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The Audi A7 Sportback – elegance and efficiency

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|--------------------------------|----|
| Summary | 2 |
| At a glance | 6 |
| Full version – Exterior design | 8 |
| Body | 12 |
| Interior | 14 |
| Controls and interior | 15 |
| Driver assistance systems | 17 |
| Multimedia systems | 19 |
| Engines | 20 |
| Drivetrain | 22 |
| Chassis | 24 |
| Equipment and trim | 25 |

Annex: Technical Data

The equipment and data specified in this document refer to the model range offered in Germany. Subject to change without notice; errors and omissions excepted.

Summary

Aesthetic and athletic – the Audi A7 Sportback

Emotion-packed design, sporty character and innovative technology: Audi is targeting a new market segment with the A7 Sportback. The large five-door model with the dynamically accentuated rear end brings together the best of three worlds: the sporty elegance of a coupe, the comfort of a sedan and the practicality of a station wagon.

The A7 Sportback is pure high-tech. Its body is very lightweight thanks to numerous aluminium components. The elegant interior shows a craftsman's level of workmanship. The four V6 engines combine refined power with groundbreaking efficiency. The 3.0 TDI with 150 kW and multitronic has CO₂ emissions of just 139 grams per kilometre. The sporty chassis comes with new solutions, such as electromechanical power steering. When it comes to assistance and infotainment systems, the luxury-class coupe exhibits all of the innovative power expected of Audi.

The five-door coupe from Audi combines supreme, long-distance comfort with a sporty character. The interior noise level is very low even at fast highway speeds, with the V6 engines providing refined acoustic feedback as their power unfolds.

The excellent vibrational comfort likewise contributes to the atmosphere of cultured tranquility on board. This is the result of painstakingly tuning all components, systematic hydraulic damping in the axle and drivetrain bearings and the extremely stiff body. The body is comprised primarily of aluminium and high-tech steels, making it extremely lightweight and safe. The large rear hatch opens wide to reveal a large, extremely usable luggage compartment that is very easy to load. Its 535-litre capacity swells to a volume of 1,390 litres with the rear seat backrests folded down.

With the A7 Sportback, Audi is taking up a new design line representing elegance on a grand scale. The five-door coupe is 4.97 metres long and 1.91 metres wide, but only 1.42 metres high. Its long hood, the short front overhang, the long wheelbase, the sportily flowing C-pillars and the sharply dropping rear create a dynamic overall impression. The five-door coupe is an aesthetic athlete with a wide, powerful road stance.

Optional LED headlights reinforce the unmistakable expression of the A7 Sportback and provide all light functions with light-emitting diodes while minimising energy consumption. Bi-xenon headlights and LED tail lights come standard. The innovative all-weather light function has also been integrated into the headlights, replacing the classic fog lights.

The sportiness of the exterior carries over into the interior of the A7 Sportback, where Audi again demonstrates its leading role in automotive design. The salient element is the “wrap-around,” a horizontal line that encircles the driver and front-seat passenger in the interior to provide a feeling of safety and security. The wave-shaped application strip with its integrative dynamics is the salient element of the dashboard.

The utmost care has been devoted to every last detail in the interior. Workmanship is at a craftsman’s level. Optional climate-control and massage functions are available for the front seats covered in high-grade Audi leathers. The optional ambient lighting fills the entire interior with atmosphere.

Like Audi’s A8 flagship, the A7 Sportback also combines a new level of technical intelligence with logical, intuitive ergonomics and self-explanatory operation. The advanced MMI operating system with central menu button and reduced number of buttons comes standard, while one of the options is a new head-up display that projects the most important information on the windshield. The MMI touch system combines a hard drive navigation system with the convenience of touchpad input.

The driver can use the touchpad to perform numerous functions, such as using his or her finger to write the letters of the destination or the digits of the telephone number.

The online services work together with Google to connect the five-door Audi coupe to the Internet via the Bluetooth car phone. A UMTS module delivers images and information from Google Earth to the monitor and combines them with the navigation route. A WLAN hotspot is used to connect mobile devices. Further to the Bose sound system, the top-of-the-line option is the Advanced Sound System from Bang & Olufsen featuring 1,300 watts of power and 15 speakers.

The top navigation system works closely together with the many optional driver assistance and safety systems in the A7 Sportback. It forwards the route data to the control units for the headlights, the automatic transmission and the adaptive cruise control with stop & go function, enabling these systems to recognise complex scenarios. In many cases, the Audi pre sense safety system can reduce the severity of accidents and their consequences. The new Audi active lane assist helps the driver to keep the A7 Sportback firmly on course, and the new park assist system relieves the driver of the chore of steering when parallel parking.

