



Mai 2015

## **La nouvelle Audi Q7 – la plus efficiente et légère de sa catégorie**

### **Version courte**

**Le grand SUV offre des solutions innovantes en termes de construction ultralégère, conduite, suspension, info divertissement, connectivité et systèmes d'assistance à la conduite. Son intérieur spacieux accueille ses occupants dans un confort luxueux.**

### **Moins 325 kg**

Grâce au principe de construction ultralégère de Audi, la nouvelle Audi Q7 à vide est en-dessous des 2 tonnes et a perdu 325 kg par rapport au modèle précédent, selon la version du moteur. La carrosserie bénéficie de la construction innovante multi-matériaux et gagne 71 kg, avec les éléments ajoutés (les portières en aluminium), 95 kg. L'Audi Q7 est une grande voiture avec ses 5,05 mètres de long, 1,97 mètre de large et 1,74 mètre de haut, mais elle est également la plus légère de sa catégorie.

### **Dynamisme de conduite : l'interaction de tous les composants**

Le dynamisme de conduite a été obtenu grâce à la collaboration entre tous les départements du développement technique. Les moteurs délivrent leur puissance pratiquement sans perte, via un châssis supérieur. L'interaction des composants fournit une base idéale pour la maniabilité dynamique. Que ce soit sur autoroute ou sur une route de campagne sinueuse, le comportement sur la route rappelle la conduite dynamique d'une berline grâce à la transmission intégrale permanente quattro, la tiptronic rapide et le poids total léger. Néanmoins, les développeurs ne négligent jamais le besoin d'une conduite stable loin des routes classiques, ou le mode vitesse dynamique – l'Audi Q7 performe sur tous les terrains.

### **Un lounge de luxe : l'intérieur le plus spacieux de sa catégorie**

Lorsqu'il ouvre la portière, le conducteur découvre un espace luxueux. Toutes les couleurs et matériaux ont été associés avec soin. À l'avant, une ligne d'aération continue s'étire sur le long du tableau de bord et renforce la largeur de l'espace. Des bandes encadrent les moulages décoratifs en deux parties. Avec l'option noir, de fins traits de lumière suivent les contours de l'intérieur. Tous les boutons sont idéalement placés, à la portée du conducteur.



Les nombreuses options de réglage des sièges assurent une position idéale. La nouvelle Audi Q7 offre de nombreuses variations de sièges ainsi que des options de climatisation et de massage. La polyvalence de l'Audi Q7 est également révélée par le dossier 3 parties en série sur la 2<sup>ème</sup> rangée de sièges, qui peuvent être repliés séparément et la 3<sup>ème</sup> rangée de sièges en option est électrique. L'Audi virtual cockpit, en plus de l'Audi MMI monitor, offre un écran 12,3 pouces TFT qui présente des graphiques polyvalents et aux représentations détaillées et est réglable via le volant multifonction. En option, l'affichage tête haute projette les informations clé sur le pare-brise.

En configuration 5 sièges, le coffre offre une capacité de 890 l et jusqu'à 2 075 l.

### **Info divertissement avec MMI all-in-touch**

Le nouveau bouton MMI all-in-touch avec surface tactile est disponible en option. Le conducteur peut entrer les caractères sur le grand touchpad ou effectuer des gestes à plusieurs doigts pour zoomer sur une carte ou défiler dans les listes. Chaque pression est suivie d'une confirmation acoustique et tactile, un click que l'on sent aussi sur le doigt. La logique de fonctionnement MMI simplifiée permet une utilisation intuitive, dont la recherche de texte intelligente. Le système de contrôle vocal comprend des expressions du langage quotidien comme "Où puis-je faire le plein ? ».

Le MMI navigation plus utilise la plateforme modulaire d'info-divertissement 2<sup>ème</sup> génération puissante. En association avec le module Audi connect, les passagers peuvent surfer en hotspot WiFi sur leurs appareils mobiles. Le module LTE permet l'accès aux services en ligne Audi connect à bord. Parmi les nouveautés, l'interface smartphone d'Audi installe "Apple Car Play" et "Google Android Auto". Si un téléphone mobile iOS ou Android est connecté au port USB (iOS à partir de la version 7.1; Android à partir de la version 5.0 Lollipop), les environnements respectifs s'ouvrent dans l'interface Audi smartphone.

Peu de temps après son lancement sur le marché, l'Audi Q7 offrira « Audi connect safety & service ». Ses fonctions incluent l'appel d'urgence, l'assistance en ligne et les demandes Audi service. Avec ce dernier, la voiture envoie au service demandé par le client les données via un serveur Audi à l'atelier favori de ce dernier. Ces services peuvent être gratuits pendant 10 ans.

Les fonctions du système de contrôle du véhicule Audi connect (gratuit pendant 3 ans) apportent information et confort. Elles incluent un rapport du statut du véhicule, le verrouillage et déverrouillage à distance, des informations sur des places de stationnement et le chauffage télécommandé. L'utilisation est facile grâce à l'app MMI connect.

Pour les fans de hi-fi, les 2 systèmes de son de Bose et Bang & Olufsen offrent le nouveau son 3D, qui exploite la dimension spatiale de la hauteur. Le système Bang & Olufsen intègre 23 haut-parleurs et délivre un son de 1 920 watts. Les 2 sièges avant sont designés afin



d'accueillir une Audi tablet qui offre les fonctions polyvalentes du système Audi Rear Seat Entertainment, une autre innovation de Audi.

### **Les moteurs : 2 versions du moteurs V6 2 litres et un plug-in hybrid**

Deux moteurs V6 sont disponibles sur la nouvelle Audi Q7. Le 3.0 TDI de 272 ch et le 3.0 TFSI de 333 ch réalisent respectivement le 0 à 100 km/h en 6,3 et 6,1 s. Le moteur diesel consomme en moyenne seulement 5,7 l / 100 km et n'émet que 149 g CO<sub>2</sub> / km, soit 23% de moins que son prédécesseur. Peu après le lancement de l'Audi Q7 sur le marché français, une version très efficiente du 3.0 TDI de 218 ch sera disponible. Elle consommera 5,4 l de carburant / 100 km et émettra 144 g de CO<sub>2</sub>/km (données provisoires).

L'Audi Q7 3.0 TDI e-tron quattro, qui arrivera chez les distributeurs ultérieurement, n'émet que 46 g de CO<sub>2</sub>/km. Le 1<sup>er</sup> moteur diesel 6 cylindres plug-in hybrid au monde associe un 3.0 TDI à un puissant moteur électrique. La puissance du système est de 373 ch et l'autonomie en tout électrique est de 56 km.

