

M A Z D A

R X - 7

SPORTS CAR

1993



Fast. Lightweight yet strong. Supremely responsive. No compromises.
The essential qualities of a pure racing machine.

And the essential qualities of the all-new Mazda RX-7. The return of
the pure sports car.





Once, everyone knew what a real sports car was. It was a car that could be raced one day and driven to work the next. A car for people who reveled in the physical feel of the road, appreciated taut handling and instant bursts of power. A car for people who delighted in the very act of driving.

At Mazda, we've never lost touch with that original passion. So, in an era that often blurs image and reality, in which true sports car values sometimes go little deeper than the paint, we've created the new Mazda RX-7. A high-performance sports car that's a pure driver's car, intended for the genuine enthusiast.

And we see it as the definitive expression of Kansei Engineering, the deeply rooted Mazda philosophy that emphasizes a total harmony between driver and automobile. Kansei Engineering harnesses all the power of the latest supercomputers, yet relies as well on the insights of people, on their feelings and emotions. It enables us to build cars in which the many tangible technical advances lead ultimately to intangibles: cars that feel just right.

Cars like the all-new Mazda RX-7. Created for the true driving enthusiast. Built on a proud heritage. And built to extend that heritage by elevating sports car performance and expectations to new heights.

CREATING THE PURE SPORTS CAR.

A presentation room. An engineer is showing his latest design for a suspension component. Three-dimensional operational simulations fill computer screens. The part itself is a masterpiece of functionality. The engineer finishes. A pause. Then the critique begins. Good as it is, the component is not yet perfect. "Does it have to be that heavy?" "Perhaps another three grams could be trimmed." "Couldn't it be made lighter *and* stronger?" The engineer takes careful

notes, gathers up his software, and returns to the computers.

An engineering class? No, part of the design process for the new third-generation Mazda RX-7, unprecedented in its thoroughness. Engineers from all disciplines and design areas met regularly to evaluate their colleagues' efforts, through six rounds of design. It was a highly unusual way to create a car, far removed from the insular procedures followed by most manufacturers. But it gave engineers new perspectives on their designs and involved the whole engineering team in the design of the total car.

Every member of the RX-7 development team received training in high-performance driving techniques.



► In winning the highly competitive Open Class in the 1991 Pikes Peak Hill Climb, Rod Millen's 4WD RX-7 set a new record for the course.



Here's where it all began. In 1979, a 1-2 finish in GTU was the first of over 100 IMSA victories for the Mazda RX-7.

standing. While many of today's sports cars are based on sedan platforms, the RX-7 was designed as a pure sports car from the start. Bringing back the thrill of driving a classic high-performance sports car. Delivering the performance and the driving feel previously reserved for hand-built exotics.

The new Mazda RX-7—indeed, the very concept of the car—

Mazda engineers also subjected competitive cars to the same kind of scrutiny, tearing them down piece by piece. Figuring out how to make the all-new RX-7 better, lighter, yet stronger. And in a totally different form of involvement, every member of the development team took special courses in high-performance driving. Because by driving cars at the limit, on the track, they could understand what separates a merely competent sports car from a great one.

The all-new Mazda RX-7 speaks eloquently for that under-

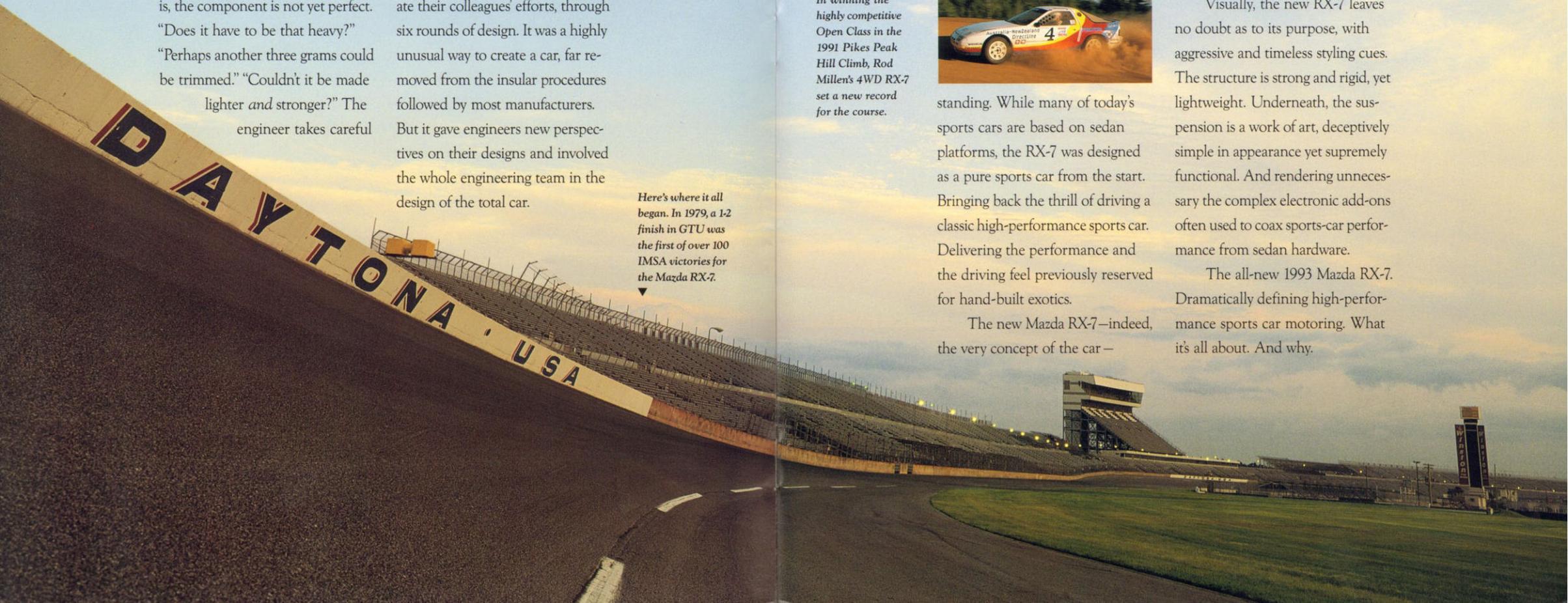


begins with the unique rotary engine. Compact and lightweight, yet powerful and durable, the rotary is what makes the rest of the car's design possible. This, the latest iteration, is the only production sports car engine in the world that employs sequential twin turbochargers. And it produces 255 extraordinarily smooth horsepower.

Visually, the new RX-7 leaves no doubt as to its purpose, with aggressive and timeless styling cues. The structure is strong and rigid, yet lightweight. Underneath, the suspension is a work of art, deceptively simple in appearance yet supremely functional. And rendering unnecessary the complex electronic add-ons often used to coax sports-car performance from sedan hardware.

The all-new 1993 Mazda RX-7. Dramatically defining high-performance sports car motoring. What it's all about. And why.

▲ Mazda won the 1991 IMSA GTO Manufacturers' Championship, and RX-7 driver Pete Halsmer won the GTO Drivers' Championship.







Communication. Between you, the RX-7, and the road. A vital part of the pure sports car experience. And providing communication was the primary design goal for the interior of the all-new Mazda RX-7.

The communication, the total harmony between you and the car, begins from the moment you buckle yourself in. With most cars, you just sit inside. With the new RX-7, you're immediately involved. The instrument panel and center console curve towards you. The interior wraps around you, and you could be in an aircraft cockpit. Or a racing car.

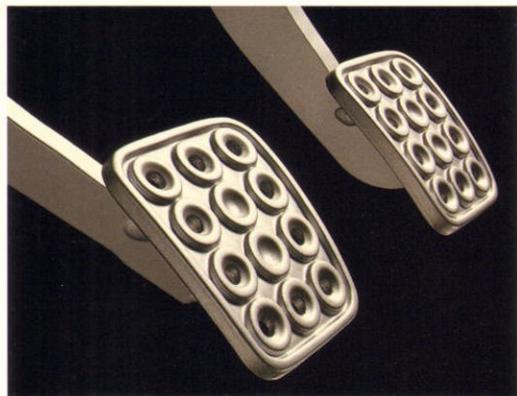
So there's an immediate sense of command. Of control over prodigious power and race-car-sharp handling. Every detail contributes. The size and feel of the thick, padded, leather-wrapped steering wheel. The placement of the controls. The look and sweep of the analog gauges. The view over the hood to the road.

From any perspective, the new Mazda RX-7 is pure excitement. A pure sports car, poised and ready. But the best perspective is the one from the driver's seat.



INSIDE THE PURE SPORTS CAR.

On manual transmission models, the brake and clutch pedals are drilled, and not simply for race-car appearance. It's one of many details on the new RX-7 that add up to significant weight reduction.