Audi will initially offer the A7 Sportback with a choice of four powerful and cultivated V6 engines: two petrol and two TDI units. Their power output ranges from 150 kW to 220 kW, and their efficiency sets impressive new standards in the vehicle class. The new 3.0 TDI with 150 kW and multitronic consumes on average just 5.3 litres of fuel per 100 km, corresponding to CO₂ emissions of just 139 g per km. All engines use Audi's innovative thermal management system, a recuperation system and a start-stop system.

The standard automatic transmissions also play a role in the high efficiency of the Audi A7 Sportback. Audi offers two different transmissions depending on the engines: The continuous multitronic sends the power to the front wheels, while the sporty seven-speed S tronic works together with quattro permanent all-wheel drive. The latest evolutionary stage of quattro features a crown-gear center differential and torque vectoring.

The drive system is particularly flexible and dynamic. The optional sport differential actively distributes the power between the rear wheels.

The chassis also combines sporty precision with luxurious comfort. The Audi A7 Sportback rolls on large wheels measuring from 18 to 20 inches in diameter. The chassis features aluminium control arms and a newly developed power steering system with an electromechanical drive for high efficiency. The Audi drive select dynamics system is standard and can be supplemented by the optional adaptive air suspension with controlled damping.

At a glance

The Audi A7 Sportback

Design and body

- Elegant coupe design with four doors and a large, wide-opening luggage compartment hatch that opens and closes electrically (standard)
- 4.97 metres long; variable luggage compartment with up to 1,390 litres of capacity
- LED headlights optional; bi-xenon headlights and LED tail lights standard
- Lightweight body, large percentage of aluminum and high-strength steels

Interior and controls

- Elegant, modern lines, a craftsman's level of workmanship, elegant colours and materials, novel layered wood inserts
- Start-stop button standard
- Front seats optionally with ventilation and massage function
- MMI radio operating system standard; head-up display available as an option
- Optional MMI navigation plus system with touchpad and large 8-inch display, Internet services from Google, Audi music interface and Bang & Olufsen Advanced Sound System
- Optional ambient lighting package with LED technology in the roof module, in the center console ringed with lights and the illuminated door sill trims
- Advanced safety and assistance systems such as Audi pre sense, adaptive cruise control with stop & go function, Audi active lane assist, night vision assistant, speed limit display and park assist system
- Highly efficient, fuel-saving climate control system

Engines

- Four V6 engines – two powerful and highly efficient petrol and TDI units each with power ranging from 150 kW to 220 kW
- All engines with thermal management, start-stop system and energy recovery
- 3.0 TDI with 150 kW and multitronic (front-wheel drive) with just 139 g CO₂/km

Drivetrain

- Front-wheel drive with multitronic; quattro all-wheel drive combined with seven-speed S tronic
- quattro with crown-gear center differential and torque vectoring
- quattro with sport differential for the active distribution of power at the rear axle available as an option

Chassis

- Sophisticated chassis construction, aluminium control arms
- Newly developed, high-efficiency electromechanical power steering
- Audi drive select assistance system comes standard
- Optionally available adaptive air suspension with controlled damping
- 18-inch to 20-inch wheels, powerful brakes

Full version

Elegance on a grand scale – the Audi A7 Sportback

Audi is targeting a new vehicle class with the A7 Sportback. The large, elegant five-door model combines the emotional character of a grand coupe, the comfort and prestige of a sedan and the active practicality of a station wagon. With its lightweight body, the powerful and efficient V6 engines, the sporty chassis and the advanced assistance and multimedia systems, it sets standards in many fields of technology. The Audi A7 Sportback will roll into dealerships in the fall.

Exterior design

The Audi A7 Sportback is at once an elegant and an innovative Audi – a car with elegant, sporty proportions, a long hood and wheelbase, short overhangs and athletically curved outer contours. It marks the next step in the evolution of the design language of Audi, the leading brand for automotive design.

The Audi A7 Sportback exudes a powerful presence and attraction; it is a car whose design cries out to be touched and enjoyed. With its low, dynamically accentuated roof line and its balanced proportions, it looks like a coupe. The rear doors are perfectly integrated into the silhouette. The design is consistent and expresses the aesthetics of modern technology in every detail – in the precisely drawn lines, in the athletic curvature of the surfaces, in the engine compartment and even the wheels.

The large single-frame grille up front has six corners like that of Audi's A8 flagship, making it appear even more dynamic. The slats of the grille are painted high-gloss black and adorned with chrome applications as an expression of quality. Its horizontal posture and the design of the wide and low air inlets emphasise the width of the A7 Sportback.

As always with Audi, the headlights are small, technical works of art that illustrate the advantage that the brand has gained in lighting technology. Their flat contour that widens laterally shifts the optical focus outward. The lower edge is in the form of a wave, with the wing – a classic Audi feature – structuring the interior.

