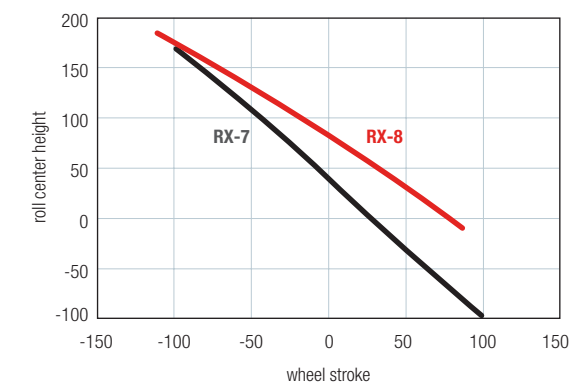
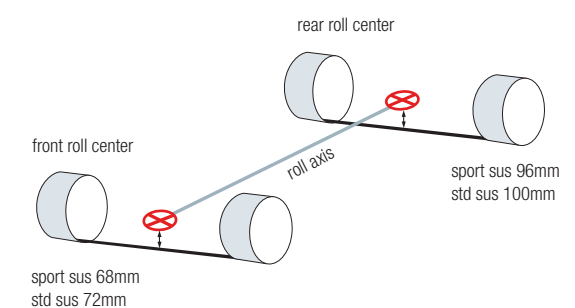


rack drive electric power steering

stability, suppressed vibration transmission, low road noise and a more comfortable ride.

forward-inclined roll axis layout: With the RX-8, Mazda pursued a natural roll feel, setting the front roll center height at 68 mm (2.7 in) (for the Sports Suspension version, 72 mm (2.8 in) on Standard version), and 96 mm (3.62 in) setting the rear roll center height at 100 mm [3.93 in] for the Standard Suspension version to produce a forward-inclined roll axis. Additionally, to achieve linear roll characteristics and improve convergence, this layout reduces roll center height changes against wheel stroke changes.

rack drive electric power steering: The RX-8's power steering, which conveys extremely accurate feedback on road surface conditions, incorporates a torque sensor on the pinion shaft and operates by an electric motor on the rack. The power assisted steering is speed-sensitive and under computer control.



bump roll center height changes (front)

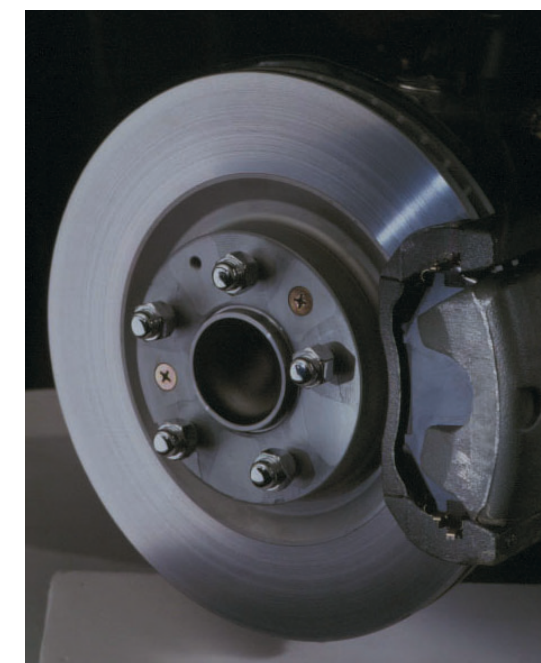


large ventilated disc brakes

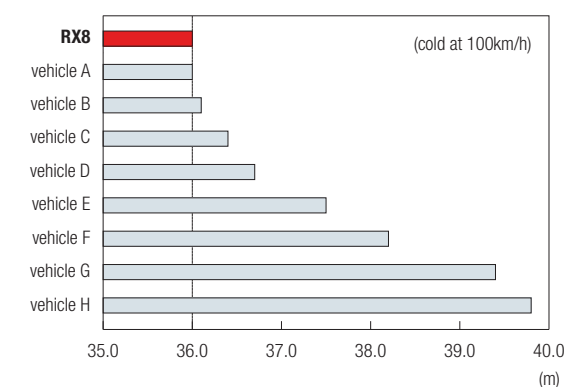
The RX-8 inherits the same brake system design concept as that introduced on the Mazda6, with additional sports tuning for higher performance driving. The system features a low pedal stroke ratio and small diameter master cylinder. Reducing the stroke helps maintain controllability at the start of brake action, and achieves brake characteristics that enhance the feeling of deceleration as soon as the brake pedal is operated. The Sports Suspension specification car with 18-inch aluminum alloy wheels is equipped with race-proven 17-inch (rotor outer diameter: 323 mm [12.7 in]) ventilated front discs, assuring plenty of active disc diameter. The disc rotor has more ribs than that used on the previous RX-7, fiercely resisting fade. The choice of a 17-inch rotor size for the 18-inch wheels was determined in consideration of owners using studless tires in harsh winter conditions. (Owners will be able to fit 17-inch studless tires, the size most readily available.)

The Standard Suspension specification RX-8 with 16-inch aluminum alloy wheels is equipped with 16-inch (rotor outer diameter: 303 mm [11.9 in]) ventilated discs at the front and 302 mm (11.9 in) for the rear.

Rear brake calipers are equipped with over-adjust prevention mechanism that deactivates the brake pad adjustment function when brake pressure exceeds a predetermined level. This helps ensure consistent, strong braking performances during extremely sporty driving.



large diameter disk brakes for sports suspension version



brake performance comparison graph

brake sizes:

		sports suspension version	standard suspension version
front	disc outer diameter	323mm (17inch type)	303mm (16inch type)
	disc thickness	24mm	24mm
	no. of ventilation ribs	54	52
rear	disc outer diameter	302mm	302mm
	disc thickness	18mm	18mm
	no. of ventilation ribs	60	60



innovative sports car styling derived from mazda DNA



Mazda has a distinctive history of designing and building sports cars that are ahead of their time. The first-generation Cosmo Sport, RX-7 and MX5/Miata roadster are proof of the company's daring, go-it-alone approach to sports car manufacturing. This is part of our design heritage, an essential part of Mazda DNA, embodied in cars that exhibit low weight, a superb ride attributable to exceptional grip and handling, and dynamic sports car styling that directly expresses these qualities. With the design of the Mazda RX-8, we took Mazda DNA a stage further to create a new idiom of sports car dynamism.

Mazda aimed to create a completely new value by expressing all the following: genuine sports car styling packed with vitality and tension, space to comfortably accommodate four adults that belies the car's compact-looking exterior, a form that expresses the feel of a genuine sports car, as well as quality realized by the use of choice, authentic materials and the emotional impact unique to the rotary engined sports car.

The achievement of the optimum balance between factors such as weight savings and aerodynamic performance through the close cooperation of designers, engineers and manufacturing staff working to clear, agreed goals. The results of this development effort are reflected in the bringing to market of a unique design. Original and innovative ideas, combined with the long, distinguished history of Mazda DNA gave rise to RX-8's unique sports car styling.

exterior design 63

interior design 67



exterior design 63
interior design 67





exterior design

The guiding concept for the exterior was “Athletic Tension,” with designers paying particular attention to creating a dynamic style. With its “athletic tension,” the car conveys a look of pent-up energy waiting to be unleashed—the look of a car with true sporting potential. The RX-7 and MX5/Miata roadster spring from the same origins. To achieve this goal, Mazda rejected the idea of using high power to overcome a weighty body. Instead it sought to reduce weight and refine handling to engender a satisfying feeling of unity between driver and car by taking this concept a stage further with the dynamic form of the RX-8. To embody this design concept, three factors were identified: dynamic form, stability, and tension. These are the essential functions that make the Mazda RX-8 an unmistakably genuine sports car.

dynamic form

The most distinctive feature of the RX-8’s design is its dynamic body. This dynamism is expressed in 3-dimensional relief, starting at the front air intake extending through the body sides to the trunk lid. The effect of vitality and motion is achieved through the sculpted surfaces of the body rather than 2-dimensional character lines. From every angle, the RX-8 gives the impression of a high-performance car – aggressive, yet stylish and original.

stability

The feeling of stability is basically determined by the balance between the body and cabin, and the positions of the wheels. To determine the optimal cabin size for the RX-8, designers went through a repeated trial-and-error process as they sought to



strike the ideal balance between cabin volume and field-of-view. Then, while assuring the right amount of space for four adults, they worked to achieve an extremely compact look for the cabin. The combination of compact cabin and powerful body created the low-slung proportions that translate into a look of stability that is essential in a sports car.

The RX-8’s center pillarless, center-opening Freestyle door system assures exceptionally easy entry and exit, and also enables a reduction in rear door size that makes a significant contribution to the compact look of the cabin. Additionally, the RX-8 inherits the traditional C pillar form of the first-generation RX-7, a characteristic expression of Mazda sports car DNA which also contributes to the compact look of the cabin. Furthermore, the wheels are located well out towards the corners of the body, and along with the pronounced fenders and short front and rear overhangs, underscore the powerful feel of stability.



tension

The entire body is sleek and trim, with smooth, taut lines that suggest the alert readiness of an athlete in peak condition. In particular, the front fenders and door panels have a pronounced 3-dimensional form unseen in other cars, giving a lean and powerfully muscular impression. To embody these radical design features, Mazda used the latest computer techniques to refine press-forming technology in repeated simulations. The results are reflected in the front fenders with their bold form realized for the first time through uncompromising design principles and radical advances in precision manufacturing technology.

function and emotion

In addition to the expressions of dynamic form, stability and tension, Mazda pursued weight reduction and aerodynamics for their substantial effects on performance.

For example, the rear window not only uses a lightweight material, Mazda's designers further shaved weight by altering the surface curve to allow a reduced sheet thickness. This is just one example of the extraordinary effort put into weight-saving measures throughout the car, pushing weight reduction as far as design limitations would allow.

Another example: To counteract vehicle lift and to bolster high-speed stability, the designers sought to optimise the form of the rear deck with the use of a flat floor.

Design elements such as the rotor shaped power bulge and rotor motif rear fog lamp (European version only) create a vivid impression of rotary engine performance.

Other features like the mechanical overtones in the headlamp design, the unique combination lamps employing LEDs as side markers, and the aluminum wheels demonstrate the close attention to detail that conveys an emotional message to sports car enthusiasts.





interior design

As with the exterior, the Mazda RX-8's interior design signals a thorough pursuit of sports car excitement in form and feeling of control, although the designers avoided the strictly driver-oriented approach of conventional sports car cabins. Instead they worked to develop a "comfortably snug" theme that expresses a more modern and refined sports car taste. The spacious, innovative interior invites and welcomes through opened doors, and while comfortably appointed, the interior echoes the dynamic impression of the RX-8's exterior and creates an emotional tone that will appeal to sports car drivers. Key elements that express the look and feel of the cabin are its dynamic form and comfort, its emotional appeal and quality.

dynamic form

The most striking feature of the interior is the dynamic backbone extending from the central section of the instrument panel, through the center console, and on to the rear parcel shelf.