This is a pure sports car interior, technologically advanced in execution but with a classic performance feel. Incorporating the latest in our extensive research into ergonomics—human engineering. For example, the new highback sport seats: The design of the seatback takes the strain off your lumbar area. The bottom

cushion provides exactly the right amount of "give." The side bolsters hold you firmly in place, so you can effect spirited maneuvers in complete confidence. And it's all accomplished without weight-adding multiple-adjustment mechanisms.

A thick steering wheel, padded and wrapped in leather, gives you a further feeling of control. Lights, turn signals, and wipers are on stalks behind the wheel and are designed for fingertip operation. Drop your right hand and there's the leather-wrapped shifter, right where you want it, its throws short and sure.

Positioned directly in front of you is a compact instrument panel with classic round analog gauges. You read them at a glance, the swing of the needles as you accelerate telling you more than any flashing array of numbers ever could. The tachometer, large and dead-center, reads to 9000 rpm and is redlined at 8000. There's also a large speedometer, plus gauges for oil pressure, coolant temperature, and fuel level.

Standard amenities include air conditioning, an AM/FM/cassette

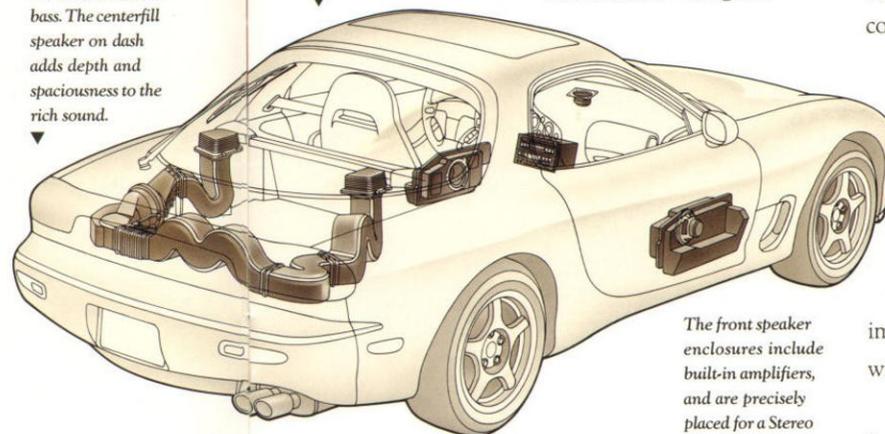


◀ An integral alarm system is standard equipment on the Mazda RX-7.



▲ Included in the Touring Package, the power sunroof adds open-air exhilaration to the RX-7 driving experience. By sliding open outside the car, the design preserves your headroom.

Custom-designed Acoustic Waveguide produces exceptionally deep and clean bass. The centerfill speaker on dash adds depth and spaciousness to the rich sound.



The front speaker enclosures include built-in amplifiers, and are precisely placed for a Stereo Everywhere® effect.

stereo, power windows and locks, and an anti-theft alarm. Plus two storage lockers. Cloth upholstery is standard, and leather is available.

Choose a new RX-7 with the Touring Package, and you'll get the leather seating surfaces, a sunroof, fog lamps, special high-gloss paint, and more. Including the Bose® Acoustic Wave® music system. It's among the most advanced and best-sounding stereo systems you'll find in any car, and it's one more way to add excitement to your drive.

Bose has engineered the system especially for the all-new Mazda RX-7, with custom equalization that fine-tunes the sonic performance for the specific acoustical properties of this interior. So you'll always enjoy full musical range and dynamics. The multiple speakers are precisely located so that both the driver and passenger will always hear wide, spacious, and natural stereo sound.

The Acoustic Waveguide



itself, also tuned specifically for the new RX-7, produces bass that is smooth, deep, and viscerally powerful. The sound sources are a specially engineered AM/FM/cassette stereo, plus a CD player with scan, repeat, and random play functions. The amplifier/equalizer modules use advanced digital switching technology to produce clean high power from units that are physically small and light.

Classic sports cars were always short on comfort for one very basic reason: the knowledge and technology that could provide comfort also compromised the cars' true purpose.

Today, at Mazda, ergonomic design and materials technology are highly advanced. And the all-new RX-7 provides a high degree of comfort without compromise, enhancing the pure sports car experience and improving your communication with the road.

For quick and conclusive proof, just take the wheel.

▲ The Bose® Acoustic Wave® music system includes program sources of exceptionally high quality. The cassette deck has full-logic control and auto-reverse.



▲ Two storage lockers behind the seats hold the little things that can clutter the car, and also provide space to hide more valuable objects from view.



THE LEGEND GROWS.

Le Mans, 1991. There's something different about the car that has just won this most famous and most historic of endurance races. Its origins aren't German or British. And its engine is like no other, generating prodigious power without benefit of pistons or valves. The winning car: a Mazda 787B, powered by the unique Mazda rotary engine. The first Japanese car ever to win

this prestigious championship.

That was just one of the high points in the long and ongoing story of racing triumphs for the Mazda rotary engine. It began with another 24-hour race, at Daytona in 1979. In their first-ever competition, two RX-7s were entered in the grueling event. They finished one-two in the IMSA GTU class. Beginning with their first full campaign in 1980,



▲ This year, Mazda has a factory entry in GTP, the top IMSA racing class. The Mazda entry in this highly competitive class is powered by a 4-rotor engine, similar to the engine of the victorious 1991 Le Mans car.

rotary-powered Mazda RX-7s swept to eight straight IMSA GTU season championships and 10 of 11 overall. Rotary-engined RX-7s have also won IMSA GTO titles, SCCA championships, and rally championships. Successful in other chassis as well, Mazda rotary engines have captured IMSA Camel Lights season championships and even powered winning racing trucks.

Rotary engines have won in 2-rotor, 3-rotor, and 4-rotor configurations.

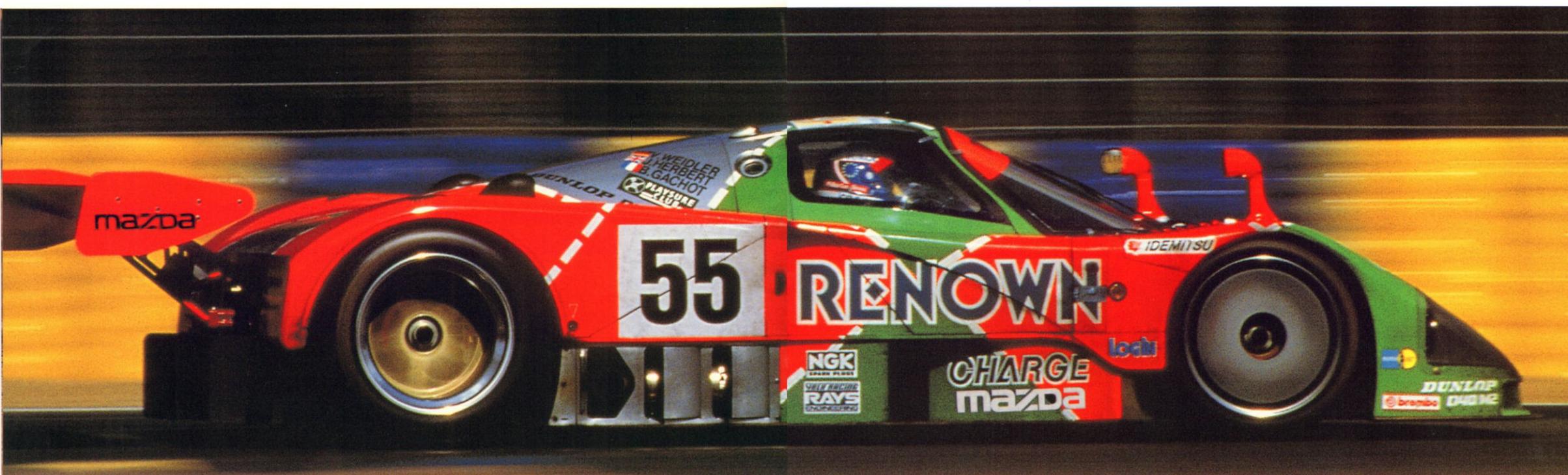
They've won races for Mazda factory-sponsored teams and private entrants.

They have won drivers' championships and manufacturers' championships. And the legend continues to grow: This year, a 4-rotor version of the Mazda engine, similar to the Le Mans winner, powers our brand-new entry in GTP, IMSA's top racing class.

The Mazda rotary engine. An engineering masterpiece. Powerful. Durable. Race-proven. And available in a pure sports car you can drive. The all-new Mazda RX-7.

In winning the 1991 24 Hours of Le Mans, a rotary-powered Mazda 787B prototype covered a distance of 3,058.9 miles. All three Mazda entries finished the grueling race, with the other

two cars placing sixth and eighth. In a dramatic display of rotary power and durability, the Mazda outdueled factory entries from Mercedes-Benz and Jaguar to capture this most famous of endurance races.