The A7 Sportback comes standard with xenon headlights with integrated all-weather lights. Optionally available here is the Audi adaptive light system, which always offers the appropriate lighting, whether driving in the city, when turning, on inter-urban roads or on the highway. It includes continuous headlight range control, which detects other vehicles and adjusts the car's own light with smooth transitions.

Audi offers optional all-LED headlights, a major Audi innovation that premiered in the R8 and the A8. Their white light resembles daylight and is extremely energy-efficient. The zero-maintenance LED headlights generate unmistakable graphics, day or night.

Three modules comprising high-performance light-emitting diodes, mounted in separate chambers, generate the low beams. Other light functions include the high beams, the cornering light, the all-weather light and the highway light. The daytime running lights comprising 18 LEDs appears to be a continuous band at the lower edge of the headlights, below which are the turn signals comprising eleven LEDs. The high-beam assistant, which switches between the high and low beams, is a complementary technology.

Dynamic wave: the side view

The side view of the Audi A7 Sportback is a powerfully drawn line. The roof arch is a flat dome; the C-pillar stretches endlessly to the rear and flows into the shoulder of the body. Integrated into the pillar is a third side window with an upward pointing tip – a small homage to the Audi 100 Coupé S from 1969. The ratio of painted body surfaces to the frameless windows is two-thirds to one-third in the side view, which is also typical for Audi.

The sharp tornado line, the most important design element of the A7 Sportback, extends over the entire side. It gives the body strong shoulders, like those of an athletic swimmer. The tornado line starts at the headlights and extends along the fenders, the doors and the rear side walls to the tail lights. Located above the side sills is the dynamic line.

The large wheel wells housing wheels between 18 and 20 inches in diameter are also typical for Audi. They underscore the powerful character of the vehicle and offer opportunities for customising the car's outward appearance. Like with a sports car, the dynamically styled exterior mirrors are mounted on the doors – another sporty detail. The agile impression of the A7 Sportback is the result of many subtle solutions. The third side window, for example, lightens the rear section of the flanks visually.

The line of dynamic elegance encircles a rear end that uses a slight negative indentation to form a distinctive spoiler lip. The luggage compartment hatch is equipped with a spoiler that automatically extends at 130 km/h and retracts again at 80 km/h. The diffuser insert is painted in the body color and frames the two large, chromed tailpipes of the exhaust system, thus also emphasising the car's width.

All surfaces at the rear of the car are vividly modeled; the tips of the divided tail lights point inwards. With the exception of the reversing light, the tail lights are realised entirely with LED technology standard. They have been machined in three dimensions and accentuate the sculptural character of the A7. The tail lights appear to be a homogenous band that forms a broad, U-shaped arc. The brake lights, which are in the form of a helix, are located inside the arch, above which the turn signal extends as a straight line.

Audi offers eleven elegant paint finishes for the A7 Sportback. The two solid colours are called Ibis White and Brilliant Black. The six metallic colors are Ice Silver, Quartz Gray, Oolong Gray, Moonlight Blue, Havanna Black and Dakota Gray. Rounding out the palette are the three pearl-effect finishes Phantom Black, Garnet Red and Impala Beige.

Fast track: from concept car to production

Audi announced the A7 Sportback 18 months ago at the North American International Automobile Show in Detroit with the Audi Sportback concept show car. The differences between it and the production model were slight, lying primarily in the area of the headlights, the single-frame grille, the air inlets, the exterior mirrors and the rear end. Almost all of the new ideas in the interior also made it into the production model.

Audi frequently has show cars go into production nearly unchanged. This process expresses one of the brand's particular strengths, demonstrating how deeply the Board of Management and all areas of the company support the visions of the designers. Design is much more than styling at Audi; it is a reflection of the highly developed technology.

Back in 1993, a luxury sedan in shining silver called the ASF enthralled the public at the Frankfurt Motor Show. The show car with its unpainted body of polished aluminium was the precursor to the A8. Two years later Audi provided the first glimpse of the TT, likewise at the Frankfurt Motor Show. And in 1997, the A12 show car stood at the same location as a preview of the A2.

In 2003, two spectacular show cars heralded the move into new vehicle classes. In January Audi presented the Pikes Peak quattro in Detroit. The big, sporty SUV was the precursor to the Q7. In September, the Audi Le Mans quattro became the star of the Frankfurt Motor Show. It was the spitting image of the R8 which came later.

At the Shanghai Motor Show in April 2007, the brand presented the Audi Cross Coupé quattro, which went into production as the Q5 a short time later. There was even a forerunner of the compact Audi A1, which is just now coming to market: The Audi A1 project quattro, a hybrid-drive city car, debuted at the 2007 Tokyo Motor Show.

Body

The Audi A7 Sportback is 4.97 metres long and has a wheelbase of 2.91 metres. At 1.91 metres wide, it is only 1.42 metres tall – these proportions allude to the dynamic lines. The c_D value is 0.28; the front surface area measures 2.29 m². The clean flow of the slipstream – including along the underbody and as it flows through the engine compartment – was an important objective in the requirement specification.

