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Audi Shooting Brake Concept

The equipment, data and prices stated here refer to the model range offered for sale in Germany. Subject to amendment; errors and omissions excepted.

Short version

Compact and powerfully athletic
Audi Shooting Brake Concept

Audi is unveiling a new highlight in the sporty compact segment at the 2005 Tokyo Motor Show: the Shooting Brake Concept is a study vehicle offering a further trailblazing interpretation of Audi's current formal idiom, blending the powerful dynamism of a sports car with a new sense of spaciousness and greater functionality. With its powerful 250 bhp, 3.2-litre six-cylinder engine and quattro permanent four-wheel drive, the Shooting Brake Concept produces a quality of road behaviour that in every respect lives up to its visual impact. The study vehicle sprints from 0 to 100 km/h in just six seconds, and its top speed is electronically governed at 250 km/h.

Its front end is characterised by the striking single-frame radiator grille with dominant vertical slats in chrome. The tapered shape at the front – further accentuated by prominent air inlets at the sides – and the dynamic cut of the clear-glass headlights give the face its decidedly forceful character. A presence that echoes the characteristic front-end design of the current A4 racing models in the DTM and the visionary Audi RSQ study.

One new element in the portfolio of design features is the upward swoop behind the rear side window. This, together with the wide C-post, accentuates the prominent rear end. This is where the visual emphasis of the Shooting Brake Concept, painted in Bionic White, pearl effect, is to be found: the flat trapezoid of the rear window and the pronounced arching, convex shape of the panel forming the luggage compartment lid are the opposite extreme to the flat nose end. They give the vehicle a crouched appearance, as if ready to leap.

As is typical of every Audi study car, in addition to its design qualities the Shooting Brake Concept features a raft of technical innovations for Tokyo. These include the adaptive damping system Audi magnetic ride, an evolutionary version of navigation system plus with touch screen monitor and character recognition, and the new LED headlight technology.

Long version

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Design

A venture into a new segment: the Audi Shooting Brake Concept represents an entirely new departure in design terms. The styling of this coupé, measuring 4.18 m long by 1.84 m wide but standing just 1.35 m tall, singles it out unequivocally as a paragon of the latest Audi design, yet countless innovative elements demonstrate how this repository of shapes has taken a decisive evolutionary leap forward.

Even when seen in the rearview mirror, the Shooting Brake Concept reveals at first glance a front end that is characterised by the striking single-frame radiator grille with dominant vertical slats in chrome. As on the Audi Le Mans quattro super sports car study, the four-ring brand emblem is located above the single-frame grille, the surface of which is not interrupted by the licence plate surround, either.

The tapered shape at the front – further accentuated by prominent air inlets at the sides – and the dynamic cut of the clear-glass headlights give the face its decidedly forceful, dynamic character. A presence that echoes the characteristic front-end design of the current A4 racing models in the DTM and refines the visionary Audi RSQ study. A further element adopted from motor sport, beneath the grille, is the aluminium diffuser, which guides the airflow beneath the car with precision.

Viewed side-on, convex and concave surfaces create a subtle interplay of light and shadow. The dynamic lines lower down the car's body give the vehicle a particularly flat look. Typically for the current Audi design approach, the shoulder and dynamic line structure the volume of the vehicle body into a clearly defined, sporty architecture. The proportions of the large body panels and the flat window strip below the arching roof line are equally characteristic features of a sports car.

The clearly contoured wheel arches accentuate the powerful, road-centred proportions. The 19-inch double-spoke wheels originate from quattro GmbH and are a further developed version of the design created specifically for Audi's current top sports car, the RS 4.

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The horizontal rear lights, extending well round to the sides, in conjunction with the black line along the lower edge of the window, accentuate the horizontal divide across the rear end of the vehicle. The luggage compartment lid itself extends well up into the roof surface. This permits a wide opening angle and optimum access to the luggage compartment.

Beneath the flush, integral bumper there is a large-area diffuser as at the front, to channel the airflow beneath the vehicle such that drag is minimised and surface grip enhanced. The exhaust system's two large tailpipes hint at the powerful engine inside the Shooting Brake Concept.

The interior

The interior design of the Audi Shooting Brake Concept exudes a decidedly sporty flair. This impression is conveyed by the low seat position, in typical sports car style, the high centre console and the clear, expansive composition of the instrument panel. The short sports-style gear lever with its tactile knob, together with the wide armrests in the doors and the pedals with aluminium-rubber surface, combine form and function with unprecedented ergonomic perfection.

The attractive appearance of the interior surfaces and of each individual detail is the result of select material quality and a perfect finish of the highest standard. The large, clearly structured surfaces of the instrument panel, roof and door trims are clad in high-tech synthetic materials. The two grey shades and the surface structures provide a contrasting look and feel. On the other hand, the surface of the centre console, the inside door handles and the surrounds on the air outlets, like the body itself, have an "Electric White" pearl-effect finish.