The RX-8's distinctive power bulge on the hood is the starting point for the interior's dynamic looks, beginning a continuous shape that takes in the center tunnel housing the vehicle's drive shaft. The interior is augmented by the aluminum frame sidebars of the center console, a styling feature that hints of the advanced mechanical elements of the car.

comfort

To give the interior an inviting, comfortable look, the instrument panel features shapes, textures and colours that express various innovative design concepts. The robust shape of the central section,



for example, communicates the strength of the car's frame, while the sides are designed to convey a feeling of occupant protection. These shapes give the powerful impression of a genuine sports machine. Additionally, the interior trim, which capitalizes on the center pillarless construction, has a look of flowing continuity that extends to the rear of the cabin. The clever use of textures provides a strong contrast, while soft materials are fitted in optimal locations to improve the textural attributes of the interior and express an ambience of modern comfort.

emotion and quality

Another major feature of the RX-8's interior is its combination of emotion and refined quality. Firstly, the four bucket seats, carefully sculpted to provide optimal support, do much to express the

character of the RX-8. The compact three-cluster layout of the instrument panel is optimally positioned in the driver's field of view without distracting the driver's attention from the road ahead. The combination of indirect blue illumination and red meters sets the instrumentation in bright visual relief. The mesh material for the lightweight sun visors is just one of the many fine details designed to appeal to the emotions.

In addition, the rotor-shaped aluminum seat bezel motif, and the manual transmission shift knob, and the centrally-located tachometer that registers up to 10,000 rpm hint at the high performance offered by Mazda's next-generation rotary engine. RX-8 also features a high-grade audio system, distinguished by a high-gloss piano black control panel. Other touches contributing to a robust yet refined operational feel include the use of metal for levers to give them a quality touch that helps create a high-class ambience.

color variations

Body colors were selected in accordance with a theme of "pure and dynamic," and feature mainly metallic colors for a quality sports image. Vivid, sporty body colors include Velocity Red (mica),



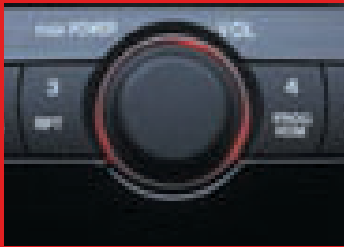
Winning Blue and Lightning Yellow. Velocity Red (mica) is the signature color for the RX-8 and incorporates a fresh-looking, three-coat finish that surpasses the previous Mazda red. Nordic Green is a new color that makes its debut on the RX-8, and cars for the domestic market also have Snowflake White Pearl available.

The interior is offered in three colors. Steering wheel, seats and side trim are available in vivid red for emotional impact, while a tan variation is also available, lending a modern, classy look. The RX-8 also comes with a standard black interior.

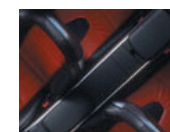
color variations and combinations

body color	interior color		
	black	red	tan
velocity red (mica) three coats	•	•	•
lightning yellow	•		
winning blue (metallic)	•		
nordic green (metallic)	•		•
sunlight silver (metallic)	•	•	
titanium grey (metallic)	•	•	•
brilliant black	•	•	•
snowflake white pearl (mica) three coats	•	•	





unique four-door four-seater package creates new values in a sports car



Starting from the concept of a “new four-door sports car for four adults,” the Mazda RX-8 combines sports styling with sufficient cabin space for four adults, as well as easy entry and exit.

Highly efficient packaging on a 2700 mm (106.1 in) wheelbase platform is made possible by the compact, lightweight RENESIS rotary engine, and a host of other innovative Mazda technologies. In particular, the newly developed center-opening Freestyle door system is a key technology, allowing a compact-looking, sports-style cabin combined with the convenience of easy entry/exit. Trunk space is more than adequate for everyday needs as well as for short trips.

This original four-door four-seater packaging produces a sports car that offers supreme driving enjoyment along with exceptional functionality, assuring broad appeal to a wider group of motoring enthusiasts.

four-door four-seater	76
storage spaces & interior details	78
audio & dvd navigation system	83



four-door four-seater	76
storage spaces & interior details	78
audio & dvd navigation system	83



renesis and Freestyle door system realize a four-door, four-seater genuine sports package

spacious, well-appointed front and rear seating offer an unusual level of comfort

The success of the Mazda RX-8's advanced front mid-ship layout is largely derived from the low positioning of its powertrain components. Mounting the engine, prop shaft and other parts of the powertrain low meant the bonnet and cowl could be lower for a less obstructed view. This in turn allowed for a lower seating position and the low-slung proportions essential in a sports car. Additionally, the exhaust gas manifold and catalytic converter are also placed in optimal locations, with the large sectional area catalytic converter occupying the dead space below the knees of front occupants, thereby assuring proper exhaust routing without interfering with overall cabin space.

Front seatback thickness is minimized and the seats shape-optimized to achieve comfort and support, as well as adequate knee clearance for passengers in the rear. Further, employing a



concave floor section below the front seats allowed generous leg room for rear passengers without raising the position of the front seats.

Front seat sliders are also optimally located to give plenty of leg room to passengers in the rear seats.

Scrupulous attention to design details such as these make the Mazda RX-8 an unique sports car with well-crafted front/rear seating space for four adults.

center-opening Freestyle door system

The Freestyle door system, along with the advanced front midship powertrain layout, is a key technology in the creation of the RX-8's unprecedented sports car values. Since the body shell eliminates center pillars, cabin design could be optimised to give a compact look, an important styling element for a sports car. With no center pillars and a maximum front door opening angle of 67° and rear door angle of 80°, the RX-8 reveals an unexpectedly large door opening space. This allows easy access to the front seats, but is particularly beneficial in facilitating entry and exit for passengers in the rear.

Rear doors open at an approximate 10° angle to a line drawn at right angles to the door hinge, preventing them from impinging on the body paneling when opened. The rear door-opening angle is also set to optimally reduce the effort of door opening. Lightweight aluminum rear door construction and absence of center pillars assure both smooth and easy door operation and a spacious door opening area.

For safety, rear doors feature a combined outer/inner handle located in the door trim that prevents opening of a rear door unless its corresponding front door is also open.



storage spaces



front console



front cup holder



rear console and cup holder



seat back pocket



sunglasses holder



glove compartment open



coin box



map pocket



trunk through section



tool box



trunk room



trunk room

All four doors feature an original construction that benefits from the latest computer analysis techniques and rigorous impact tests used to assure the highest levels of safety in the event of a side impact.

deep trunk sized for practical use

The RX-8's trunk offers enough room for practical, everyday use. Inclusion of an emergency puncture repair kit eliminates the need for a spare tire, allowing greater trunk depth. In addition, the trunk lid support mechanism (a double hinge system) accommodates hinges and dampers in their own grooves so they do not intrude into the luggage space. Together, these design measures yielded a shorter rear overhang, approximately 130 mm (5.1 in) less than the RX-7's while maintaining a trunk volume of about 300 liters (VDA), enough space to hold

two suitcases or two golf bags, to make the trunk practical for everyday purposes, with enough luggage space for a weekend trip for four.

In addition, the Freestyle door arrangement and absence of center pillars also makes loading baggage onto the rear seats supremely easy.

convenient storage spaces

The front and rear console boxes contain cupholders, while pockets conveniently sized to store road maps and other handy storage receptacles are thoughtfully placed throughout the cabin. The console box incorporates a new idea in space-efficient stowage: the lid, which doubles as an armrest, slides rearward to reveal two cup holders behind the gear shift lever. In its rearmost position, the console box opens to reveal storage for four CD cases.

		japan			north america		europe		australia	
		Std-Power 4AT	Std-Power 5MT	Hi-Power 6MT	Std-Power 4AT	Hi-Power 6MT	Std-Power 5MT	Hi-Power 6MT	Std-Power 4AT	Hi-Power 6MT
Dimensions										
Head Room										
Front	(mm)	970	←	←	←	←	←	←	←	←
Rear	(mm)	935	←	←	←	←	←	←	←	←
Shoulder Room										
Front	(mm)	1393	←	←	←	←	←	←	←	←
Rear	(mm)	1395	←	←	←	←	←	←	←	←
Leg Room										
Front	(mm)	1084	←	←	←	←	←	←	←	←
Rear	(mm)	817	←	←	←	←	←	←	←	←

interior dimensions

storage spaces



front console



front console open



rear console



interior map



sunglasses holder



glove compartment open



coin box



map pocket



trunk through section



bonnet/toolbox



boot



boot





premium and standard audio systems and DVD navigation system

premium and standard audio systems

Standard Audio System comprises an AM/FM digital tuner and four or six speakers with total rated power of 100 W. The system features an auto-leveling control to automatically adjust volume according to vehicle speed.

Premium Audio System is equipped with nine BOSE speakers. The system's 9-inch Nd woofers (x2) feature neodymium-boron magnets, which exhibit about ten times the magnetic density of conventional ferrite magnets. In addition, the system incorporates 2-inch tweeter (x2), 80mm tweeter, 2-inch rear tweeter (x2) and 6 x 9-inch mid-range speakers (x2). The Premium audio system also includes an AUDIOPILOT automatic sound field compensator that compensates for noise in the cabin.

* Nd and AUDIOPILOT are registered marks of Bose Corporation

DVD navigation system

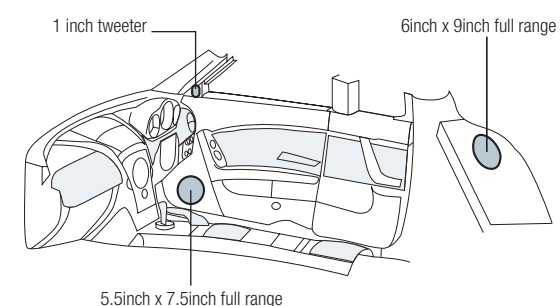
DVD navigation system is equipped with a 7-inch LCD screen with DVD-ROM disk navigation. The system has CD player and audiocassette deck functions and a DVD navigation system integrated into the head unit (availability varies with the sales region).