The noise level on board the five-door coupe is extremely low thanks to the painstaking fine-tuning of the aeroacoustics, which also includes the glazings. Even the standard version does a very good job of attenuating outside noise. Audi offers optional glazings that integrate a special film with acoustic properties for an added degree of comfort, particularly on long highway journeys.

Long-distance comfort and a sporty character are not contradictory at Audi, and this also applies to the acoustics of the A7 Sportback. Longer drives really let the five-door coupe show off its luxury-class ride: low noise, low vibrations and perfect vibrational comfort. The powerful engines round out the experience with a cultivated sound.

The excellent acoustics are the combined result of high-end materials and new construction methods. Modern microfibre non-wovens, an underbody liner and wheel well linings all play a part here.

The high level of vibrational comfort is another strength of the Audi A7 Sportback. Hydraulic damping elements are used consistently for the axles and the subframes, and hydraulically damped bearings are used for the engines. The engineers tuned these elements using advanced simulation methods and Audi's comfort test bench – a development tool not found anywhere else in the world.

The body of the A7 Sportback also sets standards with its low weight. The steel/aluminium mixed-construction body is roughly 15 percent lighter than a comparable all-steel body, placing it at the head of its class. Take for example the 3.0 TDI with 150 kW and the multitronic transmission. Minus the driver, the entire car in the base version weighs just 1,695 kilograms. The low weight is the result of the brand's pioneering lightweight construction technology that intelligently combines a variety of materials.

More than 20 percent of the body is made of lightweight aluminium, a material with which Audi has experience that no other manufacturer can match. The strut mounts in the front of the car are aluminium castings; the strut brace and cross-members behind the front and rear bumpers are aluminium sections. All add-on parts, such as the front side walls, the hood, the rear hatch and the doors, but also the bulkhead and the cross-member in the luggage compartment, are made of aluminium panels.

High-end steels of various strength classes make up a large portion of the body. Most commonly used are the hot-shaped steels, which are used in some zones of the passenger cell and at its transition to the front end of the car. They are heated in a pass-through furnace to nearly 1,000 degrees Celsius and shaped immediately thereafter in water-cooled pressing dies. Audi also uses tailored blanks in many areas. These are panels of various thicknesses that are thicker and stronger in areas subjected to higher loads.

The body of the Audi A7 Sportback combines low weight with high rigidity and supreme strength. It thus provides the basis for the sportily precise handling, the high crash safety and the supreme vibrational comfort on board – for the typical Audi ride, in other words.

Interior design

Air and light, sleek shapes and bright colors: The interior of the A7 Sportback is an emotional space full of lightness and expanse. Its lines take up the powerful sportiness of the exterior to demonstrate Audi's status as the leading brand for vehicle design.

The salient element is the "wrap-around" – a horizontal line encircling the entire cabin. It extends in a curve from the driver-side door sill across the instrument panel to the passenger-side door sill. The wrap-around embeds the driver and front-seat passenger into the interior. The exterior and interior form a harmonious design element. The frame of the door opener invokes the shape of the rear side window from the exterior.

The large arch integrates a low and slender instrument panel that slopes slightly downward toward the passengers. The application strip with its integrative dynamics is the salient element of the dashboard. Its face forms a wave oriented toward the driver, and even the dividing line between the upper and the lower segments is in the shape of an S. The centre air vents follow this line and are shaped like a wing.

Audi's legendary attention to detail characterises the entire interior of the A7 Sportback, just as it does in the A8 luxury sedan. Materials are chosen with the utmost care; the uncompromising workmanship is on a craftsman's level.

The strongly driver-oriented cockpit comprises the instrument cluster, the air vents and the control elements. The aluminium finish highlights the rotary knobs. Both the shift gate and the start-stop button feature subtle red backlighting.

Audi will immediately be offering a wide range of upholsteries and decorative elements, including Milano and Valcona fine leathers, a leather/Alcantara combination and a leather package for the center console, the armrests in the doors and the door pull handles.

Audi offers inlays in a choice of two aluminium applications and two types of wood: natural brown fine grain ash and dark brown walnut. A veneer of layered oak will be available later. Audi has made significant advances in the technique of cutting veneers from a single block and uses painstakingly prepared and treated oak.

Controls and interior

The A7 Sportback offers a full range of functions, yet its controls are simple and intuitive. The large, clearly marked dial instruments with their red needles and the display of the driver information system (DIS) are located under a flat cowl. They appear three-dimensional and extremely precise.

The optional driver information display – either 5 or 7 inches and white or in color depending on the version – bundles a lot of important information and settings in a logical menu structure and is controlled using the leather multifunction steering wheel. Another standard feature is the on-board computer with efficiency program. It provides tips for efficient shifting, includes a gear-change indicator and shows how individual systems affect fuel consumption.