Les tout derniers moteurs, une nouvelle tiptronic à 8 rapports, la transmission intégrale permanente quattro améliorée, un centre de gravité bas et un tout nouveau châssis ultraléger – toutes les technologies sont rassemblées dans la nouvelle Audi Q7 pour permettre une maniabilité facile et confortable. La direction électromécanique et le système polyvalent Audi drive select sont en série. L'adaptive air suspension est en option. La direction intégrale est une nouveauté : les roues tournent de quelques degrés dans la même direction ou l'opposée aux roues avant, selon la situation.

### **Les systèmes d'assistance à la conduite**

La nouvelle Audi Q7 propose l'intégralité des systèmes d'aide à la conduite, dont certaines nouveautés. L'assistant d'efficacité predictive aide le conducteur à économiser du carburant. L'adaptive cruise control avec traffic jam assistant soulage le conducteur en cas d'embouteillages. D'autres innovations incluent l'assistant de changement de direction, l'avertisseur de sortie et l'assistant de remorque. Le grand SUV Audi est le véhicule idéal pour les voyages en famille, les trajets au quotidien et les loisirs.

### **Un design unique**

Le grand SUV interprète les caractéristiques de design de Audi et de la famille Q. La calandre Singleframe est sculptée et présente des barres transversales épaisses. Les arches de roue et les lignes horizontales qui s'étendent au-dessus les renforcent. Le hayon arrière entoure les piliers D massifs et fortement inclinés, typiques des modèles Q chez Audi. Les doubles bandes sur les portières complètent ce design.



## Version intégrale

### **Lighter, more efficient and full of high-tech – The new Audi Q7**

The second generation of the Audi Q7 comes with a fascinating drive system, suspension system, assistance systems, infotainment and connectivity with innovative technology. The large SUV is up to 325 kilograms (*716.5 lb*) lighter than its predecessor and reduces CO2 emissions by as much as 50 g per kilometer (*80.5 g/mi*). Scheduled to follow shortly after the market launch of the Q7, the Audi Q7 e-tron quattro is the world's first plug-in hybrid with a six-cylinder diesel engine and quattro drive.

#### Exterior styling

The proportions of the new Audi Q7 are slimmer than its predecessor: With 5.05 meters in length, a 2.99 meter wheelbase, 1.97 meters in width and 1.74 meters in height (with steel suspension) (*16.6 x 9.8 x 6.46 x 5.7 ft*), the large SUV is 37 mm shorter and 15 mm (*1.5 and 0.6 in*) slimmer, while the height has remained approximately the same.

The proportions of the new Audi Q7 are harmonious, with imposing roof pillars underscoring stability and space. Clearly drawn horizontal lines embrace the athletically taut surfaces, molded with high precision, although the outer skin is made entirely of aluminum.

The Singleframe grill with its bold and gleaming aluminum-look crossbars comes across broader and lower than in the previous model. Its three-dimensional body is the central element of the front; the robust frame runs up to the headlights. Powerful contours border the large air inlets, two crossbars each divide their interior.

#### **Striking graphics: The headlights**

The headlights of the large SUV are closely linked to the Singleframe: In their case too, the sculptural design makes an intensive impression of depth. Like the grill, they are bordered above by the hood, while their bottom edges lie at the level of the second Singleframe slat. Xenon plus units are standard. With the optional LED and Matrix LED headlights, the daytime running lights together with the turn signals form a double light guide arrow – a new and unique light signature within the Audi family.

Each Matrix LED headlight divides its high beam into 15 individual light-emitting diodes paired with three reflectors. A camera on the interior mirror analyzes the traffic situation. Given this information, the control unit individually turns the diodes on and off, or dims in them in 64 stages each, depending on the situation. With the millions of different resultant beam patterns, the high-end headlights from Audi always superbly light up the road, without dazzling other road users.

The functional range of the Matrix LED headlights also includes intelligent cornering lights, created by a shift in the light center position. If the car is equipped with the optional MMI navigation plus, then this system's route data will trigger the cornering light to illuminate around the corner just before the driver begins turning the steering wheel. Together with the LED and Matrix LED headlights, Audi provides dynamic rear turn signals – their individual segments light up in rapid succession from the inside outwards.



### **Typically quattro: The side view**

The side view of the new Audi Q7 continues the play of lines and surfaces. From the headlights and Singleframe extend contours that lend the engine hood a tauter appearance. At the upper corner of the headlight begins the so-called blister line, which segments the side. Above the wheels it conveys an impression of restrained muscularity – a subtle homage to the classic quattro models from Audi. The wheel arches appear large and incisive; this highlighting of the wheels is also typically quattro.

The outside mirrors rest on top shoulders, giving the sides a sporty touch and creating space for small triangular windows. The doors are pulled down and overlap the sills. At the bottom they carry inlay strips (“blades”) embossed with the quattro logos. The sill contour pulls upwards and towards the rear – in interplay with the descending roof line and the long window band, this solution makes the body appear lighter.

### **Creating an effect of wideness: The rear**

The tailgate wraps around the massive, steeply raked D-pillars, a typical feature of the Q models from Audi. The entire rear end is dominated by the horizontal lines, which underscore the width of the new Audi Q7. The large LED rear lights vary the theme of the headlamps: The tail lights, activated when the ignition is turned on, also create a double arrow here. The brake light is located in the two upper chambers; the interior of the light has a three-dimensional appearance, with lightness and elegance.

The housings of the rear lights are trapezoidal in shape, with their inside edges running towards the wheels. This contour continues in the panel, where it frames the license number area field with a shadow edge. Because the lighting must be visible even with the tailgate open, the new Audi Q7 comes with additional light units in the rear apron. The lower part of the bumper contains the two large, rectangular tailpipes of the exhaust system.

### **The color range: Eleven paint finishes**

For the new Q7, Audi offers eleven colors to choose from, including five new ones. The solid finishes are called Carrara white and night black, the metallic paint finishes are Argus brown, carat beige, floret silver, glacier white, graphite gray, orca black, ink blue and Tofana white. Daytona gray completes the S line exterior package. With the customized paint finishes, a special offering from Audi, customers themselves choose their favorite shades.

The trim and add-on parts lend the large SUV a robust, elegant or sporty touch, according to the customer’s choice. The trim strips have a new, matt aluminum look. With the production look, the inlay strips in the doors and front underbody protection have a silver-colored finish, while the grid of the Singleframe grille, the lower zones of the bumpers and the wheel arches are anthracite-grained with a light structured finish. The add-on parts can be consistently matched to the vehicle color as an option.

