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**The 2009 Audi Q7:
Welcome to the Power and Efficiency
of TDI Clean Diesel**

HERNDON, Va. — The Audi Q7 crossover continues to set new standards in the sport utility vehicle (SUV) segment. It ingeniously combines sportiness and versatility, sophisticated technology and the luxury of a premium-class vehicle. The addition of the TDI clean diesel powerplant for 2009 will make an already attractive SUV even more popular.

Exterior design

The Audi Q7 brings the new design language of the Audi brand to the premium SUV segment. Its elegant styling represents power and presence and relays its dynamism and sportiness. Flowing forms create a body of moving surfaces, which appear sculpture-like even when standing still.

The Audi Q7 is a new breed of SUV. The first representatives of this vehicle category were angular beasts with a strictly off-road character. These were followed by the first premium SUVs, with a design clearly oriented toward on-road capabilities. In contrast, the Audi Q7 is a third-generation performance SUV. It combines the best features from both worlds and reflects this in its design. Its exterior is as much a reflection of superior sportiness as it is of the robustness required of a powerful off-roader.

Audi of America

Audi Q7 TDI Technical Specifications

2009 Model Year

Technical Specifications (continued)		2009 Audi Q7 TDI	
WHEELS:			
Size	8.5J x 19, cast alloy, five-arm V design	standard	
	9J x 20, cast alloy, bi-color five-twin spoke design	optional	
	9J x 20, cast alloy, five spoke design	optional	
	10J x 21, cast alloy, seven double-spoke design	optional	
TIRES:			
Size	265/50 R19 all season tire	standard	
	275/45 R20 all season tire	optional	
	295/35 R21 summer performance tire	optional	
BODY:			
Material	Unitized steel structure with integrated aluminum and magnesium components		
Corrosion protection	All steel parts are 100% dual-side zinc-galvanized (12 year limited warranty against corrosion perforation)		
WARRANTY/MAINTENANCE:			
	4-Year/50,000 mile new vehicle limited warranty		
	12-Month/5,000 mile (whichever occurs first) NO CHARGE first scheduled maintenance		
CAPACITIES:			
	quattro		
Engine oil	8.6 qt.	8.2 liter	
AdBlue®	6.5 gal.	24.6 liter	
Fuel tank	26.4 gal.	100 liter	
Cooling system	9.5 qt.	9 liter	
EXTERIOR DIMENSIONS:			
	TDI		
Wheelbase	118.2 in.	3002 mm	
Track: front / rear	65.0 / 66.0	1651 / 1676	
Overall length	200.2 in.	5086 mm	
Overall width mirrors	78.1 / 85.7	1983 / 2177	
Height (unloaded)	68.4 in.	1737 mm	
Ground clearance (loaded)	8.1 in.	205 mm	
Curb weight	5512 lbs.	2500 kg	
Drag coefficient	Cw = 0.37	Frontal Area =	= 2.87 sq. m.
INTERIOR DIMENSIONS:			
EPA Class	Light Truck		
Seating Capacity	7		
Head room front / middle / rear	39.5 in.	1003 mm	/ 39.0 in. 990 mm / 35.6 in. 904 mm
w/sunroof front / middle / rear	40.0 in.	1017 mm	/ 37.2 in. 945 mm / 35.4 in. 899 mm
Shoulder room front / middle / rear	58.7 in.	1490 mm	/ 58.1 in. 1475 mm / 48.6 in. 1235 mm
Leg room front / middle / rear	41.3 in.	1049 mm	/ 37.1 in. 943 mm / 29.2 in. 741 mm
Int. vol. (EPA) front / middle / rear	55.36 cu. ft.	48.63 cu. ft.	29.22 cu. ft.
Luggage capacity (EPA)	10.9 cu. ft.	42.0 cu. ft. (3rd row folded)	72.5 cu. ft. (2nd + 3rd row folded) 144.1 cu. ft. (total including trunk volume)
PERFORMANCE:			
	quattro		
0-50 mph (0-80kmh)	n/a	sec.	
0-60 mph (0-100 km/h)	n/a	sec.	
1/4 mile	n/a	sec.	
Top speed	n/a		
FUEL ECONOMY:			
	2009 EPA figures		
	quattro		
City	17	mpg	
Highway	25	mpg	
	Over 600 highway miles of range.		

The rear of the Audi Q7 has an unusually dynamic and innovative design. The sweeping wrap-around tailgate with the S-shaped shut line has an optically stabilizing effect while at the same time expressing the urge to push forward. The tailgate does not interrupt the bumper with the embedded light strip and itself carries single-piece lights with an expressive design, extending to the body flanks and accentuating the horizontal lines at the rear. The shoulder line of the body ends at the top edge of the lights. Both exhaust tailpipes are arranged symmetrically. On vehicles with a V6 engine, they are 3.15 inches in diameter, and they are 4 inches in diameter with the V8 4.2 FSI .