The central on-board monitor, the standard version of which measures 6.5 inches and has a high-gloss black frame, is recessed into the centre of the dashboard. It extends electrically upward in an elegant motion when the ignition is switched on. The instrument panel, which is inclined toward the driver, contains the control unit for the highly efficient deluxe air conditioning system and secondary switches for direct access to the most important functions. All other functions are offloaded to the MMI (Multimedia Interface) operating system located on the wide, asymmetrical tunnel, which forms a separate component with no connection to the centre console.

The operating logic of the MMI is exemplary. The hard keys are used to jump directly to the main menus; the soft keys and the central rotary pushbutton are used to navigate within them.

The driver can jump to the menu overview at any time using a central menu button. The central rotary pushbutton is used to select the desired menus and functions. The main functions of the audio system make up one logical unit and are consolidated in the main control element. The electromechanical parking brake leaves a lot of room on the centre tunnel for a comfortable, steplessly height-adjustable center armrest, a telephone and a large storage compartment.

New: the head-up display

Audi offers a new high-end feature as an option in the A7 Sportback – a head-up display. It projects the most important data onto the windshield as symbols and digits that appear to float at a distance of roughly 2.5 metres. The driver assimilates this information extremely quickly because his or her eyes, accustomed to distance vision while driving, do not have to adjust. The driver can use the MMI to determine which information the head-up display should show, such as speed, the navigation arrows or the indications from the assistance systems.

The Audi A7 Sportback is designed as a four-seater. Its front seats are mounted sportily low. Ten-way seats are standard. Options include power adjustment, a memory function and seat heating.

The deluxe seats offer 20-way power and pneumatic adjustments. These are available with ventilation using a novel and particularly effective suction technology and a function in which ten air chambers massage the back according to one of five programs. Customers with sporty tastes can choose the sport seats with their prominent side bolsters and 14-way adjustment.

In the back of the A7 Sportback are two comfortable individual seats. The long wheelbase provides for generous amounts of space. Even large persons enjoy ample headroom and easy entry. Spacious and practical storage is available at all of the seats.

The Audi A7 Sportback is a versatile car for active people. Its long rear hatch that extends far up into the roof covers a large luggage compartment lined with fine carpeting. Its low loading lip helps make it convenient to use. Standard capacity is 535 litres, which increases to 1,390 litres by folding down the split rear seat backs, which is a matter of a few easy steps.

The rear hatch comes standard with an electric drive unit. It opens high, and the opening angle can be programmed using the buttons on the inside of the hatch. The split cover is never in the way while loading the luggage compartment. Its short segment is connected to the body, the long segment to the hatch. Audi offers an optional load-through hatch with a ski sack and a reversible mat. With the trailer hitch, the A7 Sportback can tow up to 2,100 kilograms.

Driver assistance systems

Audi offers a wide range of the latest-generation driver assistance systems. They are tightly networked with one another and other systems in the vehicle, making them extremely capable and versatile. The respective control units are connected via the fast and modern FlexRay bus system, allowing the driver assistance and chassis systems to be precisely controlled.

The heart of the driver assistance systems is the new adaptive cruise control with stop & go function (ACC). It uses the data from four radar sensors, a video camera and the ultrasonic sensors, incorporates navigation data and analyses a multitude of additional signals, from the activity of the turn signals to the steering angle to trailer detection. Its functions range from automatic stop & go in rush-hour traffic to the electronic monitoring of high-speed highway driving at speeds of up to 250 km/h.

The driver uses the MMI system to determine how the vehicle should behave in ACC mode. The choices are “dynamic” – powerful acceleration when the roads are clear, spontaneous and direct when following traffic; “standard” – balanced in all situations; or relaxed and fuel-efficient cruising in “comfort” mode.

Another high-end system is Audi side assist, which from speeds of 30 km/h upwards warns the driver of critical situations when changing lanes. It uses radar to monitor the space behind the A7 Sportback. The speed limit display detects important traffic signs and their supplemental signs with a camera and shows them in the instrument cluster display or in the optional head-up display. The night vision assistant uses a thermal imaging camera and highlights persons that it detects in front of the vehicle. It projects its black-and-white images onto the instrument cluster display. If it detects a potentially hazardous situation, it marks the person red and optionally displays a warning symbol in the head-up display.

The Audi pre sense safety system is available in a number of different versions in the A7 Sportback. It uses the highly networked systems on board and initiates preventive measures in the event of an imminent collision. In the version Audi pre sense basic, the system reacts when it detects an instable driving situation. The front seatbelts are electrically tensioned; the sunroof and the side windows are closed, leaving just a small gap; and the traffic behind is warned.