With the second alternative – the S line exterior package – the bumpers, door trim strips and the roof spoiler feature a particularly bold design. At the front the air inlets are interconnected, at the rear a diffuser insert replaces rear underbody protection. The grid of



the Singleframe grill and the slats of the lateral air inlets bear a new, dark-gray high gloss paint finish.

### **Interior**

The new Audi Q7 offers the most spacious interior in the premium SUV segment. In the terms of knee space, shoulder space and headroom (plus 41 millimeters (*1.6 in*) in the front row), it even surpasses the dimensions of its predecessor – although the exterior of the overall car has become slightly more compact. All passengers can comfortably enter the car through wide and high door cutouts; on request, Audi provides power-assisted closing.

### **Like a lounge: The interior**

The Interior conveys a feeling of expanse, generosity, and sophisticated elegance in a chic lounge. The clearly defined architecture and the logical operating concept interplay perfectly: all lines are taut with a strict horizontal orientation. As in a luxury sedan, the inlays come in two parts, with the different materials forming effective contrasts.

A large arc encompasses the front part of the interior, and draws an elegant curve from door to door. The instrument panel is sleek. Its front, characterized in the front passenger area by an air vent strip, is not joined to the center console – a solution that gives the interior an even lighter appearance. The console itself is angled like a control stand. Its left half contains the technical area with the tiptronic shift lever and the optional MMI all-in touch, its right half the comfort zone with cup holders and volume rotary control.

Audi offers a choice of different steering wheel versions. Depending on the version, they have three or four spokes, a round or a flattened ring, a heater and an electrical adjuster. Common characteristics are the multifunction plus controls and the shift paddles. In the sporty steering wheels, an open brace with an aluminum look forms the bottom spoke.

### **Lightweight construction and comfort: The front seats**

The seat system in the new Audi Q7 has been redesigned from scratch. Compared with the seats in the previous model, it is nearly 19 kilograms (*41.9 lb*) lighter, with five kilograms (*11.0 lb*) going to the front seats. The seats provide a comfortable upright position and afford the best hold and support. The head restraints can be adjusted not only vertically, but optionally also in the distance to the back of the head.

Audi offers the seats in several variants. The sport seats with their pronounced side sections can be adjusted electrically. At the top of the line are the customized contour seats, which can be adjusted in 18 different ways. They combine the electrical function with pneumatic actuation for the side sections and the lumbar support. Their leather upholstery is perforated, while the driver and front passenger seats can be cooled and heated at the press of a button. A massage function is also optionally available. Ten air chambers pamper your back with five different programs and intensities each.

For the production and sport seats Audi supplies the seat heating separately, as well as for the individual seats in the second row. Ventilation for the front seats is another individual option with the standard seats.



### **Generous: The rear seats**

The second row of seats also offers top-level spaciousness and seat comfort. The backrests – split in the ratio of 35:30:35 – can be adjusted in inclination in 16 increments. With the optional rear seat bench plus the outer seats can be moved longitudinally eleven centimeters (*4.3 in*) each.

On request, Audi supplies the new Q7 in a seven-seat version – two single seats in the third row are approved as child safety seats of ECE group III for children weighing up to 36 kilograms (*79.4 lb*). Their backrests, split in the ratio of 50:50, can be electrically placed upright at the press of a button or folded down flat and integrated in the loading floor. For comfortably entering the third row, Audi also equips the outer seats in the second row with an elaborate mechanism: They can be folded into a compact package and set upright. All seats in the second and third rows have Isofix/i-Size fixtures for child seats. Together with the front passenger side up to six child seats can therefore be installed in the new Audi Q7. The stowage compartments and cup holders are generously dimensioned. For example, the door pockets can accommodate 1.5-liter bottles.

### **Powerful and efficient: The automatic air conditioning**

Standard on the new Audi Q7 standard is a newly developed, two-zone deluxe air conditioning system. Its new operating concept uses fewer buttons and controls. An alternative is a luxurious four-zone system, with the temperature displays integrated in the rotary controls. A TFT display presents the status of important functions; moving your finger towards the capacitive rocker switches below enlarges the graphics. Rear passengers have their own controls. For the four zone climate control an ionizer for improving air quality is also available.

The two-zone and four-zone automatic air conditioning systems provide especially high air quality, filtering out the smallest particles in either fresh air or air recirculation mode. The air vent strip provides indirect and draft-free ventilation, and also increases the circulating air flow. Both systems consume little energy – thanks to innovations in the blower motor, the fresh air intake, the efficient refrigerant circuit and a highly flexible control system.

### **Uncompromising: The quality of workmanship**

All materials in the new Audi Q7 have been selected and processed with the utmost care. Controls like the volume rotary control, the start-stop button, the automatic air conditioning controller and even the scroll wheel for interior lighting gleam in aluminum look. All of the switches move easily and without play.

The developers of the large SUV have precisely defined all of the sounds as well as the required operating travel and forces. Gaps are even and narrow. In many cases they are only as wide as necessary for the thermal expansion of the materials.

The complete interior lighting including the luggage compartment employs LEDs. The light package is standard equipment. Even on this level, capacitive (touch-sensitive) switches turn on the lights in the door pockets. The instrument panel and door trim contain so-called contour lighting – extremely slender LED light guides that follow the broad lines.



Supplemental is the optional ambient lighting, comprising illuminated door sill trims and additional contour lighting at the center console. In this version, the driver of the Q7 can virtually arrange the interior lighting himself, adjusting it in multiple profiles and in five zones by means of the MMI, and setting the color of the contour lighting in 32 steps. The colors vary depending on the mode set in the Audi drive select driving dynamics system.

### **Progressive: Colors and materials**

The range of colors and materials in the interior has been reorganized from the ground up. The instrument panel can be divided into two color zones – black, granite gray and criollo brown are available for the dark upper zone, and black, rock gray and pistachio beige can be selected for the bottom zone. The same colors are also available for the seat upholstery, supplemented by cedar brown and nougat brown. The headlining (Alcantara on request) comes in lunar silver, linen beige or black.

Similarly diverse and stylish are the two-piece inlays. A version with diamond paint finish, silver gray (at the upper part) and anodized anthracite on the bottom strip is standard. Alternatively, eleven more combinations are also available – with oak or walnut veneer and aluminum, with high gloss or matt finished surfaces. The wood inlays are also available as Beaufort laminated wood veneer; for the top version quattro GmbH offers aluminum/Beaufort, black.