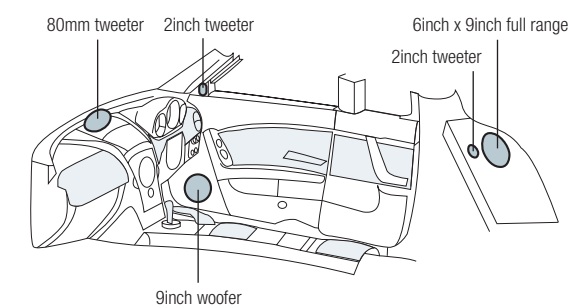
two-inch tweeter



DVD navigation system



standard system (6 speakers)



BOSE system (9 speakers) * tweeter is a mid to high range speaker



next-generation craftsmanship with an accent on customer delight.



Mazda sets a unique standard of craftsmanship to build vehicles with quality that discerning customers instantly recognize. It starts with the basic build quality where, for example, the gaps between parts in both the interior and exterior are narrowed to achieve precise fit and exceptionally high-quality finish.

This pursuit of superior operability is exemplified by the new Mazda6 and Mazda2 which embody a functional elegance customers can immediately feel.

With the Mazda RX-8, Mazda ventured into another area of craftsmanship: "Customer Delight." With this element of build quality, Mazda sought to provide pure enjoyment for drivers and passengers. In concrete terms, this extends to features such as the steering wheel paddle shift levers for the Activematic automatic transmission, the use of innovative interior lighting logic and controls with a real metallic feel.

quality construction	91
functional elegance	92
customer delight	95



quality construction	91
functional elegance	92
customer delight	95





quality, functional elegance and a new kind of driving excitement

quality construction

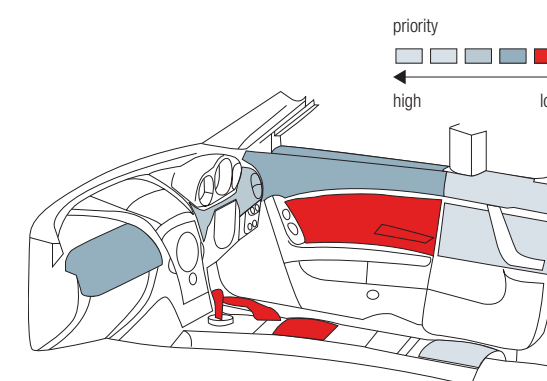
exterior finish quality: Extreme attention was paid to narrowing the gaps between body panels and other exterior parts to improve the fit and finish of the Mazda RX-8's striking exterior form. Hundreds of items were carefully examined at the design stage to devise new ways of narrowing the gaps between panels and parts. As a result, a more precise fit and finish for the bumpers, hood, trunk, fenders and other exterior components.

carefully-selected interior materials: Mazda designers conducted numerous in-depth studies to determine where the interior feel is critical to achieving customer delight, and used materials that are suitably pleasing to the touch in each location. The steering wheel, shift knob, parking brake lever and armrests are, of course, priority locations. Focus was also placed on the feel of the dashboard and trim on the passenger's side, selecting materials for their soft textures. Color, surface texture and other attributes also had to have a uniform quality. Attention to detail even extended to such areas as the seam surface of the SRS airbags in the dashboard.

sleek engine compartment design: Mazda's painstaking attention to detail also includes the appearance of the engine compartment. The engine cover, which is designed to complement the high-performance image of the new RENESIS rotary engine, closely conforms to the height and shape of the parts it conceals.



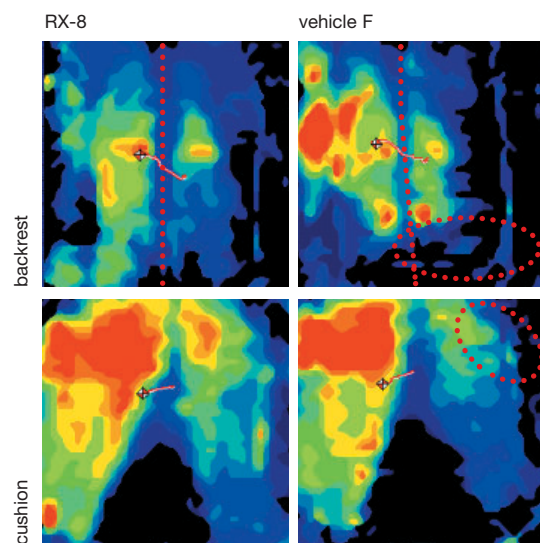
a selection of the most suitable fit and finish material



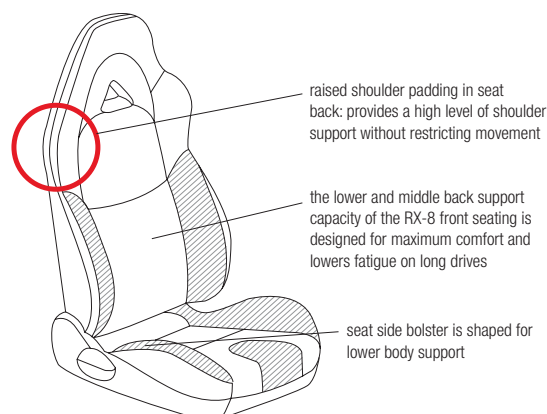
priority interior locations for soft materials



optimally supportive shape for the seats



seat pressure visuals



seat design based on human-centered engineering

functional elegance

seat design based on human-centered engineering: Wide-ranging ergonomic studies were conducted on the causes of fatigue, and the results were used to create an optimally supportive shape for the seats. Pressure distribution over cushions and back rests was carefully measured, and hundreds of hours of tests were carried out using drivers of various physical types and sizes to fine-tune the seat's design.

The outcome is four seats that are comfortable and perfectly adapted to high performance driving. The driver's seat has been designed so as to maintain the most appropriate driving position at all times. As shown on the left-hand diagram, the seat keeps the driver's posture straight even whilst cornering.

driving simulator testing of the instrument panel's central section layout: Layout of the instrument panel's central section was the subject of extensive driving simulator studies aimed at real-world assessment of such factors as ease of information recognition, and ease of operation and operating methods. The driving simulator closely recreates actual driving conditions, with a large screen displaying realistic views of the road from the driver's perspective, providing safety for test drivers of average ability while providing a means of evaluating driver operations.

With these simulator tests, designers were able to quantify the layout and shape of the instruments, evaluate them with test drivers, and determine the functions and design of the central panel. As a result, the central display of audio and climate controls was moved towards the top of the center panel, well within the driver's line of sight. For ease of operation, switches were relocated downwards, closer to the driver's hands.

Additionally, to enable this ideal ergonomic layout while maintaining the traditional low dashboard of a genuine sports car, Mazda

made the climate control and audio units as an integrated center module, making it more compact.

gate-type automatic transmission (AT) shift pattern, rotor-image MT shift knob: The Activematic AT floor shift gate features a new pattern for the RX-8. The conventional Activematic shift pattern with positions [P] to [D] and manual mode located opposite each other has been changed in favor of a layout with a shorter stroke distance between the most frequently used positions [N] to [D], delivering the short throw feel befitting a real sports car.

Both five-speed and six-speed gearboxes have a rotor motif shift knob. The feeling of the shift knob grip was quantified through finger pressure distribution measurements, and the shift knob given a unique design to realize the ideal shape for easy operation.

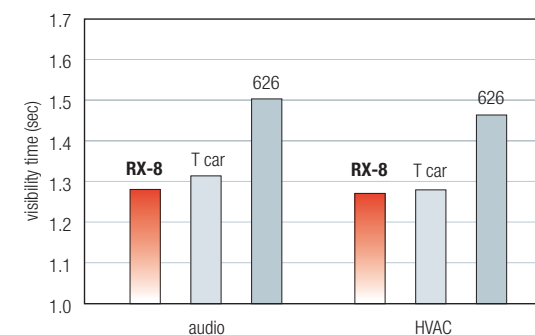
uniform operating feel for all controls: Mazda aimed to achieve a uniform operating feel for all driver controls, including the steering wheel, shift lever and pedals. In contrast to the pure sports RX-7 with its slightly heavier setting, the RX-8 offers optimal weighting for all its controls to give a more refined, direct and uniform operating feel. This was achieved by fine-tuning the driving controls to give them the ideal operating load and stroke characteristics.



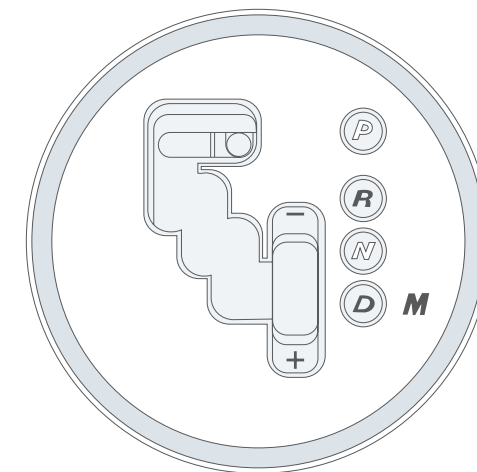
rotor shaped shift knob for 6-speed manual



functional and compact instrument panel



ease of confirmation and understanding



activematic shift gate pattern - right hand steering



customer delight

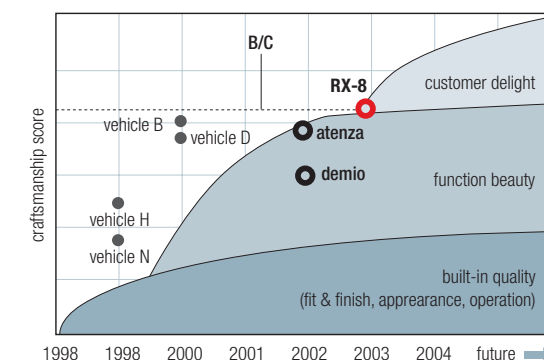
In the area of customer delight, Mazda set out to create an unprecedented ambience and feeling of authenticity that customers recognize immediately on entering the RX-8.

steering wheel paddle switch (activematic): The major factor increasing sports driving pleasure with the Activematic AT RX-8 is the paddle shift mechanism mounted on the steering wheel. Upshift and downshift are arranged so they harmonize with the forces acting on the body during acceleration and deceleration. Pushing the paddle shift switch forward engages a downshift, with consequent deceleration and forward movement of the driver's upper body. An upshift is effected by using a finger to pull a lever towards you from below the steering wheel spoke. The consequent acceleration causes rear-ward movement of the driver's body.

Mazda used virtual simulations and actual driving tests to evaluate the operability of these controls, optimizing their shapes in changes of 1/10 mm in repeated tests. Additionally, to assure ideal operation at night, and to harmonize the paddle shifter design with other switches, the lower arms of the shifters have indirect lighting from a red LED that illuminates the entire lever.