Audi pre sense front is available in combination with ACC stop & go. Its job is to prevent rear-end collisions with the vehicle ahead or to mitigate the consequences of such accidents. If the driver does not brake sharply enough in a critical situation, the system autonomously increases the brake pressure. If necessary, it initiates partial braking and tightens the belts as a precaution. If the person at the wheel still does not react, Audi pre sense front increases the braking force in a second stage and initiates preventive measures. If Audi pre sense plus is installed and the accident can no longer be avoided, emergency braking is initiated to reduce the speed by up to 40 km/h.

Audi pre sense rear is coupled with Audi side assist. If it detects a critical situation – an imminent rear-end collision – it ensures that the traffic behind is alarmed via the emergency flashers. If the situation escalates, preventive protective measures are activated.

The electromechanical power steering in the Audi A7 Sportback allows the use of two new assistance systems. One of them is Audi active lane assist, which uses a camera to detect the lane markings on the road.

If the driver does not stay in the lane, the system intervenes gently in the steering to steer the A7 Sportback back on course. The system can take vehicles and objects in the adjacent lane into account while doing so.

The second innovation is the park assist system, which is the top version of the three parking aid systems offered by Audi. It uses ultrasonic sensors that detect parallel and horizontal parking spaces on the side of the road while driving slowly. If the space is large enough, the system takes over parallel parking at the push of a button. The driver only has to apply the gas and brake. The park assist system maneuvers the A7 Sportback into the smallest of parking spaces. The system can parallel park with multiple forward and reversing motions, and can also park the car in spaces perpendicular to the road.

Multimedia systems

Infotainment and navigation are two other fields of technology where the Audi A7 Sportback sets new standards. In addition to the standard MMI radio, Audi offers three optional systems: MMI radio plus, MMI navigation and MMI navigation plus with MMI touch. All four systems have a retracting monitor.

Except for MMI navigation plus, all MMI versions use a 6.5-inch monitor. An 8-inch monitor is included in combination with MMI touch. The system integrates a large hard drive that can also be used to store music and files, convenient voice control and a Bluetooth interface. Its high-resolution 8-inch monitor displays map images and many points of interest in three dimensions.

As in the A8 luxury sedan, MMI touch comes with a groundbreaking innovation – a touchpad with black panel technology. The driver enters a destination or a telephone number by drawing the letters and numbers on the touch-sensitive control panel with a finger. The system provides acoustic feedback so that the driver's eyes can stay on the road. MMI touch also recognises the characters of Asian languages.

Networked intelligence: predictive route data

The high-end navigation system works closely together with the other systems on board the A7 Sportback. It reads the road ahead from the 3D navigation data and provides predictive data to the control units for the automatic transmission, the adaptive cruise control with stop & go function and the headlights, enabling these systems to recognise complex scenarios.

Another groundbreaking feature in the Audi A7 Sportback is the online services provided in collaboration with Google. They deliver online news and current information from the Internet to the A7 Sportback via the Bluetooth car phone. A UMTS module pulls images and information from Google Earth up on the monitor and combines them with the navigation route. A WLAN hotspot provides contact to mobile devices on board, such as an iPad or a laptop. The driver can use all of these services with his or her existing cellular phone contract.

Audi likewise offers a number of attractive multimedia modules, from the Bose sound system to the Bang & Olufsen Advanced Sound System with 1,300 watts of power. Its 15 speakers, which include two acoustic lenses that extend from the instrument panel when the system is switched on, have elegant aluminium housings. The amplifiers for the woofers are particularly energy-efficient.

Engines

The Audi A7 Sportback will hit the market with four direct-injection V6 engines: two petrol units and two diesels. Ranging from 150 to 220 kW, the engines propel the large five-door coupe smoothly and powerfully, with astonishing efficiency. The 3.0 TDI multitronic with front-wheel drive and 150 kW consumes on average just 5.3 litres of fuel per 100 km, corresponding to CO₂ emissions of just 139 g per km. No competitor in this class can boast figures this low. All engines use Audi's innovative thermal management system, a recuperation system and a start-stop system.

Audi has thoroughly revised the two petrol engines, the 2.8 FSI and the 3.0 TFSI, with respect to internal friction and thermal management. The engines quickly come up to operating temperature following a cold start. A separate heat exchanger is used to also bring the transmission up to temperature. The 2.8 FSI has an additional efficiency technology on board – the Audi valvelift system varies the stroke of the intake valves as needed. This enables the engine to breathe with significantly reduced throttle losses in many partial-load ranges, boosting torque and reducing fuel consumption.

The 2.8 FSI produces 150 kW and 280 Nm of torque at 5,250 rpm. The torque is available from 3,000 to 5,000 rpm. Audi pairs this engine with the S tronic transmission and quattro all-wheel drive. The A7 Sportback 2.8 FSI quattro sprints from zero to 100 km/h in 8.3 seconds and has a top speed of 235 km/h. It consumes just 8.0 litres of fuel per 100 km on average, which corresponds to only 187 grams of CO₂/km.