A number of impressive details round off the sporty appearance of the Audi Q7, starting with the large wheels of up to 21 inches in diameter symbolizing maximum performance and style on- and off-road.

The exterior mirrors have been optimized to achieve minimum air resistance, low noise levels, dirt-resistance and good drainage in wet weather. Horizontal turn signals featuring LED fiber-optic technology are harmoniously integrated.

The drag coefficient of the Audi Q7 on models with steel suspension is 0.37. If air suspension is fitted, the coefficient is even lower due to the lowered body at higher speeds, reaching 0.34.

Interior design

The interior of the Audi Q7 is sporty and at the same time elegantly functional. The uncompromising quality standards of the brand are to be found once again in the Audi Q7 performance SUV, combined with a level of practicality and versatility that sets standards.

Clear architecture and the finest materials and craftsmanship throughout are the lasting impressions conveyed by the interior of the Audi Q7. The elegant forms and the high-quality surfaces are both robust and luxurious. The instrument panel is covered as standard in a soft skin, pleasing to the eye and to the touch. Typical for an Audi, the gaps are exceptionally even and narrow.

The visual impression is one of calm surfaces where the same material and color dominate, accommodating the functional units that are embedded like islands.

Inlays in three fine woods combined with aluminum

The standard decorative inlays on Premium models are made from fine wood, including burr walnut, olive ash or tamo, a dark wood from Japan. Air outlets in aluminum-look, discreet decorative rings and strips on covers and switches, as well as an exquisitely designed lighting package including footwell lights using LED technology, are included to add yet more finesse to the ambience.

Additional options including Alcantara trim for the headlining and roof pillars as well as various leather trims complete the overall impression of elegance and style.

The heavily grained Cricket leather is optional, whereas leather seating surfaces are standard.

Cockpit based on the Audi A6

The interior architecture reveals the Audi Q7's kinship with the Audi A6 and A8. Powerful taut lines lend the door trims a dynamic look. The styling of the controls and cockpit, with its generous layout and sleek design, was inspired by the Audi A6. The center console is organically integrated into the cockpit. The main instruments – speedometer and tachometer – feature dropped-shaped surrounds.

The broad and high center tunnel also is a perfectly uncluttered and functional operating area, undisturbed by the presence of a handbrake. Instead there is a foot-operated parking brake. The Multi Media Interface (MMI) located on the tunnel is highly impressive for its ergonomic qualities. Independent comparative tests once again have underscored the superiority of this Audi technology, even compared with new designs from the competition.

Numerous storage compartments enhance travelling comfort for every passenger. Brackets suitable for 1.5-liter bottles will be found in all four door pockets. There are also six cup holders for a total of 10 beverage holders in the vehicle. Additional stowage areas are

incorporated in the center console and the center armrest. Nets are found in the footwell on the front passenger side, on the luggage compartment trim and on the back of the front seats; a compartment for glasses is integrated in the roof module. Audi Q7 customers also receive a center armrest with separate sections for the driver and front passenger.

Completely new seating system

The seats in the Audi Q7 have been designed to provide excellent comfort on long journeys and a relaxed seated position throughout. The driver's seat is height-adjustable, and the steering column can be adjusted for height and angle. The prospective customer generally can choose between three seat configurations: the performance SUV is available as a five-seater, seven-seater or six-seater.

The standard Audi Q7 3.6 will leave the assembly line as a five-seater. In this case the seat bench in the second row is divided 60:40; as an option both elements can be moved back by four inches. The rear seat split is 40:20:40; an armrest with pop-up cup holders is incorporated into the center section. This element can be folded down completely to create a through-loading width of 11.8-inches (30 cm).

If all three backrests are folded down – it is not necessary to remove the head restraints – a flat loading area is created, flush with the level of the luggage compartment. For even greater seating comfort, all backrests in the second row of seats can be reclined by 10 degrees.

The seven-seat version, standard on Premium models, has two seats in the third row suitable for people who are up to 5-ft. 4-in. tall. They can be folded flat on the loading floor if necessary.

The mechanism for making these adjustments is particularly user-friendly. By pushing the backrests (divided 50:50) slightly, the head restraints are retracted automatically. Cup holders are integrated in the luggage compartment side trim panels.

Convenient access thanks to easy entry

The seats in the second row of a seven-seat Audi Q7 are adjustable for fore/aft movement as standard. They are equipped with a new and convenient adjustment mechanism for carefree access to the rear: if the backrests are folded forward by an angle of approximately 50 degrees, the entire seat slides forward by approximately 8.3 inches from the rearmost position.

In the six-seater Audi Q7, optional on the 4.2 Prestige, the individual fore/aft adjustable seats in the second row have a particularly comfortable design, based on the sports seats. The thigh support has more padding, is broader and longer, and has slightly higher side sections. At shoulder level the backrests are wider and softer. Between the comfort seats there is a separate center console with two cup holders and a large storage compartment, as well as a folding armrest.

