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Legendary Japanese Cars

Honda **NSX** 1990-2005

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Honda NSX

Model	NA1
Engine Name	C30A
Displacement	2977cc
Maximum Output	280ps/7300rpm
Maximum Torque	30.0kg-m/5400rpm
Overall Length	4430mm
Overall Width	1810mm
Overall Height	1170mm
Wheelbase	2530mm
Vehicle Weight	1350kg



The canopy design places the cabin toward the front, featuring large round glass windows to ensure a wide field of view with minimal blind spots.





The photo shows the initial release model. The name "NSX" combines "New Sports car" with the letter "X," symbolizing "the unknown."

The rear spoiler is integrated with the body, enhancing airflow at the rear during high-speed driving. It also includes an LED high-mount stop lamp.



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JSX

A package born with the goal of "liberating sports"

Honda's presence from the late Showa era into the early Heisei era is strongly associated with its dominance in Formula 1. After returning as an engine supplier in 1983, Honda secured its first post return victory the following year. By 1986, Honda claimed the Constructors' Championship, and in 1987, it achieved both the Constructors' and Drivers' Championships, In 1988, Honda switched its partnership from Williams to McLaren, marking a legendary season with 15 wins out of 16 races. Before pausing its F1 activities, Honda secured six consecutive Constructors' titles and five consecutive Drivers' titles.

This remarkable success in F1 significantly enhanced Honda's image, particularly in Europe, though at the time there was no commercial model to translate that success into the consumer market, F1 remained primarily a technological testing ground for Honda.

Meanwhile, in the U.S., Honda became the first Japanese automaker to begin local production and launched the luxury brand Acura in 1986, featuring models like the Legend and Integra, both of which saw strong sales. However, an iconic model was still awaited.

In Japan, Honda had already developed a sporty image with models like the Civic Si, CR-X, and the VTEC-equipped Integra, but the demand for a full-fledged sports car, akin to the earlier S series, remained. Thus, driven by the need to create a car that would define Honda's global identity, the NSX project was born.

The NSX made its debut in September 1990, following more than six and a half years of development that began in January 1984 with the start of the UMR project.

The development concept, as stated by Shigeru Uehara, the LPL (Large Project Leader) responsible for the NSX, was "to modernize the sports car." At its core was the desire to create a super sports car from Japan, with Ferrari and Porsche, specifically the Ferrari 328 and Porsche 911 (930), serving as virtual benchmarks. However, from the outset, it was clear that Honda would take a completely different approach from these European rivals.

Traditionally, sports cars demanded endurance and compromise from the driver, and this hardship was often romanticized as being "Spartan." Honda, however, aimed to center the experience around the human driver, creating a sports car that could be driven without stress or strain. This philosophy is reflected in the NSX's launch tagline: "Not tension. A liberating sport." This encapsulated Honda's vision of a car that offered freedom and ease rather than demanding effort from the driver.

The NSX adopted a transversely mounted V6 engine in a midship layout

Embodying the concept of "liberating sport" through various innovative approaches, with the package design being the most significant.

While it featured a mid-engine, two-seater layout like Ferrari and Lamborghini, Honda's choice was not simply to follow them. Honda had long been an FF (front-engine, front-wheel-drive) manufacturer, with a philosophy of "Man Maximum, Machine Minimum", putting human needs first.

Building on this human-centered approach, Honda aimed to enhance handling while maintaining interior comfort by placing the engine centrally in the chassis. This led to the Underfloor Midship Engine Reardrive (UMR) project. The result was a mid-engine layout that proved, even in production cars, that superior handling, especially in cornering and steering, could be achieved.



The rear combination lamps have been designed with closely matching color tones for a unified look, evoking the impression of a jet engine's exhaust ducts.



Based on the concept that the driver's and passenger's needs differ, a large console separates the driver's seat from the passenger seat.

The engine chosen was a compact V6, mounted transversely, based on the FF engine used in the Legend. This decision also reflected a pursuit of space efficiency, as well as the advantage of minimizing power loss when transmitting energy from the engine to the drive shaft in a transverse setup.

