

Media Information



FOR IMMEDIATE RELEASE
DATE: Thursday, May 1, 2008

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THE NEW AUDI A4

Sporty and superlative, progressive and emotive – the A4 takes Audi into a new dimension in the midsize car segment. The two FSI direct injection gasoline engines provide supreme performance with fuel consumption that is more than 10 percent lower than the previous model. The highly efficient engines are clear evidence of Audi's outstanding technical expertise. The dynamic suspension and many other technologies have been adopted directly from the large luxury class. The Audi A4 reaches the U.S. market in Fall 2008.

A new language: The design

Compared to its predecessor, the designers tweaked the proportions into a new sporty ratio. The front overhang was shortened, and the hood and the wheelbase were extended visibly. The new A4 measures 4.70 meters (*15.42 feet*), nearly 12 centimeters (*4.6 inches*) more than its predecessor. The body also documents the advances: It is significantly stiffer and safer than its predecessor, while, at the same time, dropping about 10 percent of its weight thanks to intelligent light-weight steel construction.

With a base size of 480 liters (*16.95 cubic feet*), and in the sedan 490 liters (*17.30 cubic feet*), the new Audi A4 has a larger trunk than any of its immediate competitors. With the Avant, when the rear seat backs are folded down, the cargo

space reaches up to 1,430 liters (*50.50 cubic feet*). The rear backrest is split at a ratio of 40:60, with an optional separate ski and snowboard bag. The A4 rolls off the line with sophisticated solutions such as a reversible cargo floor and a convenient cargo cover. Audi provides a number of optional luxury features, like an electro-mechanical tailgate drive and a luggage retainer set.

Light and spacious: The interior

The ambience inside the new A4 is light and spacious. Compared with its predecessor, knee room has been increased by 36 mm. The same goes for the headroom of up to 971 millimeters (*38.23 inches*) in the Avant. The interior reflects Audi's traditional strengths – a noble impression, uncompromising quality of workmanship with attention to every detail, and logical, intuitive operation.

The cockpit is driver-oriented, with the center console tilted by eight degrees to the left. In the design of a great many details, the A4 has taken cues from the larger A8. The instruments bear the classic Audi look, but with further developments.

Thanks to the new electro-mechanical parking brake, the manual parking brake lever is no longer necessary. Even the standard climate control system is a completely redesigned component. It supplies 10 percent more cooling capacity, yet operates 20 percent more efficiently than the previous system.

Slipping into the ergonomic perfection of the seats of the new A4 provides yet another typical Audi effect – you feel at home from the first moment on. Also, when it comes to safety, Audi has raised the bar: The adaptive airbags and two-stage belt force limiters have been even more finely tuned, providing better protection for passengers. The backs of the front seats and the head restraints support the upper body in case of a rear impact. This integral headrest system has received high praise in independent tests.

The engines: More performance, greater fuel efficiency

The new Audi A4 will be launched with two powerful and smooth-running gasoline engines, which cover a range of 211 hp to 265 hp. All the powerplants have direct fuel injection, and the four-cylinder gasoline engine utilizes turbocharger technology which provides high torque.

The 2.0 TFSI is a new development, operating with the innovative Audi valvelift system (AVS), which varies the lift of the exhaust valves. In a slightly different form, this technology also benefits the 3.2 FSI by providing a further performance increase combined with greater fuel efficiency. All in all, fuel consumption by the gasoline engines has dropped by more than 10 percent, a convincing testimony for Audi's efficiency strategy.

Both gasoline FSI engines are available with the quattro permanent all-wheel drive, which is optional on 2.0 TFSI or standard on 3.2 FSI. Under normal driving conditions, this distributes the forces at a ratio of 40:60 between the front and rear axle. This emphasis on the rear end perfectly harmonizes with the overall dynamic character of the new A4. If needed, the self-locking center differential transfers the majority of the torque to the axle with the better traction. As in the past with all North American models, all A4 Avant models always have quattro as standard equipment.

In the driveline of the new A4, the differential has moved directly behind the engine. It has switched places with the clutch or the torque converter, making it possible to move the front axle 154 millimeters (*6.06 inches*) forward. This solution provides for a longer wheelbase, a shorter front overhang and a balanced distribution of the axle loads, thus improving handling in particular.

Completely new: The dynamic suspension

The dynamic suspension of the new Audi A4 was redesigned from top to bottom. The pivot bearings and the five links per wheel that make up the front axle are made of aluminum, just like the front cross member, which gives the front end of the body more rigidity. The steering box is located far to the front and deep down so that the steering impulse can be led directly to the wheels via the tie-rods. The rack-and-pinion steering provides an immediate feel for the road, and its highly efficient servo pump improves fuel consumption.

For the rear axle, Audi applied the track-controlled trapezoidal link principle of the larger A6 and A8 series. For the most part, the suspension is made of aluminum; the separate layout of the springs and shock absorbers produces subtle responsiveness. Starting with the 211 hp engine, the new A4 will roll off the

production line on 17-inch alloy wheels. Behind these wheels are powerful brakes; the front disks are ventilated. The electronic stabilization program (ESP) can be partially disabled when driving below 100 km/h (*62.14 mph*).

In connection with Audi drive select, there are two additional modular components. One of them is an adaptive controller for the shock absorbers that is linked to a sports suspension which lowers the body by about 20 millimeters (*0.79 inches*). The second component is Audi dynamic steering, which operates using a superposition gear. Depending on the driving speed, it varies the steering ratio continuously. In the limit range, it works with ESP to stabilize the new A4 Avant with small lightning-quick steering interventions. The system is also extremely useful when understeer occurs and when braking if traction is only available on one side. The leading-edge Audi dynamic steering system far surpasses solutions offered by the competition.

Even greater supremacy: The assistance systems

Upon request, Audi equips the new A4 with a wide range of high-tech systems that are derived from the luxury class and make driving an even more supreme and relaxed experience. These include the Audi parking system and available rear-view camera and the lane change assist system Audi side assist, which warns of hazardous lane changes. By way of automatic acceleration and deceleration, adaptive cruise control maintains the pre-selected speed, taking the distance to the vehicle in front into account.

The Audi A4 also sets new standards in one of the most fascinating technical fields of the future – multimedia. The Audi Music Interface (AMI) is available for the audio systems concert and symphony and fully integrates an iPod with all its functions.

As additional upgrades, customers can order the navigation system with DVD and MMI. These allow the integration of a cell phone in the form of a Bluetooth car phone, and they are combined with the market-leading MMI operating system. The epitome of hi-fi enjoyment is the sound system by the luxury Danish brand Bang & Olufsen: 505 watts of sound power, controlled through 10 active channels, supplying 14 speakers.