FROM RACE CAR TO SPORTS CAR.

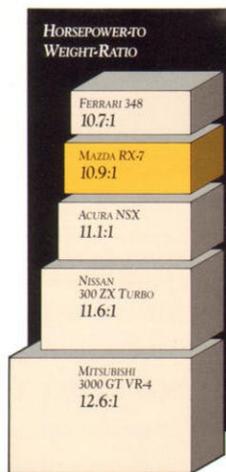
All of the qualities that have made the Mazda rotary engine a track champion make it an ideal powerplant for a pure sports car on the street. In fact, the entire RX-7 design—the front mid-engine layout, the near-perfect 50/50 weight distribution, even the styling—is inspired and made possible by the size, shape, and output of its rotary engine.

The rotary engine is physically compact and lightweight. It's durable. The basic design has only three moving parts: two rotors and a crankshaft. There are no valves, no cams, no lifters. A reciprocating engine expends a significant portion of its power potential in converting the linear motion of its pistons to the rotational motion of the crankshaft and in overcoming the friction

of many moving parts. But the rotary engine generates rotational motion from the start. It revs freely and produces an extraordinarily smooth flow of power.

And a prodigious amount for its size and weight. The rotary in the new RX-7 puts out 255 horsepower at 6500 rpm, and 217 lb.-ft. of torque at 5000 rpm. The resulting horsepower-to-weight ratio puts the new Mazda RX-7 into the front rank among the world's fastest production sports cars. Zero to sixty: 4.9 seconds. Top speed: 156 mph.

In creating the 13B engine that powers the all-new RX-7, Mazda engineers drew upon over 30 years of rotary research, development, and refinement. Every major component—the internal parts, the intake



▲ The fewer pounds per horsepower, the greater a car's performance potential. (Chart shown above is based on curb weight and SAE net horsepower.)

system, exhaust system, cooling system, electrical system—has been extensively modified or is completely new. And from the start, the engine was intended for turbocharging.

With ports instead of valves and with a natural supercharging effect in normal operation, the rotary engine is an ideal candidate for turbocharging. And for the new RX-7, Mazda engineers took full advantage, designing a sequential twin turbocharging system. A few other cars offer twin turbos. But the Mazda RX-7 is the only production sports car in the world to employ them sequentially. In the more usual tandem setup, the two turbochargers

While still a 4-cycle internal combustion engine, the Mazda rotary is radically different from conventional reciprocating designs. Instead of pistons moving inside the cylinders, 3-sided rotors spin inside two trochoid chambers. The motion of the rotor effectively opens and closes the intake and exhaust ports, eliminating the need for valve gear. The combustion chamber is in the rotor itself. A 2-rotor configuration powers the new RX-7; racing versions now have up to four rotors.

work together over the full rpm range. This increases high-rpm performance but has little benefit at lower engine speeds.

In the Mazda sequential arrangement, one turbo only supplies the boost at lower rpm, receiving the full force of the exhaust. So throttle response is instant. As revs climb, the second joins in, giving the same high-rpm boost as a tandem design. To further increase power, an intercooler cools the intake air so that the turbochargers can force more of it into the rotor chambers. The intercooler is located in the nose to get the full benefit of a direct air stream. The turbos themselves are housed close to the exhaust ports for maximum efficiency. To ensure reliability, the whole design has undergone torturous testing, including simulated continuous acceleration runs 24 hours a day for three months.

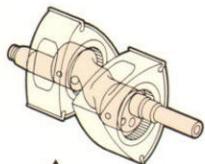
A pair of powerful 8-bit digital microprocessors govern every aspect of the engine's operation. The Bosch D-Jetronic fuel injection gives especially precise and quick fuel management, and fuzzy logic, an advanced computer artificial intelligence technology, automatically adjusts the idle speed to the load conditions. To help the engine breathe, there's a new and especially efficient induction system. At the other end, a large-capacity exhaust system incorporates a low-flow-resis-

tance catalytic converter to reduce back pressure.

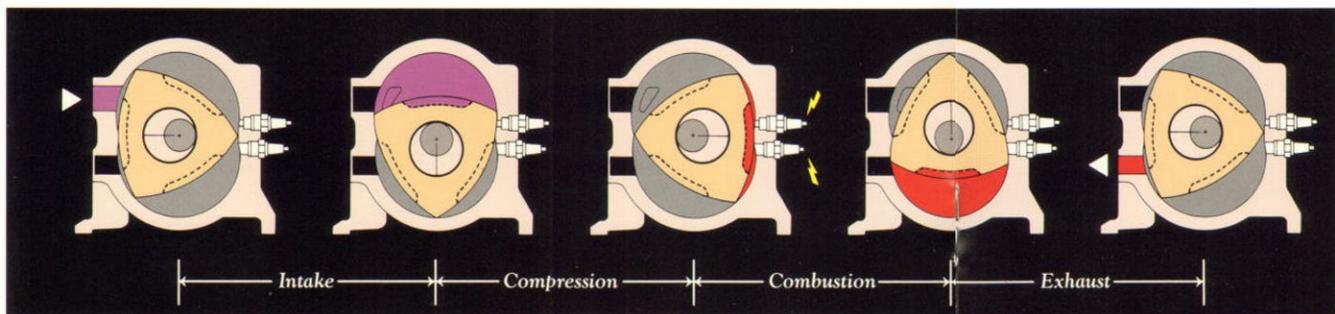
Taking the best advantage of all the power and revs this engine has to offer demands a transmission that can deliver quick, precise, and smooth shifts. So the RX-7 has a newly developed 5-speed gearbox, with a new, high-torque-capacity double-synchro mechanism in the three lower gears. The revised and refined linkages provide short throws with a very positive feel. A 4-speed automatic transmission, also newly developed, is available. Electronically controlled, it senses such variables as throttle opening to select between a normal mode for better economy or a power mode for quicker acceleration.

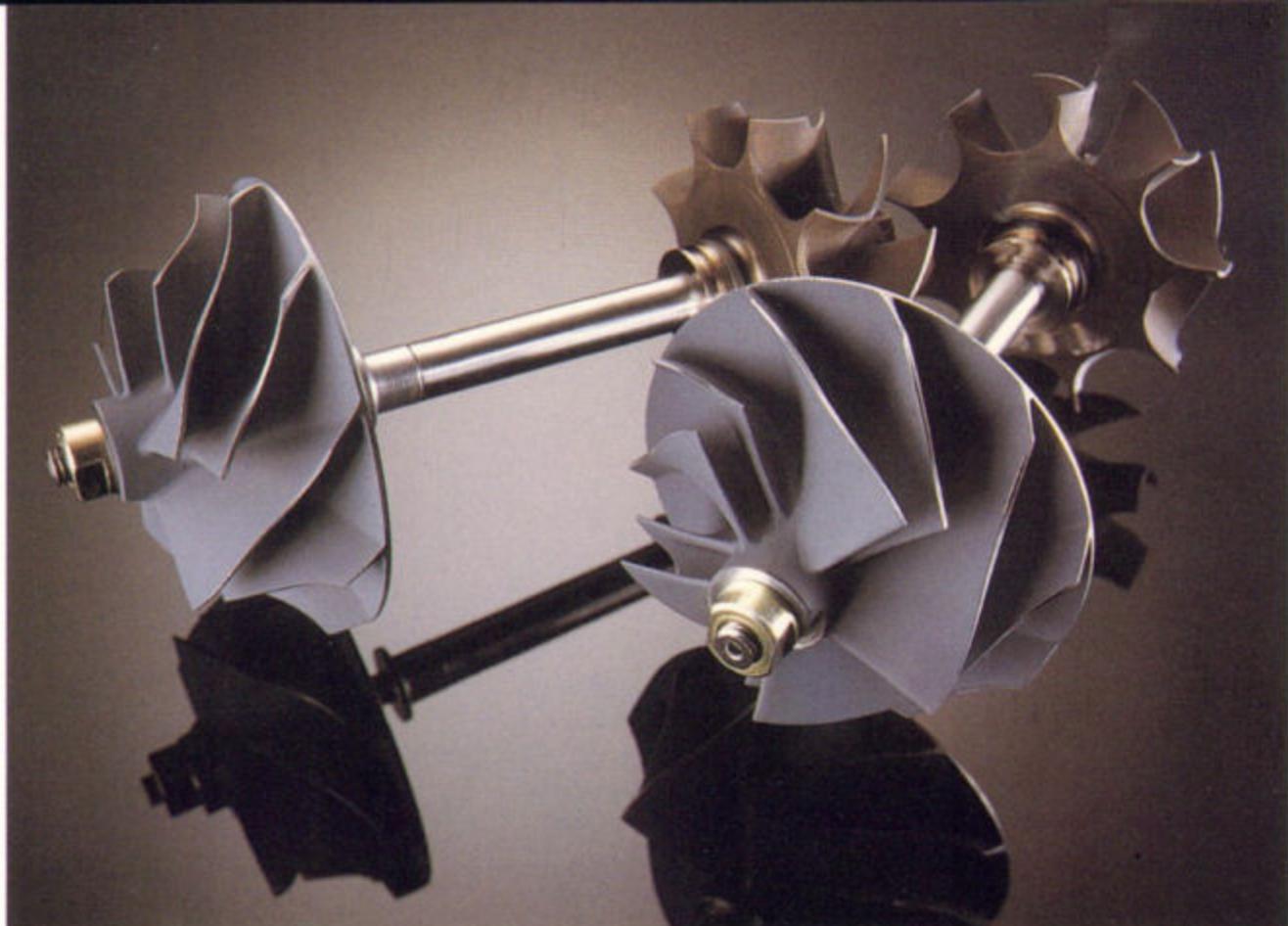
Even the differential is out of the ordinary in this new RX-7. It's a Gleason Torsen® unit, an ingenious limited-slip design. A limited-slip differential provides handling advantages on slippery or uneven surfaces. If one rear wheel loses traction, more torque is transferred to the other wheel. Widely used in race cars, the Torsen® differential is up to twice as effective, depending on conditions, as a conventional viscous limited-slip design. And torque is transferred in a much more linear fashion.