Up to 28 configurations

The functional seating concept of the Audi Q7 allows up to 28 different loading configurations. The maximum load volume is an ample 72.5 cu. ft., without the need to remove seats.

Even if all three seat rows are used, a very respectable luggage capacity of 10.9 cu. ft. remains. The innovative styling of the tailgate – its handle releases electrically – provides exceptionally large access to the load area, which is no less than 45.7 inches wide.

Other standard features on the Audi Q7 Premium models include a tailgate fitted with electric motors that are activated by a switch in the driver's door, the remote control and via buttons on the tailgate itself; two transversally-mounted motors in the vehicle that operate via a bracket directly at the hinges; and a programming function that allows the driver to determine the upper end position of the tailgate according to personal preference. With the adaptive air suspension option, loading is even more convenient. The rear is lowered by 2.8 inches at the touch of a button, which lowers the loading sill to 30.1 inches.

45.7 inch-wide through-loading facility

Standard on the Audi Q7 is a robust loading sill made of high-grade steel, which seamlessly joins the loading floor. The through-loading facility is an impressive 45.7 in. wide, sufficient for large golf bags. A luggage compartment cover, which can be operated conveniently with one hand, also is part of the standard package. With two additional roller covers, it compensates for the various positions of the backrests in the second seat row. Standard lashing eyes hold retaining straps or ropes.

Sufficient space remains underneath in the double load-area floor to accommodate a removable, waterproof dirt-resistant tray. This can be used for soiled or wet items such as ski boots and for all types of small utensils. On the five-seater there is an additional large storage compartment behind the second seat row.

Body development

The dimensions of the Audi Q7 are not its only impressive feature. Its spacious uni-body is extremely rigid, robust and safe. State-of-the-art restraint systems help protect passengers in the event of an accident.

The Audi Q7 is a vehicle of prestigious proportions, even in the premium SUV category. It is 200.2 inches long and has a wheelbase of 118.2 in. – figures that work in concert to create the eye-pleasing sporty proportions. The width of 78.1 in. and the height of 68.4 in. (with steel suspension) are an indication of the superb spaciousness offered by the interior.

A primary development goal was to achieve maximum static and dynamic rigidity for the unitized body. Audi engineers have accomplished this with elaborate lightweight steel construction. Twenty-six percent of all components are of high-strength steel, and 32 percent are made of the very high and ultra-high-strength varieties. In some areas, such as the floor cover, ultra-modern tailored blanks are used, the various strengths of which are created in the rolling process. Six percent of the body components are made of aluminum. These are the fenders, hood, and the tailgate. Compared with conventional components

made of steel panels, Audi has achieved a weight saving of 48.4 lbs. In order to produce the unusually flowing design for the tailgate, expertise in lightweight aluminum construction – developed by the brand over many years – was required. The aluminum tailgate alone reduced the weight by around 16.5 lbs., another advantage being that the customer is required to use less force to open and close. With the V8 engine, the Audi Q7 weighs in at 5,324 lbs.

Crash protection of the highest standard

With regard to occupant safety, the Audi Q7 body offers a standard equal to the high claim expected of the brand. Crash zones with precisely defined deformation behavior in all sections help reduce the impact energy in a controlled way so that the high-strength occupant cell can provide maximum survival space.

In the event of a frontal collision, front sensors located near the headlights, working in conjunction with other sensors on the B- and C-pillars, register a crash within a few thousandths of a second. A few milliseconds later, the control unit triggers the belt tensioners to minimize any possible belt slack. A belt-force limiter yields at a particular load threshold to allow occupants to sink into the inflated airbag. Belt-force limiters also are standard on the outer seats of the second row. The full-size front airbags function in two stages of inflation.

Padding absorbs energy

To a large extent, the steering wheel and the driver's airbag retain their positions during a collision, thanks to a sliding mechanism incorporating a damping function that is connected to the steering column. Energy-absorbing padding under the instrument panel, in the footwell and carpet protects the legs and feet; a device in the foot-controls decouples the pedals.

A system of supports in the vehicle's front section includes pieces made of ultra-high-strength steel, which help to absorb the impact impulse.

The bumper beam distributes the forces evenly and directs them specifically to the side members, which are matched, in terms of behavior, to the bulkhead and the vehicle floor. The sills – including inner reinforcement tubes, the columns of high-strength steel and the roof frame profile extending from the A- to the D-pillar – distribute the remaining forces in such a way that the load on the passenger cell is kept as low as possible.

In the event of a side collision, other protective components in the body come into play. The doors overlap with the sidewall frame because their panels are extremely deformable in particular areas. The front seat frames remain rigid because of particularly stiff cross braces.