The range of seat upholstery reflects the luxurious character of the new Audi Q7. In addition to the standard fabric upholstery and a leather/artificial leather combination, the customer can choose from Cricket leather, an Alcantara/leather combination and the especially fine leather, Valcona. Three leather packages complete the range.

The S line sport package immerses the whole interior in black or rotor gray. The sport seat upholstery is made of perforated Alcantara/leather and flanked with contrasting stitching; the backrests of the front seats are embossed with an “S”. The decorative trims combine chrome paint finish, slate gray, and aluminum sono. The sport leather steering wheel, the door sill trims and the fenders bear the S line badge. 20-inch wheels and the sport adaptive air suspension complete the equipment line.

Even more exclusive is the Audi design selection Murillo brown. The upper zone of the instrument panel bears granite gray leather with contrasting stitching in Murillo brown. The Valcona upholstery of the air-conditioned customized contour seats, padded door armrests, the comfort center armrest and the center console are leather-covered in Murillo brown with contrasting stitching in granite gray.

The lower section of the instrument panel is covered with Murillo brown leather, while the Alcantara headlining is lunar silver. The decorative trims are available in brushed aluminum sono with dark-brown porous sycamore wood. A full leather package that includes backrest covers, contrasting stitching, luxury velour floor mats and sun blinds complete the Audi design selection Murillo brown.



### **Highly variable: The luggage compartment**

The new Audi Q7 comes with a large, highly variable luggage compartment. When all seven seats are occupied, it has a capacity of 295 liters (*10.4 cu ft*). The five-seater offers 890 liters (*31.4 cu ft*), and 2,075 liters (*73.3 cu ft*) with the second row seat backs folded down. Compared with the predecessor model, the loading sill is lower by nearly five centimeters (*2.0 in*).

The tailgate has an electric drive as a standard feature. Optionally, Audi supplies the convenience key with gesture control – a kicking motion with the foot is detected by a sensor in the bumper, triggering opening and closing. Alternatively, the driver can close the tailgate with a button mounted on it or by remote control key.

Bag hooks, lashing points, a luggage compartment cover and a partition net are standard on the new Audi Q7. In addition, there is an electric load area cover together with a stainless steel loading sill protector, a reversible mat and a rail system with telescopic rod, fixing belt and variable eyelets.

Even with a trailer, the new large SUV from Audi cuts an excellent figure. With either engine, it can haul up to 2.7 tons (on 12% gradient), and even 3.5 tons with the adaptive air suspension. Joining the electrically swiveling trailer coupling on board is the trailer maneuver assist system, which aids the driver when driving with a trailer.

### **Display and control**

The new Audi Q7 also opens a new chapter in operating and display concepts. Standard within the driver's field of vision is an instrument cluster with analog circular instrument dials for the engine and vehicle speeds. Between them is the seven-inch color display belonging to the driver information system, with its attractive, high-resolution graphics. Depending on the equipment level, the range includes radio stations, music lists, navigation maps and the black and white pictures of the night vision assistant, for example.

### **Fascinating graphics: The Audi virtual cockpit**

Together with the optional MMI navigation plus with MMI all-in-touch, the Audi Q7 optionally has the Audi virtual cockpit on board – a 12.3-inch TFT screen with a resolution of 1,440 x 540 pixels, displaying razor-sharp, fascinatingly detailed images. The needle of the rev counter, for example, is recalculated 60 times per second, so as to be absolutely fluid in operation.

The driver can switch between two different user interfaces. In "Infotainment" mode, a central window dominates the view, providing a large stage for the navigation map or for lists in the phone, radio and audio areas. The tachometer and speedometer are displayed as small dial instruments on the right and left. In the classical view, the central window is smaller, and the instruments appear about as large as analog displays.

The driver operates the Audi virtual cockpit just like the driver information display in the analog instrument cluster, by means of the multifunction steering wheel. Using the switches on the left spoke, the driver moves through the menus of the on-board computer, the audio system, and – depending on the equipment – the phone and navigation system. On the right



side of the steering wheel are located the volume roller, the voice dialog button, telephone express controls and the skip function for quickly changing the radio station or the song.

### **Hovering picture: The head-up display**

On request, Audi equips the new Q7 with a head-up display for projecting important information as symbols and numbers in a field of 200 x 80 mm (7.9 x 3.1 in) on the windshield. A TFT display backlit by a white LED generates the color image; two aspherical mirrors enlarge and redirect it. The mirrors also compensate for any distortion caused by the curvature of the windshield. The entire system is inconspicuously integrated in the instrument panel.

Information appears to hover in a window about 2.1 meters (6.9 ft) in front of the windshield. The human eye registers the information extremely quickly – there's no need to switch from the accustomed long-range vision. Through the MMI, the driver can set what information is to appear on the display. The driver can also adjust the height and brightness of the image. To avoid ghost images, the windshield has a special shape.

### **With haptic feedback: The MMI all-in-touch**

At the center of the instrument panel lies the MMI monitor for the driver and front passenger, which electrically extends each time the system is started. It has a diagonal of 8.3 inches and displays the elaborate Audi graphics in high resolution.

The MMI terminal on the console of the center tunnel serves as the control system. On the top configuration level with MMI navigation plus it bears the name MMI all-in-touch, and includes a rotary/push-button control and two rocker switches for the basic menus.

The main user interface is the touchpad, however. Its anthracite-colored real glass surface is extremely scratch-resistant and has excellent gliding properties. The driver can enter characters on the touchpad surface or perform multi-finger gestures to zoom in on the map or scroll through lists, for example. The wrist rests comfortably on the tiptronic selector lever. Each input is followed by an acoustic and a haptic confirmation – a click that is also felt on the finger. The click is triggered by a weight that moves electrically at high speed under the touchpad.

### **Like a smartphone: The operating logic**

In the MMI system of the new Audi Q7 practically all input can be entered in just a few steps. The operation follows a flat hierarchy, based on the logic of modern smartphones. For example, the MMI search proceeds with a free text input, as in an internet search engine. It generally answers queries after just a few letters, taking into consideration the car's current location. When searching for a place to eat, for instance, the driver only has to enter the name of a restaurant and the first few letters of the city, and a list of hits appears together with the addresses – for anywhere in Europe. Searching for songs, albums and radio stations proceeds in exactly the same way.

Along the left and right edges of the touchpad the user can access the function and option menus, which intelligently supplement the many operational sectors. For example, in the



radio menu the driver can choose the frequency band, or go to the traffic information in the map menu. With these functions and options, the driver can get directions to an entered destination, or display nearby parking lots and save the destination to the Favorites list. The upper edge of the touch surface contains eight freely programmable favorite buttons for the preferred stations, contact data and media titles, for example.