No other car in the world offers you this kind of drivetrain. Unless, perhaps, you land yourself a ride in IMSA GTP. Or maybe at Le Mans.

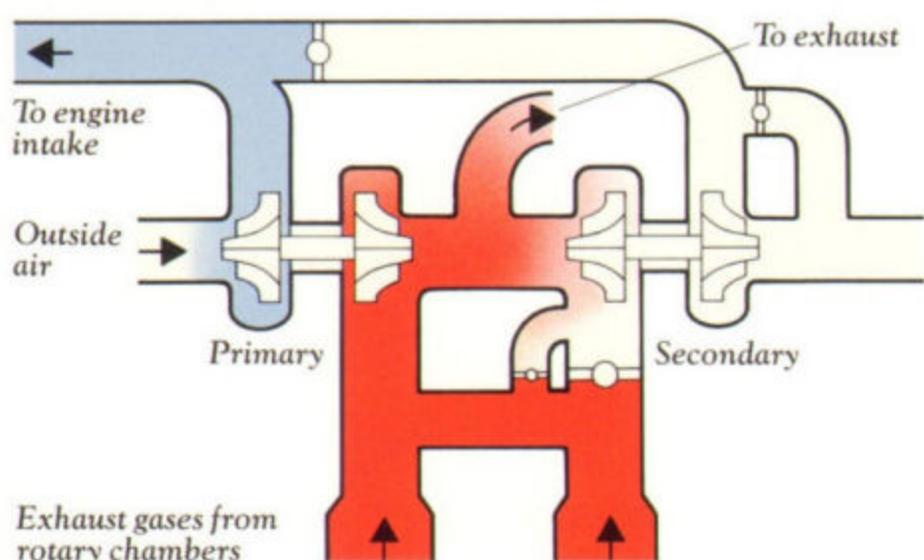


▲ Part of the reason for the rotary's legendary durability is its basic simplicity. In the engine itself, there are only three primary moving parts. Mazda has spent over 30 years perfecting the engine's design.

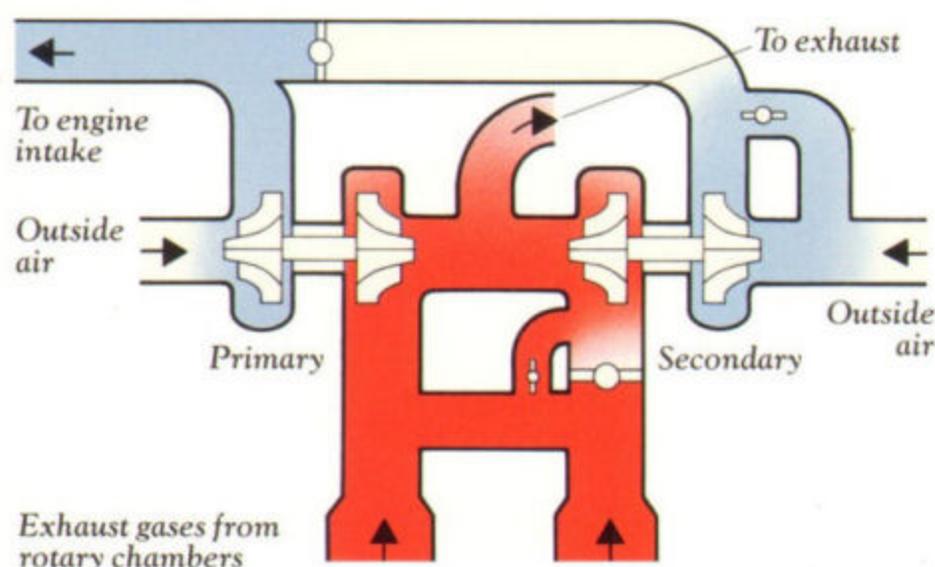




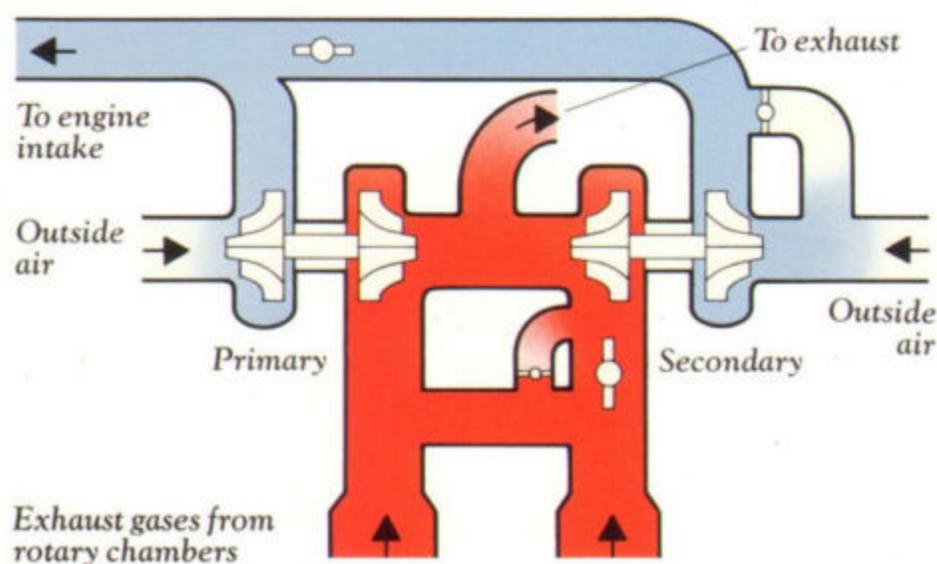
The sequential operation of the RX-7's twin turbocharging system combines the lag-free boost of a small turbocharger with the high boost of a large capacity unit. The design is more sophisticated than tandem twin turbos, because the transition from single to dual operation must be smooth.



