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**СТУДЕНТ 213 ГРУППЫ: МАРЧУК ВЛАДИСЛАВ**

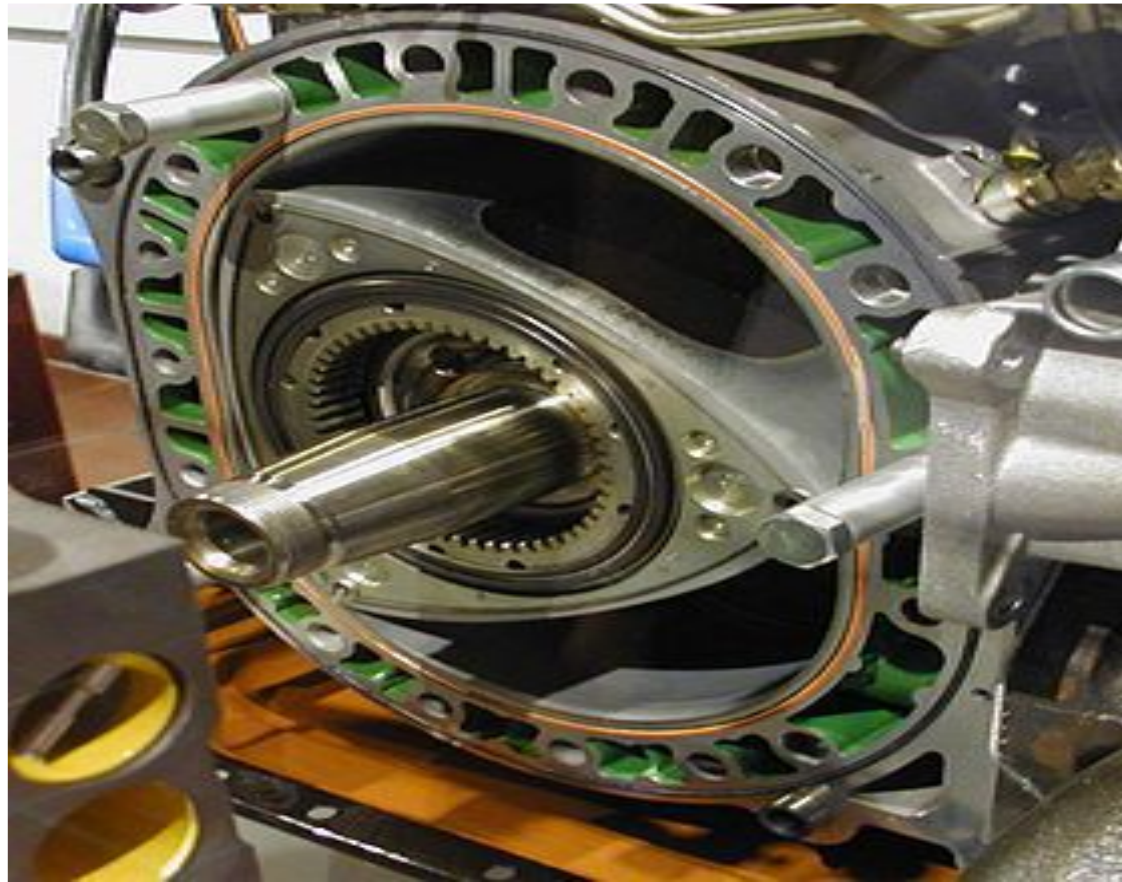


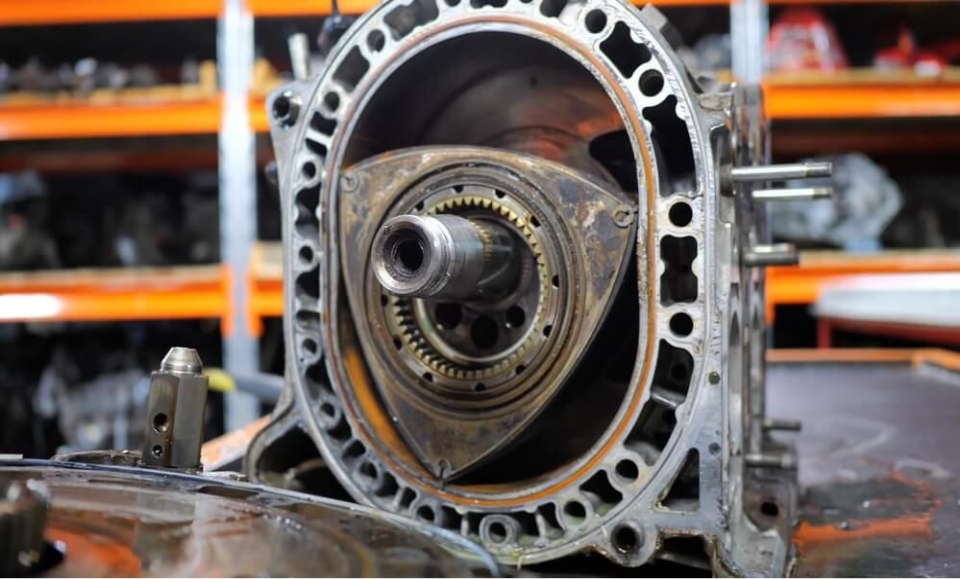
# MAZDA RX-8



- The Mazda RX-8 is a sports car manufactured by Japanese automobile manufacturer Mazda between 2002 and 2012. It was first shown in 2001 at the North American International Auto Show. It is the successor to the RX-7[citation needed] and, like its predecessors in the RX range, it is powered by a rotary Wankel engine. The RX-8 was available for sale in North America from the 2003 model year.

THE MAZDA WANKEL ENGINES ARE A FAMILY OF WANKEL ROTARY COMBUSTION CAR ENGINES PRODUCED BY MAZDA.





- Wankel engines were invented in the early 1950s by Felix Wankel, a German engineer. Over the years, displacement has been increased and turbocharging has been added. Mazda rotary engines have a reputation for being relatively small and powerful at the expense of poor fuel efficiency. The engines became popular with kit car builders, hot rodders and in light aircraft because of their light weight, compact size, tuning potential and inherently high power-to-weight ratio—as is true for all Wankel-type engines. Mazda put the engine into series production with NSU (Ro80) and Citroën (GS Birotor) as part of the Comotor joint-venture between 1967 and 1977.



MAZDA R100

- Mazda introduced rotary-powered vehicles in the US in 1971, beginning with the R100 and eventually introduced the RX-2, RX-3, RX-4, RX-5, and three generations of the RX-7 sports car in the US and worldwide markets. However, due to the lack of conveniences and user-friendliness, coupled with the high price tag and declining interest in sports cars and coupés at the time, Mazda decided to withdraw the RX-7 from most major markets except Japan. After 1995, Mazda suffered from a relatively undistinguished and ordinary product line in the US except for the MX-5 Miata.



- The RX-8 combined two previous products (the internationally sold RX-7, and the Cosmo which was exclusive to Japan), with the exterior dimensions of the RX-8 to be slightly smaller than those of the Cosmo. Mazda chose not to install the 2.0 L three-rotor 20B-REW, which was discontinued in 1996 when the Cosmo ceased production. In Japan, sales were affected by the fact that the RX-8 did not comply with Japanese Government's dimension regulations, and