The instrument cluster, as the driver's focus of attention, is shielded by a semi-circular cover, an element that consciously echoes the design of other sporty Audi models. Two large analogue circular instrument dials display the engine speed and road speed, and the large-format display of the Driver Information System provides further information.

The multifunction steering wheel with flattened underside is a counterpart to the wheel installed in two of the most alluring Audi sports cars ever built – the Le Mans quattro study, and the RS 4.

Above the centre console angled discreetly towards the driver, two circular air outlets with star-pattern slats bracket a chronograph that can display information in either analogue or digital form, as preferred.

This technology uses an organic polymer material that appreciably improves presentation and ease of reading. Compared with the conventional liquid crystal displays (LCD), an organic light emitting diode (OLED) monitor is substantially easier to read, above all with the sun shining on it and when viewed at an angle. The content displayed on the monitor can still be made out from an angle of 170 degrees. Other advantages of OLED are its shallow installation depth and very short response times, as well as much lower energy consumption than LCD displays.

The MMI terminal of the DVD radio and navigation system plus, with optical and acoustic route guidance, has been redesigned. The ergonomically optimised architecture of keypad and display is inspired by the successful Multi Media Interface configuration in the Audi A8. Here, the system features an array of new functions such as innovative 3D screen navigation with touch screen monitor and character recognition that permits detailed inputs using a PAD pen.

Comfortably spacious

The Audi Shooting Brake Concept sets new standards in the compact sports vehicle segment in offering ample space for all occupants. Thanks to the special shape of the tail end, there is both more headroom for rear passengers and more space in the luggage compartment. The wide opening angle of the rear doors and the electric easy entry function for the front seats provide easy access to the rear seats. There is an astonishing amount of knee room at the rear thanks to the wheelbase of 2.47 m.

The luggage compartment of the Audi Shooting Brake Concept is quite sufficient even for substantial transport requirements, providing a capacity of 255 litres with the rear seat back upright and as much as 730 litres with the seat back folded down.

The steering column adjustable in reach and height as well as the driver's seat with the same adjustment options ensure an optimum seating position for drivers of virtually any build.

The ergonomic design of the front seats in the Audi Shooting Brake Concept combines ample comfort with good lateral support. The shot-through textile upholstery in aero blue for the seat surface and seat back, flanked with contrasting grey hues on either side, provides a sporty, elegant accent.

Engine and transmission

Powerful and confident – the power unit of the Shooting Brake Concept is a transversally installed V6 four-cylinder engine with a displacement of 3.2 litres, which has already thrilled many thousands of customers in currently the most sporty versions of the A3 and TT car lines.

The six-cylinder engine is equally suited to such a distinctly sporty vehicle as the Audi Shooting Brake Concept thanks to its outstanding torque and power characteristics.

Its maximum output is 184 kW (250 bhp) at 6,200 rpm, and the torque range is particularly impressive, peaking at 320 Nm between 2,500 and 3,000 rpm.

The ideal basis for forceful acceleration in all speed ranges and fleet-footed sprints is this engine in conjunction with the sporty, closely spaced 6-speed gearbox that paves the way for crisp, short gearshifts.

The performance figures of the Shooting Brake Concept 3.2 are correspondingly impressive: it accelerates from 0 to 100 km/h in just six seconds and reaches a top speed of 250 km/h (governed).

Throttle valve actuation is designed for an exceptionally agile, spontaneous engine response to accelerator pedal movements.

The dual-branch exhaust system both helps to cut emissions and makes a very presentable sound. Indeed, Audi's acoustics specialists have created sonorous sound in this case, which, without being unpleasant or even obtrusive in any way at all, perfectly reflects the sporting potential of this very special power unit in acoustic terms.

The Shooting Brake Concept is equipped with quattro permanent four-wheel drive. A hydraulic multi-plate clutch varies the distribution of power between the front and rear wheels.

This technical solution is indeed particularly suitable for cars with the engine fitted transversely, incorporating all the well-known advantages of an Audi quattro.

Offering a permanent, situation-specific distribution of propulsive power between all four wheels, quattro drive guarantees maximum traction and, as a result, optimum acceleration at all times. At the same time there are still ample reserves for transmitting cornering forces in the interest of cornering safety and directional stability.

With the engine at the front and the four-wheel-drive multi-plate clutch at the rear, axle load distribution benefits accordingly. Indeed, this weight distribution is crucial to the excellent driving stability and good handling of the Audi Shooting Brake Concept.

The chassis

The second key to its excellent dynamics on the road is its highly effective suspension with McPherson strut layout at the front and the new four-link independent suspension at the rear. Large 19-inch wheels with size 245/40 R19 tyres promote driving fun and safety.

