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The equipment and data stated here refer to the model range offered for sale in Germany. We reserve the right to make changes. Errors and omissions excepted.

Short version

Audi Roadjet Concept

Debut in Detroit: Audi is taking the wraps off a study car by the name of Roadjet Concept at the North American International Automobile Show. A vehicle that blends the latest evolutionary stage of Audi's formal idiom with an entirely new space concept. The drive technology, too, represents a new departure: on the 300 bhp 3.2 FSI engine, innovative concepts produce an unprecedented synthesis of performance, liveliness and efficiency. In conjunction with a longitudinally installed engine, the Audi Roadjet is moreover the first model to feature the sporty 7-speed Direct Shift Gearbox. The study car furthermore serves as a technology demonstrator of innovative electronic systems that will be finding their way into production models in the next few years.

The styling of this four-door fastback saloon is a new, distinctive interpretation of Audi design. Characteristic features include the dynamic wedge-shaped nose with the typical single-frame grille and the two large air inlets beneath the bumpers. The high shoulders that lend the vehicle an air of power and safety are also typically Audi. The Audi Roadjet Concept moreover has a large window area, reinforcing the impression of light and spaciousness inside the vehicle.

The dynamic line above the sill, as well as the shoulder line, defines clearly horizontal overall proportions that are emphatically road-centred. An effect that is echoed by the rear-end view: wide wheel arches, the trapezoidal tailgate and the diffuser below the bumper emphasise the sporty character of the Audi Roadjet Concept.

Measuring 4.70 m in length and 1.85 m in width, the Audi Roadjet Concept respects the standard dimensions of a B-segment vehicle. Yet its height of 1.55 m and the wheelbase of 2.85 m result in substantially more effective space for the occupants; both the higher seat position with ample legroom and the ample shoulder room and headroom at all four individual seats represent a new class best.

An evolutionary version of the current 3.2-litre six-cylinder engine with FSI petrol direct injection serves as an appropriate source of propulsion for the Audi Roadjet Concept. Thanks to a fixed intake manifold and the innovative Audi valvelift system for valve control, the engine develops 300 bhp at 7,000 rpm and 330 Nm of torque at 4,500 rpm. This power unit is impressive not merely in terms of absolute performance, but also thanks to its pulling power and bite, coupled with a linear increase in power all the way up to the rated speed.

The Audi Roadjet Concept is the first model to feature the sporty Direct Shift Gearbox in conjunction with a longitudinally installed engine and quattro permanent four-wheel drive. Closely related to the DSG used to such dazzling effect in the A3 and TT, it combines the advantages of a manual gearbox with the qualities of a modern automatic transmission, resulting in a drive concept that is superior in every respect.

The dynamic suspension layout with four-link front suspension and self-tracking trapezoidal-link rear suspension delivers the accustomed standard of driveability and ride comfort. Variable shock absorbers and the new Audi dynamic steering rack-and-pinion steering concept with variable ratio are used for the first time.

One particular innovation that enhances driving fun is Audi drive select: this system enables the driver to preselect several entirely independent vehicle characteristics at the push of a button. Three modes – "comfort", "dynamic" and "sport" – alter the steering, damping and transmission response, as well as the engine characteristic. Audi drive select thus provides access to highly distinct driving experiences that can be realised by a single vehicle, entirely as the driver sees fit.

Safety in particular, but also economy and comfort, benefit from the new system of car-to-car communication that Audi is unveiling in the Roadjet Concept. This cross-manufacturer form of information electronics is based on data exchanges between vehicles moving in traffic and the ambient infrastructure, via the WLAN network.

This technology opens up new horizons: it enables data on the traffic flow to be processed, promoting a prudent driving style that avoids congestion or even helps to prevent accidents. And linking up with stationary networks will already become a reality in a few years' time, for example enabling drivers not only to identify where there is a free parking space before they reach their destination, but also to reserve it.

Long version

Audi Roadjet Concept

Debut in Detroit: Audi is taking the wraps off a study car by the name of Roadjet Concept at the North American International Automobile Show. A vehicle that blends the latest evolutionary stage of Audi's formal idiom with an entirely new space concept. The drive technology, too, represents a new departure: on the 300 bhp 3.2 FSI engine, innovative concepts produce an unprecedented synthesis of performance, liveliness and efficiency. In conjunction with a longitudinally installed engine, the Audi Roadjet Concept is moreover the first model to feature the sporty 7-speed Direct Shift Gearbox.

The study car furthermore serves as a technology demonstrator of innovative electronic systems that will be finding their way into production models in the next few years.

The introduction of a new cross-manufacturer standard for car-to-car communication opens up a new dimension in safety and service. Important parameters such as safety, the traffic flow and therefore obviously also fuel economy and emissions can be influenced positively by information exchanged directly between vehicles in moving traffic. A car-to-car communication standard furthermore opens up countless new possibilities in the domains of service and comfort.

One particular innovation that enhances driving fun is Audi drive select: this system enables the driver to preselect several entirely independent vehicle characteristics at the push of a button.

Three modes – "comfort", "dynamic" and "sport" – alter the steering, damping and transmission response, as well as the engine map. Audi drive select thus provides access to highly distinct driving experiences that can be realised by a single vehicle, entirely as the driver sees fit.

Design

The exterior

The styling of this four-door fastback saloon is a new, distinctive interpretation of Audi design. Measuring 4.70 m in length and 1.85 m in width, the Audi Roadjet Concept respects the standard dimensions of a B-segment vehicle. However, its height of 1.55 m and the wheelbase of 2.85 m result in substantially greater spaciousness, and also give this car fundamentally new basic proportions.

The decidedly short overhangs at the front and rear give the Roadjet Concept an utterly new flavour of sporting flair.