At a glance

The new Audi A4

Body

- Length 4,703 mm (*185.16 in*), width 1,826 mm (*71.89 in*), height 1,436 mm (*56.53 in*), Drag coefficient 0.27 (sedan), 0.31 (Avant)
- Low weight, sporty athletic lines
- Roof rails standard on Avant

Cargo space

- Reversible cargo floor, comfort cargo cover and partition net, standard
- Many practical details as standard, with optional electro-mechanically operated tailgate

Interior

- Generous amount of space on all seats, with a great many storage solutions
- Unsurpassed ergonomics, with optional MMI operating terminal
- Innovative safety concept based on new interaction of airbags and belt force limiters

Powerplants

- Two gasoline engines from 211 hp to 265 hp
- All engines with direct injection, nine engines turbocharged
- Fuel consumption reduced by more than 10 percent
- Newly developed 2.0 TFSI with AVS valvelift system
- Six-speed manual transmission, multitronic and six-speed Tiptronic
- quattro drive for both engine versions

Suspension

- Dynamic suspension with long wheelbase and front suspension moved forward
- Optional dynamic handling system Audi drive select in conjunction with dynamic steering and adaptive damper control

Equipment

- Ample standard equipment, climate control system, and concert audio system with CD drive standard, power windows front and rear
- Advanced communication and assistance systems and further high-tech features from the luxury class available

Full version

The exterior design

The new Audi A4 exudes dynamism and athleticism. Its architecture of new proportions is charged with strength and emotion and underlines the leading position Audi occupies in the area of automotive design.

With its length of 4,703 millimeters (*185.16 inches*), and a width of 1,826 mm (*71.89 inches*), the new Audi A4 clearly surpasses its most important competitors, while it stays below them in height (only 1,436 mm (*56.53 inches*)). These sporty proportions follow the premise of elevated dynamics. Compared to the predecessor, the new A4 has been extended nearly 12 cm (*4.6 inches*) in length and 6 cm (*2.36 inches*) in width, while, at the same time, the front overhang was shortened and the hood and wheelbase were extended. The new A4 not only provides a higher degree of stature but also more power than its predecessor.

The body: Sculpted in one piece

In the new A4, the Audi designers have reinterpreted classic themes from the range of shapes used by Audi. The result is a focused, taut design – a personality with self-assured carriage. The coupe-like, early sloping roof line turns the entire silhouette into a flow of elegance, while dynamic lines frame and emphasize curved sculpted surfaces. In its precision, the design conveys the objective of uncompromising quality to which Audi is committed.

The front end of the new Audi A4 underscores the image of self-confidence. Compared to its predecessor, the single frame is wider and lower. The grille is finished in stone gray; on the most powerful engine model – the 3.2 FSI – it comes in high gloss black.

Depending on the version, headlights differ by a few details. Especially eye-catching are the chrome finished “wings,” which differ between the halogen and the xenon plus headlights. On the halogen lights, the wing shapes a second, short wing, while the xenon plus units are embedded in a single curved wing.

Both versions feature the daytime running lights. With the halogen lights, it is generated by incandescent bulbs, while the xenon plus headlights each have 14 integrated white LEDs, with a total power consumption of only nine watts. The daytime running lights, which were pioneered by Audi, not only represent a significant safety technology, but a consistent styling characteristic; they give the face of the new Audi A4 its unmistakable expression. All engine versions share halogen fog lights integrated into the air intakes in the lower front end.

Poised power: The side profile

The profile of the new Audi A4 also conveys the impression of forward-urging power. The long, powerful hood and the correspondingly set-back passenger cell paint the picture of dynamic energy.

In the side view, a sophisticated interplay of ascending and descending lines produces a dynamic feel without interfering with the overall balance. The sill area is the foundation, with the dynamic line above it extending all the way to the rear of the car. It rises toward the rear in a sweeping curve, thus shifting the visual center of gravity to the middle of the new Audi A4.

The tornado line, on the other hand, located just below the windows, descends toward the back. Accented by a distinct seam, it projects beyond the front and the rear wheel wells like a line drawn by a steady hand. The “feature line,” a slightly slanted edge of the roof contour, gives the window area a flat and elongated impression.

The body

The body of the new Audi A4 employs new high-tech materials and processes, and it is stiffer and safer than its predecessor, while its weight has been reduced considerably even though it is longer and wider. With a drag coefficient of 0.27 for the sedan and 0.31 for the Avant, it glides lightly through the wind.

The new Audi A4 is unusually sizeable and spacious. With its long wheelbase of 2,808 mm (*110.55 inches*) it clearly beats the competition. The generous interior space, the high degree of stability, and the supreme straight-line stability all benefit from this long wheelbase.

Moving the front axle forward was what made this long wheelbase possible. This was facilitated by moving the differential 154 millimeters (*6.06 inches*) forward directly behind the engine – in fact, it switched places with the clutch (or the torque converter). This solution also allowed for the subtly balanced distribution of the axle loads – thus providing for the driving excellence that captivates in the new Audi A4. For the same reason, the battery was moved into the cargo area.

Lightweight steel construction

One of the great strengths of the new A4 is its low weight – benefiting both sporty driving qualities as well as low fuel consumption. The sedan and Avant are both extremely lightweight, although much larger than their predecessor. The sedan is 10 percent lighter, while the Avant is nine percent lighter.

A prime example of the new technologies applied by Audi to the A4 are found in the body structure, where hot-formed ultra-high-strength steel materials are utilized. On the new A4, they are utilized principally in those areas where only minor deformation is permitted – for example reinforcement of the center tunnel, the inner sills, the B posts and the firewall transverse beams in the engine compartment. In hot forming, boron alloyed steel plate blanks are heated in an oven to about 950 °C (*1,742 °F*) and then formed in cooled presses while being quenched. The molecular structure created in this way features a tensile strength of up to 1,600 Megapascal.

As well as conventional resistance spot welding, Audi relies on a sophisticated structural bonding agent in many areas. This bonding agent increases the stability of the connection and thus improves the rigidity and crash characteristics of the body structure.

In addition, Audi employs two further sophisticated joining technologies. Laser-beam welding is used for the sill area and the doors. In the visible area of the tailgate rain duct, as well as the zero-gap joint between side element and roof, the relevant components are joined by plasmatron brazing. Here, Audi's high-tech character and quality approach are evident, complemented by close joints throughout the body. Further proof of this high standard has been provided for many years by the fully galvanized bodyshell, which enables a 12-year warranty against body penetration by rust to be offered.

The highest standard possible: Occupant protection

Occupant protection also reaches the highest possible standard in the new Audi A4. For this development, the brand makes use of the broad knowledge base acquired from its own research: All over the world, the AARU (Audi Accident Research Unit) looks into actual accident situations and evaluates relevant data. In the United States, this research has paid off, as the last generation A4 achieved IIHS (Insurance Institute for Highway Safety) “top safety pick” results, earning top frontal, side, and rear crash safety scores for the past few years.

In a frontal collision, the new A4 protects its occupants with an exactly planned sequence of measures. At the onset of the crash, two acceleration sensors located below the headlights are activated. The front cross-member distributes the forces to the side members, which, thanks to their carefully designed deformation, absorb this energy. The aluminum subframe diverts the forces and momentum in a controlled manner into the floor and tunnel structure of the occupant cell. The steering column can be deformed backwards by up to eight centimeters (*3.15 inches*), while the main elements of the pedal assembly can be released from their mountings.

In a head-on crash, small people are still at considerably greater risk than tall occupants. Audi therefore has networked the occupant restraint systems more closely together than on any midsize car produced so far.