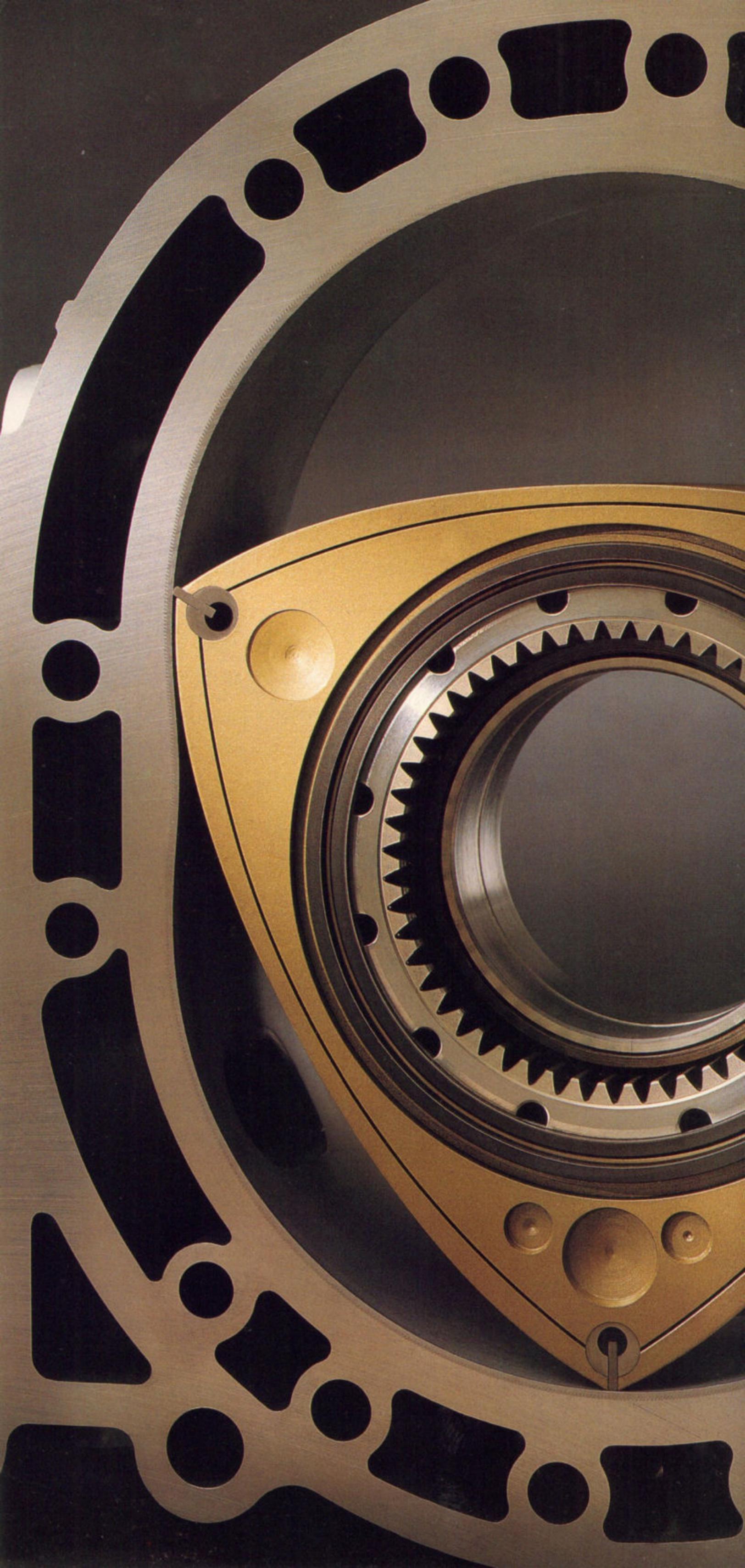
At low rpm, the full force of the exhaust gas turns the primary turbocharger, allowing nearly instant throttle response.



As engine rpm increases, a "pre-spin" valve opens to start the secondary turbocharger spinning. It does not yet supply any boost, but when it does come on line, it will already be up to speed.



At high rpm, the secondary turbo becomes fully operational. Transition to full operation is seamless, with no flat spot in the power curve.





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MAKING THE POWER EFFECTIVE.

FRONT SUSPENSION. Double-wishbone design. Unequal-length upper and lower A-arms, concentrically mounted coil springs and tube shocks. Upper arms are bolted directly to the body, lower arms to the subframe.



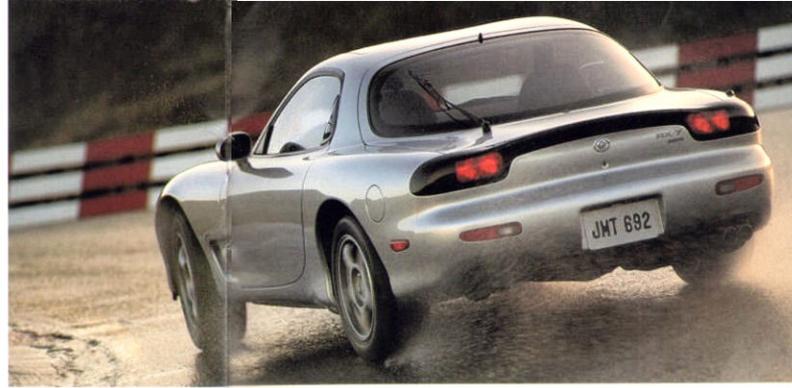
A visual work of art. Yet hard-working. Graceful and efficient. Automotive design at its finest. Yet a design that's hidden from view: the suspension system of the new Mazda RX-7. Because a pure sports car cannot be defined by power alone. But rather by how effectively you can use that power.

And while factors such as body rigidity and aerodynamics come into play, the car's essential road personality is determined by its suspension. Here, the new RX-7 stands apart, setting new standards for vehicle dynamics. And providing unprecedented levels of agility, response, and balance.

Completely new, the suspension was created specifically and exclusively for the new RX-7. Many of today's sports cars were built on platforms adapted from sedans, so compromises to accommodate softer rides and higher weights were inherent in their suspension setups. Not confronted by such handicaps, Mazda engineers were free to design a dedicated sports car suspension. And they took full advantage of their opportunity.

The design is deceptively simple; deceptive, because it controls so many parameters, balancing and taming the many forces that work against roadholding. Much of the design work was performed on supercomputers. But the final execution is also the result of countless hours of testing on racetracks and roads. So the new Mazda RX-7 doesn't just generate impressive numbers. To its driver, it imparts a sense of total mastery of the road.

The basic suspension is fully independent, a double-wishbone type at all four wheels, plus concentric coil springs and gas-filled



The low center of gravity, plus front and rear stabilizer bars, keep body roll to a minimum. This improves both cornering performance and cornering feel.



The P225/50R16 tires were developed specifically to meet the high-performance demands of the new Mazda RX-7. Tires carry a V-speed rating; the R-1's tires have a Z rating.



shock absorbers. The design excels at keeping as much of the tire tread in contact with the road, regardless of the driving situation. The all-new RX-7 further enhances the basic concept by adding toe control, both front and rear, to improve agility and feel in cornering. Both the front and the rear suspensions are mounted on subframes that are rigidly bolted to the body structure.

In the front, the double wishbone consists of unequal-length upper and lower A-arms. The rear suspension utilizes an upper A-arm and lower multiple links that neutralize toe-out forces in cornering to give the RX-7 maximum agility. The rear shock absorbers are double-action units, and a hollow stabilizer bar helps neutralize body roll.

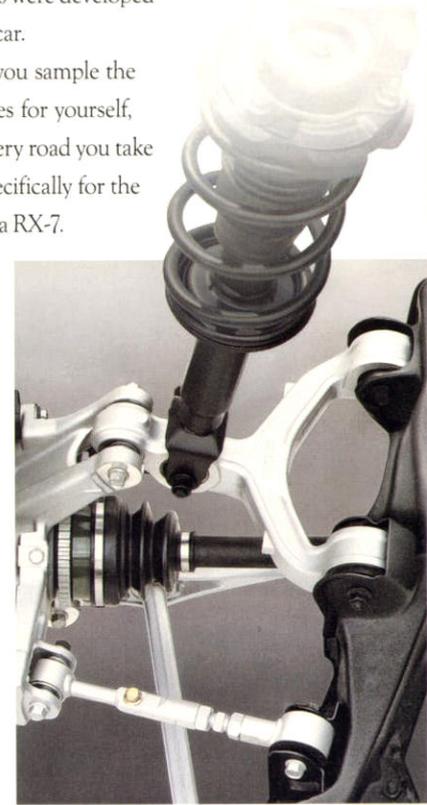
Most of the major components are squeeze-cast or forged from aluminum alloys that perform better than steel in these applications, in addition to saving weight. Such an extensive use of these alloys was made possible by the newly developed squeeze-casting process, in which high pressure is maintained