The characteristic features of the front end are the dynamic tapered shape with the characteristic Audi integral single-frame grille and the large air inlets below the bumpers. Vertical slats in the single-frame grille support the prominently three-dimensional Audi badge. Concave surfaces around the highly sculpted wheel arches lend the nose extra width. Beneath the clear-glass covers of both the headlights and the rear lights, LED light units create an unmistakeable visual impact both in daylight and after dark.

The high shoulders that lend the vehicle an air of power and safety are also typically Audi. The Audi Roadjet Concept moreover has a large window area, reinforcing the impression of light and spaciousness inside the vehicle.

Slim roof posts and the raked rear window combine with the coupé-like roof line in producing a highly dynamic silhouette. A roof spoiler above the large rear window helps to maintain good surface contact, while visually extending the arc of the roof even further to the rear.

The dynamic line above the sill, as well as the shoulder line, defines clearly horizontal overall proportions that are emphatically road-centred. A new element to Audi is the arched capping line, extending between the front and rear wheel arches.

Together with the shoulder line, it produces an invigorating interplay of convex and concave surfaces.

The handles are integrated flush into the door surfaces; they are extended when touched, to allow convenient opening of the doors.

The impression created by the rear end, too, is decidedly dynamic: wide wheel arches, the trapezoidal tailgate and the diffuser below the bumper emphasise the sporty character of the Audi Roadjet Concept. The stepped rear lights extending well round into the sides echo this car's closest relations in design terms within Audi's current production range: the Avant models and the Sportback. The tailgate beneath the windows likewise extends well round into the sides, thus acting as a visual bridge between the rear and sides. The exhaust system's wide twin tailpipes, integrated into the striking diffuser, are another new element.

The interior

Modernity and functionality, dynamic elegance and open perspectives: this is the most immediate impression of the Audi Roadjet Concept's interior. Warm, subdued earth colours contrasting with the light grey of precision metal applications create an atmosphere pitched somewhere between elegant functionality and emotional appeal. This impression is enhanced by the combining of purely functional materials such as Neoprene, at floor level, with exclusive leather.

This vehicle interprets the architecture of the Audi interior in a novel way. The characteristic features include the stimulating interplay of proportions and dynamism. The instrument panel envelops the driver's and front passenger's seats in a wide, horizontally split arc. The controls and displays in the dash panel and on the centre console come across on the one hand as organically integrated and on the other as neatly structured and functional.

The four individual seat pans, almost filigree in appearance and featuring integral head restraints, divide up the interior into four separate zones. Between the rear seats there is a system of rails that can accommodate options that include a storage box with centre armrest, an espresso machine or a baby carrier facing to the rear.

The rear seats themselves can be adjusted along diagonal rails; when opened out into their frontmost position, a centre child's seat can be installed obliquely behind the rear seats if required. This centre child's seat is guided on rails on the movable luggage compartment floor. It can be folded over and easily removed to the rear. The load area can be further enlarged by folding the rear seat backs forward. The electrically operated movable load area floor pivots automatically to the rear, beyond the bumper, appreciably facilitating loading of the vehicle. The rail system integrated into the load area floor incorporates lashing points that can be used to secure the child seat or lash down items being carried, before the load area floor is moved forward again electrically, back into the vehicle.

The convenience function on the remote control enables the driver to extend the load area floor at the same time as the tailgate is opened.

The load area floor can be set to two positions inside the vehicle. Its lower position produces the maximum load area capacity; its normal level results in a level load area.

Both the comfortable, relatively upright seat position with ample legroom and the ample shoulder room and headroom at all four individual seats set new standards.

But superlative comfort in the Audi Roadjet Concept is not merely the result of the generous amount of space available. The deluxe automatic air conditioning with a newly developed air vent principle provides draught-free, individually variable climate control for every occupant.

A Bang & Olufsen sound system purpose-developed for the Roadjet Concept provides an audio quality worthy of the concert hall. As on the A8, 14 speakers – including the extendable tweeters on the instrument panel – and an amplifier output of more than 1,000 watts produce an acoustic experience that is without equal in the automotive world. If desired, the front and rear passengers can also listen to music via Bluetooth headphones.

The audio system also supports a new function that allows the occupants to converse without needing to raise their voices even when the car is travelling at high speeds. A technology by the name of Digital Voice Support (DVS) picks up the occupants' voices via microphones and reproduces them via the amplifier and speakers. Reproduction is controlled to take account of both the relative position inside the car of the person speaking and the general level of noise being generated by the vehicle.

The Multi Media Interface MMI has been reconfigured in the Audi Roadjet Concept. In addition to the central 10-inch display in the instrument cluster, there are separate displays and operating units for the front and rear passengers – including a 7-inch display on the backs of the front seats for the rear passengers. An entirely new technology makes its debut here: the front passenger views information on a back-projection display on the instrument panel, which also allows them to watch TV while the car is moving. To avoid distracting the driver, this display is screened off by a shield that extends automatically out of the instrument panel.

The range of functions is moreover tailored to individual requirements. Functions that classify directly as vehicle operation – such as the car setup menu – can be operated exclusively by the driver. On the other hand, the passengers can control both the infotainment system and the navigation, so that they can assist the driver with route suggestions, for instance.

The Roadjet Concept does not have traditional sun visors; instead, this function is performed by the use of Vari-Light technology along the upper edge of the windscreen: the degree of transparency of the glass – and therefore of light screening – can be varied electrically, thus enabling the driver to prevent any undesirable glare.

There is a further convenience feature in the rear centre armrest. On the Detroit showcar, it incorporates an espresso machine complete with water reservoir, stable cup holders for four cups and accessories. The occupants can now always enjoy a fresh cup of coffee whenever they wish, for instance during a break or while sitting in a tailback – an enticing alternative to lukewarm beverages out of a flask, and one that is bound to appeal not just to coffee connoisseurs.