Sensors on the seat rails check the front seat position; this way, the computer can calculate how far the seat occupant is from the airbag and can ensure that the amount of forward movement – during which the seat belt and airbag can restrain the body – is optimally utilized.

The airbags in the new Audi A4 are adaptive and operate based on a new strategy: they always inflate fully. If the control unit assesses the situation as relatively harmless – that is if the impact is not too violent and the seat occupant is sitting close to the cockpit – part of the gas from the airbag is discharged again through valves, so that the head and chest of the occupant are restrained relatively gently. If the crash is severe, the airbags remain fully inflated for longer. The same procedure occurs if the impact is not very strong, but if the passenger is sitting so far back that her or his torso would whip forward with great force.

Even more safety: Adaptive belt force limiters

The seat-belt force limiters also use an adaptive operating principle, with two integral torsion bars linked by gear wheels. In a less critical situation, the torsion bars are separated at an early stage in the accident. This gives the belt a greater range of movement – the torso plunges relatively deeply into the airbag and the load on the chest is reduced. In a more severe crash situation, however, the torsion bars are either disconnected later or not at all – the seat belt restrains the passenger more firmly.

Inside the car, occupants are protected by seat-integrated sidebags with a volume of 13 liters (*793.31 cubic inches*) for the front seats (sidebags with a volume of 12 liters (*732.28 cubic inches*) are an option for the rear seats) and large side curtain airbags (25.5 liters – or *1,556.10 cubic inches*).

Furthermore, driver and front passenger in the new Audi A4 are effectively protected by variable-height seat belts, not available among some of its competitors, head restraints with a generous amount of vertical adjustment, and anti-submarining ramps in the seats. A sensor recognizes if the passenger seat is occupied.

Rear-end collisions also lose much of their injury potential in the new A4. The side members and the rear subframe absorb the kinetic energy by deforming, while the rear wheels make contact with the body sills if necessary. The seats and head restraints are designed to protect the upper body of front seat occupants against a whiplash impact from the rear. This integral head restraint system already has been highly praised in independent tests. In case of severe rear-end collision, the seat-belt tensioners are triggered to firmly hold the occupants in the best position in their seats.

Rigidity: Basis for comfort and dynamic handling

The rigidity of the new Audi A4's body is the basis for the peaceful ride, with virtually no unpleasant noise or vibration. At the same time, the rigid body shell is the key to the car's outstanding road behavior – ensuring smooth running and sporty precision in its handling.

One challenge for the development engineers was to offer the customer the same high levels of vibrational and noise insulation and comfort if a panoramic sunroof is selected in the A4 Avant. In its basic version, the panoramic roof would lead to reduction of body rigidity and a deterioration in the qualities named above. In the A4 Avant, for example, the panoramic sunroof is fixed rigidly to the body by means of a reinforcing frame. This not only secures the roof module compactly, it also considerably improves acoustic comfort.

A great degree of focus was placed by the engineers on local rigidity as well. All locations where driving operations produce interference and vibrations have been targeted for reinforcement, such as the connection of the front suspension crossmember to the wheel suspension and the body. The front crossmember, for example, distributes the frequency impulses from the wheels into a multi-element structure consisting of the side members and tunnel elements – thus greatly reducing the tire roll noises in significant body areas.

Perfect peace: The aeroacoustics

The new Audi A4 is a very quiet car. With intensive detail work, wind roar – the biggest source of noise above 120 km/h (*74.56 mph*) – was significantly reduced below the level on the previous model. An important development tool in this work was Audi's extremely quiet aero-acoustic wind tunnel.

In the basic version, the new Audi A4 achieves an exemplary drag coefficient of 0.27 for the sedan and 0.31 for the Avant. This is significantly less than the previous model (sedan 0.31 and 0.33 for previous Avant). Even though the wider body increases the frontal area from 2.14 m² (*23.03 square feet*) to 2.20 m², (*23.68 square feet*), overall drag has been reduced by more than three percent on the sedan.

The cargo area (Avant)

Beautiful wagons are called Avant – intelligent and practical wagons as well. The new Audi A4 Avant once more offers a meticulously thought-out cargo area concept. The basic measurements alone impress with their generosity. The length of the loading space is 1.03 meters (*40.55 inches*), and the load-through width is exactly one meter (*39.37 inches*). Two golf bags can be stored across. The volume is 490 liters (*17.30 cubic feet*) – unmatched in its field of direct competitors.

A characteristic Audi feature is the elaborate design of the cargo area. It is lined in its entirety with high-quality velour carpeting. Four strong lashing eyes in the floor are standard. The two hooks in the upper sides are made of chrome-plated metal. The precision with which they can be adjusted exemplifies the uncompromising quality standard of the brand with the four rings, which extends to even the smallest of details.

Luxury special: Electromechanically operated tailgate (Avant)

Life with the new A4 Avant is made even more comfortable by new luxury technologies available upon request. Opening and closing of the electromechanically operated tailgate is performed by electric motors in the hinges; they are controlled by the remote control car key, the electric handle in the tailgate itself, or by a button in the driver's door. To close it, a switch on the tailgate underside is activated.

The required opening angle is infinitely programmable, which avoids collision with low garage ceilings and accommodates smaller persons as well.

The interior

More space, comfort and sporty elegance – the ambience on board the new A4 is bright and spacious. It meets you with distinguished visual details; as usual in an Audi, no compromises are made in the quality of workmanship, and the controls can be understood and operated intuitively. Once you take a seat inside the new A4, you experience a typical Audi effect – a feeling of being absolutely at home from the very first moment.

The front seats also are equipped with many pleasant features. In addition to the bottle holders in the large door pockets, there are two more cup holders on the center tunnel, a holder for sunglasses, a parking claim ticket clip and a large glove box.

For the front seats there is a center armrest that can be moved forward and back and varied in height, and it includes a storage compartment and two 12V power sockets. The thickly padded armrest element is of particularly generous dimensions because the new electromechanical parking brake eliminates the need for the conventional handbrake lever.

Perfect integration: The front seats

Audi offers standard electrically operated front seats, including adjustment for seat height, forward/back movement, and seat-back angle. The four-way driver lumbar support is operated electrically as well. There is also a memory function available, along with seat heating that can be controlled in six stages – a typical Audi feature. The sports seats have boldly contoured side sections for firm support. The angle of the seat cushions can be adjusted and extended forward.

Driver orientation: Centered around the person at the wheel

The cockpit has a definite bias toward the driver, so that all functions are turned toward the person behind the wheel. The center console is inclined by eight degrees toward the driver. Complex graphics and the clear layout of the various zones communicate the athletic power and lightness that can be felt in every aspect of the new A4's character.

In many details, the new A4 has the sophistication of the A8 luxury sedan. All switches, for example, have short travel and lock into place when a defined amount of force is applied to them. The rotary knobs move as smoothly and precisely as the mechanism of a fine watch, and their 'click' is the sound of pure technical perfection. The instrument cluster, although it is a completely new development, presents the classic Audi design elements.