Sideguard head airbags for all three seat rows

The Audi Q7 occupant cell is equipped as standard with side airbags at the front, which protect the chest and pelvis of an occupant. As an option, these airbags also are available for the outer seats in the second row. Standard, on the other hand, is the head-protection sideguard airbag system that completely covers the entire side window area up to and including the third seat row. The airbags are filled by a hybrid gas generator. Once triggered, the side airbags do not deflate immediately so protection remains available in the event of a secondary collision.

The new Audi Q7 also affords its passengers excellent protection against the consequences of a rear-end collision. It already meets the requirements of future standards, i.e., it withstands an impact against a deformable barrier at 50 mph and with 70 percent overlap.

The compact assemblies with the resulting deformation area under the Audi Q7's high engine compartment lid have a beneficial effect in terms of pedestrian protection.

All of the Audi Q7's safety equipment, and intelligent engineering, helped it achieve a "Five-star" rating from the *National Highway Traffic Safety Administration* (NHTSA) for passenger protection in both head-on and side collision tests. "Five-stars" is the highest rating attainable, and it signifies a less than five percent chance of serious injury from a collision.

Additionally, in 2008 the Audi Q7 earned the Insurance Institute for Highway Safety's *TOP SAFETY PICK* award. The IIHS recognized the superior overall crash protection of the Audi Q7 amongst vehicles in the large luxury SUV class.

Engines

The Audi Q7 is available with a 4.2-liter V8 FSI, a 3.6-liter V6 FSI, or a 3.0-liter V6 TDI clean diesel engine. All engines feature direct injection, that is, the fuel reaches the combustion chambers directly, with no twists and turns along the way. This helps to improve power and fuel efficiency of the powerplant.

4.2-liter V8 with FSI technology

With a displacement of 4,163 cc, the V8 is a close relative of the engine used in the Audi S5. In the Audi Q7, in line with the character of the performance SUV, it develops 350 bhp at 6,800 rpm. But its torque curve of 325 ft. lbs. is even beefier than in the B7 RS 4. This power output is available at 3,500 rpm, and 85 percent is unleashed from as low as 2,000 rpm. The engine has a sonorous tone and is highly cultivated throughout the entire speed range.

Three chains for the four camshafts

The powerful V8 belongs to the present V engine family of the brand, notable for a 90° cylinder angle and a distance of 3.5 in. between cylinders. A maintenance-friendly two-stage chain drive system, comprising three single roller chains, activates the four camshafts; it is located at the rear of the engine to save space. A fourth chain drives the ancillaries.

The figures confirm the impressive power potential of the eight-cylinder engine. The performance SUV with the V8 sprints from zero to 60 mph in just 7.1 seconds. Top speed is limited to 130 mph.

The V6 FSI develops 280 bhp

The V6 engine has a displacement of 3.6 liters. It is derived from the six-cylinder engine that powers the versions of the Audi A3 and the TT. By enlarging the bore, displacement has

increased from 3,189 cc to 3,597 cc. Its torque is available across a wide range: 266 ft. lbs. from 2,500 to 5,000 rpm. With a power output of 280 bhp at 6,200 rpm, the V6 represents yet another impressive power pack for the performance SUV.

With an included angle between cylinder banks of 10.6 degrees, the V6 is unusually compact. Its engine block is fashioned from grey cast iron, and the valves are actuated by low-friction roller cam followers with hydraulic clearance adjustment. Intake and exhaust camshafts, which are chain-driven, are continuously adjustable to reduce emissions and further improve fuel economy. The variable intake manifold also contributes an improvement in cylinder charging. Like the V8, the V6 uses FSI, the direct injection technology developed by Audi engineers that enhances performance and efficiency.

Performance figures are correspondingly impressive. The Audi Q7 3.6 FSI accelerates from zero to 60 mph in 8.2 seconds; its top speed is limited to 130 mph.

The V6 TDI provides power & efficiency

With its 3.0 liter V6 clean diesel engine, the Audi Q7 TDI generates 225 horsepower, and a substantial 406 ft. lbs. of torque at a low 1,750 rpm. This represents a 25 percent increase in torque over the 4.2 FSI, and with 20 mpg EPA combined fuel economy, a 25 percent increase in fuel efficiency over the 3.6 FSI.

The ultra low emission system installed on the Audi Q7 TDI ensures that the engine conforms to the limits included in the ULEV II / Bin 5 standards. This level exceeds even the most stringent standards in all 50 U.S. states. The TDI features an optimized combustion process along with engine emissions, while a cleaning system reduces nitrogen oxide exhaust emissions by up to 90 percent.

The four valve engine is extremely compact – measuring only 440 millimeters (17.3 inches) in length. The cylinder housing that features a 90 degree cylinder angle is constructed from high strength vermicular graphite cast iron, which is 15 percent lighter in weight than conventional cast iron. Its auxiliaries and camshafts are driven by maintenance-free chains that run in a space saving position in back of the engine. Low friction roller cam followers with hydraulic valve clearance compensation work in the cylinder head. Quickstart heater plugs are adapted to extremely cold temperatures – they heat up to more than 1,800° Fahrenheit within two seconds.