Drivetrain

Typically for an Audi study, the Roadjet Concept too is powered by an engine that heralds the shape of things to come with its innovative technology. This applies in equal measure to the 300 bhp evolutionary version of the 3.2 six-cylinder FSI engine and the sporty Direct Shift Gearbox in conjunction with quattro permanent four-wheel drive.

The 3.2 FSI V6 with Audi valvelift system

The 3.2 V6 FSI – which features as a basic engine with an output of 255 bhp in the Audi A8, A6 and A4 – displays all the characteristics of an ultramodern petrol engine: FSI petrol direct injection with demand-controlled fuel supply, four valves per cylinder and highly effective exhaust emission control.

FSI engines develop superior power and dynamism to conventional units with indirect manifold injection – and they do so with a very high standard of fuel economy. With this remarkable achievement, Audi is opening up a new dimension in the efficiency of standard petrol engines, demonstrating once again the brand's proverbial "Vorsprung durch Technik".

The FSI petrol direct injection system confirmed its unique potential in what must be the most challenging endurance test in the world: a power unit with FSI direct injection drove the Audi R8 to victory on four occasions in the Le Mans 24 Hours.

The evolutionary version that powers the Roadjet Concept includes two technologies that double the specific advantage of FSI technology. Because with a fixed intake manifold together with integral vacuum reservoir – as opposed to the variable intake manifold of the production version – the 3.2 FSI can be configured systematically as a sports engine.

The six-cylinder engine in addition features a new valve control principle by the name of Audi valvelift system. In the form of two-stage cam lift adjustment, it is able to vary the degree of valve opening according to load and engine speeds.

What this means in practice is that in flowing traffic, the engine produces a decidedly smooth, relaxing response to only moderate use of the accelerator pedal, with impressive pulling power in reserve that results in outstandingly low fuel consumption.

But as soon as the driver ups the tempo, the 3.2 engine reveals its qualities as a highly talented athlete. It responds with bite to even minimal movements of the accelerator and moves fleet-footedly right up to the speed dictated by the limiter, which only cuts in at 7,500 rpm. What is particularly remarkable is that the power output rises constantly virtually all the way up to that point.
This V6 engine delivers its maximum output of 220 kW (300 bhp) at 7,000 rpm; its peak torque of 330 Nm is available at 4,500 rpm. The Roadjet Concept 3.2 FSI accelerates to 100 km/h in 6.4 seconds, and its top speed is electronically governed at 250 km/h.

No less astonishing is the average fuel consumption of this evolutionary concept: the Roadjet Concept covers 100 kilometres on just 10.4 litres of Super Plus – despite the Roadjet Concept's higher weight and larger frontal area, this figure is a few tenths of a litre better than its production counterpart in the A4 3.2 quattro, which develops 45 bhp less!

The combination of FSI and Audi valvelift system unquestionably demonstrates how much potential Audi's petrol engines of the future will still be capable of mobilising, with a view to delivering even more driving fun and efficiency. And that future is not far off: the underlying technology is already so mature that it could start finding its way into production in a few months' time.

The sporty 7-gear Direct Shift Gearbox

The Audi Roadjet Concept is the first Audi model to feature a sporty Direct Shift Gearbox with twin clutch in conjunction with a longitudinally installed engine. It combines the advantages of a 7-speed manual gearbox with the qualities of a modern automatic transmission, thus providing a drive concept superior in every respect. The driver benefits from supreme agility and driving pleasure combined with harmonious and dynamic acceleration without interruptions to the flow of power from the engine.

This is coupled with good economy thanks to low fuel consumption, and convenient operation.

The basis for this new development is a three-shaft 7-speed manual gearbox which offers considerable variability in the selection of the transmission ratio. Thanks to the use of a twin multi-plate clutch with ingenious electro-hydraulic control, two gears can be engaged at the same time.

So how does the Direct Shift Gearbox work? During dynamic operation of the car, one gear is engaged. When the next gearshift point is approached, the appropriate gear is pre-selected but its clutch kept disengaged. The gearshift process opens the clutch of the activated gear and closes the other clutch at the same time with a certain overlap. The gear change consequently takes place under load, with the result that a permanent flow of power is maintained.

Incorporating optimum gearshift strategies, the control logic integrated in the transmission provides instantaneous, comfortable and smooth gearshifts that are virtually free of any jolts or judder. And by moving the gearshift lever in the manual gate or operating the standard-fit paddles behind the steering wheel, as on a racing car, the driver can actively influence the choice of gears and the gearshift point at any time.

quattro permanent four-wheel drive

quattro permanent four-wheel drive is a typical feature of all high-performance Audi models. Since revolutionising the car world when first unveiled 26 years ago, permanent four-wheel drive has long since found its way into virtually all vehicle categories – and not just at Audi. Almost one in three Audi cars sold is currently a quattro; by the end of 2005, around 2.5 million Audi vehicles with quattro permanent four-wheel drive had been built.

quattro ensures excellent traction and lateral stability and minimises the effect of propulsive power on the vehicle's self-steering properties. This is a precondition of the car's tremendous cornering speeds and high dynamic stability.

A Torsen differential in the new Audi Roadjet Concept – with its longitudinally installed engine – automatically ensures the optimum distribution of power between all four wheels.

The name Torsen is a combination of the terms "torque" and "sensing". The Torsen differential is a self-locking worm gear.

The advantage of this is that the locking action is only prompted by the driveline. Yet this type of differential accommodates differences in speed when the brakes are applied and when cornering. The power is normally split 40:60 between the front and rear axles, producing particularly dynamic self-steering behaviour. In extreme cases, up to 80 percent of the propulsive power can be diverted to one pair of wheels if slip is encountered.