With the top petrol engine, the 3.0 TFSI, a supercharger compresses the intake air for improved efficiency and performance. The three-litre V6 produces 220 kW between 5,250 and 6,500 rpm, and delivers 440 Nm of torque between 2,900 and 4,500 rpm. The supercharged engine, which in Europe is mated to the S tronic and the quattro powertrain, gives the five-door coupe the performance of a sports car.

The standard sprint takes just 5.6 seconds, and top speed is limited to 250 km/h. Standard fuel consumption is just 8.2 litres per 100 km, corresponding to 190 grams CO₂ per km.

The 3.0 TDI is available in two versions. The more powerful version of the big diesel, which has been completely redesigned, produces 180 kW between 4,000 and 4,500 rpm and 500 Nm of torque between 1,400 and 3,250 rpm. The S tronic and quattro all-wheel drive are also standard here. Acceleration from 0 to 100 km/h takes 6.5 seconds and top speed is limited to 250 km/h. Efficiency is impressive: just 6.0 litres of fuel per 100 km on average, which corresponds to only 158 grams of CO₂/km.

The second version of the 3.0 TDI, which will follow somewhat later, does even better in this discipline. It produces 150 kW between 3,750 and 4,500 rpm. With front-wheel drive and the stepless multitronic automatic transmission, it really flaunts its efficiency: 139 grams CO₂ per km and an average fuel consumption of 5.3 litres per 100 km are groundbreaking figures. With the new Efficiency TDI, the front-wheel drive A7 Sportback accelerates from 0 to 100 km/h in 8.1 seconds and reaches a top speed of 234 km/h.

With the 3.0 TDI with 150 kW, the timing of the cam shafts, the turbocharger and the common rail system with an injection pressure of 2,000 bar have been designed specifically for low fuel consumption. With front-wheel drive, the V6 diesel produces 400 Nm of torque. The power is continuously available between 1,250 and 3,500 rpm. With quattro all-wheel drive, it is 450 Nm of torque that is available between 1,250 and 3,500 rpm.

Drivetrain

Some of the groundbreaking efficiency of the Audi A7 Sportback can be attributed to the transmission. Audi provides two different technologies. The multitronic sends the power to the front wheels; the seven-speed S tronic is paired with quattro permanent all-wheel drive.

Both transmissions are characterised by low internal friction and high efficiency. They feature a wide spread with long gear ratios for high-speed driving. The transmissions are integrated into the engine's thermal management system and can access the predictive route data from the navigation system. Both the multitronic and the S tronic have the differential upstream of the clutch, i.e. directly behind the engine. This enabled the development engineers to place the front axle far to the front for a longer wheelbase and more even distribution of axle loads.

The continuous multitronic automatic transmission, which has been intensively revised for use in the A7 Sportback, allows the engine to constantly run in the range for its optimal efficiency. Its smoothness shines in everyday driving. It offers a sport mode and a manual mode with eight fixed gear ratios for a sporty driving experience. As with the seven-speed S tronic, the driver can change gears using the selector lever or the paddles on the steering wheel.

The seven-speed S tronic combines the convenience of an automatic with the efficiency of a manual transmission. Shifts are performed by switching between two independent clutches that service different gears. They take only a few hundredths of a second and are so smooth that they are barely noticeable. Two fully automatic programs are available in addition to the manual mode.

Even more efficient: the new quattro drive

The A7 Sportback comes with the new evolutionary stage of quattro permanent all-wheel drive that debuted in the RS 5 high-performance coupe. The new quattro drive system provides superior stability and traction, enabling the Audi A7 Sportback to easily pull away from its rear-wheel drive competitors when exiting a corner.

Its central component is the crown-gear centre differential. It can widely vary the distribution of torque between the front and rear axles very quickly, with up to 70 percent flowing to the front or as much as 85 percent to the rear, if necessary. The default 40:60 ratio offers a sporty rear bias. The new differential is compact and lightweight.

The crown-gear centre differential comes standard in combination with torque vectoring, which is also new. The electronic system can act on each of the four wheels individually. If the load on the inside wheel is reduced too much while the car is being driven dynamically, that wheel is braked ever so slightly and almost unnoticeably before it can begin to slip.

Audi offers the sport differential, a high-tech axle drive, as a complementary option that actively distributes the power between the rear wheels. When the driver steers or accelerates in a curve, much of the torque flows to the outside wheel – in turn perfectly re-orienting the car. The system nips any tendency for oversteer or understeer in the bud, giving the large five-door coupe maximum dynamics and driving precision.