The paddle shift switches are made from a high-rigidity resin with a thick metal plating for a look, touch and feel suited to a genuine sports car. At the same time, this construction strongly resists heating up in hot weather, so the shifters are comfortable to touch and operate.

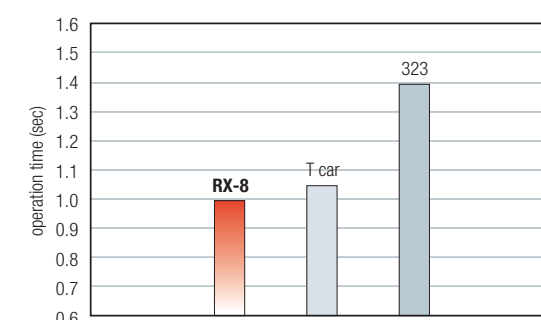
meter design: The meter panel uses a new three-meter cluster design. At the center is a large tachometer with a built-in digital speedometer. On the left is an oil pressure gauge (AT specification cars also include an AT shift indicator) and on the right a water temperature gauge, fuel gauge and digital main and trip odometers. Meter locations and the shape, color and other attributes of the digital readouts were optimized in repeated driving evaluations.



target for customer delight development



steering wheel paddle shift (activematic)



operation time for shift lever



meter illumination



door panel switches

New ideas were adopted for the meter illumination logic. Firstly, when a door is opened, the meter panel is softly lit by indirect blue lighting. During the daytime, with the lights off, the indirect blue lighting is activated with a turn of the ignition switch, and the white panel lighting is intensified in small increments. The indirect blue lighting goes off when the luminance of the panel's transparent white lighting reaches a predetermined level set with the illumination control.

With the position lamp on, the indirect blue illumination is normally on when the ignition is switched on, and the amber-red transparent panel illumination's red component is toned down to create a pleasant glow.

indirect door illumination switch and foot lamps built into the side mirrors: Switches at the top of the door panels are illuminated evenly by indirect lighting from above. To prevent reflective glare of interior lights from the piano black door paneling, Mazda arranged light source locations and directions according to evaluations made in 3-D virtual simulation studies.

Door mirrors are equipped with a bright built-in lamp that illuminates the ground next to the car when a door lock is released on opening a door manually or using keyless entry.

new style sun visors: Sun visors use a punched metal motif. The design conveys a weight-saving image befitting a genuine sports car, and lends a clear-cut look to the interior. Mazda designers optimized the size and pitch of the punched holes to assure shading capability. Sun visors are also fitted with a lighted vanity mirror.

aluminum finish for authenticity: Mazda pursued an authentic feel in the details to help convey the image of refined sports car. The High Power specification RX-8 features aluminum pedals, and the AT steering wheel paddle shifters and the MT shift knob are metal plated, giving each part a solid metallic feel.





safety supporting the revolution in driving excitement and helping to protect the environment



To foster a completely new kind of driving excitement – one that combines genuine sports car styling and performance with the practicality and functionality to accommodate four adults – Mazda developed a body structure without center pillars that incorporates a center-opening Freestyle door configuration.

Essential to Mazda's Freestyle door system is a standard of side impact safety comparable with the typical four-door sedan that includes conventional center pillars as part of its body structure. The Mazda RX-8 unquestionably achieves this goal with world-class passive safety performance through extensive reinforcement of the inside of the rear doors and significantly improved body side strength.

The RX-8 is also equipped with a driver's side SRS airbag featuring dual-stage deployment and a passenger's side SRS airbag, as well as curtain and side airbags. In addition, the car has an intrusion-minimizing brake pedal to help reduce foot and leg injuries in a frontal collision. Mazda also incorporates safety features that help reduce injury to pedestrians, too. For instance, the aluminum hood has cone-type construction to absorb and cushion impacts in the event of a car-pedestrian accident.

With regard to active safety, the RX-8 has large diameter disc brakes that provide ample stopping power, giving drivers the full benefit of the car's dynamic sports car capabilities.

On the environmental front, the RX-8's new RENESIS engine shows an enormous improvement over its predecessor in terms of fuel economy and exhaust gas emissions. Mazda is also making an all-out effort to advance recycling and reduction of environmentally harmful materials.

active safety	105
passive safety	106
other advanced safety features	109
environment protection	113



active safety	104
passive safety	106
other advanced safety features	110
environment protection	112



advanced brake system delivers the active safety required of a genuine sports car

class-leading stopping distance and Dynamic Stability Control (DSC) to support performance

The High Power specification Mazda RX-8 is equipped with large diameter 17-inch ventilated disc brakes at the front, with the disc rotors containing more ventilation ribs than those of the RX-7. Use of a single 10-inch booster assures a high servo limit. These technologies combine to give the RX-8 class-leading braking distances with minimum fade.

The RX-8 is also equipped with 4-Wheel Anti-lock Brake System (4W-ABS) and Electronic Brake-force Distribution (EBD) as standard. In addition, there is Dynamic Stability Control (DSC). Brake assist is not used on the RX-8, in order to preserve the direct, linear brake feel demanded of a genuine sports car.

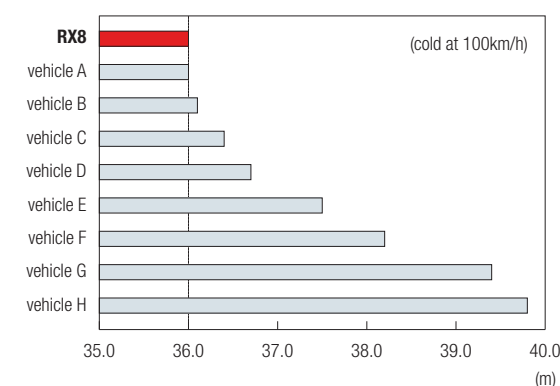
4W-ABS and EBD: 4W-ABS governs braking action on all four wheels, to achieve stable braking from the time the brakes are applied until the vehicle stops. When the car is loaded with four passengers, placing extra weight on the rear wheels, EBD balances braking force to implement stable deceleration and stopping over a shorter distance.



booster and master cylinder

DSC: DSC combines the functions of 4W-ABS and traction control, exercising control over engine power output as well as optimal brake control on all four wheels. The system maintains a stable vehicle attitude when cornering on slippery road surfaces or during an emergency avoidance maneuver.

What's more, DSC can be totally disabled, allowing drivers full control for advanced driving techniques such as drift maneuvers on a racing circuit.



brake performance comparison graph



center pillarless body, with advanced side-impact resistance and more, achieves world-class passive safety

mazda advanced Impact distribution and absorption system

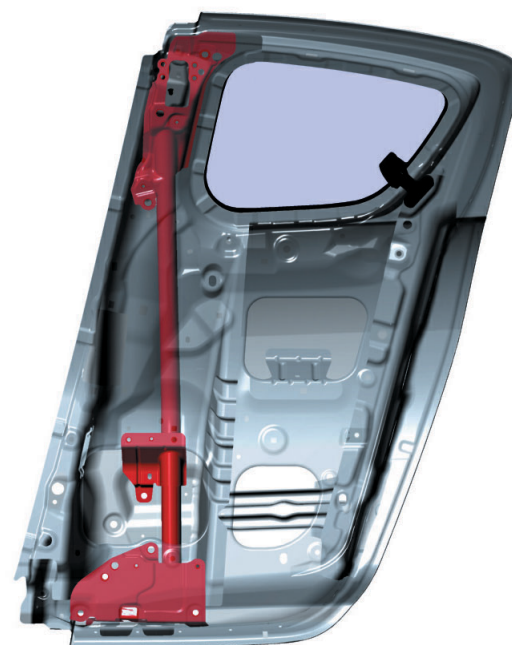
Although the Mazda RX-8 eliminates center pillars to realize a wide door-opening area, the car achieves supreme standards of safety through the incorporation of Mazda's tough body structure, designed to withstand impact from any direction. Thanks to its extremely rigid body, the RX-8 attains the world's standards in frontal and rear-end collisions, while also achieving the side impact resistance of a regular four-door sedan.

frontal collisions: The high-rigidity body utilizes crushable zones to efficiently absorb crash energy in a collision. Triple-H cabin construction – an innovative Mazda body feature that fiercely resists deformation during a crash – features three H-shaped beams reinforcing the floor, sides and roof.

Firstly, to absorb the impact of a frontal collision, the RX-8 is equipped with a high tensile strength octagonal section steel beam mounted at the forward end of the front frame. To suppress cabin deformation during a frontal offset collision, the body distributes crash energy in three directions from the cabin aft position using a three-pronged structure. In addition, it has a ring-shaped reinforcement to strengthen the opening area.

Additionally, to prevent the front wheels from impacting the cabin during a frontal crash, the RX-8 is equipped with wheel stopper reinforcements. This safety device halts rearward movement of the wheels to prevent cabin deformation.

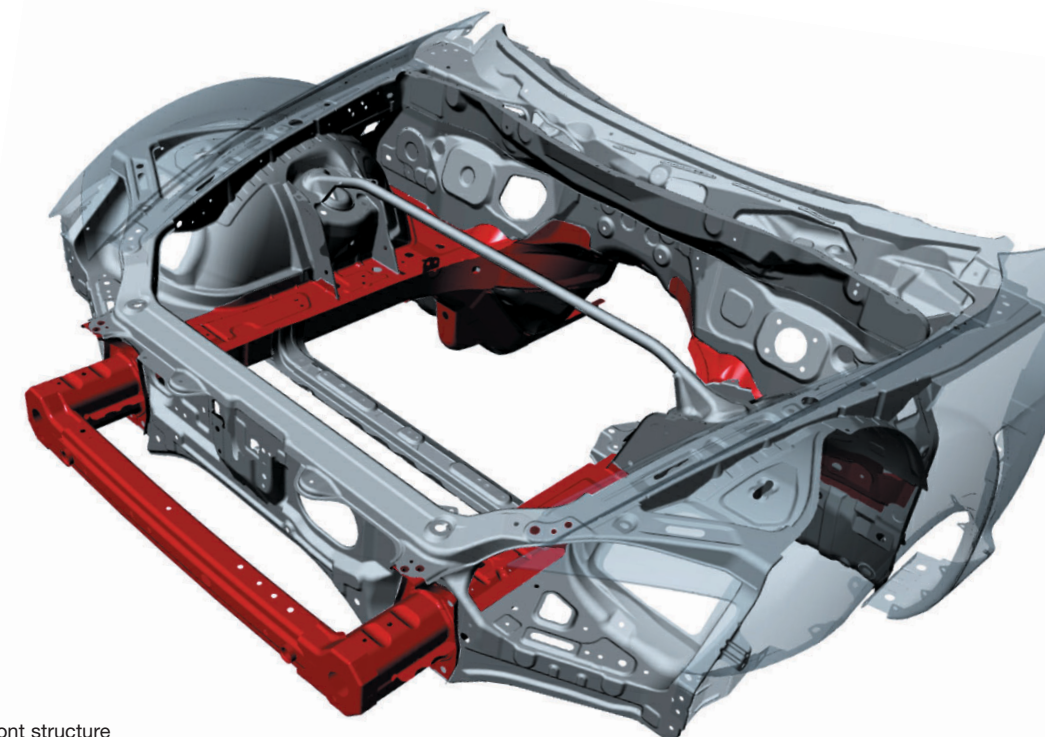
side impacts: Mazda made all-out efforts to give the RX-8's center pillarless body structure the same safety performance as a conventional four-door sedan.



rear door structure (built-in pillar)

To suppress cabin deformation during a side impact, it is necessary to distribute the crash energy that is normally absorbed by a center pillar over the entire body of the vehicle. To do this, Mazda installed high-strength, vertical steel pipe reinforcements in the rear doors. A door latch mechanism locks these reinforcements into the body at their top and bottom ends and, when locked in position, the pipes act as built-in pillars that exhibit greater strength than even conventional center pillars.