In every Audi A4, a 6.5-inch color monitor is standard; it is located in the upper part of the center console and is therefore extremely easy to see. This large display screen displays information from the audio and air conditioning systems as well as from the CAR menu, where the customer can configure many functions of the new A4. The large switches and pushbuttons of the standard audio system "chorus" with CD drive and MMI operating logic are ideally accessible just above the automatic climate control system – also standard – in the center console.

With the optional DVD navigation system, a seven-inch color screen is provided, and MMI controls are behind the shift knob.

Advanced comfort: The electromechanical parking brake

Close to the MMI buttons, there is another large switch that controls the new electromechanical parking brake, which is another luxury-class solution that simplifies the center console. Like the conventional handbrake, the parking brake's function is to prevent the car from rolling away. If the conventional brake system should fail, there is also an emergency brake function integrated into the electromechanical parking brake with a retardation rate of eight m/s^2 , scarcely less than a full brake application. In addition, the integrated drive-off assistant supports the driver when the car is set in motion.

The standard climate control system in the A4 is an entirely new development. Compared to the previous version, it provides 10 percent more cooling power and still yields 20 percent higher operating efficiency. As an option, a luxury version is available, where the comfort climate control regulates the air temperature, airflow volume and air distribution in three separate zones.

The new remote entry key for the A4 has no projecting teeth. To start the engine, it is pressed into the ignition lock. It stores service information and warning messages that simplify and speed up the reception procedure when the A4 is brought in for service. There is also the luxury option of the advanced key. This key stays in the driver's pocket, and the engine is started and stopped using a start/stop knob on the center tunnel. The lock system releases the locks by a sensor as soon as the driver touches a door handle, or the tailgate release button locks again if the sensor in one of the four door handles is pressed.

In the headlights as well, Audi offers various upgrades. The xenon plus headlights are the high-tech solution, which includes dynamic range adjustment, raising the beam at speeds above 120 km/h (*74.56 mph*) for highway driving.

The engines

More power, lower fuel consumption – the new Audi A4 is being launched in North America with a choice of two powerful yet refined engines. All powerplants have direct fuel injection – the engines use FSI technology while the four-cylinder gasoline engines are turbocharged – with a correspondingly impressive torque.

With their splendid flow of power, the powerplants in the new A4 deliver pure driving pleasure. At the same time, compared to the corresponding predecessors, their fuel consumption dropped by more than 10 percent – for Audi, power and efficiency always belong together.

FSI: The supreme gasoline technology

The new A4 is being launched with two gasoline engines. The 3.2 FSI is a V6 with 265 hp. The newly developed four-cylinder 2.0 TFSI is available with 211 hp.

With these engines, Audi is once again extending its lead in engine design – using the gasoline direct injection technology known as FSI, which is superior to anything offered by the competition. With this technology, fuel is injected under high pressure into the combustion chambers and at the same time intensely swirled. The evaporation achieved in this way withdraws heat from the combustion chambers, thus allowing for a high compression ratio that contributes significantly to a highly efficient combustion process. FSI engines develop more power and are more dynamic than conventional engines with fuel injection into the intake pipes, yet they also make more economical use of fuel.

Gasoline direct injection from Audi first demonstrated its potential for superior performance in June 2001, when an engine featuring gasoline direct injection took the Audi R8 sports prototype to overall victory in the Le Mans 24 Hours. In the years that followed, the car entered 80 races and won 64 of them – evidence not only of the power of the engines but also of the uncompromising commitment to reliability and quality that is typical of the Audi attitude to both motorsport and production.

In keeping with its efficiency strategy, Audi has improved its FSI technology further. In the V6 and the new two-liter four-cylinder engine, it is combined with the innovative valve control technology known as Audi valvelift system. The turbocharger on the four-cylinder combines the free-revving nature with high torque – an exemplary blend.

The old turbo engine problem – the high combustion chamber temperatures and the resulting knocking tendency – is resolved by using direct injection. This allows Audi to achieve a higher compression ratio in its TFSI engines, which in turn leads to improved thermodynamic efficiency.

Top gasoline engine: The 3.2 FSI

The reassuring hum of the magnificent 3.2 FSI introduces the top-of-the-line gasoline engine in the new Audi A4; it has been enhanced extensively. It is a member of the modern Audi family of V engines, and is characterized, like all Audi V6 units, by a 90-degree cylinder angle, compact dimensions and a low weight, with a crankcase made from an aluminum-silicon alloy. This contributes to the low overall weight of the new Audi A4 and its excellent axle-load distribution.

From a displacement of 3,197 cc, the 3.2 FSI develops 265 hp and delivers its maximum torque of 243.40 lb-ft all the way from 3,000 to 5,000 rpm. Compared with the previous model, which had a power output of 255 hp, fuel consumption has been reduced. The 3.2 FSI is available with six-speed Tiptronic; quattro permanent all-wheel drive is standard as well in North America.

About half of the improvement in fuel consumption in the 3.2 FSI is due to the Audi valvelift system (AVS). This new technology, which controls valve lift in two stages, ensures excellent combustion chamber filling in all situations. It regulates the amount of combustion air drawn into the engine by varying inlet valve lift; in most cases the throttle butterfly can therefore remain fully open, which largely eliminates undesirable throttling losses. The engine breathes freely, develops more power and torque, but consumes less fuel. Depending on load and engine speed, an intake-pipe valve switches between long aspiration pathways for excellent acceleration and short ones for peak power.

A further advance in the 3.2 FSI are the timing chains for the camshafts; typical for the Audi V engines, they operate in the back of the engines and take up less space.

The idler wheels and the shaft drive gears have a larger number of teeth, resulting in quieter operation and reduced forces exerted on the chains. A similar effect is achieved by the tri-oval, i.e., slightly triangular shape of the gear wheels. The oil pump delivery volume has been reduced by 30 percent, and it now operates by varying the volumetric flow according to actual demand. The net result is that frictional engine losses have been reduced greatly.

Inherited from the multiple winner: The new 2.0 TFSI

The base engine in the new Audi A4 is the 2.0 TFSI. The turbocharged four-cylinder unit is the successor of the highly successful two-liter engine, which, since 2005, has been voted 'Engine of the Year' three times in succession by an international jury of journalists.

The new 2.0 TFSI's most significant characteristics are an inlet camshaft that adjusts variably through up to 60 degrees of crankshaft rotation and two balancer shafts rotating with double the speed of the crankshaft in the crankcase. They compensate the free second-order inertial forces and lead to refined running with very low vibrations.

The injection in the 2.0 TFSI itself demonstrates the innovative status of Audi technology. The newly developed six-hole injectors deliver the fuel into the combustion chambers with a pressure of 150 bar (2175.1 psi). The result is efficient combustion, enhanced by valves for vortexing the injection. A water-cooled turbocharger increases the filling of the cylinders with air; optimized turbine and compressor wheels have improved its reaction. The intercooler is a new development as well, combining a high degree of efficiency with low weight and small dimensions.

The two-liter TFSI engine has the new Audi valvelift system. Unlike the 3.2 FSI, here it facilitates variable control of the exhaust valves, which means that the charge cycle can be drastically improved. The 2.0 TFSI in the Audi A4 thus reaches its maximum torque of 258 lb-ft at an engine speed of just 1,500 rpm. This technology continues to ensure an extremely quick and dynamic build-up of torque, guaranteeing excellent agility and spontaneity.