With piezo injectors, the number of injection processes per cycle can be varied and optimized almost at will. The Audi TDI development engineers have opted for up to five injection processes for the 3.0 V6. In the lower speed range, additional double pilot injection occurs in addition to the main injection process; in the medium range there's single pilot injection. Simple post injection occurs up to around 2,500 rpm and under partial load. This strategy reduces emissions and ensures a smoother combustion process, which primarily benefits the engine's acoustic behavior. The 3.0 TDI produces a quiet, cultivated and harmonious sound.

The V6 TDI also features a turbocharger with variable turbine geometry on board. Its vanes are guided by an electric servo motor that improves propulsive power at low rpms. Two large intercoolers reduce the temperature of the compressed air in order to increase the overall efficiency.

Drivetrain

Six-speed automatic transmission

To optimally convert engine high performance into forward propulsion, the Audi Q7 has the Tiptronic automatic transmission on board as standard. Depending on the engine version, two technically different versions are employed, yet both have the same dynamic character.

The six gears of the Tiptronic are wide-spaced and ideally exploit the torque potential of the engines. On the road and on difficult terrain, where the torque converter with its damping action and torque multiplication is particularly well suited for driving off-road, it also replaces a reduction gear.

Transmission management is taken care of by the dynamic shift program DSP. It adapts to suit the individual style of the driver and the prevailing road conditions and responds to any changes. DSP controls a wide range, and the shifts are precise, spontaneous, fast and smooth.

A number of changes were made to the Tiptronic for off-road use. The transmission shafts, their mountings and the parking mechanism were reinforced; and modifications to the oil sump and intake filter guarantee oil supply, even under extreme conditions.

Dynamic torque split delivers sporty driving experience

The Audi Q7 features the latest-generation self-locking center differential. It has an asymmetric/dynamic torque split of 42:58 between front and rear wheels. In particular off-road situations, or if the prevailing road conditions change, the differential can direct up to 65 percent of the power to the front or up to 85 percent to the rear. If a wheel at one axle starts to spin, the electronic different lock (EDL) takes control by means of appropriate brake intervention.

The slightly tail-heavy basic characteristics of the quattro drive in the Audi Q7 signify even more agility. This is noticeable primarily when driving into bends when the steering is virtually free of any noticeable torque steer. Thanks to direct servotronic control, which is standard on all Audi Q7 models, the driver enjoys a level of steering precision and clearly defined handling that until now has been unimaginable in an SUV and only rarely experienced in a sports car.

The transfer box on the Audi Q7 is installed right next to the automatic transmission. A hollow shaft in the case delivers torque to the self-locking center differential from which it is distributed. The somewhat larger proportion flows via the ring gear and the coaxial output shaft to the driveshaft and from there to the rear. The smaller share is supplied to the center differential, from which it travels by chain to a second driveshaft leading past the transmission to the front axle.

Suspension

Dynamic and safe

The Audi Q7's dynamic suspension uses sports technologies such as double wishbone suspension all round. At the same time, long spring travel, a ground clearance of 8.1-in. and robust components take into account the demands of off-road driving. The Audi Q7's driving performance bears any comparison. In terms of driving safety, it also sets the benchmark – on the road and on rough terrain. In addition to the standard steel chassis, adaptive air suspension is available.

The Audi Q7 is supplied with a conventional steel-spring suspension and hydraulic twin-tube shock absorbers as standard. Ground clearance is approximately 8.1 in. to ensure good off-road handling. Spring travel is correspondingly long and comfortable.

Wishbones of aluminum

To enhance ride comfort and driving dynamics, the double wishbones at the front of the Audi Q7 are made of aluminum. The upper triangular wishbone is a cast part, and the lower is forged. The large gap between both wishbones guarantees precise wheel control. The mounting for the spring strut and upper wishbone also is made of aluminum.

The lower wishbone and anti-roll bar, made of high-strength steel tubing, are attached to a subframe of high-strength steel on which the steering is mounted. The mounts are hydraulically damped, which minimizes rolling noise and improves comfort.

Servotronic with variable assistance

All Audi Q7 models are equipped as standard with speed-dependent Servotronic steering. The purely hydraulic rack-and-pinion steering helps the driver to maneuver in or out of a parking space, and its directness and precision ensure good road contact and clear feedback at high speeds.

The Servotronic generally is tuned for direct sporty response. Depending on steering wheel angle, its ratio varies from 10.0:1 to 16.5:1. When steering out of the central position, the steering responds more indirectly. This guards against nervous vehicle reactions at high speeds and makes minor corrections to maintain straight-line stability. If the steering wheel is at a greater angle, the control action is more direct and agile with a view to an active driving feel.

At the rear axle, the upper wishbone and the spring strut cross bar are made of forged aluminum. The tie bar is made of weight-optimized tailored rolled blanks. Steel plates of varying thicknesses combine low weight with high rigidity for sections under particularly heavy load and strain.