Side impact bars are optimally positioned inside the doors to efficiently distribute crash energy over the vehicle's body. Additionally, to channel impact energy on the doors through the side sills, front and rear doors are equipped with catcher pins in three locations along their bottom edges.



body front structure



body side structure

The structure surrounding the door opening is also bolstered by ring-shaped reinforcements throughout its length. Roof gussets and roof reinforcements offer added support, and the floor is reinforced with two cross-members. These structural measures distribute crash energy efficiently throughout the entire body, thereby reducing cabin deformation during a crash.

rear-end impacts: To effectively absorb energy in crushable zones during a rear-end collision, rear side members have a large cross-section and straight shape, and dual phase steel sheet with a high-energy absorption rate is employed to progressively deform under substantial loads. The fuel tank area is protected from intrusions by the high-mount backbone frame, cross members and rear side members.

SRS airbag system and seatbelts

dual stage deployment driver's side SRS airbag and SRS passenger's side airbag: The RX-8 features a driver's side SRS airbag system that deploys in two stages. A sensor judges the



SRS frontal airbag system

severity of the collision and chooses which of the two airbag inflation stages to use, thereby assuring that the airbag will help protect the driver to the best of its ability.

curtain and front side airbags: Curtain airbags are available which deploy over the side windows in the front and rear of the cabin, reducing the risk of head injuries during a crash. Side airbags for front seats are also available to help protect passengers against injury to the thorax.



body rear structure - rear side members have a large cross-section and straight shape



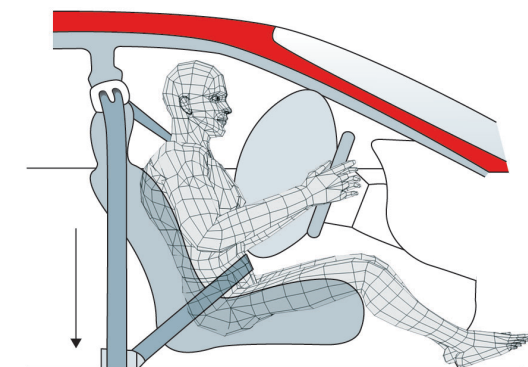
curtain and frontside SRS airbags

pretensioner mechanism (front seatbelts): The pretensioner mechanism takes up slack in the seatbelt to firmly hold occupants in place at the moment of collision and reduce forward movement of the passenger's body.

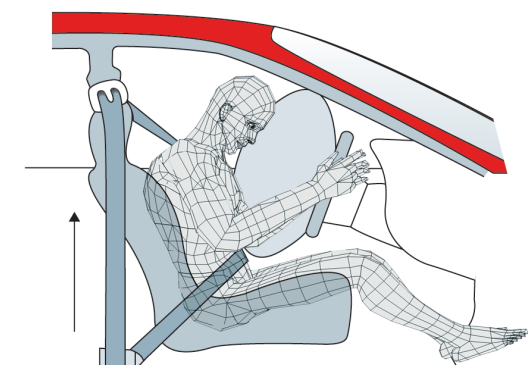
load limiter mechanism (front seatbelts): Front seatbelts are fitted with a load limiter that operates after the pretensioner. During a collision, if the seat belt load exceeds a predetermined value, the load limiter releases the seatbelt in a controlled manner to reduce pressure on the wearer's chest and minimize the possibility of seatbelt-induced injury.

other advanced safety features

intrusion-minimizing brake pedal: To reduce the chance of leg injury to the driver due to brake pedal intrusion, the RX-8 is equipped with an intrusion-minimizing brake pedal consisting of the main bracket, a sub bracket and a catcher plate. During regular operation, the main bracket and sub bracket are restrained by the catcher plate,



pretensioner in operation



load limiter in operation



child seats can be fitted simply and securely with ISO-FIX



top tether for child seat anchor



front seat headrest

but during a collision the catcher plate rotates and the top end of the brake pedal is pushed down by the sub bracket, releasing the pedal away from the driver's foot.

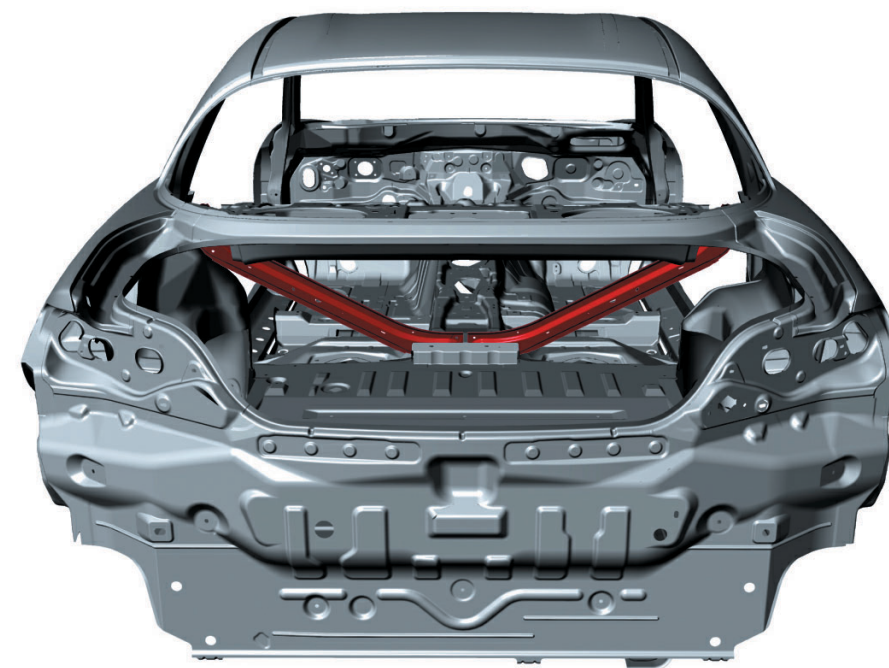
front seats with reduced whiplash: Front seat headrests are optimally located with respect to the passenger's head, while the seatback features whiplash-reducing construction designed to reduce the effect of impacts on the upper body and minimize the force exerted on the passenger's neck during a rear-end collision.

ISO-FIX child seat anchors with top tether (left and right rear seats): Child seats can be fitted simply and securely, and a tether attached to the top of the child seat helps minimize the chance a child seat will tumble forward in a collision.

soft, impact-absorbing interior: Envisaging the possibility of secondary impacts between a passenger's head and the cabin interior during a crash, Mazda gave the pillars and roof side trim a specially-developed impact-absorbing structure.

diagonal brace prevents luggage intrusion: The bulkhead between the cabin and trunk is reinforced by a V-shaped diagonal brace that helps prevent luggage and other articles in the trunk from intruding into the cabin during a frontal collision.

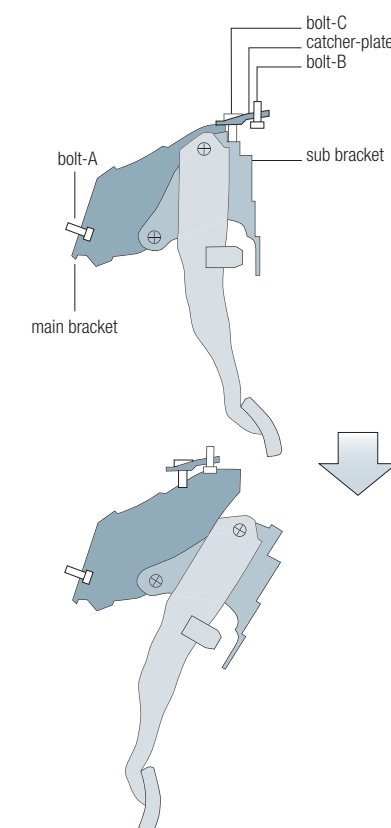
hood structure to protect pedestrian's head: In addition to large clearance between the hood and engine, the hood also features impact-absorbing cone structure. Inclusion of multi-cones—multiple large indentations in the hood's inner panel—assures substantial energy absorption capacity even as the thickness of the aluminum sheet is reduced as a weight-saving measure. The result is a substantially lower risk of injury to a pedestrian in the event of a car-pedestrian collision.



v-shaped diagonal brace effectively prevents luggage and other articles in the trunk intruding into the cabin



impact absorbing cone structure aluminium hood



structural drawing of intrusion-minimizing brake pedal

multifaceted approach to environment protection

vastly improved fuel economy and emissions

The next-generation RENESIS engine's side intake/side exhaust porting, high-efficiency exhaust system and catalytic converter combine to give the Mazda RX-8 dramatically improved fuel economy and lower exhaust gas emissions than the previous RE engine.

promoting recycling and reducing environmental impact

Mazda exercises a strict recycling policy for both metal and plastic parts. While using easily recycled thermoplastics for interior plastic parts wherever possible, Mazda also improves the separability of plastics and composites used in the floor and other areas. These measures have resulted in a possible recycling ratio of over 90% (the industry standard) for Mazda. The company also recover plastics from damaged bumpers and other components of used cars and recycle the materials in the rear splash shields and other

parts, with the aim of conserving resources. To reduce materials harmful to the environment, Mazda has eliminated the use of lead in the fuel tank, harnesses and other electrical equipment. By 2005 the company intends to reduce the use of lead by up to two-thirds (compared with the rate of use in 1996), keeping compliant with the industry standard in Japan.

harmony with the environment

Mazda continually implements activities geared to environmental protection, and to assure the transparency of its operations is actively advancing an environmental management system in accordance with ISO 14001 standards.