The new Audi technology plays just as important a role in achieving high efficiency as does the consistent improvement of all components to minimize friction – with important advances made in the area of cylinders and connecting rod bearing linings. The oil pump operates with volume-regulated delivery and two-stage pressure control, which reduces fuel consumption.

The 2.0 TFSI delivers a sporty performance of 211 hp and a mighty 258 lb-ft of torque, available from 1,500 to 4,200 rpm. This powerplant will be available in North America with quattro drive and both manual and Tiptronic transmissions

for sedan (Tiptronic only in Avant). Alternately, Audi delivers the A4 sedan 2.0 TFSI with front-wheel drive with the continuously variable multitronic.

In its fuel consumption, the new TFSI is amazingly frugal: The high torque allowed the developers to somewhat extend the transmission ratio – an important factor in the efficiency concept.

The drivetrain

Intensive further development: Tiptronic

The A4 3.2 FSI quattro and 2.0 TFSI quattro are optionally available with six-speed Tiptronic. This classic automatic transmission, with the Sport program and the additional manual-shift mode, has been thoroughly revised in design in the transfer-case and torque-converter areas.

The torque converter now is equipped with a novel form of two-stage torsional damper that permits the lock-up clutch to remain engaged for long distances, which boosts overall efficiency and reduces fuel consumption.

When the car is at a standstill, a controlled drive-off clutch disconnects the transmission from the engine even if the selector lever remains in position D. As soon as the driver releases the brakes, this clutch is engaged.

In the new Audi A4, the Tiptronic transmission operates even more dynamically than in the previous model; it reacts more rapidly and performs shifts much faster without any penalties in terms of smoothness. The reasons for these improvements are the improved layout of the oil passages used to fill the converter and more powerful software for the Dynamic Shift Program (DSP).

For all the front-wheel-drive versions of the new A4 (Avant is quattro-only for USA, Tiptronic only, 2.0 TFSI only with 211 hp), Audi offers the continuously variable multitronic exclusively with the 2.0 TFSI powertrain. It combines the advantages of manual transmission with those of torque-converter transmission and, due to its both extremely comfortable and highly dynamic acceleration, it provides sporty driving comfort.

A great many improvements reduce its internal losses even further. By permitting the engine to run continuously in its optimal operating range, multitronic allows for an extremely frugal driving style.

The new variator also contributes to this high efficiency by allowing a wider spread of transmission ratios – increased to 6.73 from the previous 6.25 between the highest and lowest ratio. In the highest ratio the A4 accelerates powerfully, whereas the lowest enables the engine's fuel-saving potential to be fully utilized by means of low engine speeds. Due to its reduced start-up ratio, the A4 moves off powerfully from a standstill. With its adaptive control system, the transmission varies its settings according to current driving style and road conditions.

The D mode provides classic, continuously variable transmission. The S sports program operates with shorter ratios; when accelerating, the system shifts through eight specific, pre-programmed ratios in succession – an impressively sporty process. In one-touch mode, the third operating mode, the driver can actively shift between the eight speeds, either using the selector lever or – optionally – using shift paddles behind the steering wheel.

Unsurpassed: quattro permanent all-wheel drive

The new Audi A4 2.0 TFSI and 3.2 FSI transmit their power to the road by way of quattro permanent all-wheel drive; for the 2.0 TFSI, quattro technology is standard for Avant and optional for the sedan for North America. It delivers the supreme capabilities that have become an Audi trademark – enhanced dynamics, traction, safety, and directional stability. The quattro versions of the new Audi A4 are supremely stable under all conditions.

For the new Audi A4, the key element in the quattro driveline is a self-locking center differential. It operates purely mechanically and reacts instantly to changes in the driving situation, allowing the system to produce sporty and highly agile driving dynamics. Under normal driving conditions, 40 percent of propulsion is distributed to the front wheels and 60 percent to the rear wheels. Whenever required, the self-locking center differential redirects most of the torque to the axle with better traction. This means that when driving at the handling limits, the new Audi A4 often does not require ESP or EDL to intervene, and there are also significantly fewer brake ESP or EDL braking interventions.

The dynamic suspension

The dynamic suspension on the new Audi A4 once again sets new standards, combining precision and dynamism with a high level of stability and a supreme sense of control. It has been entirely redesigned, with the suspension mounts, steering, wheels and brakes developed for top performance and many aluminum components used to reduce weight and thus keep unsprung mass to a minimum. The innovative Audi drive select control system makes the driving experience even more compelling.

The new five-link front suspension greatly contributes to this technical advance. By moving the differential to the front and the clutch back, the design engineers were able to reposition the front axle 154 millimeters (*6.06 inches*) further forward. Together with the relocation of the battery to the trunk, this solution ensures an excellent front to rear axle-load balance. Even at a standstill, the new Audi A4 displays its principal personality trait: the wide stance – 1,564 mm (*61.57 inches*) at the front, 1,551 mm (*61.06 inches*) at the rear – and the large wheels round off the picture of sporty dynamism. On the road, drivers will find that the A4 is the sportiest of its competitors. It responds promptly and willingly to steering movements, remains stable, and when the handling limits are reached exhibits a slight understeering tendency which the driver can control easily.

A solid base: The front suspension subframe

The largest chassis component of all is the subframe for engine and front suspension. It is made of aluminum and rigidly bolted to the front end of the car. Due to its high rigidity, steering forces are applied without lag. On the new Audi A4, aluminum also is used for the bearing mount that links the upper suspension control arms with the body and for the pivot bearing.

The front suspension is made up of five links per wheel – a support link and a control arm at the bottom and two control arms at the top. The fifth link – the track rod – connects the steering box and the pivot bearing. All these links are made of forged aluminum, which ensures low unsprung weight, and provides ultra-precise wheel control and a high level of crash safety. The tubular anti-roll bar also helps to save weight.

The five-link suspension can handle longitudinal and lateral forces separately. In the lateral direction, the bearings are rigid to promote sporty precision and high cornering speeds. Longitudinally, however, they act with supple subtlety. In this way, dynamism and ride comfort go hand in hand.

Breakthrough: The low-mounted steering box

The steering system also has been thoroughly revised. The decisive step is the repositioning of the steering box. It was high up and fairly far back on the predecessor model – now it is far in front and placed low, on the subframe just below the front axle. Since the steering impulse now is transmitted directly to the wheels by the track rods, the steering response is very spontaneous. The steering column is bolted to the cross-member below the windscreen and to the bearing mount on the firewall, which further increases precision.

With an overall ratio of 16.1:1, the steering of the new A4 is sporty and direct. It provides precise, well-differentiated feedback from the road, and the drive forces and jolts are barely perceptible. The front suspension kinematics provide for precise centering of the steering, which adds to the sense of steering accuracy around the straight-ahead position.

The steering – a rack-and-pinion construction – was placed in an aluminum housing. A controlled-output vane-type pump supplies the necessary hydraulic energy. Unlike conventional power-steering pumps, which circulate a large volume of oil internally, it delivers only as much fluid as needed at the time. This reduction in energy consumption lowers the fuel consumption.