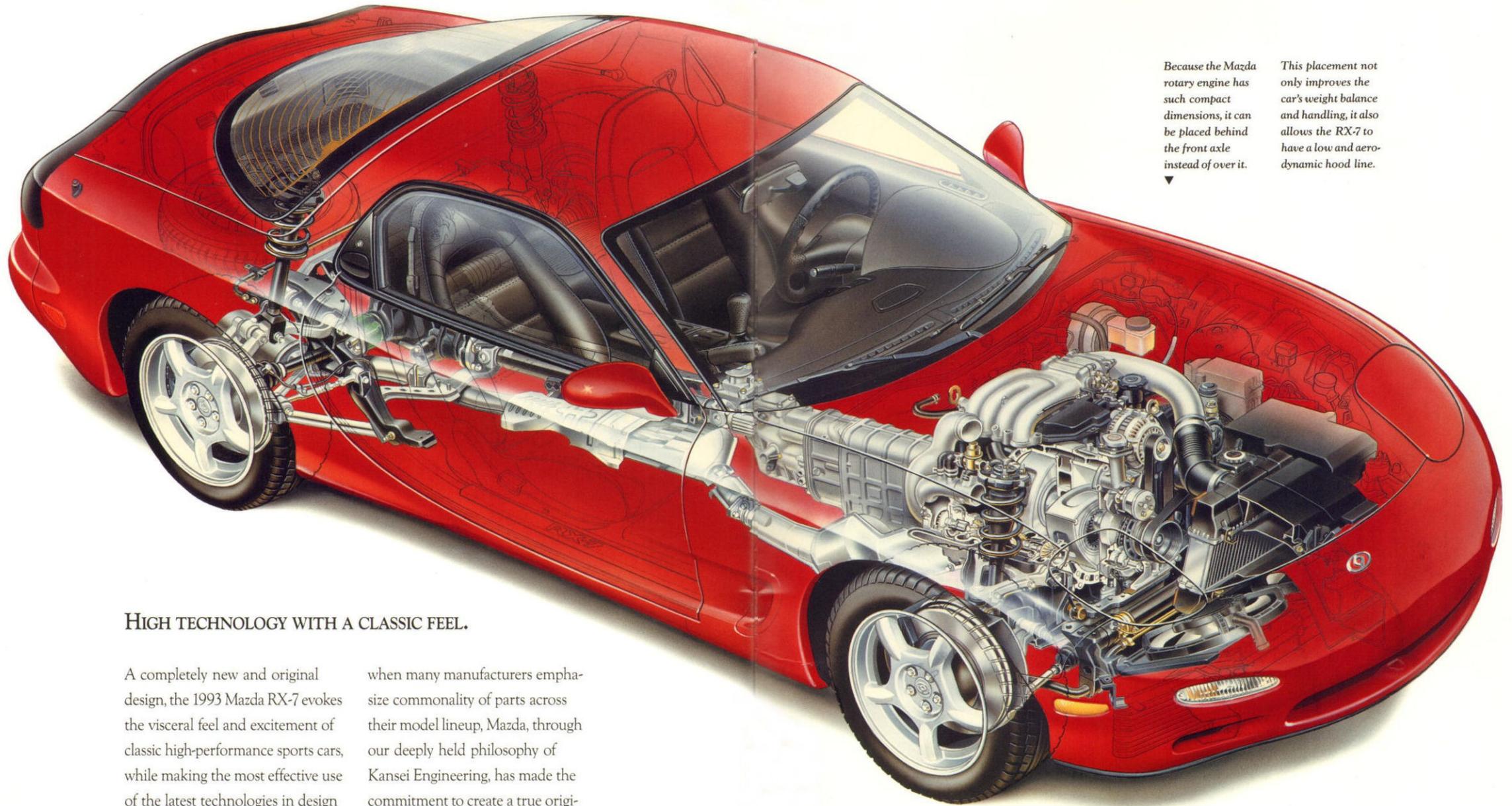
on the castings as they cool. The resulting parts are much stronger than would be possible employing conventional die-casting methods.

Squeeze-cast components also include the wheels. Sixteen inches in diameter, with 8-inch-wide rims, the wheels carry ultra-low-profile P225/50R16 radial tires. The tires weigh only 17 pounds each and combine exceptionally high degrees of straight-line traction and cornering ability. And the spokes of the wheels are not just for looks, but also provide maximum brake cooling. As with so many of the components, the wheels and tires were developed especially for this car.

In fact, after you sample the suspension's abilities for yourself, you'll think that every road you take was engineered specifically for the all-new 1993 Mazda RX-7.

REAR SUSPENSION. Double-wishbone type. Upper A-arm, lower I-arm and adjustable lateral link trailing tension rod. Concentric coil springs and shocks, hollow stabilizer bar.





Because the Mazda rotary engine has such compact dimensions, it can be placed behind the front axle instead of over it.

This placement not only improves the car's weight balance and handling, it also allows the RX-7 to have a low and aerodynamic hood line.

HIGH TECHNOLOGY WITH A CLASSIC FEEL.

A completely new and original design, the 1993 Mazda RX-7 evokes the visceral feel and excitement of classic high-performance sports cars, while making the most effective use of the latest technologies in design and manufacturing. Nearly every component, from the tires to the leather shift knob, was designed specifically for this car. In an age

when many manufacturers emphasize commonality of parts across their model lineup, Mazda, through our deeply held philosophy of Kansei Engineering, has made the commitment to create a true original. The all-new Mazda RX-7 is a pure sports car with performance, quality, and feel to rival even the rare, hand-assembled exotics.

**PUREST OF THE PURE.**

Actually, there is one car we know of that can bring you slightly closer to the pure race car driving experience than the new Mazda RX-7. It's the RX-7 R-1, a version that has been specially tuned to appeal to only the most dedicated and demanding of driving enthusiasts.

Aerodynamic changes set the R-1 apart immediately. These include a large front air dam and a "floating" rear wing. While adding a dramatic look, these parts are also highly functional. By increasing the downforce on the car, they further improve the RX-7's already excellent stability at high speeds.

Other features of the R-1 are not so visually apparent, but significant nonetheless. In the suspension, the shock absorbers are tuned more firmly to provide an even crisper feel and more precise response. There's also a front shock-tower brace across the engine bay, further stiffening the structure. You'll feel the difference both in transients, such as S-curves, and in absolute cornering ability. And the R-1's tire-speed rating is upgraded from V to Z.

A shock-tower brace over the engine adds even more rigidity to the structure of the R-1, further improving the already spectacular handling.

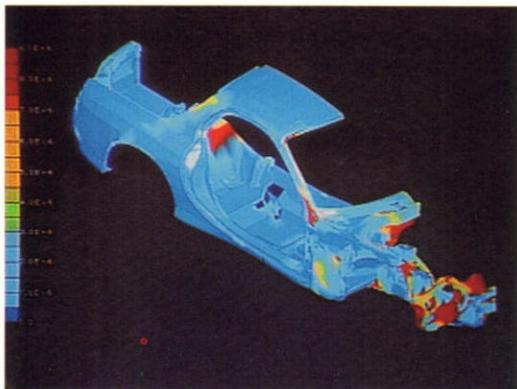


The powertrain adds a second engine oil cooler, and dedicated air ducts help cool the front brakes. Inside, the seats get a unique black sport cloth upholstery to help keep you in place during vigorous maneuvers. The standard RX-7 amenities are all included on the R-1 except for the cruise control. The automatic transmission is not available.

All of this is packaged in your choice of eye-catching colors: Vintage Red, Competition Yellow Mica, or Brilliant Black. Clearly, the R-1 has been designed for the most serious sports car driver. And its engineering pays off in added performance potential. The R-1 will reward the skilled enthusiast with an extraordinary degree of responsiveness at the limit on the track, a healthy taste of what it's like behind the wheel of purebred racing machinery.



**SUPERCOMPUTERS,
STRENGTH, AND STRUCTURAL INTEGRITY.**



▲ Computer modeling techniques include the latest GNC (Geometric Modeling and Numerical Control) and DMA (Dynamic Modal Analysis) methods. The exceptionally good designs would not be possible without super-computer power.

The new Mazda RX-7's structure is every bit as advanced as its powertrain and suspension. To start with, it's as light in weight as possible. Because only a lighter car can offer the pure sports car ideal: the responsiveness and control of a race car. Weight is weight, no matter how well balanced.

Yet the RX-7 structure is exceptionally strong, to withstand all the constant jolts and indignities of road surfaces, as well as to protect the occupants. It's rigid, so that the suspension is attached to a stable platform and will perform on the street as it did on the computer. And it isolates the occupants from road and wind noise.

No operational part of a car functions in isolation. You can have unlimited power on tap beneath your right foot, but it will be practically useless if the gear you shift into never seems quite right. Or if the suspension doesn't communicate confidence and stability. And the best suspension design won't be able to do its job if it isn't attached to a rigid and effective structure.

So structure is a design area where our computers reign supreme. Essentially, the supercomputer allows us to build a very precise model of the car on the computer screen. Every physical property of every piece of the car can be programmed in: the strength, weight, and flexibility of metal; the insulating property of various materials; the rigidity of a structural shape.

Then the computer can apply simulations of dynamic forces to this model and generate precise visual and numerical analyses of how the various parts of the car will behave. Our engineers can perform myriad "what-if" scenarios: how adjusting the position of a brace affects



▲ "Double-bubble" roof design, a direct result of the wind-tunnel testing, is subtle. But it has a significant aerodynamic benefit, helping the RX-7 achieve a very low coefficient of drag.



▲ Wind-tunnel tests are a major tool in developing effective aerodynamics. Even minor detail changes, like the "double-bubble" roof, can make large differences.

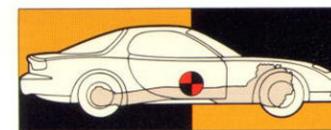
body rigidity, how shaving a gram of weight from a part affects its strength.

At Mazda, computer modeling never substitutes for real-life road testing. But it ensures that the cars that reach the test track are viable prototypes, allowing our drivers to concentrate on fine tuning. And only with the supercomputer can we incorporate the drivers' feedback into each design stage.