The factory that manufactures the RX-8 received ISO 14001 certification in June 2000. Another Mazda plant in Hofu received local government certification in September 1998, and underwent further inspection in September 1999. Advances in environmental management have earned Mazda ISO 14001 certification at all its R&D and production facilities throughout Japan.

emissions table:

market	japan		north america		europe		australia	
model	std-power 5MT/4AT	hi-power 6MT	std-power 4AT	hi-power 6MT	std-power 5MT	hi-power 6MT	std-power 4AT	hi-power 6MT
emission	E-LEV	←	calif. LEV2-A Fed. T2 Bin5-A	← ←	stage IV	←	stage III	←





design: ikuo maeda	118
engine: seiji tashima	119
packaging: isao tohda	120
chassis: masashi oda	121
product data	122
dimensions	125



“the car is the perfect embodiment of our ideas. it’s what we call a genuine sports car.”



Ikuko Maeda

Chief Designer, Advanced Design Studio

I’ve been fascinated by sports cars from the moment I first saw Gandini’s designs in a magazine when I was in elementary school. That was when I became interested in designing cars myself. During my university years I got into motor sports in a big way, and even now I get out on the circuit about once a month.

I joined Mazda in 1982, and since then I’ve been involved in the design of a variety of cars including concept cars, sedans and sports cars. But with the Mazda RX-8 I was given carte blanche to design the kind of sports car I’d want to drive myself. The styling gives you a premonition of the car’s capabilities.

The design conveys its own unique sense of tension, with a style that is less smooth and flowing and more hard-looking. For example, if you view it from the front or around the quarter position at the waistline you can see the tense dynamism in the shape. In addition, the tough-looking form gives you advance notice of the car’s toughness when it’s in motion. And when you grip the rotor-shaped shift knob on the MT version, you’ll be able to feel, as well as see, the care and attention we put into every single aspect of the car, from its overall styling to every detail of the build. The RX-8 is the perfect embodiment of the ideas of the discerning people who created it.

“exciting and refined next-generation rotary performance was the target.”

From the time I was a young man, I’ve been fascinated by things that move, and a big hit with me at the time was the stylish first-generation FWD Familia (Mazda 323). I was also impressed by Mazda’s advanced engineering, such as you find in the rotary engine. Those are the major reasons why I joined the company in 1982.

On my first day, I was assigned to the rotary engine design department, and I remember it well because it was the day before the first-generation RX-7 turbo model went into volume production.

Since then, I’ve been involved in rotary engine research and development. For me, the most attractive feature of the rotary engine is the feeling of acceleration you get with it. It’s an engine that just loves to rev. And with the RENESIS, we went all out to maximize that attribute. At the same time, we wanted a flat power curve with low noise and vibration but with an exciting, visceral engine note. We also wanted very sharp response. In other words, this isn’t an engine intended solely for engineers to enthuse over; we aimed at further refining the rotary engine to give the kind of performance that the majority of drivers could feel immediately. We are very proud that the RENESIS delivers all the exhilaration and speed you demand of a sports car, and matches the needs of both everyday driving and circuit-class sports car driving.



Seiji Tashima

Staff Manager, RE Engineering Group,
Engine Development Department 2

“it drives just the way you want it to, and at incredible speed. the RX-8 breaks new ground in sports car driving excitement.”



Isao Tohda

Staff Manager, Concept/Pre-program Platform and Program Engineering Department

While I was in my first year at university I worked part-time as a car park attendant. I couldn't get enough of the good-looking sports cars and continually annoyed my friends by asking things like. “That car...what is it?” That's when I got to know the first-generation RX-7, and that was the moment my eyes really opened to cars. So after graduating, I decided I had to be part of the team building the RX-7.

I entered the company in 1985, and was assigned to the department that did the basic design for the RX-7. Later, after setting up the basic program for the RX-01 concept car exhibited at the 1995 Tokyo Motor Show, I became involved in the overall development of the RX-8 program that followed. To fully embody Mazda DNA, or the pleasure of driving the way you want to, I decided on two essentials: the car had to drive exactly the way you wanted and at the speed you wanted.

Or, to put it another way, the car must allow you to drive in your own style and go faster than other cars. And from this would come supreme driving pleasure. We managed to give concrete form to these ideas with the RX-8. It's our next-generation sports car, and we're sure it will give the kind of eye-opening experience you've never felt in a sports car before.

“a new style of sports car handling aimed at fast-in, fast-out.”

Before I joined Mazda in 1979, I was studying for a career in television drama production. Of course, I was also a car enthusiast: I used to race an RX-3 (production name: Savanna GT) and during that period I spotted a test-driver recruitment poster from Mazda.

I was a big fan of the RX-7 too, and eventually I decided to turn my passion for cars into a full-time occupation. In order to further develop my driving skills and assessment capabilities, I not only drove the cars I was responsible for evaluating, but also a wide variety of cars from other makers. The pleasure and comfort of a car are judged by human sensibilities, and to build that pleasure and comfort into a car, you first have to be able to assess every aspect of the car while driving it. You need a keen sense of judgment so that the results of your evaluation are meaningful when they are reflected in the actual production model.

The RX-8 was born from this approach. The RENESIS engine has very smooth and flat power characteristics that you can use flexibly when cornering. It lets you hit the throttle that much earlier in a “fast-in, fast-out” situation. We also aimed at giving the car exceptional handling and grip. The steering is so sharp and responsive through the curves that you feel as if your muscles are directly connected to the tyres.



Masashi Oda

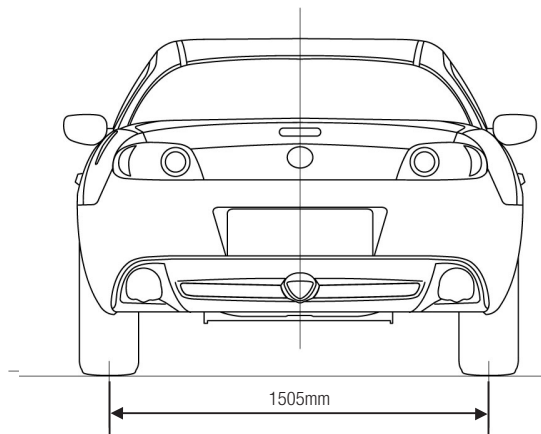
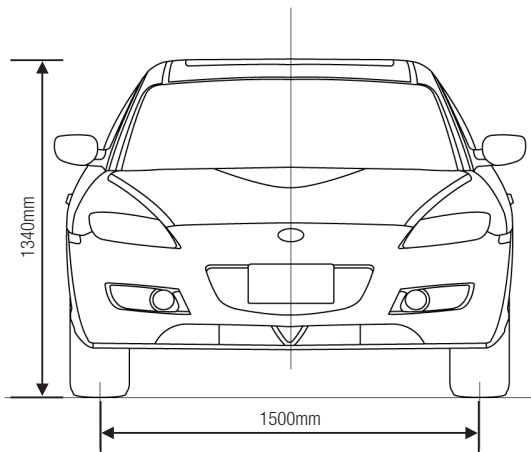
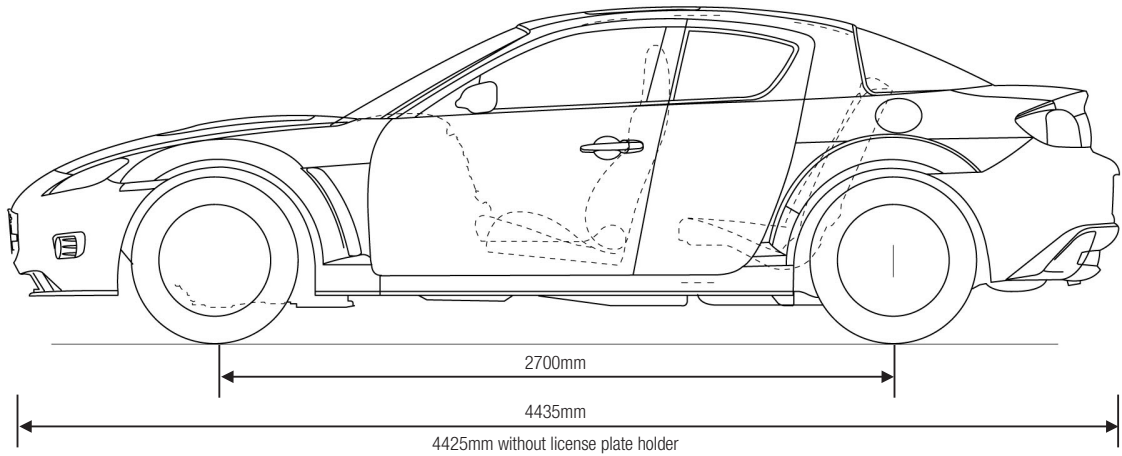
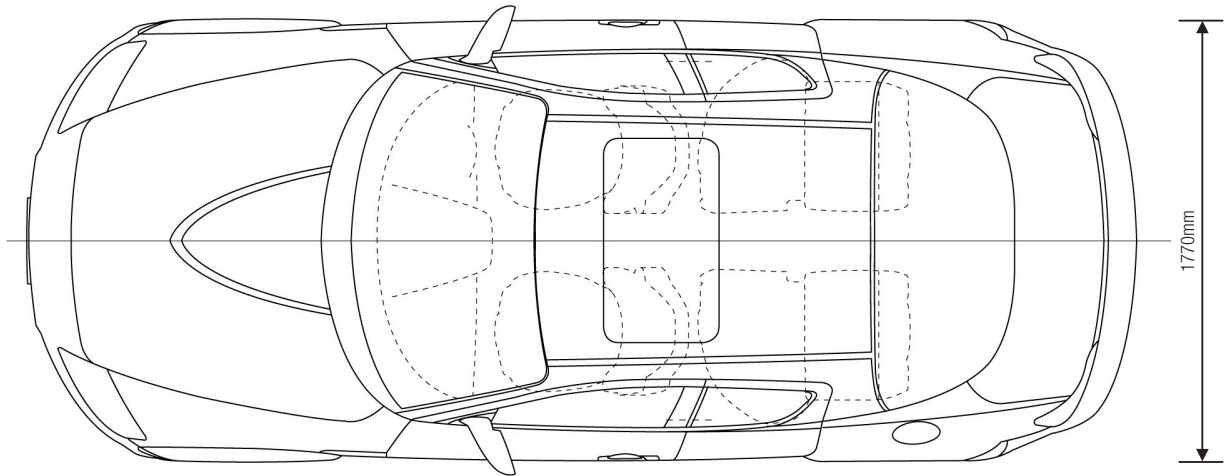
Assistant Manager, Chassis Development Group 2, Chassis Development Department