For the V6 engine versions, Audi offers a further technology: They roll out of the factory with speed-dependent servotronic steering, which adapts the amount of steering support to the driving speed. When parking, this system provides for easy steering, while at high speeds the support is decreased to ensure maximum precision.

Perfect ground contact: The rear suspension

Guiding, self-steering action, cushioning – the rear suspension in the new Audi A4 has many tasks to fulfill, and it does so magnificently. Its design is based on the toe-controlled trapezoidal layout chosen for the larger model lines, combining

compact dimensions with excellent ride quality and comfort. The kinematics, however, were newly developed from the ground up. This also led to the benefit of greatly limited braking sway, thus further enhancing the impression of sporty dynamism.

The backbone of the rear suspension is formed by a torsion-proof and non-flexing subframe, welded together from two longitudinal and two lateral tubes of high-strength steel. This subframe is attached to the bodyshell by four rubber mounts; these are especially firm laterally for dynamic handling, but they are softer in the vertical and longitudinal directions for better ride comfort. All suspension control arms are acoustically decoupled from the axle subframe by means of elastomer bushings.

If sporty handling is to be combined with a high degree of comfort, the unsprung masses must be kept as low as possible. The two trapezoidal links are cast in warm-hardened aluminum, and the wheel carriers are of chill-cast aluminum. The upper control arms and the track rods are of forged aluminum. The tubular anti-roll bar also combines low weight with high rigidity.

The compact design of the trapezoidal-link suspension has notable packaging advantages: the cargo floor in the new Audi A4 Avant is low and flat, with a load-through width of exactly one meter. There are only minor differences between the axles in the front-wheel-drive and quattro models, such as the subframes, which for the quattro models have an additional provision for rear-wheel drive.

The suspension springs no longer act on the trapezoidal links as on the previous model, but directly on the wheel arms. In this way they can react with more subtlety while being able to extend the spring travel 20 mm (*0.79 inches*). Separate spring and shock absorber mountings improve initial response. The suspension bushings use special rubber mixtures that further enhance ride comfort.

As an option, Audi also supplies the new A4 with sports suspension. It has firmer springs and shock absorbers and reduces the body's ride height by 20 mm (*0.79 inches*).

The joy of driving in a new dimension: Audi drive select

Audi drive select represents a breakthrough in the midsize class, which propels the A4 into new dimensions. The system integrates all technical components that govern the driving experience; using a button in the cockpit, the driver can determine how sportily or comfortably the system should operate.

Audi drive select will be available in one version in the U.S.A., integrating all three systems of engine/transmission mapping, steering, and suspension controls. The engine's throttle response, the speed-dependent servotronic power assistance and the Tiptronic shift points all can be programmed into three main fields. The 'comfort' mode is ideal for relaxed driving on long journeys or over poor road surfaces; 'auto' is the most balanced setting and 'dynamic' is the tight, firm stage where the chassis of the new A4 can demonstrate its package of power fully.

Changes between the modes are made using two arrow buttons on the center console. All such changes are performed safely and smoothly. The driver can clearly discern them but is not distracted. The driver has a fourth mode available, known as 'individual.' Within practical limits, this personal profile can be assembled from a wealth of possible settings. With Audi drive select, the new A4 is up to four cars in one.

Continuous control: The CDC shock absorbers

The Audi drive select is augmented by yet another innovative technology – electronically governed shock absorbers. The central element is a new high-performance control unit. The computer continuously analyzes the signals from 14 sensors, and it calculates the current for the electronically governed shock absorbers at each individual wheel 1000 times per second.

The so-called CDC (continuous damping control) shock absorbers are gas-filled hydraulic shock absorbers whose operation can be varied continuously. An electromagnetically triggered valve regulates the flow of hydraulic fluid between the inner and outer shock-absorber tubes. A smaller flow cross-section makes the damping characteristic firmer, while a larger one makes it softer.

Within the mode the driver has selected via Audi drive select, the control unit employs adaptive characteristics, i.e., it adapts to match the driver's style and the road conditions.

Every single driving situation requires a specific damping force. In order to keep body movements as low as possible, for example, a high damping force is required. When driving over ridges, low forces are needed, so that when accelerating the jolts are felt as little as possible by the passengers. For good ground contact and minimal wheel load fluctuations, a medium level of damping force is required, as the wheel must not be damped too much or too little. The control unit selects the optimal damping force for every driving situation. The CDC shock absorbers are joined with sporty springs, which lower the body by 20 mm (*0.79 inches*).

A new level of high-tech: Audi dynamic steering

Yet another innovative technology is available in Audi drive select: Audi dynamic steering. With this feature, Audi is opening a new chapter in the history of the automobile. At the heart of the system is a superposition gear that operates with no play and modifies the steering ratio in response to vehicle speed. When cornering at the handling limits, the dynamic steering system stabilizes the A4 by intervening instantly with small steering maneuvers.

The superposition gear consists of a wave gear (also referred to as a "harmonic drive") integrated into the steering column and powered by an electric motor. Harmonic drives have been used with a great deal of success in the robotics and aerospace industries. A harmonic drive was used for the first time in space in 1971 on Apollo 15. It was part of the single-wheel drive of the lunar rover that explored the surface of the moon. In 1997 the drive traveled to Mars as part of the Pathfinder mission, in which it was part of the "Sojourner" expedition vehicle. The drive also had a role to play when the Hubble space telescope was launched in 1990.

Tested in the proving ground of outer space, the strengths of harmonic drive technology extend to a number of important areas. The system is extremely compact and lightweight with a high level of torsional rigidity. Its lack of play allows it to operate with extremely high precision and very little friction, while transmitting immense torque with a high degree of efficiency. Audi is the very

first manufacturer to take all of these brilliant characteristics – that together far exceed the solutions offered by the competition – and apply them to automotive technology.

Audi dynamic steering can vary its steering ratio in response to both the vehicle speed and the Audi drive select mode in use. Transitions are continuous and imperceptible. System involvement is very direct when parking. Drivers can cover the entire steering range in just two turns of the wheel – a maneuver made nearly effortless, thanks to a high level of power assist.

At moderate highway speeds, the system becomes less direct and provides less power assist. At top speeds, an indirect steering ratio and low level of power assist make it easy to keep the vehicle in its lane.

Safety and driving pleasure: The countersteering effect of dynamic steering

ESP and dynamic steering work together closely to improve handling characteristics and vehicle safety. Dynamic steering supports the stability program, because it can perform a countersteering maneuver in considerably less time than the brake system needs to generate braking pressure. These rapid maneuvers eliminate the need for frequent braking and generate extra smoothness and dynamism. Despite their enormous effect, drivers generally do not notice the corrections.

Fishtailing – a classic critical situation – is triggered by counterforces produced in response to sudden evasive action. Audi dynamic steering can correct for small to medium fishtailing by countersteering. Braking is not required unless fishtailing is severe, and even then it largely serves only to provide damping.