For the all-new Mazda RX-7, the design started with a basic front mid-engine/rear-drive layout that fully exploits the rotary engine's size and weight advantages. Engine, transmission, driveshaft, and differential are all coupled together by a highly rigid Power Plant Frame, a Mazda design that isolates the drivetrain vibrations from the rest of the car. It also eliminates torque twisting of the structure from drivetrain

forces and helps isolate the drivetrain from any of the stresses caused by suspension movements.

The body structure is a unique "space-monocoque" design, combining the strength of monocoque construction with the light weight and rigidity of the space frame used for most racing machines. And the RX-7 accomplishes this with high-tensile steel, avoiding the rigidity compromises and construction complexities of aluminum panels.



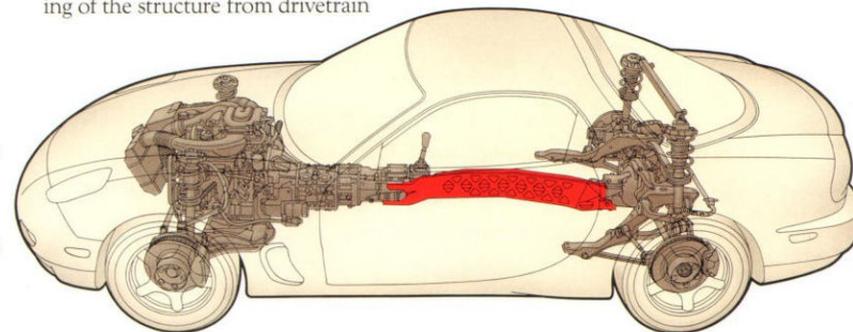
Center of gravity ▲

◀ Weight distribution with driver and passenger is 50% front/50% rear, contributing to exceptional handling balance.

The body is not only rigid, but aerodynamic. Extensive wind-tunnel tests helped us give the RX-7 an exceptionally low drag coefficient (Cd)—0.29. The lower drag improves both performance and fuel efficiency, because less power is used to overcome air resistance. Wind noise is also reduced by the aerodynamics.

Yet strength, rigidity, and aerodynamics are just part of the RX-7's structural story.

▶ The Power Plant Frame makes the complete drivetrain into one rigid unit, with the very tangible benefit of precise and instant throttle response.





▲ On the unique Mazda Global Road Circuit at our Miyoshi Proving Ground in Japan, we exhaustively test cars and drivers on road surfaces that we've duplicated from all around the world. Twenty of them, in fact. Everything from actual 300-year-old Belgian cobblestones to superhighways to mountain roads. By electronically monitoring the cars, we acquire extensive information about suspension and structural design. And by listening closely to the drivers, we gain valuable insights on how to make our cars feel just right.

Weight reduction played an integral and vital role in the creation of the new RX-7. Every single part was designed with the idea of eliminating all unnecessary weight, then the design was repeatedly examined, evaluated, and refined. Mazda engineers took full advantage of new manufacturing methods, such as squeeze casting, to fabricate strong yet light aluminum alloy suspension elements. Major load-bearing suspension components are forged aluminum alloy. Some of the weight reduction steps saved pounds, like the use of aluminum for the hood (a non-stressed body panel). Some saved grams, like the drilled brake and clutch pedals and the FRP composite accelerator pedal. Many are unseen, like the carbon-fiber seat frames. If a way could be found to shave any half-gram anywhere on the car, it was done.

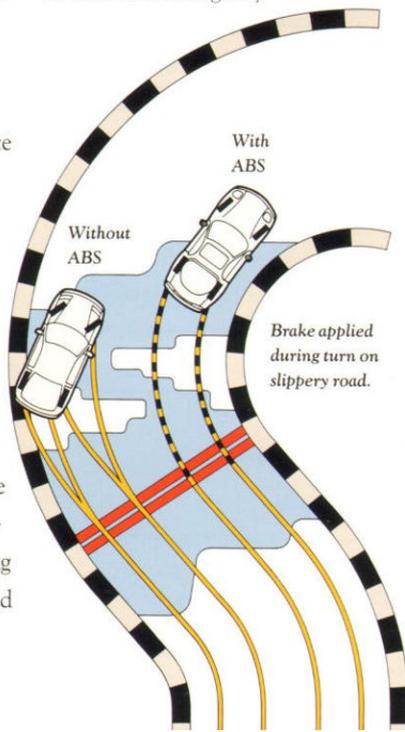
But never at the expense of structural integrity or strength. Race cars are very light yet very strong, and the design of the new RX-7 was inspired by that philosophy. The car's rigid body structure incorporates crumple zones that absorb energy, directing it away from the passenger compartment. The same computers that simulate road behavior can also simulate various impacts and help our engineers determine exactly what bracing is most effective and where it should



▲ Many of the RX-7's structural details are directly related to passenger protection. These include passenger cell reinforcement (A), side intrusion beam (B), the "space-monocoque" structure itself (C), and the rear structural support beam (D). Supercomputer simulations helped us determine such variables as size, strength, and location. (Highlight colors are for photographic clarity.)

be located. Extensive crash testing of actual prototypes follows the computer modeling to give us real-world information as well.

Many of the performance aspects of the all-new Mazda RX-7 have safety implications too. The lightning-quick acceleration, for instance, will make passing on a 2-lane highway much less of an adventure. The same balanced handling that straightens winding roads makes emergency



One of the biggest advantages of anti-lock brakes is that the driver can maintain steering control in hard stops. This is especially important in turns, where a locked wheel will cause the car to slide and swing much wider in the turn than the road might allow. With ABS, the car is not as likely to slide because rotating wheels can maintain traction. So the driver can more easily keep the car where it should be.

maneuvers more predictable. Communicative steering puts you in total touch with the road, and its response and feel match your reflexes. This not only adds to your driving enjoyment, it also can help you steer around unexpected hazards that may appear in your path.

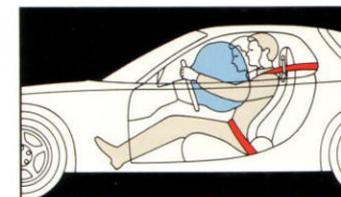
Powerful brakes are important too, and the new RX-7 has large, 11.6-inch ventilated discs on all four wheels for quick and sure stops. The front brakes have 4-piston, racing-type calipers for extra stopping power. All four discs are ventilated to reduce heat buildup in repeated hard stops and reduce brake fade. Additionally, the design of the wheel spokes and specially designed backing plates help cool the front discs. Power assist is provided by a tandem vacuum servo system.

The new Mazda RX-7 also utilizes a computer-controlled Anti-lock Braking System (ABS). Under hard braking, wheels can lock up and start sliding. A rolling wheel has greater traction than a sliding one. Also, a sliding wheel cannot be

steered. With ABS, the car is much less likely to slide sideways in a hard stop, a particular advantage on slippery surfaces. And because you can maintain steering control while braking, you also have that option in many situations. A sensor in each wheel monitors wheel deceleration; should it approach zero—lockup—under hard braking, a microprocessor control momentarily relaxes braking pressure on that wheel.

Another safety feature in the new RX-7 is a driver's-side air bag Supplemental Restraint System (SRS). Located in the hub of the steering wheel, the air bag deploys instantaneously in a severe frontal impact, to reduce the chance of injury. The RX-7 also has conventional 3-point safety belts that must be fastened for the air bag to provide the most effective protection.

To effectively protect its occupants, a car doesn't have to be dull and boring or weigh in with farm machinery. No further evidence is needed than the lightweight, strong, and exhilarating new Mazda RX-7.



▲ Triggered by special electronic sensors, the Mazda RX-7's driver's-side air bag inflates instantaneously in a severe frontal impact. The air bag can significantly reduce the chance of injury when used together with a properly fastened safety belt.

Engine	
Type	2-rotor inline rotary
Aspiration	Sequential twin turbochargers with air-to-air intercooler
Displacement	1308cc (80 cubic inches)
Compression ratio	9.0:1
Horsepower, SAE net	255 @ 6500 (manual transmission) 255 @ 6200 (automatic transmission)
Torque, SAE net lb.-ft.	217 @ 5000
Fuel system	Multi-port electronic fuel injection
Fuel requirement	Premium unleaded gasoline (91 octane)
Ignition system	Distributorless electronic
Cooling system	Forced water/coolant circulation Forced oil-to-air oil cooler Dual oil-to-air oil coolers (R-1 Pkg.)