product data

Market		japan			north america		europe		australia	
Model		Std-Power 5MT	Std-Power 4AT	Hi-Power 6MT	Std-Power 4AT	Hi-Power 6MT	Std-Power 5MT	Hi-Power 6MT	Std-Power 4AT	Hi-Power 6MT
Dimensions										
Overall Length										
w/ license plate holder	(mm)	4435	←	←	—	—	4435	←	←	←
w/o license plate holder	(mm)	—	—	—	4425	←	—	—	—	—
Overall Width	(mm)	1770	←	←	←	←	←	←	←	←
Overall Height (Unladen)	(mm)	1340	←	←	←	←	←	←	←	←
Wheelbase	(mm)	2700	←	←	←	←	←	←	←	←
Track										
Front	(mm)	1500	←	←	←	←	←	←	←	←
Rear	(mm)	1505	←	←	←	←	←	←	←	←
Ground Clearance	(mm)	135	←	←	←	←	←	←	←	←
Head Room										
Front	(mm)	970	←	←	←	←	←	←	←	←
Rear	(mm)	935	←	←	←	←	←	←	←	←
Shoulder Room										
Front	(mm)	1393	←	←	←	←	←	←	←	←
Rear	(mm)	1395	←	←	←	←	←	←	←	←
Leg Room										
Front	(mm)	1084	←	←	←	←	←	←	←	←
Rear	(mm)	817	←	←	←	←	←	←	←	←
Cargo Volume										
VDA	(Liter)	290	←	←	—	—	←	←	←	←
SAE	(cu-ft)	—	—	—	7.6	←	—	—	—	—
Turning Circle (Curb-to-Curb)	(m)	5.3	←	←	←	←	←	←	←	←
Engine										
Type		Rotary Engine, 2- roter, water- cooled	←	←	←	←	←	←	←	←
Displacement		654cc x 2- rotor	←	←	←	←	←	←	←	←
Max. Output (provisional figure)		154kW/ 210PS @ 7200rpm	←	184kW/ 250PS @ 8500rpm	207kW/ 210PS @ 7200rpm	247kW/ 250PS @ 8500rpm	141kW/ 192PS @ 7000rpm	177kW/ 240PS @ 8200rpm	154kW/ 210PS @ 7200rpm	184kW/ 250PS @ 8500rpm
Max. Torque (provisional figure)		222Nm/ 22.6kg-m @ 5000rpm	←	216Nm/ 22.0kg-m @ 5500rpm	164lb-ft/ 222Nm @ 5000rpm	159lb-ft/ 216Nm @ 5500rpm	220Nm @ 5000rpm	211Nm @ 5500rpm	222Nm @ 5000rpm	216Nm @ 5500rpm
Compression Ratio		10.0	←	←	←	←	←	←	←	←
Fuel Tank capacity	(Liter)	61	←	←	60	←	61	←	←	←
Emission		E-LEV	←	←	Calf. LEV2-A Fed. T2 Bin5-A	←	Stage IV	←	Stage III	←

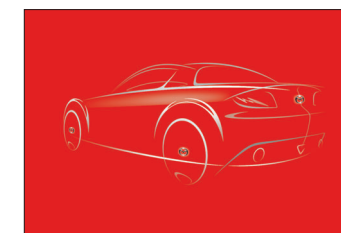
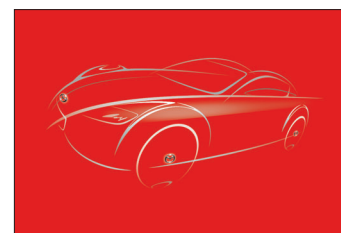
Market		japan			north america		europe		australia	
Model		Std-Power 5MT	Std-Power 4AT	Hi-Power 6MT	Std-Power 4AT	Hi-Power 6MT	Std-Power 5MT	Hi-Power 6MT	Std-Power 4AT	Hi-Power 6MT
Transmission										
Gear Ratio										
1st		3.483	2.785	3.760	2.785	3.760	3.483	3.760	2.785	3.760
2nd		2.015	1.543	2.269	1.543	2.269	2.015	2.269	1.543	2.269
3rd		1.391	1.000	1.539	1.000	1.645	1.484	1.645	1.000	1.645
4th		1.000	0.694	1.187	0.694	1.187	1.000	1.187	0.694	1.187
5th		0.806	—	1.000	—	1.000	0.762	1.000	—	1.000
6th		—	—	0.843	—	0.843	—	0.843	—	0.843
Reverse		3.288	2.272	3.564	2.272	3.564	3.288	3.564	2.272	3.564
Final		4.300	←	4.444	←	←	←	←	4.300	4.444
Suspension										
Type										
Front		Double Wishbone	←	←	←	←	←	←	←	←
Rear		Multi-link	←	←	←	←	←	←	←	←
Damper										
Front		Mono-tube	←	←	←	←	←	←	←	←
Rear		Mono-tube	←	←	←	←	←	←	←	←
Stabilizer type										
Front		Torsion bar, tubular	←	←	←	←	←	←	←	←
Rear		Torsion bar, tubular	←	←	←	←	←	←	←	←
Stabilizer size (diameter/thickness)										
Front (Std suspension)	(mm)	25.4 / 3.5	←	—	25.4 / 3.5	—	25.4 / 3.5	—	—	—
(Sports suspension)	(mm)	—	26.5 / 3.5	←	←	←	←	←	←	←
Rear (Std suspension)	(mm)	15.9 / 1.8	←	—	15.9 / 1.8	—	15.9 / 1.8	—	—	—
(Sports suspension)	(mm)	—	15.9 / 2.6	←	←	←	←	←	←	←
Steering										
Type		Rack & Pinion	←	←	←	←	←	←	←	←
Power Assist		Rack drive Electric Power assisted	←	←	←	←	←	←	←	←
Gear Ratio		16.4 : 1	←	←	←	←	←	←	←	←
Turns (Lock to Lock)		3.0	←	←	←	←	←	←	←	←

Market	japan			north america		europe		australia		
Model		Std-Power 5MT	Std-Power 4AT	Hi-Power 6MT	Std-Power 4AT	Hi-Power 6MT	Std-Power 5MT	Hi-Power 6MT	Std-Power 4AT	Hi-Power 6MT
Brakes										
Type Front		Ventilated Disc	←	←	←	←	←	←	←	←
Rear		Ventilated Disc	←	←	←	←	←	←	←	←
Diameter Front (Std suspension)	(mm)	303	←	—	303	—	303	—	—	—
(Sports suspension)	(mm)	—	323	←	←	←	←	←	←	←
Rear	(mm)	302	←	←	←	←	←	←	←	←
Vacuum booster	(inch)	10	←	←	←	←	←	←	←	←
Tires and wheels										
Tire Size (Std suspension)		225/55R16 94V	←	—	225/55R16 94V	—	225/55R16 94V	—	—	—
(Sports suspension)		—	225/45R18 91W	←	←	←	←	←	←	←
Wheel Size (Std suspension)		16x7.5JJ	←	—	16x7.5JJ	—	16x7.5JJ	—	—	—
(Sports suspension)		—	18x8JJ	←	←	←	←	←	←	←





overview 01



P3



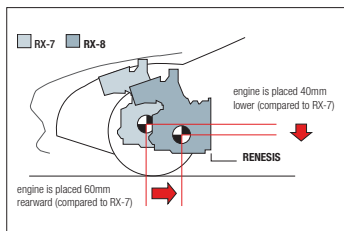
P5

overview 01	129
driving dynamics 02	130
design 03	133
packaging 04	134
craftsmanship 05	137
safety & environment 06	138
personalities / product data 07	139