The voice operation of the MMI navigation plus is also state of the art, understanding countless formulations from everyday language. In the telephone menu, for example, the driver can access a contact just by saying “I want to call Peter Miller”. Aiding navigation are commands such as “Where can I refuel?” or “Where is the nearest Italian restaurant?”. This natural language voice control, which also allows dictation of text messages, is also available in the Radio and Media menus.

#### **Computer center: The modular infotainment platform**

MMI navigation plus with MMI all-in-touch in the new Audi Q7 draws on the computing power of the modular infotainment platform (MIB) from Audi. Its main frame contains two main units within a very compact space – the radio car control unit and the MMX board (MMX = Multi-Media eXtension).

The MMX board integrates – along with the working and flash memory – a super-fast Tegra processor from Audi’s partner NVIDIA, which processes all online, media, voice control, navigation and telephone features. The board is a plug-in module – always at the state of the art in development, Audi can bring the latest trends in consumer electronics into the car at an early stage.

The MIB of the second generation operating in the new Audi Q7 employs a Tegra 30 processor, a quad-core chip from the Tegra 3 series. With a clock speed of over 1 GHz and a fast graphics card, it can drive two displays and perform eight billion operations per second. The Tegra 30 processor cooperates with a 3D graphics program from the specialist Rightware for the display of three-dimensional images. The Audi virtual cockpit uses its own Tegra 30 processor, which works closely with its counterpart in the MIB.

#### **Infotainment and Audi connect**

The optional MMI navigation plus with MMI all-in-touch brings along a rich array of equipment. It includes a DVD drive, two card readers, a flash memory, the Audi sound system, the Audi music interface with two USB ports, a Bluetooth interface and the 8.3-inch high-resolution monitor. The MMI navigation plus with MMI touch provides access to the smartphone voice control, displays emails from the cell phone and reads them aloud, and allows five free online updates for the navigation map at six-month intervals. It cooperates closely with many assistance and safety systems in the new Audi Q7.

#### **Connecting to the internet with LTE: Audi connect**

Another component of the top system is the hardware module Audi connect. An LTE/UMTS module establishes a super-fast connection to the internet with up to 100 MBit/s download



speed. An integrated Wi-Fi hotspot allows passengers to surf and email freely with their mobile devices. For the driver, the online services from Audi connect come on board. They are unlocked free of charge for the first three months, after which Q7 customers can enter a three-year subscription for a fee.

The range of services from Audi connect is impressively diverse: It ranges from navigation with Google Earth and Google Street View through traffic information online and parking space searching to the social media Twitter and Facebook, which are prepared for use in the car. In online media streaming, the versatile Audi MMI connect app affords access to the services Aupeo! and Napster. Music data are then transmitted by Wi-Fi from the smartphone to MMI navigation plus and from there to the sound system.

The market launch of the Q7 presents a new item in the connect portfolio from Audi: The new Audi smartphone interface brings Apple Car Play and Android Auto on board. If the driver connects an iOS or Android mobile phone to the USB port (iOS from version 7.1; Android from version 5.0 Lollipop), the relevant environment opens in the Audi smartphone interface. The core content here is online music; the system gives access to the enormous range of music from Google Play Music and iTunes. In addition, both platforms offer navigation functions, missed call and appointment reminders.

Both Apple Car Play and Android Auto are integrated in the Audi operating philosophy – the applications can be controlled by voice, the rotary/push-button control and the multifunction steering wheel. The offer will continue to expand through so-called 3rd party apps like Pandora, Spotify and WhatsApp. The free smartphone app MMI connect provides further services in the new Audi Q7. Goals from Google maps, points of interest (POI) and the dates from the City Events service can be transferred from the cell phone to the car.

Shortly after the market launch, the Audi Q7 will include another new feature, “Audi connect safety & service”. Its features include emergency calling, online roadside assistance and the Audi service request. With the latter, the car sends at the customer’s request service-related data via an Audi server to the customer’s preferred workshop. These services may be used free of charge for ten years.

Comfortable and informative are the functions of the Audi connect vehicle control system (free of charge for three years). They include a vehicle status report, remote control locking and unlocking, information about the park position and remote control of the optional auxiliary heater. Operation is easy using the MMI connect app.

### **Multimedia: The infotainment modules**

An entire system of modules completes the multimedia portfolio in the new Q7. The standard MMI radio plus brings the Audi sound system, voice control, the Audi music interface with two USB ports and a Bluetooth interface on board. The power-retractable MMI monitor has a seven-inch diagonal. The large rotary/push-button control forms the center of the MMI terminal. Eight freely programmable favorite buttons complete the unit.



On request, Audi supplies a DVD changer as well as two tuners for digital radio and digital television. The Audi phone box – another option – utilizes near-field coupling to link smartphones wirelessly to the vehicle's antenna and enables charging via a USB port. Shortly following the market launch, wireless charging according to the Qi standard will be available – here the current flows inductively from a coil in the bottom of the box to the receiver coil in the smartphone. The Audi phone box is integrated in the center armrest.

### **A new listening experience: Audio systems with 3D sound**

For sophisticated Hi-Fi fans, the new Audi Q7 optionally offers a choice between two systems from Bose and Bang & Olufsen, respectively. Both offer the new 3D sound. Two (Bose) or four (Bang & Olufsen) additional speakers in the A-pillars provide the spatial dimension of height, lending the music an airy quality, as if played in an open space from a large virtual stage.

The 3D technology, now often used in cinemas and living rooms alike, generates a hitherto unknown sound experience in the car. An intelligent program calculates from conventional stereo or 5.1 recordings the information for the third dimension and prepares it for the speakers in the A-pillars. While Bose uses its own algorithms (Bose Advanced Staging Technology), the Bang & Olufsen system employs a procedure developed by Audi together with the Fraunhofer Institute for Integrated Circuits (IIS) in Erlangen.

The heart of the Bose 3D sound system is a 558 watt 15-channel amplifier. The innovative Bose algorithm analyzes the components of a piece of music and positions them perfectly on the virtual sound stage. For this purpose, it actuates 19 speakers, some of which have LED light guides in their covers. The Bang & Olufsen Advanced Sound System with 3D sound integrates 23 speakers. Their aluminum covers feature a new design and are also illuminated in the door areas. A subwoofer with a 25 cm (9.8 in) diameter generates a powerful bass, while two acoustic lenses made of solid aluminum emit the treble tones. They extend from the instrument panel when the system is started. The high-efficiency amplifier provides 1,920 watts of power.