Chassis

The Audi dynamic suspension layout of the Roadjet Concept is based on proven sports technology: the refined four-link front suspension acknowledged as a typical Audi feature, and the self-tracking trapezoidal-link rear suspension carried over from the Audi A8 and A6. The 20-inch wheels with size 245/45 R20 tyres are an impressive feature.

All this results in a driving performance that stands up to any comparison in respect of dynamism and which sets the standard with regard to ease of control, even on rough terrain. This is also due in no small measure to the speed-dependent servotronic power steering featured as standard, supplementing the precise handling of the Roadjet Concept with even more sensitive steering precision.

Audi dynamic steering makes its first appearance on an Audi car; this superimposed steering system adjusts the steering ratio as a function of road speed. It affords a smoother ride at high motorway speeds in the form of a more indirect ratio, coupled with directional stability that is resistant to slight movements. When the Roadjet Concept is driven sportily on winding roads, on the other hand, a more direct ratio that permits high steering precision and a swifter response by the driver represents the optimum.

Another new feature is the electronically adjustable dampers that cover a variety of characteristics ranging from comfortably soft to sportily firm.

Electronic systems

As a technology demonstrator, the Audi Roadjet Concept embodies the proverbial "Vorsprung durch Technik" not merely in its drivetrain. It comes complete with a raft of other systems that will be finding their way into series production in a few years' time, thus paving the way for driving fun, safety and comfort.

Audi drive select

Only a minority of car owners can afford the luxury of having three cars parked in front of their house to give them maximum flexibility in choosing the right car for every occasion, depending on whether comfort, manoeuvrability or dynamic behaviour is what they require. The Audi Roadjet Concept fulfils all these requirements in a single car. Because Audi drive select allows the driver to preselect three highly distinctive configurations for the engine, transmission characteristic, steering and shock absorbers. The result is a car that can be enjoyed in three utterly different ways.

The basic setting is the "dynamic" mode; it is activated automatically at the start of every journey, and its overall concept reflects the expectations that Audi drivers typically have of what their car should feel like to drive in terms of both dynamism and comfort. The driver is informed which mode is currently active via the centre display in the instrument cluster.

If the driver selects the "comfort" mode by pressing the button on the control in the steering wheel, the shock absorbers adopt noticeably softer settings in order to filter out bumpiness in the road surface even more effectively. The Servotronic requires lower steering forces, and dynamic steering establishes a more indirect spectrum of ratios. The engine and transmission respond gently to use of the accelerator. This setting is perfect for relaxed driving over long distances, above all on straight roads such as motorways.

The "sport" mode, on the other hand, lends the Audi Roadjet Concept a decidedly sporty driving feel. The shock absorbers now adopt a firm response and the steering ratio is direct. The engine responds more spontaneously to the throttle and the transmission's shift points move higher up the engine speed range: the ideal basis for active driving pleasure on winding roads.

Over and above the three basic configurations, Audi drive select provides scope for varying individual parameters between the levels dynamic, sport and comfort. It is for instance entirely possible to combine sporty shock absorber settings with a relaxed, easy-action steering response.

Car-to-car communication

The electronics developers have focused on safety and traffic control in the Audi Roadjet Concept, as well as on driving pleasure. It features a prototype of a future generation of information-processing systems that herald in a new era in road traffic networking specifically in countries with high volumes of traffic.

At the heart of this concept is car-to-car communication, meaning the direct exchange of information within the flow of traffic. Unlike the telematics systems of the recent past, no central service is now needed to consolidate and process the information swiftly and effectively.

The progress that has been achieved in the areas of computing power and software development have made this application possible; even though they occupy very little space and consume very little energy, future systems will be capable of processing an array of data into practical, easily digested information for the driver that moreover paves the way for a very high standard of safety.

The reality of road traffic means that the car-to-car network can of course only be activated with a certain lead time. This hurdle is, however, manageable because virtually all vehicle manufacturers in Europe, the USA and Japan have agreed in parallel to develop a common standard for the hardware and software.

Applications have also been submitted to the authorities to use standard radio frequencies on an international scale, thus assuring the system's proper functioning when driving abroad.

Once all new vehicles in a market are being factory-fitted with this new technology, a functioning network of car-based transmitters will be created within a few months, at least in conurbations.

Many new areas of application can then be exploited in practice. The following three examples are intended merely as illustrations of what scope car-to-car communication offers:

Example 1 – safety. A vehicle has skidded on a slippery surface on a blind bend and is hanging half in a ditch, at right-angles to the flow of traffic. It is now unable to move unassisted. Other vehicles are swiftly approaching the obstruction but their drivers are unable to see it. With the new communication technology, the stranded vehicle will transmit a warning signal which – thanks to the network established with the vehicle's on-board navigation system – also indicates the location of the hazard. A corresponding warning simultaneously appears on the navigation screens of the approaching vehicles, indicating the location of the accident – the risk of a collision is thus substantially reduced.

Example 2 – traffic flow. Lines of vehicles are moving between sets of traffic lights on a multi-lane arterial road. The cars accelerate, only to have to brake again when the lights turn red. Such a driving style is not only fatiguing for the individual driver, but also means that thousands of litres of fuel are wasted along every kilometre of such roads in the long term, by the traffic as a whole; it furthermore significantly inflates exhaust emissions in conurbations.

Car-to-car technology means that the cars are not only able to establish a network with each other, but also pick up information from static transmitters such as the traffic lights' control systems.

The phases of each set of traffic lights can thus be transmitted, giving drivers an opportunity to anticipate more accurately how much acceleration is necessary or appropriate. The same applies to impending congestion: using data from cars further ahead, the systems can recommend what speeds drivers should adopt in order to keep the traffic flowing.