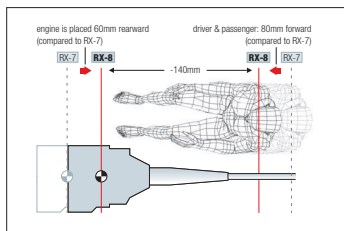
driving dynamics 02



P23



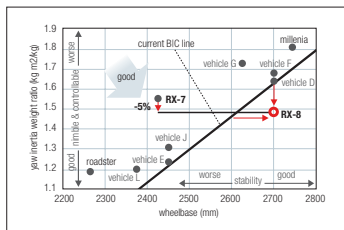
P24



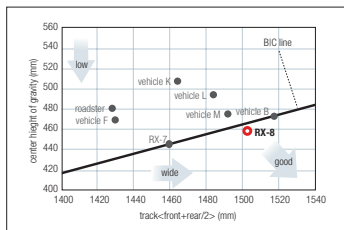
P24



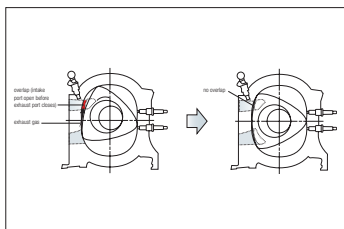
P25



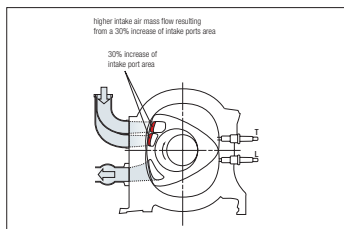
P25



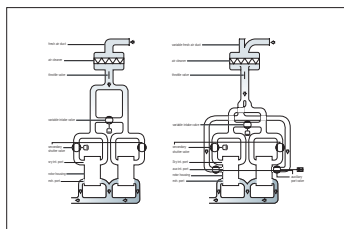
P25



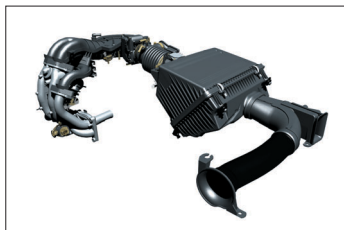
P28



P29



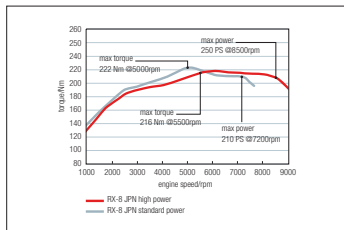
P29



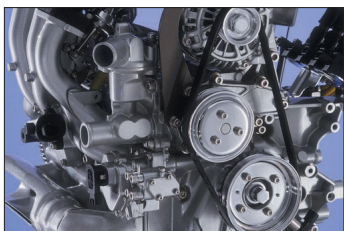
P29



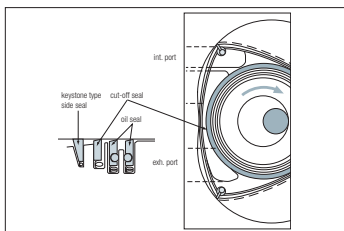
P30



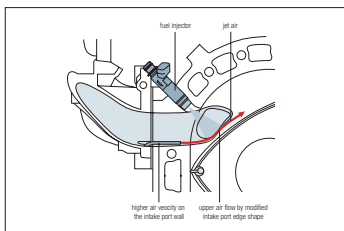
P31



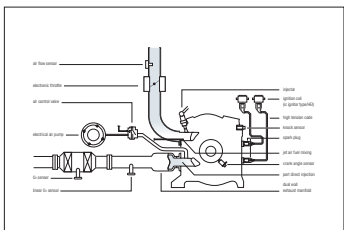
P31



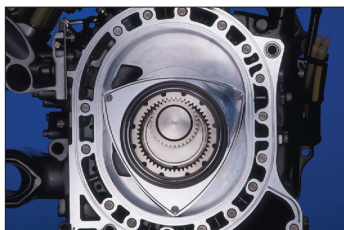
P32



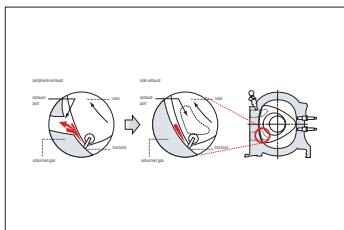
P32



P33



P33



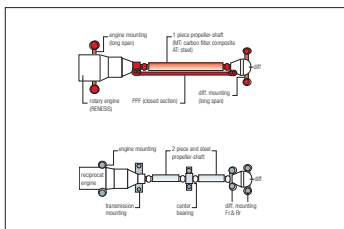
P34



P35



P38



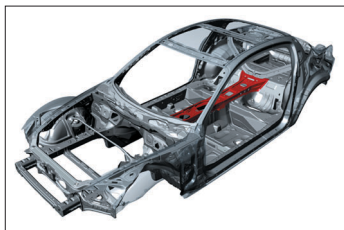
P39



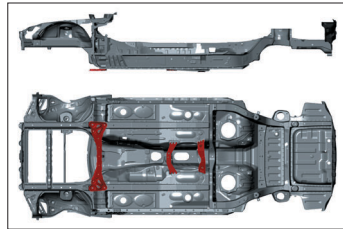
P40



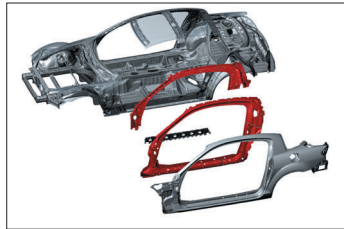
P40



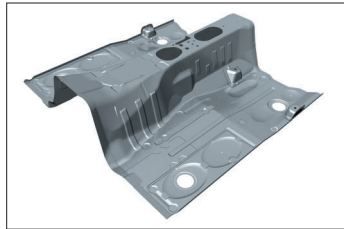
P42



P42



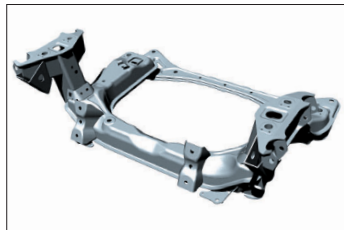
P45



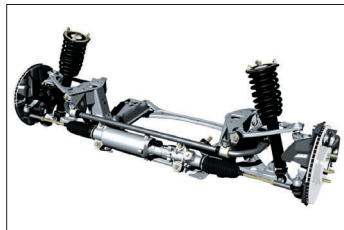
P45



P46



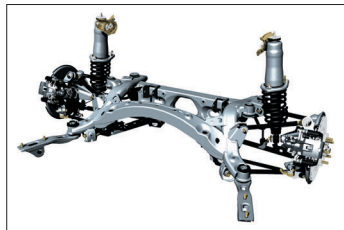
P49



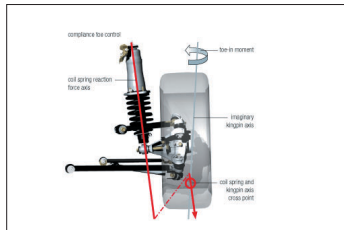
P49



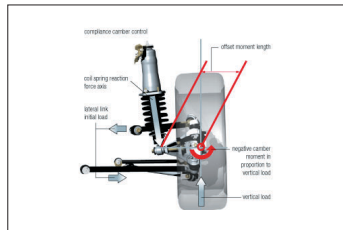
P50



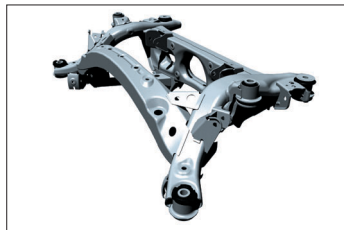
P51



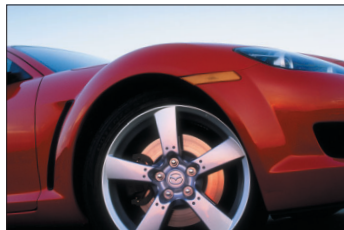
P52



P52



P52



P54

design 03



P61



P62



P63



P64



P64



P65



P66



P67



P67

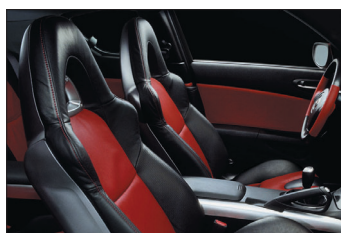


P68

packaging 04



P75



P76



P77



P77



P78



P78



P78



P78



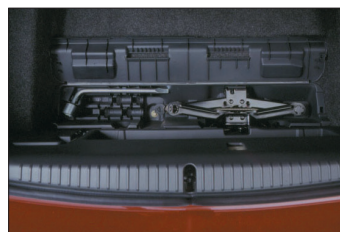
P78



P78



P78



P78



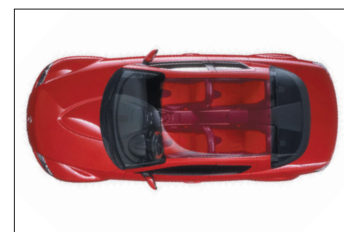
P78



P78



P80



P80



P81



P81



P81



P81



P81



P81



P81



P81

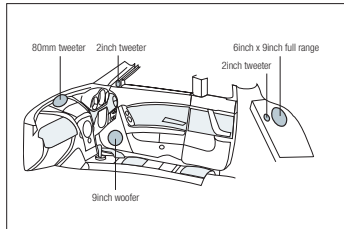
craftsmanship 05



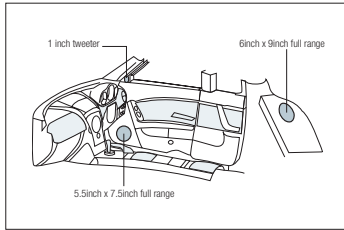
P81



P82



P83



P83



P83



P83



P88



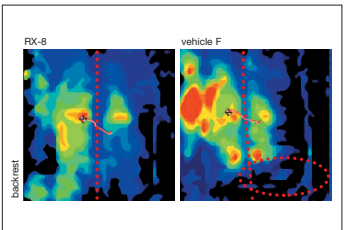
P90



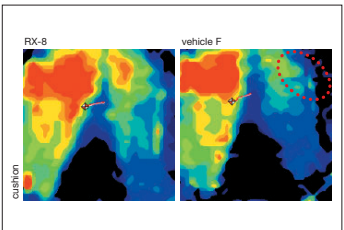
P91



P91



P92



P92



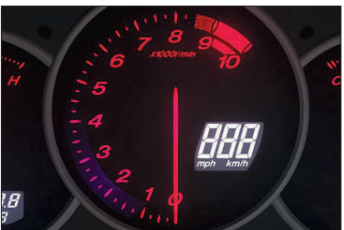
P94



P95



P96

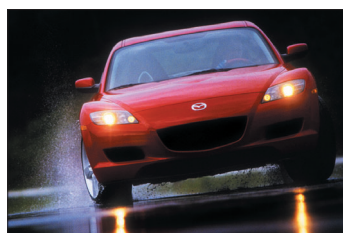


P96

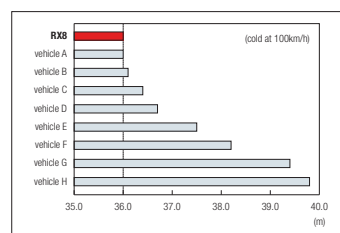


P97

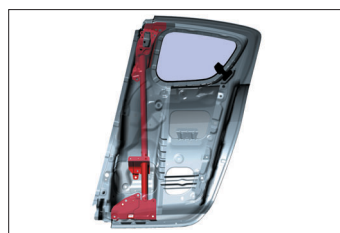
safety & environment 06



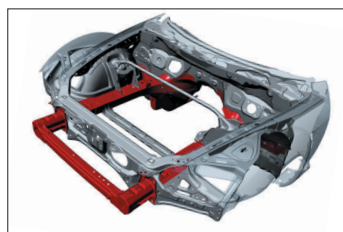
P102



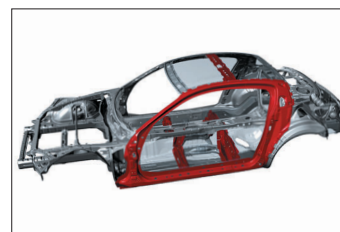
P105



P106



P107



P107



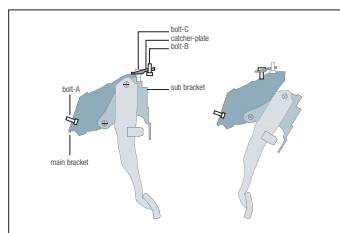
P108



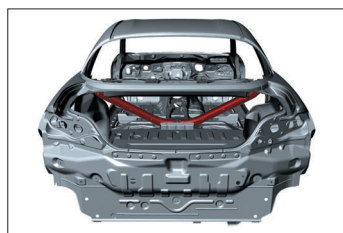
P108



P109



P111



P111



P111



P112

personalities / product data 07



P118



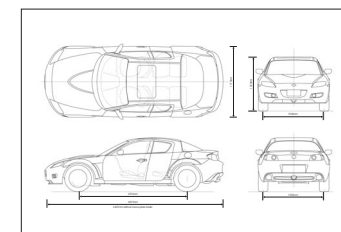
P119



P120



P121



P125



mazda RX-8 a sports car like no other

RX-8





mazda