### **Clever Rear Seat Entertainment: The Audi tablet**

The Audi tablet with its high-resolution 10.1-inch screen (1,920 x 1,200 pixels) is a newly tailored and flexible infotainment system. Connected to MMI navigation plus via Wi-Fi, it affords access to the Radio, Media, Navigation and Car Functions menus. The data transfer runs in both directions – for example, the rear passengers can send a planned route to the driver, and conversely the driver can start a radio or media program for them from MMI navigation plus. The sound output occurs through the on-board sound system or headphones.

The Audi tablet, which uses the Android operating system, supports NFC technology (NFC = Near Field Communication) for transmitting data from the smartphone by proximity. It has 32 gigabytes of internal memory and can be expanded by a microSD card for additional memory. The technical core is the new, super-fast Tegra processor 40 from NVIDIA.



A click on the “more” button in the start menu provides access to the Internet – to approximately one million apps and games, movies and music, audiobooks, eBooks and office applications. The integrated full HD camera can be used to make a video call via Skype. After the trip, the user can take along the Audi tablet from the car for operation offline or in an external Wi-Fi network.

The Audi tablet reveals its high-quality character through a chassis milled from solid anodized aluminum. Together with its rechargeable battery, it is logically designed for use in the car. It can also handle high or very low temperatures without problems; the tilt-adjustable bracket on the back of the front seat is collision-proof and removable if required. The Audi tablet is available individually or as a set of two.

### **Driver assistance systems**

No other model in the segment currently offers so many driver assistance systems as the new Audi Q7. Some of them are standard equipment; the optional solutions are available either individually or in the City, Parking, and Tour packages, with the Tour package being coupled to the MMI navigation plus with MMI touch. Compared with the previous Q7 model, nearly all systems have been either newly developed or basically further developed.

### **Greater safety: The standard systems**

The standard driver information system already includes the attention assist, which analyzes driving behavior and warns the driver if there is any indication that he or she is starting to lose concentration. Other standard features are the hold assist, cruise control, adjustable speed limiter, rear parking system and the safety systems Audi pre sense basic and Audi pre sense city.

The Audi pre sense basic system networks the different vehicle systems. Once it detects an unstable driving condition, it initiates preventive measures to protect the occupants. The front seat belts are electrically tightened, and the windows and the sunroof are closed. In addition, the hazard warning lights are activated to warn following traffic.

At speeds up to 85 km/h (*52.8 mph*) Audi pre sense city observes the road with respect to other road users (e.g. vehicles and pedestrians). For this purpose, it uses the standard-equipped front camera on the windshield, which can capture events up to a distance of about 100 meters (*328.1 ft*). On threat of a collision, it warns the driver according to a graduated concept (warning, warning jolt and automatic emergency braking); if necessary, it initiates full deceleration. At speeds up to 40 km/h (*24.9 mph*) accidents can be avoided completely within the system limits. At higher speeds (up to 85 km/h (*52.8 mph*)), warnings and brake intervention can reduce the impact velocity.

If the collision is inevitable, the multicollision brake assist system uses controlled braking maneuvers during the accident to aid the driver. This can help to prevent the car from skidding and thus additional collisions. If necessary, Audi pre sense city implements the same protective measures as Audi pre sense basic.



### **In the assistance package Tour: adaptive cruise control**

In the assistance package Tour, adaptive cruise control (ACC) plays the main role. It keeps the new Audi Q7 at a safe distance from the vehicle ahead. The driver can set the distance and the control dynamics in several stages.

The system, which primarily uses the two front radar sensors, covers the full speed range from 0 to 250 km/h (*155.3 mph*). Its Stop&Go function brakes the new Q7 up to a full stop and lets it start off again automatically at the driver's request. If the ACC is disabled, from 60 km/h (*37.3 mph*) it indicates the distance to the vehicle ahead and warns about possible tailgating. The driver can set the desired following distance.

### **In the assistance package Tour: Traffic jam assist**

In the speed range of 0 to 65 km/h (*40.4 mph*) the traffic jam assist, another function belonging to the ACC, can also take over the steering on well-paved roads, as long as the traffic is moving slowly. The system uses the radar sensors and the video camera. It guides the car through gentle steering interventions and follows the preceding convoy of vehicles within the system limits. The traffic jam assist orientates itself by the lane markings and the other vehicles on the road.

When the traffic jam assist reaches its system limits – as when traffic eases up or a narrow curve lies ahead – the person at the wheel must again take over the driving. The system provides assistance by warning the driver in several stages. As a final measure, the system automatically brings the large SUV to a safe stop.

Together with the ACC, the Audi pre sense front safety system is also on board. The system helps to prevent rear-end collisions with the vehicle ahead, or to mitigate the consequences of such accidents. In a dangerous situation, the system prompts the driver to apply the brake according to a complex warning concept – with visual and acoustic signals as well as a braking jolt. Should the driver not respond, autonomous partial deceleration first occurs and then full deceleration – provided that the vehicle in front is in motion. Here too the system tightens the seat belts and initiates the action of pre sense basic. Audi pre sense front remains functional even when the ACC is switched off.

### **In the assistance package Tour: Predictive efficiency assistant**

The adaptive cruise control system works in close coordination with the MMI navigation plus, camera-based recognition of traffic signs (a feature also available outside the package) and the predictive efficiency assistant, another pioneering system from the assistance package Tour. It automatically adjusts the preselected speed to the conditions – the route topography, speed limits and road users ahead.

Even if the route guidance is disabled, the predictive efficiency assistant uses the route data to alert the driver about situations where it's advisable to slow down. The system recognizes curves, traffic circles and intersections, town limit or speed limit signs – in many cases long before the driver sees them. The instrument cluster or Audi virtual cockpit then displays an appropriate message. If the assistant screen is active, detailed graphics can be seen.



If the driver wishes, the system itself will control the freewheeling function of the eight-speed tiptronic within certain boundary conditions (in terms of speed and accelerator pedal gradient), so that the new Audi Q7 will roll at idle speed towards the slow-driving zone. The coasting mode is enabled only if it can persist for several seconds. Once this mode ends, the SUV automatically accelerates to the selected target speed, if the ACC is enabled. This highly networked intelligence allows the predictive efficiency assistant to reduce fuel consumption on country roads by up to ten percent.