Example 3 – service. When driving through a city centre, a driver has selected the local shopping centre as the destination for the navigation system. There is a chronic shortage of parking spaces around that destination. Here too, the new technology is able to help: the mobile system uses the coordinates for the destination to link up with the parking spaces management system for the area around the destination. If a nearby vacant parking space is reported by static facilities, such as at a multi-storey car park, the navigation system can automatically take this into account and simultaneously reserve the space in that car park. The driver is guided to their destination by the shortest and most convenient route, instead of having to drive round in circles endlessly hunting for that elusive parking space.

The number of variations on these examples is almost limitless, illustrating the huge potential of the new technology in promoting safety, flexibility and efficiency as the volume of traffic on our roads increases.

Refined power in the sports luxury class
Audi S6 / S6 Avant

A refined flow of power in conjunction with superlative comfort and an elegantly understated appearance: this is the new Audi S6 / S6 Avant. It is the sporty top model in the luxury-class family of models comprising the Audi A6 saloon and A6 Avant, which took the market by storm following their launch in 2004 and have since garnered countless accolades worldwide from both customers and experts within the trade.

The S6, the latest product to result from the systematic application of Audi's philosophy of sportiness, will go on sale in the spring of 2006. Its appearance will coincide with the launch of the S6 Avant, the estate-car version that combines the exemplary versatility and variability of an Avant with the decidedly sporty character of the new Audi S6.

In response to the challenge to deliver supreme performance that always remains perfectly under control, the new Audi S6 will be powered by a completely new ten-cylinder V-configuration engine. This engine, a virtually identical version of which is likewise fitted in the new Audi S8, makes maximum use of its resources: with a displacement of 5.2 litres, it mobilises an output of 420 bhp (309 kW) at 6,800 rpm. It reaches its peak torque of 540 Nm between 3,000 and 4,000 rpm. Between 2,500 and 5,500 rpm, torque of over 500 Nm is available. This engine, weighing only 220 kilograms, is thus able to guarantee superior pulling power in every driving situation.

FSI petrol direct injection, a principle that has proved its worth in the most successful racing car ever built, the Le Mans winning Audi R8, plays an instrumental role in this model's refined flow of power. The saloon is capable of racing from 0 to 100 km/h in 5.2 seconds (S6 Avant: 5.3 seconds); the top speed is electronically governed to 250 km/h.

Both the driveline and the steering and suspension have been modified to reflect the immense power potential of the new Audi S6. The six-speed tiptronic automatic transmission, supplied as standard, accomplishes swifter gear changes; the steel-spring suspension is configured for greater agility and a more direct response, as is the servotronic steering. The latest-generation quattro permanent four-wheel drive with a 40:60 torque split naturally ensures optimum propulsion in all conditions. Thanks to this concept, the new Audi S6 sets itself apart as the progressive alternative to all its competitors.

One of the key requirements in the development of the Audi S6 was to provide a high standard of comfort in every situation, for all its sporty emphasis. This vehicle consequently also demonstrates over long distances that there is no inherent contradiction between refined power and the scope for the driver and passengers to enjoy a highly relaxing form of travel.

The interior offers a luxurious atmosphere. It features, for instance, new sports seats complete with integral head restraints, exclusive leather/Alcantara upholstery on all five seats and deluxe automatic air conditioning plus, with separate temperature distribution for the driver's and front passenger's sides.

For all the uncompromising and methodical nature of the technical concept, the external appearance of the Audi S6 is decidedly understated and elegant. The S6 saloon is characterised by such features as 19-inch wheels, subtly flared front wheel arches, the striking single-frame grille with vertical double struts and a harmoniously integrated rear spoiler, and the Avant has a modified roof spoiler.

The two daytime running light strips, each comprising five LEDs, are both a trendsetting safety element and an innovative masterstroke of design; they are integrated into the front bumper and, when switched on, serve as an unmistakable distinguishing feature of the S6.

Engine

Newly developed V10 with FSI technology and ample torque characteristic

Ten-cylinder petrol engines have long been regarded as a particularly sporty type of power unit. In the form of a V-engine they are short, compact and correspondingly light. The number of moving parts required for ten cylinders is moreover relatively low, bringing the added bonus of low friction losses. It is no coincidence that the Gallardo super sports car built by Lamborghini – an Audi subsidiary – is driven by a widely acclaimed V10 engine. The V10 in the new Audi S6 is a completely new engine which first appeared in the Audi S8 and has now been specifically retuned for use in the top model of Audi's luxury class.

Its ten cylinders are divided into two cylinder banks arranged at an angle of 90 degrees to each other, and each with two overhead camshafts (DOHC principle); the spacing between cylinder centres is 90 millimetres – one of the reasons why this 220-kilogram, four-valve engine is so compact. A special intermediate frame reinforces the cast aluminium crankcase.

The bore is 84.5 millimetres and the stroke 92.8 millimetres, producing a swept volume of 5,204 cc. With its crankpin offset of 18 degrees, the V10 fires at an ideal spacing of 72 degrees crankshaft angle. A balancing shaft located between the cylinder banks eliminates the free inertial forces of the first degree and contributes equally towards the engine's notable refinement.

All four camshafts are adjusted continuously through 40 degrees crankshaft angle depending on load and engine speed, thus optimising filling of the combustion chambers and consequently enhancing the power output. The camshafts are driven by no-maintenance chains and actuate the total of 40 valves via roller cam followers. The task of engine management is handled by two separate control units.

The V10 in the new Audi S6 uses FSI petrol direct injection. This permits a high compression ratio of up to 12.5:1 and therefore a highly efficient combustion process. The injection system delivers the fuel directly into the combustion chambers in precisely metered amounts, at a pressure of up to 100 bar.

The two-stage magnesium variable intake manifold incorporates electronically controlled tumble flaps; these induce a swirling movement in the air drawn in.