Japanese buyers were liable for yearly taxes for driving a larger car. The rotary engine had financial advantages to Japanese consumers in that the engine displacement remained below 1.5 litres, a significant determination when paying the Japanese annual road tax which kept the obligation affordable to most buyers, while having more power than the traditional inline engines.

# DEVELOPMENT AND DESIGN





- The RX-8 was designed as a front mid-engine, rear-wheel-drive, four-door, four-seater quad coupé. The car has a near 50:50 front-rear weight distribution and a low polar moment of inertia, achieved by mounting the engine behind the front axle and by placing the fuel tank ahead of the rear axle. The front suspension uses double wishbones and the rear suspension is multi-link. Weight is trimmed through the use of materials such as aluminium and plastic for several body panels. The rest of the body is made of steel, except for the plastic front and rear bumpers. The manual gearbox model uses a carbon fiber composite driveshaft to reduce the rotational mass (momentum of inertia) connected to the engine. Power is sent to the rear wheels through a torque-sensing conical limited-slip differential for improved handling.



- A prominent feature of the RX-8 is its rear-hinged "freestyle" doors (similar to suicide doors) that provide easier access to the rear seats. The RX-8 has no B-pillars between the front and rear doors, but the leading edge of the rear door acts as a "virtual pillar" to maintain structural rigidity. Because of the overlapping design, the rear doors can be opened only when the front doors are open. The RX-8's cabin was designed to allow enough room to house four adults, making it a genuine 4-seater rather than a 2+2. In designing the RX-8, Mazda's engineers were able to achieve a chassis stiffness rating of 30,000 Nm/deg.

MOTORSPORT



- The RX-8 has been campaigned and used in various racing series by privateers. It has seen a considerable amount of success, the most prominent of which being the 2008 and 2010 24 Hours of Daytona GT-class wins campaigned by SpeedSource Race Engineering. This victory also marks the 23rd endurance race win at Daytona by a Mazda rotary-powered race car. While the cars are powered by the 20B rotary engines, the car is in fact built on a tube frame chassis and not on the production car.



THANKS FOR YOUR ATTENTION!