Dynamic steering also provides assistance for understeering (when the car slides toward the outside of a curve). Steering briefly becomes less direct, very likely preventing the driver from steering beyond where the tires have adequate contact with the road surface. This function is available exclusively from Audi. None of our competitors offer it.

Braking on surfaces with different coefficients of friction (known as μ -split braking) is another situation that can be difficult to manage. Higher braking forces pull the vehicle toward the side with the greater coefficient of friction. Audi

dynamic steering in the new A4 resolves this problem – largely on its own. Just about all the driver needs to do is turn the steering wheel in the desired direction of travel.

Uncompromising: The brakes

A braking system designed for uncompromising performance was a point of honor for the sportiest midsize wagon. The new Audi A4 comes with completely redesigned brakes that have grown by an order of magnitude over its predecessor. The deceleration potential and precision of these brakes are improved greatly. The driver senses a brake pedal whose response is both firm and precise, allowing the perfect amount pressure with very little effort.

The A4 leaves the factory with minimum 17-inch wheels (or larger) in U.S.A. The brake pads are around 20 percent larger; the new high-performance pads combine high coefficients of friction with very little fading.

The internally ventilated front disks were trimmed down for maximum heat dissipation – a feat accomplished by ideal integration of frictional surfaces and a new design that manages without traditional cooling channels. The two halves of the disc are joined by hundreds of small metal cubes that can disperse a great deal of hot air quickly.

The V6 versions of the new Audi A4 feature larger front brake disks (diameter: 320 mm/*12.60 in*). The brake calipers have a composite design based on the floating-caliper concept. High-strength spheroidal graphite iron is used where a high level of rigidity is required. The piston housing – bolted into place and made of aluminum – conducts heat admirably. Taken together, these features yield brake calipers that are both lightweight and extremely rigid.

Other areas where Audi has saved weight include the brake disks (up to two kilograms (*4.41 lb*) when installed) and aluminum cover plates (1 kg/*2.20 lb*). These reductions further reduce the weight of unsprung components, improving handling and comfort. An additional benefit for customers is the design of the calipers and wheel rims. When a car is brought in for servicing, mechanics can measure the strength remaining in the brake pads without even having to remove the wheels.

New design: ESP

ESP plays a major role in the agile, sporty impression made by the new Audi A4. This new generation of the drive stabilization system operates on the basis of highly exact hydraulic valves that manage braking pressure with unusual precision, regulating the brakes with no detectable vibrations and without the usual, notorious shuddering.

The operating concept also is new. ESP still can be completely switched off by pressing and holding a button. In this case, ESP is deactivated in all operating situations. The only systems that remain active are EDL and ABS, as well as support of μ split steering stabilization by the optional dynamic steering system, to make it easy for the driver to control the situation. In the instrument cluster, the message “ESP switched off” appears. If the button is pressed a second time, ESP is switched back on again.

Now, however, a second, lower level is available. Briefly pressing the ESP button at speeds below 100 km/h (*62.14 mph*) allows the driver to deactivate anti-slip control, which essentially switches off engine involvement and applies the brakes at a slightly reduced level. The stabilizing steering maneuvers provided by the dynamic steering system are not affected. A monitor light switches on in the cockpit as a safety feature.

“ASR-off” mode on the A4 with front-wheel drive is a huge advantage when driving with snow chains. It allows the wheels to spin – which can often be helpful – without having to switch ESP off completely. At speeds exceeding 70 km/h (*43.50 mph*), front-wheel-drive models automatically switch back to full ESP mode. In quattro models, “ASR-off” mode remains activated at all speeds. In the latter case, this mode works with the vehicle’s power distribution (which favors the tail) to help experienced drivers when drifting on surfaces with low coefficients of friction.

ESP in the new Audi A4 also has further capabilities. On wet surfaces, it wipes the film of water off the brake discs with brief, imperceptible applications of the brake pads. (Audi was the first to offer this feature within its segment on the previous generation A4.) ESP also compensates for the fading effect that can arise during repeated emergency stops.

Audi engineers designed ABS in close cooperation with the developers of the brand of tires used in the original equipment. The brake control strategy was finely tuned to allow the new A4 to take full advantage of the frictional potential of its tires.

The assistance systems

Calmer, safer driving – the innovative assistance systems on board the new Audi A4 help to make your trip more relaxed. Audi is the engine driving progress in this area, equipping the Avant upon request with high-tech systems taken directly from the luxury class. These systems regulate the distance to the preceding car, help the driver change lanes, and assist with parking.

Over the past decades, passive and active safety systems have significantly reduced the number of accidents and lessened their effects. And Audi is taking this progress to new levels. Its novel support technologies can, like human beings, register aspects of a car's surroundings and use that information to make correct decisions and take appropriate action. Audi systems make for a relaxed, safe drive. Although responsibility still rests with the driver, these systems support the driver's ability to concentrate by alleviating some of the stress.

ACC maintains the distance

Another assistance system that comes from the luxury car class is radar-supported automatic cruise control (ACC). It not only keeps the car traveling at any chosen speed from 30 to 200 kilometers per hour (18.64 to 124.27 mph), but also maintains a safe distance from the vehicle in front. The system reacts to vehicles up to 180 meters (590.55 feet) away: its radar sensor detects any change in the distance the car is maintaining from the vehicle ahead.

If the driver wants to overtake quickly, ACC is overridden by pressing the accelerator down hard, but it stays active and returns to the previously chosen road speed and distance from the vehicle in front. If the brake pedal is pressed down, ACC is switched off completely, and then has to be selected again at the control lever (Reset). The last speed setting before it was switched off is recovered.

Doppler effect and signal transmission/reflection time: how ACC gets its measurements

The radar sensor is in a casing with a plastic lens that is installed in the decorative grill at the right of the single-frame radiator grill. The sensor scans an angle of eight degrees each side of its centerline, and it has a range of about 180 meters (590.55 feet). The four radar transceivers operate in the 76.5 Gigahertz frequency band, which is licensed for radio transmissions. The transmission is of the Frequency Modulated Continuous Wave type. The measured values that the system needs are the frequency differences between the transmitted radar signal and the one reflected back from the vehicle ahead. Using the Doppler effect and the time it takes the signal to return, the speed of the vehicle in front and how far away it is both can be calculated. The preceding vehicle's angle from the sensor's center axis also can be determined by comparing the signals received at the four antennas. But before the relevant vehicle can be isolated from the other objects detected by the sensors, the car's own path (the 'tunnel' within which it is moving) has to be determined as well.

This 'tunnel' is computed from signals received from the ESP yaw rate sensor and the steering angle sensor and from radar information derived from road boundaries (for instance crash barriers) and the movements of other vehicles. The system is integrated into the CAN network that extends through the whole car; it can, therefore, communicate with the other control units (for example engine management, transmission or brakes) within a few thousandths of a second.

Controls and displays

The driver chooses a preferred speed according to the scale markings on the speedometer – in 5 km/h (*3.11 mph*) steps from 30 to 80 km/h (*18.64 to 49.71 mph*), or 10 km/h (*6.21 mph*) steps at higher speeds. The selected speed is shown by light-emitting diodes on the speedometer scale; the system's status (on/off – vehicle detected) can be seen on the center display. You can select the time lapse between the vehicle in front and your own car in four stages, between 1 and 2.3 seconds; the chosen value can be seen in the driver information system. The system's dynamic response can be varied by choosing one of three drive programs at the MMI (dynamic/standard/comfort). The system then accelerates

the car or slows it down at the dynamic rate chosen by the driver. The 'comfort' setting is limited to a maximum speed reduction rate of 3 m/s^2 .