The world's first all-aluminum body in a production car

The canopy-style cockpit, inspired by fighter jets, provided the driver with a spacious environment. The pedals were also arranged without any offset, allowing for a natural driving position. Furthermore, from the start, an automatic transmission was offered. While today, this kind of sports car design, including features from Ferrari and Porsche, is commonplace, at that time, it was unprecedented in the world.

Additionally, a point often ridiculed about the first-generation NSX is its long-tail style with a trunk. However, this design was intended to adjust the center of wind pressure and ensure a certain length for the exhaust system to address heat management, not to accommodate golf bags.

Ayrton Senna, who contributed to the development of the NSX, described its essence during a test drive: "Safe, comfortable, and incredibly fast."

This sports car was created with a completely different approach. From a technical perspective. the NSX's standout feature was its aluminum body. It was the world's first mass-produced car to feature an all-aluminum body, with approximately 80% of its suspension components also made from aluminum. This emphasis on weight reduction was part of the NSX's philosophy of "liberating sports." The lightweight design was essential for accommodating innovative features such as ABS, traction control, and an airbag system, all of which were among the latest technologies of the time.

Due to the unique nature of this specially made body, production using industrial robots was not feasible. As a result, a small-scale production facility was established in Tochigi, dedicated solely to manufacturing the NSX. The plant produced 25 units per day, with most assembly processes carried out by experts with over ten years of factory experience. Notably, there were no conveyor belts in the assembly line; workers used their judgment to decide when to progress to the next step.

Although the aluminum body was lightweight, it presented challenges

regarding rigidity. To overcome this, the design focused on optimizing its shape.

Supercomputers were employed to perform rigidity analysis, which allowed for the determination of the ideal design. By creating a continuous floor structure and utilizing larger frame cross-sections, the NSX achieved elevated levels of rigidity while still pursuing lightweight construction.

A high-revving engine meticulously crafted down to the connecting rod material

The suspension features a four-wheel double-wishbone setup. The tuning involved input from Ayrton Senna and Satoru Nakajima, and testing was thoroughly conducted at the Nürburgring circuit in Germany. While the phrase "Nürburgring-tuned suspension" has become synonymous with high-performance Japanese cars today, at that time, very few domestic vehicles were tested at this circuit, making the NSX a pioneer.

The engine installed is a V6 DOHC 24-valve with a 90-degree bank angle, originally debuting with a displacement of 3000cc. As previously mentioned, this engine was based on the CA type used in the Legend, which was then enlarged in displacement, and the



It features headrest-integrated bucket seats, with both the driver's and passenger's seats equipped with standard power-adjustable functionality.



The vehicle is equipped with a six-gauge analog meter, designed with visibility as the top priority. Each switch is assigned to a single function and arranged in a satellite-style layout for ease of use.

Legendary Japanese Cars

head was changed from SOHC to DOHC, incorporating the variable valve timing and lift system known as VTEC. Its model name was C30A, and it was distinctly different from the CA20A, CA25A, and CA27A used in the Legend.

Towards the end of development, the decision was made to implement DOHC and VTEC specifications, which resulted in the maximum rpm being raised from the initially anticipated 6800 rpm to 8000 rpm (for the manual transmission variant). Naturally, all components had to withstand significant kinetic energy. For this reason, titanium alloy was used for the connecting rods, marking a world first for a production car, with the machining techniques derived from F1 engine technology.

Moreover, NSX's insistence on using a naturally aspirated (NA) engine without a supercharger was also a key feature. Although VTEC provided smooth power characteristics, a torque dip occurred at the switch point to the high cam, which led to the incorporation of a resonant chamber capacity switching intake manifold system.