### **In the assistance package Tour: Other systems**

From a speed of 65 km/h (*40.4 mph*), Audi active lane assist – another system from the assistance package Tour – helps the driver to stay within his lane. The system observes the lines on the road with a video camera and uses additional data as well. Should the new Audi Q7 approach a lane marking without operation of the turn signal, the system helps the driver stay in his lane by means of a slight intervention in the electromechanical steering system. The driver can choose whether he would like to be assisted continuously or just shortly before crossing the lane markings. If the driver opts for early intervention, the system will guide him to the center of the lane. A steering wheel vibration is also adjustable. Audi active lane assist is also available as a separate option.

The collision avoidance assist and the turn assist complete the assistance package Tour. The collision avoidance assist supports the driver if the new Q7 has to circumnavigate an obstacle to avoid an accident. From the video camera and radar sensor data it instantaneously computes a suitable track, taking into account distance, width and offset of the preceding vehicle. Its first action is a warning jolt to alert the driver about the danger. Once the driver begins steering, the system intervenes in the power steering with torque in order to guide the vehicle around the obstacle.

The turn assist monitors oncoming traffic when turning left at low speeds. In a dangerous situation, it slows the Q7 to a halt. This intervention keeps the Audi Q7 within its own lane. The system is enabled at speeds of between two and ten km/h (*1.2 - 6.2 mph*) once the driver operates the turn signal to turn left.

### **The assistance package City**

The lane change assistant, Audi side assist (also available separately), is a system belonging to the assistance package City. It aids the driver from a speed of 15 km/h (*9.3 mph*) when changing lanes, using two rear radar sensors that measure a range of about 70 meters (*229.7 ft*). If a vehicle is located in the blind spot or approaches rapidly, a warning LED in the housing of the respective exterior mirror lights up. If the driver still operates the turn signal, the LED flashes brightly several times in succession.

The Audi side assist is coupled with the Audi pre sense rear system, which initiates preventive protective measures in case of a threatening rear-end collision. It also runs in the background when the Audi side assist is off, except with trailer operation.

The cross-traffic assist rear uses the rear radar sensors to warn the driver, if the parking system is enabled, while reversing slowly, as when pulling out of a perpendicular parking



spot in front of other vehicles detected as critical threats. The warning occurs in graduated form – visually on the MMI monitor, acoustically and, if necessary, with a jolt.

The exit warning comes into play once the large SUV has stopped. Should vehicles or bicycles now approach from behind, the system warns the driver and all passengers when they start opening a door. The system uses the LED light guides of the light package in the doors – in a situation identified as hazardous, special high-power LEDs flicker and light up red. The exit warning remains in readiness for about three minutes after the ignition is switched off.

### **In the assistance package City: Trailer maneuver assist**

If the new Audi Q7 is serving as a towing vehicle, the driver can enable the trailer maneuver assist when reversing. The driver then need only shift to R and cautiously accelerate. He can then continuously vary the angle of reverse motion by means of the rotary/push-button control in the MMI. For traveling straight ahead, the driver taps once on the control. The picture from the rear view camera on the MMI monitor contains auxiliary lines as a guide. The trailer maneuver assist turns the steering wheel and directs the trailer onto the selected course in a stable fashion, so that the driver can steer the entire car/trailer combination by means of the rotary/push-button control of the MMI.

A rotating sensor in the trailer coupling serves as the technical basis of the trailer maneuver assist – it registers the articulation angle between towing vehicle and the trailer. Prior to use, the driver should briefly acquaint the system with the trailer by driving a few meters with it. The trailer maneuver assist allows a driving speed of up to 10 km/h (6.2 mph). If the articulation angle is too large, the system emits a warning, and brakes in case of an emergency.

Two other systems round off the assistance package City – the acoustic and visual parking system plus as well as the reversing camera. Both are also available separately.

### **The assistance package Parking**

The ideal supplement to the assistance package City is the assistance package Parking. It includes the park assist system (also available separately), which practically automatically steers the new Q7 in parallel and perpendicular parking and pulls out of parallel parking spots by means of twelve ultrasonic sensors. The package also includes the 360 degree cameras. They display different views of the car's immediate surroundings on the MMI monitor, including a virtual bird's eye view and 180-degree images of the front and rear. Such views are very helpful with confusingly arranged exits, and in combination with the cross-traffic assist rear.

### **Night vision assistant**

The separately available night vision assistant uses a long-range infrared camera that reacts to the heat radiated by objects. Converted to black and white images, the information can be viewed in the instrument cluster or Audi virtual cockpit. The cooler surroundings appear dark, while animals and people appear strikingly bright. The system, which has a visual range of up



to 300 meters (*984.3 ft*), can detect people and larger wild animals at distances of up to around 100 meters (*328.1 ft*) and highlights them with yellow markings.

If a hazardous situation is detected, a warning sound is emitted. A warning symbol appears in the instrument cluster as well as in the optional head-up display. If the new Audi Q7 is equipped with the high-beam assistant or Matrix LED headlights, it illuminates persons outside urban areas with three short bursts of light.

### **The lightweight concept**

When it comes to lightweight construction, the new Audi Q7\* is a benchmark in the large SUV segment. The unladen (without driver) 3.0 TFSI version weighs only 1,970 kilograms (*4,343.1 lb*), while the 3.0 TDI registers 1,995 kilograms (*4,398.2 lb*). That's up to 325 kilograms (*716.5 lb*) less than the predecessor model.

The body significantly contributes to this advancement: Its multi-material construction saves up to 71 kilograms (*156.5 lb*) in weight. The doors, which like the complete outer shell are made of aluminum, contribute an additional

saving of 24 kilograms (*52.9 lb*). Engineers have also exploited large weight-saving potential in the chassis – 27 kilograms (*59.5 lb*) at the front and 40 kilograms (*88.2 lb*) at the rear suspension. The powertrain contributes a saving of 20 kilograms (*44.1 lb*) and the exhaust system 19 kilograms (*41.9 lb*).

Lightweight construction at Audi is a principle pervading all areas of development – in the new Q7 it's exemplified by numerous weight savings. The seats add up to a saving of 19 kilograms (*41.9 lb*), the module crossmember under the instrument panel saves 3.5 kilograms (*7.7 lb*) and the loading floor 4 kilograms (*8.8 lb*). The wheel brakes contribute a saving of 8.5 kilograms (*18.7 lb*), the wiring 4.2 kilograms (*9.3 lb*), the engine cooling system 8.7 kilograms (*19.2 lb*) and the 3.0 TDI engine 2.5 kilograms (*5.5 lb*). The brake pedal is made of aluminum – weight saving: 1,010 grams (*2.2 lb*).