Lane monitoring and collision warning – Audi braking guard

The Audi braking guard is an extra safety function that is part of ACC. If there is a risk of colliding with the vehicle in front, the system warns the driver in two stages: at first with an 'early warning' gong accompanied by a visual signal on the instrument panel. At this point the ESP increases hydraulic pressure in the brake system as a safety precaution, so that if the driver brakes, full stopping power is available immediately.

If the driver fails to respond and the risk is still present, the system builds up pressure rapidly in the brake circuits. This sudden braking action only slows the car down slightly, but nonetheless causes it to suffer a noticeable jolt.

The aim of this jolt, which Audi has investigated in an extensive series of tests and found to be very effective, is to draw the driver's attention to the need for urgent action. If the driver now applies the brakes, full braking power is available without any delay, and even hesitant pressure on the brake pedal causes the hydraulic brake assistant (HBA) to make a full brake application.

The Audi braking guard is still monitoring the situation when ACC is deactivated. On the other hand, either the early warning signal or the complete Audi braking guard function can be switched off at the MMI, to comply with the Audi policy of always leaving the driver in control of the situation to the extent that they may wish.

Looking back and to the side: Audi side assist

Audi side assist also makes use of intelligent radar technology. The system was designed to warn drivers of dangerous situations when changing lanes. Two radar sensors located in the rear bumper operate at 24 GHz, monitoring a space of up to 50 meters (*164.04 feet*) in width to the side and rear of the new Audi A4. A high-speed computer analyzes the data.

Any time another vehicle going roughly the same speed moves into the blind spot or a vehicle approaches rapidly from behind, a yellow LED display lights up in the housing of either the left or right exterior mirror and remains lit. This warning signal is designed to be unobtrusive so as not to disturb. Drivers do not see it unless they are looking directly in the mirror.

The LEDs brighten and begin flashing rapidly for roughly one second if, despite the initial warning signal, the driver signals a lane change. A series of tests conducted by Audi has shown that this flashing light is nearly impossible to overlook, because the human eye is extremely sensitive to changes in contrast in its peripheral vision.

This visual display is located on the inner surface of the mirror housing so that the driver is virtually the only one who can see it. The brightness of the display adapts to the surrounding light and can also be adjusted from the MMI operating terminal. The system is activated at speeds greater than 60 km/h (*37.28 mph*) and can be deactivated by pressing a button.

The APS systems: parking made easy

Audi has two available parking assistance systems for the new A4 that make parking easy. The familiar, successful Audi parking system (APS) uses an audible signal to indicate distance to the rear. Audi parking system with camera integrates a rearview camera display. Incorporated into the trunk lid and extremely sensitive to light, this camera contains a fish-eye lens providing a generous, 130-degree view of the area behind the car. The images generated by this camera are equalized and displayed on the MMI operating system monitor.

The system also guides the driver with a variety of suggested lines and fields. In addition to real-time mode, APS advanced also offers the classic features of a visual/acoustic parking aid, aided by ultrasound sensing technology.

Multimedia systems

The Audi A4 also is raising the bar in its class in one of the most exciting of cutting-edge technologies – multimedia. It is being launched with an attractive array of communication and entertainment technologies.

The AMI (Audi Music Interface) makes it possible to hook up a fourth generation iPod, while a separate adapter cable allows users to connect any audio player of their choice having a USB 2.0 interface. The AMI software is modular in design, with individually stored drivers responsible for communicating with players and reading their protocols. New driver updates can be installed quickly and easily anytime a new player comes onto the market.

The concert and symphony radios operate with a dual tuner: two tuners process signals before these proceed to a digital processor. One of the tuners processes music while the other works in the background, scanning for stations that are clear enough to receive. This technology can pull in even the weakest of stations, because it can combine its receivers in such a way that the two antennas of the A4 operate like a beam antenna.

MMI: Navigation system and luxury user interface

North American customers have an optional navigation system that offers a dual tuner and seven-inch color display. Navigation information is provided by a fast, powerful DVD drive. An AMI (Audi music interface) interface for full iPod integration within the MMI system is available.

Audi offers two excellent sound systems for its concert and symphony radio systems: 180 watts of system power and 10 speakers give the Audi sound system impressive, well-balanced surround sound. In addition to the eight standard speakers, this system also includes a center speaker in the instrument panel and a 260 mm (*10.23 inch*) subwoofer in the rear shelf. An extensive variety of settings are available for customizing the systems.

Pure delight: The Bang & Olufsen sound system

The pinnacle of sound system technology and acoustics, Bang & Olufsen – once available only in the A8 luxury sedan – now can bring pure listening pleasure to A4 drivers. Brilliant sound quality, faithful resolution, precise staging and a broad, finely differentiated frequency spectrum – the product of the Danish sound specialists will meet every demand.

Audi and Bang & Olufsen have come together as partners in pursuit of the same objectives. Both companies place a premium on the most modern technology available, intuitive operation and classic, technoid design. Furthermore, both manufacturers are experts when it comes to materials, quality craftsmanship and working with aluminum (which Bang & Olufsen uses in its speaker covers).

The heart of the Bang & Olufsen sound system is a 505W amplifier that digitally processes signals according to a proprietary surround-sound algorithm, guaranteeing pure listening satisfaction for everyone in the car. The numerous settings options include four different sound modes. Included in the system is a microphone for analyzing the noise level within the A4; the system then changes the frequency, adapting the signal output to ambient sound conditions.

The Bang & Olufsen sound system includes 10 active channels with 14 speakers. Two three-way systems are found in the front (each including one speaker in the door, mirror triangle and instrument panel); two speakers are located in each rear door. The acoustic choreography is rounded out by a center speaker in the instrument panel, a 260 mm (*10.23 inch*) subwoofer in the spare wheel well and two surround-sound speakers.

Warranty

The Audi A4 will be backed by a new vehicle limited warranty that includes:

- Four-year/50,000 mile limited new vehicle warranty
- 12-year limited warranty against corrosion perforation
- 24-hour Roadside Assistance for four years

About Audi of America

Audi of America, Inc. offers a line of luxury vehicles that include the Audi A3 sport compact; the sporty A4 sedan, Avant and Cabriolet models; the high performance S4 sedan, Avant and Cabriolet models, the high-revving RS 4 sport sedan and Cabriolet; the all new A5 Coupe with FSI direct injection technology; the S5 Coupe with 354 hp; the design-leading A6 sedan and Avant; the V-10 powered high performance S6 sedan; the Audi Q7 performance SUV; the new all-aluminum Audi A8 and A8L; the new S8 with V10 power; the all-new 2008 TT Coupe and Roadster models; and the all-new, all-aluminum R8, one of the most exclusive mid-engine sports cars in the world. For more information, please visit www.audiusa.com

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