All control arms are attached to a subframe that also supports the final drive. The spring struts are cardan-mounted on a separate wishbone of cast aluminum, which is attached to the body. Their marked inwardly tilted position reduces overall height and creates more room in the vehicle interior to accommodate the third row of seats.

The rubber-bonded metal mounts at the rear axle have been specially optimized to perform their respective functions. Where loads occur in a longitudinal direction, their torsional rigidity is low to enhance ride comfort. Lateral forces, on the other hand, are firmly absorbed in the interests of driving stability.

Large wheels but extremely light

Standard equipment is 18-inch wheels with 255/55 tires on the 3.6, 19-inch wheels with 265/50 tires on the TDI, and 20-inch wheels with 275/45 tires on the 4.2. The wheels are eight inches wide for the 3.6, eight and one-half inches for the TDI, and nine inches for the 4.2.

Wheels in 19, 20, and 21-inch sizes can be ordered. An optical highlight is the 20-inch five twin-spoke cast aluminum wheel of two-color design, with spoke flanks in anthracite and polished design elements (standard on 4.2 Prestige).

Driving on air

The latest-generation adaptive air suspension is available as an option on the Audi Q7 4.2. The combination of air suspension and an electronically controlled damping system produces the perfect synthesis of sporty handling and supreme ride comfort.

The air suspension essentially comprises a compressor, two accumulators each with a capacity of 10 liters and four electronically-controlled dampers, integrated into the suspension struts. To ensure sensitive response, the externally-guided bellows are made of a particularly thin material.

For normal driving, a choice of three different characteristics can be selected via the Multi Media Interface (MMI) operating system. Settings called Dynamic, Automatic, and Comfort range from very sporty to comfortable. The system control unit varies the air-spring and

damping characteristics at the compression and rebound stage according to the mode selected and vehicle speed. The driving modes and height levels can be read off the MMI screen. The ride height also appears in the central driver information display.

More sportiness in dynamic mode

The Automatic mode is designed to offer the best handling performance in every situation. Alternatively, drivers requiring more comfort can select the Comfort mode, which has a particularly soft damping action. In both cases the body is at normal ride height up to 75 mph, offering 7.1 in. ground clearance. In the Dynamic mode the suspension is lowered by 0.6 in. from the start, so the lower center of gravity ensures a more dynamic driving experience.

Regardless of the mode selected, the body automatically is lowered on motorways to a ground clearance of 6.5 in. if the Audi Q7 travels for more than 30 seconds at a speed of at least 75 mph. From a speed of 100 mph – maintained constantly for over 20 seconds – the body is lowered by another 0.6 in. to further optimize stability and aerodynamic drag. If the vehicle slows down, the air suspension lifts the body in two stages to restore the normal ride height. The thresholds for these changes are 81 and 44 mph.

Particularly on country roads, the dynamics also benefit from an important innovative feature of adaptive air suspension, the dynamic roll stabilization function. The system, which uses information provided by four sensors at the wheels and three additional sensors on the body, actively responds to steering input and body roll. By deliberately increasing the damping forces, the system counteracts the rolling motion of the vehicle. In fast cornering maneuvers, for example, the body remains horizontally stable.

Off-road mode up to 60 mph

Off-road, the Audi Q7 driver can activate two additional modes. The off-road mode is one inch above normal ride height and can be used up to a speed of 60 mph. The lift mode is even higher, with an additional 1.4 in. of extra ground clearance, so that even major obstacles can be negotiated at moderate speeds.

Finally, two functions round off the range of options. A button located in the luggage compartment permits the driver to lower the loading lip by 2.8 in., making it much easier to load heavy objects into the vehicle. There is even a special suspension mode for driving with a trailer.

The air suspension of the Audi Q7 also functions as a high-tech self-levelling suspension by keeping the body at the ideal height, regardless of the load situation. Passengers benefit from a very smooth ride at all times.

An electronic stability program with off-road expertise

The Audi Q7 is equipped with latest-generation stabilization control technologies. The stability program incorporates a number of components, including the anti-lock brake system ABS with electronic brake-force distribution EBD and hydraulic brake assist, the traction control system ASR and the electronic differential lock EDL. To allow for the far-reaching scope of the performance SUV, the program has features such as an off-road mode that can be activated by a switch. In this mode the system tolerates a certain amount of slip when braking or accelerating, which often can be of help on loose surfaces. Fluid control thresholds apply at lower speeds, whereas more priority is attached to driving stability as the speed increases.

For downhill driving there is a special assist function. Below 12 mph it keeps the speed constant on steep downhill stretches, allowing the driver to concentrate fully on steering the vehicle. In addition, the rollover stabilization program intervenes in the event that critical driving situations might cause the vehicle to overturn, and it takes the necessary corrective braking action.