Innovative FSI technology has impressively demonstrated its potential in motor sport – the R8 racing car equipped with it participated five times in the Le Mans 24 Hours for Audi, winning the race on four of those occasions.

The powerful ten-cylinder engine is designed not simply with power in mind, but to an even greater extent for impressive torque. It achieves 420 bhp at 6,800 rpm, but delivers the peak torque of 540 Nm at engine speeds ranging from 3,000 to 4,000 rpm. Over 500 Nm of torque is on tap between 2,500 and 5,500 rpm. The engine exhibits spontaneous throttle response and very refined running, and under load it also produces sonorous acoustics, as befits this dynamic car.

The engine gives the Audi S6 the road performance of a high-calibre Gran Turismo. The Audi S6 saloon is capable of racing from 0 to 100 km/h in 5.2 seconds, and the S6 Avant takes a mere one-tenth of a second longer. The speed is not governed electronically until the needle reaches 250 km/h.

The engine consumes an average of approx. 13.4 litres of fuel per 100 kilometres.

The S6 weighs 1,910 kilograms (S6 Avant: 1,970 kg), including the dynamic, sure-footed quattro permanent four-wheel drive. Every horsepower consequently has to propel just 4.55 kilograms (S6 Avant: 4.69 kg) – the power-to-weight ratio of a top-notch sports car.

Drivetrain

More direct for even greater dynamism

The entire drivetrain of the Audi S6 has been designed from scratch. The engine's power on the S6 is translated into locomotion by a six-speed tiptronic as standard, which adapts to the driver's style by means of an intelligent feature. The software program that controls this automatic transmission electronically has been optimised to deliver more dynamic gear changes compared with other Audi models; the gear changes are noticeably swifter.

The driver can call up the transmission's "S" sport mode via the selector lever – it still performs upshifts even at relatively high engine speeds. And it is possible to change gear manually in both modes by means of the aluminium-look shift paddles mounted to the steering wheel. The selector lever has an aluminium look and – like the steering wheel – is trimmed in smooth leather.

The servotronic steering with its variable ratio has a more direct response than in the A6. This, too, results in even more agile handling.

Power and control

Typically for an Audi, the new Audi S6 likewise takes quattro permanent four-wheel drive as its basis. Its virtues are already widely acknowledged: superior traction in all driving conditions. More than a quarter of a century of expertise acquired in this domain by the Ingolstadt-based brand has led to the development of a new quattro generation with asymmetric/dynamic torque split – further evidence of Audi's guiding principle of "Vorsprung durch Technik".

A centre differential, installed longitudinally in the driveline, distributes power between the front and rear wheels, always according to the prevailing situation. The split in the basic setting is 40 percent to the front wheels and 60 percent to the rear. This slightly rear-biased torque split has been chosen to place even greater emphasis on the sporty, dynamic character of the Audi S6.

If the surface conditions change – for instance if they are wet or slippery, or if the car is driven onto a different type of road surface – the purely mechanical differential responds without any delay; depending on the road situation at any given moment, it can divert up to 85 percent of power to the rear wheels or as much as 65 percent to the front wheels. If a wheel on one axle spins (wheel slip), it is moreover brought under control by the Electronic Differential Lock EDL, which applies the brakes.

The electronic stabilisation program (ESP) shuts down in two stages: when the ESP button is pressed once, only the ASR traction control system is deactivated; ESP remains active, to stabilise the car if needed. The instrument cluster briefly displays "ASR off" and the ESP symbol remains permanently lit. This mode stays active in the S6 until ASR is switched back on by pressing the ESP button a further time. On the S6, ASR does not cut in automatically once a defined speed is exceeded (as is the case on the A6 / A6 Avant). If the ESP button is pressed for longer than three seconds, all ESP functions are switched off. Only the electronic differential lock EDL and ABS remain active. Pressing the ESP button a further time switches all ESP functions on again. As a result, the desired degree of electronic assistance can be determined by the driver via the ESP button. Without ASR traction control, the degree of stability can, within certain limits, be determined by the driver via the accelerator pedal. This permits a decidedly sporty driving style if desired.

The drivetrain concept of the new S6 always ensures that the enormous forces generated by the V10 engine can genuinely provide efficient, minimal-loss propulsion, something that vehicles with one driven axle only rarely achieve. It is consequently able to develop and use high levels of power all the time.

Chassis

Firmer and more spontaneous

The dynamic suspension layout of the new Audi S6 is based on a technology that has already demonstrated its sports calibre in the most challenging of conditions: the refined four-link front suspension acknowledged as a typical Audi feature and the self-tracking trapezoidal-link rear suspension carried over from the Audi A8. This combination gives the S6 one of the most complex and efficient rear suspension layouts currently available. In terms of its kinematic behaviour, this technical treat already provides a foretaste of the sporty, active characteristics of the Audi A8 – measures that enhance directional stability, steering precision and handling convenience. The entire layout is designed in such a way as to produce a neutral response with a moderate tendency to understeer when the very high limits of handling are approached.

The principal components of the chassis feature lightweight aluminium construction, resulting in decisively lower unsprung masses. The targeted use of sheet steel, on the other hand, achieves optimum rigidity wherever it is required. In selecting specific materials and manufacturing methods for each individual suspension link, Audi's engineers have been able to ensure that the chassis represents an optimum blend of low weight, high rigidity and safety.

As a reflection of its explicitly sporty character, the suspension settings of the S6 have been made firmer, even compared with the A6 sports suspension, and at the same time assures a high standard of comfort for long-distance driving. As the elastokinematics have likewise undergone comprehensive modifications, the Audi S6 is always noticeably more agile; meanwhile, driving stability and traction have been further optimised.