Transmission		
Type	5-speed manual with overdrive 4-speed electronically controlled automatic with overdrive and lockup torque converter (optional; n/a R-1 Package)	
Differential	Torsen® torque-sensing limited-slip type	
Ratios	Manual	Automatic
1st	3.48	3.03
2nd	2.02	1.62
3rd	1.39	1.00
4th	1.00	0.69
5th	0.72	—
Final drive	4.10	3.91

Dimensions (inches)			
Wheelbase	95.5	Headroom	37.6
Length	168.5	(with sunroof)	36.4
Width	68.9	Legroom	44.1
Height	48.4	Shoulder room	51.8
Track: front/rear	57.5/57.5		

EPA Mileage Estimate (mpg)	
Manual transmission	17 city, 25 highway
Automatic transmission	18 city, 24 highway

Warranty
The Mazda 36-Month/50,000-Mile Limited Warranty. Mazda warrants that the Mazda vehicle will be free of defects with normal use and prescribed maintenance for 36 months or 50,000 miles, whichever comes first, or Mazda will repair any problem without charge. Ordinary maintenance items or adjustments, parts subject to normal wear and replacement, and certain other items are excluded. This transferable, "limited warranty" is free on all new 1993 Mazda vehicles sold and serviced in the United States. See your Mazda Dealer for details.

Chassis	
Frame	Unit body
Front suspension	Independent double-wishbone type with squeeze-cast aluminum upper control arms, forged aluminum lower control arms, coil springs, gas-filled shock absorbers, and stabilizer bar
Rear suspension	Independent double-wishbone type with multiple links for toe control, squeeze-cast aluminum upper control arms, forged aluminum lower control arms, coil springs, gas-filled shocks, stabilizer bar, and aluminum shock-tower support brace
R-1 Pkg. suspension	Firmer front and rear suspension shock absorbers, and front shock-tower brace
Steering	Rack-and-pinion type with engine-rpm-sensing variable power assist Steering ratio: 16.6:1 Steering wheel turns, lock-to-lock: 2.9 Turning circle diameter, curb-to-curb: 35.4 feet
Brakes	Power-assisted with dual hydraulic circuits 11.6-inch ventilated front discs with 4-piston aluminum calipers and ducted backing plates 11.6-inch ventilated rear discs Dedicated front brake air cooling ducts (R-1 Pkg.) Anti-lock Brake System (ABS)
Wheels	8.0J-16 squeeze-cast aluminum alloys with aerodynamic design for optimum brake cooling
Tires	High-performance steel-belted radials P225/50R16 91V P225/50ZR16 (R-1 Package)
Fuel capacity	20 gallons
Curb weight	2789 pounds (manual transmission) 2857 pounds (automatic transmission)

Mechanical Standard Features
2-rotor inline rotary engine with sequential twin turbochargers, air-to-air intercooler, and electronic fuel injection
Engine oil cooler
5-speed manual transmission with overdrive
Power Plant Frame (PPF)
Torsen® torque-sensing limited-slip differential
Fully independent double-wishbone suspension with rear shock-tower support brace
Rack-and-pinion steering with engine-rpm-sensing variable power assist
Power-assisted 4-wheel ventilated disc brakes with aluminum 4-piston front calipers and ducted backing plates
Anti-lock Brake System (ABS)

Exterior Standard Features
16-inch aluminum alloy wheels
Dual aerodynamic body-color power mirrors
Tinted glass
Retractable halogen headlights
Lightweight aluminum hood

Interior Standard Features
Highback bucket seats with seatback recliners
Sport cloth upholstery
Dual storage compartments behind seats
Power windows and door locks
Remote liftgate and fuel-door releases
9000-rpm tachometer with 8000-rpm* redline
180-mph speedometer
Gauges for oil pressure and engine coolant temperature
Leather-wrapped steering wheel, handbrake grip, and transmission shift knob
Cruise control with steering-wheel-mounted controls (n/a R-1)
Driver's-side air bag Supplemental Restraint System (SRS)
Drilled aluminum clutch and brake pedals (manual trans. only)
Anti-theft alarm system
Heater/defroster with 4-speed blower and side-window demisters
Air conditioning
AM/FM/cassette stereo sound system with five speakers and automatic power antenna

Options and Option Packages
4-speed electronically controlled automatic transmission with overdrive (n/a R-1 Package)
Leather seating surfaces* (n/a R-1 Package)
Touring Package:
Leather seating surfaces†
Bose® Acoustic Wave® stereo music system with compact disc player, five speakers and automatic power antenna
High-reflex paint
Sliding sunroof with tilt-up ventilation feature
Halogen fog lights
Rear window wiper/washer
Upgraded sound insulation
Removable rear cargo area cover

R-1 Package:
Rear spoiler and front air dam
Dual engine oil coolers
Dedicated front brake air ducts
Special suspension tuning
Front shock-tower support brace
Z-rated high-performance steel-belted radial tires

*7000-rpm redline with automatic transmission.
†Seats upholstered in leather except for vinyl on rear side of seatbacks and other minor areas.

Information and illustrations in this brochure are based on the latest competitive and Mazda product information available at the time of publication. Some equipment shown is optional at extra cost; specific options may be available only in combination with other options. Specific combinations of colors, interiors, equipment, or features may vary from time to time and by geographic area; colors in illustrations may vary from actual upholstery or paint colors due to reproduction and printing processes. Mazda reserves the right to make changes without notice in product content and price at any time.

Genuine Mazda Accessories are the perfect way to enhance, protect, and personalize your new Mazda RX-7. Only Genuine Mazda Accessories are manufactured to the same exacting specifications as our vehicles so that they fit right the first time, every time. And if installed by a Mazda Dealer prior to or at the time of initial vehicle retail delivery, Mazda Accessories are covered by the Mazda 36-month/50,000-mile limited warranty. Ask your Mazda Dealer for complete limited-warranty details.



▲ COMPACT DISC PLAYER. Concert-quality sound reproduction. Full-featured system includes repeat and random play functions.



◀ COMPACT DISC CHANGER. Rear-mounted, 6-disc player. Console-mounted remote provides complete control.

▶ FRONT MASK AND HOOD PROTECTOR. Ruggedly constructed of durable, weather-proof vinyl with soft backing, they help protect the RX-7 from road debris.



▶ REAR SPOILER. Designed to complement the RX-7's aggressive styling, this sleek addition comes primed and ready to paint.



▶ FRONT AIR DAM. Ground-effects styling complements the RX-7's high-performance image. Gives the RX-7 the R-1 look.



◀ MUD GUARDS. Injection-molded for a precise, stylish fit, these color-coordinated mud guards help protect your RX-7 from road debris. Available in sets of two.



▶ CAR COVER. Custom-tailored for a perfect fit, this weather-resistant Evolution® 3 fabric helps protect the new RX-7 from elements and curious eyes.

- Other Accessories Available:
- CAR COVER CABLE LOCK
 - CARGO COVER
 - REAR HATCH SHADE
 - STAINLESS STEEL DOORSILL SCUFF PLATE
 - SUNROOF WIND DEFLECTOR

Exterior Colors



Vintage Red



Montego Blue Metallic



Brilliant Black



Competition Yellow Mica



Silver Stone Metallic

Interior Colors



Black Leather[†]



Tan Leather[†]



Black Cloth (R-1 shown)



Red Leather[†]

Exterior/Interior Color Combinations

	Black Cloth	Black Leather [†]	Tan Leather [†]	Red Leather [†]
Vintage Red	•	•	•	—
Brilliant Black	•	—	•	•
Silver Stone Metallic (not available R-1)	•	•	—	•
Montego Blue Metallic (not available R-1)	•	—	•	—
Competition Yellow Mica (R-1 only)	•	—	—	—

See inside leaf for accessories.



Most car companies design most cars to appeal to the greatest possible number of people. So all the design elements are about the same, as vision yields to research statistics and originality gives way to compromise.

But at Mazda, we think a little differently. Instead of making the usual assumptions and following the crowd, we always ask, "Why?"

We asked, "Why shouldn't every car make a unique statement?" So we design each of our models to not only fulfill its basic purpose, but to appeal to individuals who genuinely enjoy driving. Beyond the inspired engineering and thoughtful design, every Mazda is also the product of our dedication to quality. And we asked, "Why shouldn't a warranty fully reflect the confidence we have in that quality?" So we back every

vehicle we make with a "bumper-to-bumper" limited warranty* that covers it for 36 months or 50,000 miles, with no deductible.

Our approach extends to the complete attention and services available at your Mazda Dealer.

There, you can get answers to all of your questions, including complete details about the Roadside Assistance Program provided to new RX-7 owners. Then, through Mazda American Credit, your dealer can help you buy or lease the new Mazda of your choice.** You'll also find a Parts and Service Department that provides ready access to Genuine Mazda Parts, and a staff of expert technicians who will help keep your car or truck running like new.

And we continue to ask, "Why?" So that we'll continue to find the right answers for you.

mazda
IT JUST FEELS RIGHT.®

*See your Mazda Dealer for limited-warranty details. **Retail and lease financing subject to approval of Mazda American Credit.

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