Fording depth of more than 20 inches

With all these technologies – quattro permanent four-wheel drive, high-torque engines, long spring travel and high ground clearance – the Audi Q7 offers superior off-road capability. Its maximum possible climbing capacity is 31 degrees.

The ramp angle measures 21 degrees for vehicles with steel-spring suspension, 24 degrees for the Audi Q7 with air suspension. There is a similar difference in the angle of slope (23/25 degrees). If driving through water, the Audi performance SUV can plunge in up to a depth of 20 in.

Also available is an off-road package for fans of a more cross-country look. The package includes underside protection plates of brushed stainless steel at front and rear and unique rocker panels. These individual items also are available as dealer-installed accessories.

Even under extreme load, the Audi Q7 has exceptional deceleration capabilities. The four discs are internally ventilated and generous in size. Those at the front axle are 13.8 inches in diameter and 1.3 in. thick and the rear discs are 13.0 in. in diameter. The front brake calipers are cast from black anodized aluminum and feature a six-piston design.

The standard tire pressure monitoring system makes another important contribution to driving safety. It constantly monitors the temperature and pressure of all four tires. In the event of pressure loss it sends warning messages that vary in priority according to pressure levels.

Technology

Sound systems with 14 speakers

The optional Bang & Olufsen Advanced Sound System that won acclaim in the A8 sedan, is also available on the Audi Q7 4.2. The fully-digital system from the Danish high-end manufacturer redefines the standard yet again for demanding music lovers. The system incorporates 14 speakers, each energized by its own output stage. The output stages are grouped together in two amplifiers that supply an output of more than 1,000 watts if required. The general rule is the higher the output, the better the freedom from distortion in poor acoustic conditions.

The dynamics of the frequency response are calculated so that the music has the perfect tone. When programming the digital sound processor and selecting and positioning the speakers, consideration was given not only to driving noise, but also to spatial conditions and the properties of materials in the Audi Q7 interior.

The speakers are housed in enclosed capsules so that their vibration behavior can be controlled precisely. Their anodized aluminum grilles underscore Audi's expertise with this material. The front tweeters use Acoustic Lens Technology. With coated silk diaphragm domes, the tweeters act as perfect point sound sources. When the system is switched on, they extend out of the dashboard automatically.

The Audi Q7 also has a BOSE Surround Sound system (standard on 3.6 / TDI Premium Plus and Prestige models, as well as the 4.2 Prestige model) with a digital sound processor and 14 speakers including a large subwoofer and a DVD-based navigation system. Mobile phone preparation with Bluetooth interface and a speech dialogue system to simplify system operation are additional technologies that ensure luxurious and relaxed travel.

Even the 3.6 comes with an audio system that features eight speakers and a six-CD changer. The standard specification for the Audi Q7 also includes a sensor package with light/rain sensor, automatic headlight activation and a coming/leaving home lighting function. In addition, the Audi Q7 Premium models have a number of top-class features on board. They include a driver information system, cruise control and a leather-covered multifunction steering wheel, which the driver can use to operate the audio system, the MMI and (as an option) the speech input system.

Indirect air supply for automatic air conditioning

Deluxe automatic air conditioning, which comes as standard, is exceptionally quiet and almost completely draft-free. Its special feature is an air outlet grille in the center of the instrument panel to ensure indirect ventilation. The air flow and temperature can be adjusted separately for the driver's and front passenger's sides. The automatic control operates based on the angle of the sun, and an air purity sensor activates the air recirculation function.

As an option, Audi supplies the Audi Q7 with a four-zone automatic air conditioning system (standard on 4.2 Prestige), which provides even more cooling and heating power and even more precise air-flow regulation. The four-zone system has a separate air conditioner unit in the left side panel of the luggage compartment and a separate operating panel for the rear

passengers. The air conditioning system comprises 10 sensors that register the temperature in the passenger compartment, additional air outlets in the C-pillars and a total of 19 electric motors.

All Audi Q7 models are equipped with an electric auxiliary water pump, which at the push of a button utilizes the residual heat from the coolant to maintain the interior temperature for a limited period after the engine has turned off.

Open-sky system panorama sunroof more than 5.6 ft. long

The large-area panorama sunroof is a very special extra for the performance SUV. It creates a light-flooded sense of spaciousness and a fresh and airy interior for a rewarding driving experience. The open sky system is approximately 5.6 ft. long and comprises three glass elements. The front section can be tilted electrically by means of a rotary switch or opened by 19.3 in., and the rear section is tilted. Two slightly transparent roller blinds – the front electric blind and the rear one that is operated by hand – prevent the interior from overheating.

The Audi Q7's panorama sunroof generates very little noise when open. A mesh wind deflector reduces noise levels and drafts.

Adaptive cruise control

The second generation Audi adaptive cruise control, a radar-assisted cruise control system that includes automatic distance control, makes its debut on the Audi Q7. The new system controls distance and speed from 0 to 90 mph. It is able to brake the vehicle to a standstill behind the vehicle ahead. The Audi Q7 is the first Audi and the first SUV worldwide to feature this technology, which makes driving on congested roads more tolerable.