The dynamic suspension is designed for sporty, agile handling with a high standard of stability, and makes cornering a distinct pleasure. An additional forte is the high standard of ride comfort, as befits a car in a segment further up the range.

The Audi Shooting Brake Concept features ceramic brakes which ensure the appropriate braking performance. Compared with conventional steel discs, these not only last four times longer, but also offer high braking performance, even when driving at the limit, as well as maximum resistance to fading.

The significant reduction in weight also leads to advantages in terms of comfort and handling thanks to reduced unsprung masses.

The electromechanical steering with speed-dependent power assistance is furthermore one of the keys to optimum handling. It combines optimum steering feedback with minimal sensitivity to excitation from the road surface, and operates on far less energy.

The particular strengths of the four-link suspension layout stem from the functional separation of longitudinal and transverse forces. This provides a high standard of lateral rigidity in the interests of optimum dynamics and driving safety and, at the same time, makes the suspension relatively soft lengthwise in order to improve the standard of ride comfort.

Separate springs and shock absorbers provide the necessary vertical support. The shock absorbers are fitted right next to the wheels, leaving space for a particularly generous through-loading width in the luggage compartment. A tubular anti-roll bar is secured to the axle beam by means of extremely stiff rubber-to-metal mounts; it reduces body roll effectively and has a positive influence on the amount of lateral force that can be absorbed and thus on the vehicle's handling.

An innovative technology is used for the shock absorbers: Audi magnetic ride. Instead of the conventional damper fluid, a magnetorheological fluid is used – in other words, a fluid whose viscosity can be influenced by an electromagnetic field. This effect enables to damping characteristic to be influenced electronically at will by applying a voltage to the electromagnets.

Audi uses this property to supply the correct damping forces in every driving situation, thus optimising ride comfort and road behaviour. A computer equipped with sensor technology determines the prevailing driving situation in a matter of milliseconds. The driver can choose from two driving programs depending on whether they want to drive in a very sporty style – in which case the magnetorheological fluid exhibits high viscosity – or more with the accent on ride comfort.

Lighting design and electronics

Visible innovation is to be found beneath the covers of the headlights and rear lights of the Audi Shooting Brake Concept – this is where a fascinating formal idiom and trailblazing technology come together. The design of the lighting elements and the night design simultaneously give the overall appearance of Audi's latest study car an utterly new visual accent.

The design of the decidedly three-dimensional main headlights, using LED technology, is particularly eye-catching. Bionics, in other words drawing design inspiration from nature, has been at work here. The light unit has a design reminiscent of an open pine cone. Reflector shells arranged concentrically one behind the other each concentrate the light from one diode, producing a high-luminosity, even form of driving light.

By contrast the high-beam headlights, located on the inside, are blossom-shaped. The indicator lights, in the form of narrow light strips, delineate the lower edge of the headlight housings and the exterior mirrors, providing prominent signals and original visual accents. The daytime running lights naturally also use LED technology, the merits of which include particularly low energy consumption, over and above their attractive design.

The rear lights of this study, recessed deep into the vehicle body, likewise have a highly innovative design. The transparent red covers again provide a clear view of the LED technology. The diodes actually cast their light forwards onto the reflector, which distributes it back to the rear through a mask in the shape of a double cloverleaf.

This results in an unmistakable appearance for both the rear lights and the brake lights. The turn indicators again take the form of narrow horizontal strips.

New navigation system

There are electronic innovations in other areas of the vehicle, too. An enhanced version of the DVD screen-based navigation system plus offers special operating functions and a new screen presentation. Audi uses touch screen technology for the first time here. The driver can activate the basic architecture of the MMI screen directly by touching the function panels in the display.

The new system generation moreover permits operation of the navigation menu by direct input, e.g. of destinations, via the monitor. Instead of having to compose them one letter at a time from the menu, the driver can simply write them on the monitor with their finger. Alternatively, a remote control with pressure-sensitive surface can be used to make inputs, as on a PDA computer. The input monitor pops up out of a slot beneath the centre display at the push of a button.

The special feature is that the system is not only capable of reading in handwriting, but can also identify a wide variety of scripts. The computer is equally able to read the conventional Latin alphabet and Japanese characters.

Another new aspect is the scope provided for choosing between two different navigation modes. Those who prefer the "Tour" mode can view the route on the monitor from an appreciably enhanced, three-dimensional bird's-eye perspective. The driver can take photos of destinations with a camera at the front of the car and store these as visual route markers.

Activating the "Sport" mode displays optical information above all via the central display in the instrument cluster. As well as spoken instructions, there are direction arrows to point the way. Again in the "Tour" mode, the driver can call up a further option that acts like an electronic rally co-pilot and makes the journey an end in itself: whenever the driver feels the urge to drive along a particularly challenging, winding route, they can call up an appropriate itinerary from the computer. While following the proposed route, as well as receiving directions they are then advised on the best gear to engage and the speed at which to take the next bend.