The Audi S6 is equipped ex works with 19-inch cast aluminium wheels of a 5-arm wing design. The wide tyres are of size 265/35 R19. An 18-inch brake system assures supreme braking performance and is resistant to fading even under high loads.

Its four large discs are ventilated, the discs on the front wheels measuring 385 millimetres in diameter and those at the rear measuring 335 mm. The brake calipers are painted black, and are adorned with an exclusive S6 badge at the front.

Design

Supremely athletic presence

The models in Audi's S range have traditionally epitomised systematic sports appeal. This applies in equal measure to the new S6, which now dynamically hones the visual impact made by the A6. These models are renowned for their inherently light and elegant character – their very distinctive aesthetic appeal reflects their exceptional status as sports models in the luxury class.

The S6 cuts an even more supremely athletic figure out on the roads – but without even the slightest hint of aggression. The most striking differences are to be found at the front end. The eye-catching single-frame grille displays the S6 emblem, and its vertical aluminium-look struts are of a double design by way of further differentiation. There is an air inlet beneath the grille. A spoiler lip at the front end of the car provides an additional sporty highlight.

Another innovation in the front bumper is a pioneering development in terms of both safety and style: the separate LED daytime running lights, each of which consists of five white light-emitting diodes and consumes only a minimal amount of energy. When these light strips are switched on, the effect is utterly distinctive: they make it incredibly easy to identify the new Audi S6, and the low-down position of the daytime running lights gives the car a dynamically flat appearance. To accommodate this concept, the fog lights have been incorporated into the main headlights, the covers of which are tinted grey. Xenon plus headlights are provided as standard; Audi adaptive light with dynamic cornering light is optional. The rear light units incorporate LED brake lights as standard, and the S6 Avant in addition has tail lights using LED technology.

The front wheel arches are flared by 14 millimetres. The door trim strips are likewise wider, to accentuate the “S” characteristics, and are painted in the body colour. Other striking differentiating features are door sill trims bearing the S6 logo at all four doors, the rear spoiler integrated subtly into the luggage compartment lid – whereas the S6 Avant has a roof spoiler – aluminium-look exterior mirrors, the V10 emblem at the front beneath the side turn indicators, and an S6 logo on the rear end. The vehicle's tail end also displays a colour-contrasting diffuser in the bumper and the four ellipsoidal tailpipes of the exhaust system, with its notably sporty acoustics.

Interior

Luxury and refinement in detail

In the same way as the body's styling, the interior of the new Audi S6, too, reflects a character of dynamic elegance and high quality – from the architecture of the driving area that surrounds the driver to the Audi MMI user interface (Multi Media Interface), which remains unequalled by any competitor thanks to its logical, intuitive operating principle.

The luxurious interior of the S6 features specific highlights. For instance, there is a new generation of sports seats. They have integral head restraints and pronounced lateral supports, and are upholstered in Alcantara/Leather; Silk Nappa leather is available as an option. The front seats are electrically adjustable in multiple directions as standard, and include a lumbar support. The three rear seats, which display the same material, are equipped with L-shape head restraints which afford a better view to the rear.

The three-spoke multifunction leather sports steering wheel with the S logo is a typical example of the hand-crafted character that Audi so often achieves in its attention to detail: it is trimmed in smooth leather and displays a colour-contrasting double seam with a special seam pattern.

The shift paddles, which are mounted to the steering wheel (in other words, they move as it is turned), have an aluminium-look finish. The selector lever, too, has an aluminium look and is trimmed in smooth leather.

Carbon fibre is used as the material for the applications. The material on the instrument panel represents a further innovation in the S6: it goes by the name of "Flexmetallic" and correspondingly exhibits an anthracite-coloured metallic surface characteristic. Anthracite is also the predominant colour featured on the other sections of the instrument panel. The centre console, on the other hand, is in black.

The instrument needles and numbers are in white, using characteristic S-style italics; the dials are in dark grey.

The standard Driver Information System DIS has an additional digital speedometer in the new S6. The Audi MMI with 7-inch monitor in the cockpit is likewise included as standard. There is a welcome screen customised specifically to the S6. The MMI furthermore integrates the extended-specification radio system with double tuner and the DSP sound system with ten speakers and a CD changer in the glove box. The optional tyre pressure monitoring system displays the pressure and temperature of each tyre individually in the S6.

Audi is likewise innovative when it comes to phoning in the car: the new optional telephone system combines all the advantages of a built-in phone with those of the mobile phone preparation. The mobile phone is connected up to the vehicle’s own GSM module by means of Bluetooth interface. This renders an adaptor-type connection unnecessary and the driver can leave their mobile phone in their pocket while on the move. Operation of the Bluetooth car phone is likewise via the MMI system. A handset in the centre armrest can also be supplied as an option.

Safety

Systematic

Whereas the high standard of active safety of the new Audi S6 stems principally from its superior engine power, pioneering quattro four-wheel drive and ESP, the sporty range-topping model also boasts a full complement of passive safety systems. This model comes complete with a package of restraint systems that are perfectly matched to the highly rigid aluminium body, including two full-size front airbags, side airbags for the front seats and large-area Audi sideguard curtain head airbags. Side airbags for the rear seats are available as an optional extra. All five three-point belts in the Audi S6 are of course fitted with belt force limiters; belt tensioners are fitted on the front seats as standard.

Dynamism and elegance
Audi S8

Its predecessor was already a sporty luxury saloon with an exceptionally individual character. The new Audi S8, due to be launched in mid-2006, is set to continue this legacy and develop it further, with the objective of setting new standards in its class.

Sportiness is to be found in the genes of all Audi models. In the case of the S models, however, it is a declared principle, combined with comfort, aesthetics, elegance and uncompromising quality. The Audi S8, born from a fascination for technology, combines all these characteristics to produce a high degree of passion and superiority.