The NSX: Evolving through a long model span

The NSX was produced and sold over a span of 16 years, with one of its highlights being the limited-edition NSX-R, released in 1992 for three years. By removing comfort features like the audio system and rigorously revising dozens of components, the car shed 120 kg, improving its power- to weight ratio from 4.82 kg/ps to 4.39 kg/ps-equivalent to a 27.5 ps power boost. The NSX-R's



The Type T debuted in 1995, featuring a system that allows the removable roof to be stored in the rear canopy.

signature "Grand Prix White" color, combined with a red "H" emblem, paid homage to Honda's first F1 team colors.

In 1995, the NSX received a facelift that introduced drive-by-wire technology and added F-Matic for manual shifting via steering wheel buttons in the automatic version. The NSX-T, a targa-top model, also debuted at this time. In 1997, the engine for manual transmission models was upgraded to 3200cc, and the transmission was changed to a 6-speed. Additionally, the lighter Type S, which was 30 kg lighter than the standard model, and the even lighter Type S Zero, which removed features like the air conditioner, were introduced.

In 2000, the NSX met new emission standards by enhancing the catalytic converter's cold-start performance, achieving emissions 50% below the regulations. This showcased a new vision for sports cars.

The following year, due to updated safety regulations, the retractable headlights were replaced with fixed ones, and six months later, the Type R was reintroduced. A special Type R GT model, limited to five units for Super GT homologation, was released at a price of 50 million yen. The standard NSX was priced around 8 million yen for the manual version and 8.6 million yen for the automatic. Despite being twice as expensive as the highest-end Mitsubishi GTO model, it was considered a bargain in the economic bubble era, with backorders extending three years. However, the burst of the bubble led to cancellations and a decline in popularity, but the re-release of the Type R reignited the NSX boom. The domestic sales volume reached 7,394 units.



The NSX-R, added in 1992, achieved a vehicle weight of 1230 kg, realizing a weight reduction of over 100 kg compared to conventional 5-speed manual transmission models.



A compact V6 engine was chosen to balance weight and power. The newly developed intake manifold system with a variable resonance chamber capacity was adopted, achieving high power output.



The trunk capacity is 154 liters, and it features a structure designed to absorb impact in the event of a rearend collision.

By positioning the engine transversely and placing the transmission to the side, the front-to-rear weight distribution was achieved at 42:58 (with one occupant).



An in-wheel suspension system, with the upper and lower arms housed inside the wheels, was adopted for both the front and rear.



The NSX proved the correctness of its package through racing

The NSX was not originally conceived as a racing model, but it began participating in competitions following the introduction of the pure sports type R. This move was strongly influenced by Kunimitsu Takahashi, a former Honda racer. Within Honda, the NSX-GT project was already in progress, but Takahashi's assertion that "since we created a sports car representing Japan, we should use it for racing" helped spur its development.

The NSX made its racing debut in 1993 at the ADAC-GT Cup in Germany, where it secured its first victory in Division 1 during the third race, showcasing its potential as a race car.

The following year, it entered the GT2 class of the 24 Hours of Le Mans. Although the results were not notable, all three entered cars finished the race. In 1995, the NSX competed in both GT1 and GT2 classes, achieving class victory in GT2 (overall 8th place) with Team Kunimitsu. Domestically, the NSX entered the GT Championship starting in 1997. In its first year, it raced as a private entry in the GT3 class of Le Mans, and the following year, partnered with Dome, it achieved five consecutive victories. By 2000, the team had clinched the series championship.

It is worth noting that the machine participating in the Le Mans GT1 class had a longitudinal engine layout, with one of the cars featuring a turbo, but it did not achieve meaningful results. In contrast, the winning GT2 class car maintained its NA engine in a transverse layout and successfully defeated 3.6L turbo Porsches. In the GT Championship, starting in 2003, regulatory changes prompted a shift to a

longitudinal engine layout, but it did not yield significant advantages. Despite initial ridicule over the NSX being labeled as "a super sports car with a transverse engine," it proved the correctness of its packaging on the racetrack.



Kunimitsu Takahashi, the general director of Team Kunimitsu, had a successful career as both a motorcycle and car racer. In 1992, he founded "Team Kunimitsu", initially serving as both driver team director and driver."