The new system offers substantially more comfort, particularly in slow-moving traffic jams and bumper-to-bumper urban traffic, as extensive tests in major cities and on very busy main routes have shown. Often the driver does not need to stop entirely and can keep moving at a crawling speed. If the driver has to stop, s/he only needs to release the brake and tap the cruise control lever on the steering column to drive off again.

Four driving programs available

Desired speed is set with the left steering column lever. On the MMI terminal, the driver can select one of four driving programs that determine the time interval from the vehicle in front – between 1.0 and 2.3 seconds – and the dynamics of the control function – from sporty to comfortable. The distances are shown on the MMI screen.

The radar system is integrated into a vehicle's computer-processing network, which covers the entire vehicle, and it communicates within a few thousandths of a second with control units for the engine, transmission and brakes. The system adapts the speed of the Audi Q7 by manipulating the accelerator or brakes to ensure comfort and convenience. The braking action initiated by the system deliberately has been limited to 4 m/s^2 .

Warning in two stages

In hazardous situations, for example if the driver in front suddenly brakes hard, a new technology takes intervening action. If the Audi Q7 driver does not react within a specified time, a two-stage warning is issued. Stage one consists of an acoustic signal accompanied by a prominent red flashing signal on the instrument panel.

In the second stage, if there is still no response from the driver, the system triggers a short but clearly noticeable jolt, generated by a fast build-up of pressure in the brake system. At this point there is no permanent deceleration, but the system shakes the driver awake with the jolt and urges hard braking. At the same time the brake system automatically is supplied with pressure so that full braking performance can be attained without delay when the driver applies the brake pedal.

Audi engineers have identified this as the most effective solution, after evaluating numerous road tests in which test drivers were confronted with diverse warning messages. There is a very serious side to this new technology. According to a study conducted by the German Insurance Association, not paying attention and delayed reactions – even falling asleep at the wheel for a few fractions of a second – are the cause of 25 percent of all road accidents.

Audi side assist

Even with sophisticated active driver assistance systems such as ESP, the primary objective of Audi research is to prevent dangerous situations from arising in the first place. For this reason a designated department, the “Audi Accident Research Unit,” analyzes accidents. Its aim is to analyze those areas in which people often make mistakes and to lessen the impact by providing high-tech solutions in the vehicle. The new Audi side assist is one of them.

Similar to adaptive cruise control, the latest generation of Audi side assist utilizes intelligent radar technology. The side assist, a world first, has been specifically designed for lane changes, by monitoring the critical blind spot at speeds over 19 mph. Two 24-gigahertz radar sensors in the rear bumper monitor the area next to and behind the Audi Q7 to warn the driver of any approaching vehicles.

If another vehicle is moving in the critical zone at more or less the same speed or is approaching fast from the rear, yellow LEDs in the housing of the exterior mirror light up permanently. The driver sees the LEDs only when looking in the mirror. As long as the driver is only looking ahead, s/he will not notice the LED lights. The lights are not meant to be a distraction. If, despite the warning, the indicator lever is used to change lanes, the LEDs become brighter and start to flash.

The display on the inside of the mirror housing is directed so that only the driver can see it. The system adapts the brightness to the ambient lighting. In addition, it can be adjusted via the MMI. It is active from a speed of 35 mph and also can be switched off. Audi side assist does not interfere with the driving and control functions.

Audi parking system advanced with rearview camera

The Audi parking system incorporates a rear-view camera and front and rear acoustic parking assistance. The extremely light-sensitive camera is integrated, together with its control board, in the handle of the tailgate and covers a wide area behind the vehicle with a viewing angle of 130 degrees. The captured images appear on the MMI screen. The camera withstands acceleration of up to 100 g – 150 percent more than is normal when closing the tailgate.

When reversing, the system shows the driver the way with the help of various lines and boxes. With parallel parking, for example, blue areas show how much space is required by the Audi Q7. They clearly indicate whether the parking space is large enough. Blue lines assist when steering and countersteering. With angle parking, orange-colored lines mark out the course. The camera image also shows the rear bumper and the extended tow hitch. In this way the performance SUV can be maneuvered with precision onto the drawbar of a boat or horse trailer.

Optional S line package

Optional on Premium models, the S line package makes an already sporty SUV even more dynamic and exclusive. S line enhances the sportiness of both the exterior and interior of the Audi Q7. Exterior components include modified front and rear bumpers, a gloss-black grille, full body paint, S line badging, and five-spoke 20-inch wheels with all-season tires designed by quattro GmbH. Twin-spoke 21-inch alloy wheels with summer performance tires also are available when ordering the S line package.

Interior enhancements include a multi-function three-spoke sport steering wheel with shift paddles, aluminum decorative inlays, and S line badging on the door sills.

Warranty

The Audi Q7 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

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