Drivetrain

For the first time in its history, Audi is putting a ten-cylinder engine on to the road. The long-stroke V10 capitalises on the expertise behind the Lamborghini Gallardo super sports car, yet is a completely new development in certain key areas – one of its most important innovations being FSI petrol direct injection.

The S8 engine has a displacement of 5,204 cc, from which it produces an output of 450 bhp at 7,000 rpm and 540 Nm of torque. 90 percent of this power is already available at 2,300 rpm. The Audi luxury saloon consequently achieves the road performance of a high-calibre sports car. The Audi S8 sprints from a standstill to 100 km/h in 5.1 seconds, and effortlessly reaches a top speed of 250 km/h (electronically limited).

Thanks among other things to its compact design, the ten-cylinder concept is ideal for achieving a sporty performance. FSI technology, which uses the principle of homogeneous combustion, enables a high compression ratio. Audi has drawn here on the extensive experience it enjoys in the field of motorsport.

The R8 racing car, a pioneer of direct injection, took part in the Le Mans 24 Hours five times, winning on four of those occasions – proof indeed of the efficiency and high performance of this technology.

The advantages are clear to see:

very spontaneous response, short reaction time
shorter shift points, quick gear changes
sporty, throaty sound when accelerating
beefy torque curve even at low engine speeds
sporty behaviour thanks to engine speeds up to 7,000 rpm
perfect synthesis of sporty driving pleasure and comfort on long journeys

The S8 is equipped with a six-speed tiptronic transmission. The final ratio of this automatic transmission is lower than on the A8, its management is optimised to change gear more dynamically. In typical Audi style, the new S8 also transmits its power to the road by means of quattro permanent four-wheel drive. In its new generation, with asymmetric/dynamic torque split, it makes the dynamic character of the luxury saloon even more agile. A centre differential distributes 40 percent of the power to the front and 60 percent to the rear wheels. This slight emphasis on the rear end ensures particularly dynamic handling.

Chassis

Like the A8, the S8 also relies on adaptive air suspension including adaptive damper control and aluminium chassis components. However, the setup on this model is exceptionally sporty in character and even slightly stiffer than on the optional adaptive air suspension – sport version familiar from the A8, which lowers the body by up to 20 millimetres depending on mode. The steering has a more direct ratio which ensures better handling. The Audi S8 is fitted as standard with cast aluminium wheels of S design. These are of size 9 J x 20 and shod with wide tyres of size 265/35.

The four discs of the 18-inch brake system are ventilated and generously dimensioned. The optional ceramic brakes, which are already offered for the A8 W12, are a special feature available for the S8.

Ceramic brakes have significant advantages over steel discs. They are less susceptible to heat fading and last for up to 300,000 kilometres – about four times as long as steel discs. The car's handling also benefits from the ceramic discs' lower weight – they are around 5 kilograms or 50 percent lighter than steel discs.

Body

The innovative aluminium body, built using the Audi Space Frame ASF principle, provides the high-strength basis for the supreme dynamism of the Audi S8. The closed space frame imbues the body with outstanding characteristics. The static torsional rigidity, a critical measure of dynamic potential, is around 60 percent higher than on the previous model.

At the same time, the new S8 has the lightest bodyshell in the entire luxury segment – its weight is around 50 percent lower than that of an equivalent steel body. This advantage is doubly valuable, benefiting both dynamism and economy.

Design

A glance at the outside is enough to see that the S8 gives an unmistakeable promise of performance. The car's athletic exterior design translates its dynamism into a clear and elegant formal idiom and emphasises the exceptional position that the brand's sporty top model enjoys in the luxury class.

The front end of the Audi S8 is adorned with the single-frame grille bearing the S8 badge and comprising vertical struts with a chrome-look finish. Three flat air inlets accentuate the front apron; the large inlets under the headlights feature a honeycomb grille.

Down the sides, badges on the front wings, door handles with aluminium trim strips and aluminium-look mirror housings are indications of the exceptional status of the S8.

The S8 on the tail, a rear spoiler integrated into the luggage compartment lid, a subtle light-refracting edge in the apron and an exhaust system with four oval tailpipes complete the list of modifications.

The door sill trims are adorned with S8 emblems, the inlays are in brushed aluminium and carbon. The leather multifunction sports steering wheel has colour-contrasting stitching and the S emblem, the shift paddles have an aluminium-look finish. Aluminium-look trim also embellishes the selector lever knob, the electromechanical parking brake and air vent surrounds. The needles on the instrument dials are in white, their scales in light grey and their digits in italic script. The sports seats with Valcona leather upholstery are finished in a two-colour look.

Equipment

The A8 already boasts a luxurious standard equipment specification. This includes a leather multifunction steering wheel, deluxe automatic air conditioning, a luggage compartment lid with power-assisted closing, cruise control, electrically adjustable front seats and an electromechanical parking brake.

In addition to these items, the S8 will boast a wealth of other comfort and convenience features on the German market: the keyless driver authorisation system advanced key, double glazing for the windows, automatically dipping and electrically folding exterior mirrors, heating for the rear seats, a DVD navigation system and a Bose surround sound system with CD changer, Valcona leather and a leather-covered centre console and door armrests.

The standard equipment of the S8 also includes the innovative lighting technology adaptive light with LED daytime running lights. In this case, the xenon plus headlights are combined with static turning lights and dynamic cornering lights, as well as with special daytime running lights. Each consisting of five white light-emitting diodes, these only consume a minimum amount of energy.

One particular highlight that is available as an option for the S8 is the Bang & Olufsen Advanced Sound System. The fully digital system from the Danish high-end manufacturer integrates 14 speakers, each energised by its own output stage. Two amplifiers provide more than 1,000 watts of power. The front tweeters use what is known as Acoustic Lens Technology, and act as point sound sources.

The basic price in Germany will be €97,600.