Chassis

The Audi A7 Sportback combines the supreme comfort of a luxury sedan with the handling of a sporty coupe thanks to its sophisticated chassis. All control arms and many other components are made of aluminium. The track measures 1.64 metres up front and 1.63 metres at the rear. The five-link front suspension and the track-controlled, trapezoidal link rear suspension provide for superior driving and comfort qualities.

The electromechanical steering of the A7 Sportback has been developed from the ground up. Its servo boost varies as a function of driving speed. Steering feel is precise and sensitive; the steering ratio of 15.87:1 is very direct. The new electromechanical power steering is also very efficient because it does not have to draw any energy while driving straight ahead. It saves as much as 0.3 litres per 100 km. The steering works closely together with the optional Audi active lane assist system.

The Audi Q7 comes standard with a comfortable steel-spring suspension. An optional sport suspension with a 10-millimetre lower ride height is also available, and quattro GmbH offers an even tauter sport suspension. Audi also offers an optional air suspension with four electronically controlled shock absorbers. The adaptive air suspension has been redesigned, with struts up front and separate air springs and dampers in the back.

The system sets the ride height of the body to one of three different levels as a function of speed and the wishes of the driver. It lowers the body on the highway for improved stability and lower fuel consumption.

Another high-end feature in the Audi A7 Sportback is the Audi drive select driving dynamics system. The standard version incorporates the automatic transmission, the electromechanical power steering and the engine control unit. The driver can vary the function of these components between the four modes “comfort,” “auto,” “dynamic” and “individual.” Additional modules can also be integrated, including the adaptive air suspension, quattro with sport differential and adaptive light.

The Audi A7 Sportback is equipped with a powerful brake system. All discs are internally ventilated. The five-door coupe rolls on large, 18-inch alloy wheels; the 255/45 tyres are equipped with a pressure monitor. 19-inch and 20-inch wheels are also available. The 20-inch wheels are available with a chrome finish, in two colors or partly or fully polished. All tires have been optimised for rolling resistance, with run-flat versions available as an option.

Equipment and trim

The Audi A7 Sportback will debut with an opulent array of standard features. These include the deluxe automatic air conditioning system, keyless ignition via the engine start-stop button, the four-spoke leather multifunction steering wheel, the xenon headlights, the LED tail lights, the MMI radio with the 6.5-inch monitor, the electromechanical parking brake, the power rear hatch, the 18-inch alloy wheels and an acoustic windshield. The safety package leaves nothing to be desired, with two front, side and head airbags, four belt tensioners and the integral head restraint system.

A wide range of optional equipment is available for even greater comfort and convenience. These include the head-up display, a park assist system, a speed limit display, a four-zone automatic air conditioning system, an auxiliary heating system, insulating/acoustic glazing, a heated steering wheel rim, a power-adjustable steering column, sunblinds for the rear window, two ambient lighting packages, power-assisted closing for the doors, a garage door opener and the convenience key for keyless vehicle access. The choice of seats is also first-class – from power-adjustable comfort seats with heating, cooling and massage to sport seats. A storage package keeps things tidy.

The development of the deluxe automatic air conditioning system logically continued the Audi strategy of offering efficient air conditioning systems to reduce the associated additional fuel consumption/CO₂ emissions. The refrigeration cycle of the new Audi A7 Sportback represents the latest generation and offers market-leading performance.

Audi has prepared a large number of special features for those who appreciate the exceptional: a leather package, various upscale decorative inlays, black window styling and an S line sport package that drapes the interior in black. It is combined with a taut sport suspension, 19-inch wheels, sport seats and a special leather steering wheel. There is a complementary S line exterior package with updates to the exterior design available as an option. A number of additional suggestions are included in the Audi exclusive program.

A step ahead: the lighting technology

Lighting technology is a particular Audi strength. The adaptive light with continuous headlight range control is available as an option for the A7 Sportback with xenon plus headlights. The top-of-the-line version is the LED headlights with the high-beam assistant, which automatically switches between the high and low beams.

The brand also offers a choice of attractive technologies for the chassis. These are quattro all-wheel drive with sport differential as a complement to quattro permanent all-wheel drive, the adaptive air suspension and a range of wheels in sizes up to 20 inches.

The large five-door coupe also features state-of-the-art assistance systems. Audi offers the night vision assistant with highlighting of detected pedestrians, various versions of the Audi pre sense safety system, adaptive cruise control with stop & go function, the speed limit display, Audi side assist and Audi active lane assist. There are even three different parking aid systems to make parking easier – with classic sensors, with a reversing camera and with an autonomous parking function with the park assist system.

Navigation and communication are covered by the MMI operating system, which is available in three versions with and without navigation. There is also the online Bluetooth car phone, three sound systems, a TV module, a DVD changer and a digital radio tuner.

Audi is scheduled to begin delivering the Audi A7 Sportback this fall (Northern Hemisphere).