Thanks to its high fuel efficiency, based essentially on the low weight, the new Audi Q7 also presents a good environmental balance sheet. The computational consideration of its life cycle – from obtainment of raw materials through production to recycling after 200,000 km (*124,274.2 mi*) – yields a total CO<sub>2</sub> equivalent of 16 percent below the value of the predecessor model. While the production values are not as good because of the energy expended for the primary aluminum, from about 34,000 kilometers (*21,126.6 mi*) the new Q7 beats a steel concept in the environmental balance sheet.

### **Handling dynamics**

The dynamic characteristics form an essential part of the Q7. The impressive dimensions related to the vehicle concept of an SUV and the generous interior must not affect the feel of driving, however. They must correspond to those of a sporty sedan while at the same time affording excellent ride comfort.

The handling dynamics of the Q7 reveals itself in every situation. Even-tempered when traveling fast on the freeway, the Q7 is agile on winding country roads and, thanks to the optimal all-wheel steering, extraordinarily spry when maneuvering in the tightest of spaces.



Crucial factors include the precise electromechanical steering and the weight reduction at the new front and rear axles.

The adaptive air suspension adjusts the vehicle level and the shock absorbers at each axle according to the vehicle load, yielding noticeable dynamic benefits. With the addition of Audi drive select, the driver can adjust the chassis systems and the drive from sporty & direct to comfortable & balanced.

### **Body**

With its weight saving of 71 kilograms (*156.5 lb*), the body plays a crucial role in the lightweight construction of the new Audi Q7\*. The vehicle embodies the Audi Space Frame (ASF), construction method, with which the brand already has 20 years of experience. The multi-material ASF of the Q7 pursues a new approach that integrates large components from hot-formed steel and aluminum.

In steel hot-forming, the blanks are first heated in a furnace to roughly 900 degrees Celsius and fed into the press directly thereafter. In the water-cooled die, the sheet metal is quenched to about 200 degrees, creating a structure of extreme tensile strength for thinner walls and a correspondingly low weight. The hot-stamped components form the high-strength backbone of the Q7 passenger cell, reinforcing the transition from the front end to the interior, the side sills, the floor, the front section of the roof line and the B-pillars. Its share in the body cell is twelve percent.

### **41 percent share: The aluminum parts**

The strut domes in the engine compartment that integrate the bearing support for the upper control arms, the neighboring hanger bracket, the connecting parts between sills and longitudinal members and the hinge reinforcements for the tailgate are all aluminum die-cast parts. Audi produces them itself. Aluminum sections allowing a very high absorption of energy in a collision are used for the front longitudinal members and other bearing parts in the front end, for the end sections of the rear longitudinal members and for two components in the rear.

Large areas of the occupant cell floor and luggage compartment, the rear wheel arches and the roof consist of aluminum sheet metal. The bottom line is that the lightweight material makes up 41 percent of the body structure. The doors, which are 24 kilograms (*52.9 lb*) lighter than the predecessor model's, the front fenders, the hood and the tailgate are also aluminum sheet metal.

The production of the parts and their assembly involve different joining methods, including several newly developed ones. One of them is roller hemming of the side wall frame for manufacturing ultra-strong B-pillars. It allows slender flanges and correspondingly large, comfortable door cutouts.

In friction-element welding, another new method, a quickly rotating steel rivet passes through an aluminum sheet under high pressure and forms a firm connection with the steel panel lying underneath. Punch-riveting, clinching and self-tapping screws make up the so-called cold-joining techniques from the Audi repertoire.



### **Rigidity and acoustic comfort: The torsion rings**

Three torsion rings – one horizontally and two vertically arranged – reinforce the front end, the areas around the C-pillars and the tailgate cutout of the new Audi Q7. They contribute significantly to the improved static and dynamic stiffness of the body that is retained even when the car is fitted with the optional panoramic glass sunroof. A solid cross member runs under the transmission tunnel at the level of the second row of seats.

The torsion rings form a substantial basis for precise driving and superior vibration comfort – the absence of disturbing vibrations and noises – in the interior. Another factor here is the elaborate decoupling of engines, transmissions and axles from the body.

Acoustic glazing in the front and side areas of the passenger cell and a comprehensive sealing concept for the doors and tailgate are standard features; at the windows, elegant trim strips cover the window slots. As an option, Audi offers insulating/acoustic glass, with tinted privacy windows being a further possibility. Details like outside mirrors placed on the top shoulders contribute to the best-in-class aeroacoustics.

The crash safety and occupant protection of the large SUV are also on the highest level. In the event of a collision with a pedestrian, pyrotechnic elements push the hood upwards in a flash, preventing the person's head from striking against hard engine parts.

### **Slicing through the wind: The aerodynamics**

Even with air resistance, the new Audi Q7 still moves to the head of its segment, with a best drag coefficient value of 0.31 with air suspension and lowering for highway driving. At the steeply sloping rear, the roof edge spoiler, the rails on the left and right of the rear window and small contours in the upper lights ameliorates the interruption of air flow.

The underbody also directs the air in a controlled way. A sturdy capsule that also serves as underbody protection fully seals the engine compartment from the road. The paneling underneath the passenger cell and the luggage compartment insulates against noise and protects the sheet metal against salt and stone chip damage, opening only at the exhaust system. Even the control arms of the rear axle are specially covered; mini-spoilers reduce lift here.

Loss of airflow through the engine compartment is also kept to a minimum. The Q7 3.0 TDI with 160 kW (218 hp), to follow a bit later, has a controllable cooling air inlet. A blind consisting of twelve slats, its housing is located between the Singleframe and the main water cooler. It is always closed when the need for a cooling airstream is low.

### **Engines**

The new Audi Q7 enters the German market with two supercharged V6 engines – the 3.0 TFSI and the 3.0 TDI. Compared with the predecessor model, their fuel consumption is lower by 28 and 23 percent, respectively – a CO<sub>2</sub> equivalent of up to 50 grams per kilometer (80.5 g/mi). With these engines, the new Q7 sets new efficiency standards in the large SUV segment with all-wheel drive.

A start-stop system is standard with both engines. For example, should the driver be rolling towards a red light, the system already disables the engine shortly before the vehicle comes



to a halt. The system is networked with the optional assistance system ACC, including traffic jam assist. When the car in front begins to move again after stopping, the engine of the new Q7 starts again automatically. Both engines also come with sound generators on board, for controlled modulation of the engine sound.

### **Forced induction with a compressor: The 3.0 TFSI**

The 3.0 TFSI has 2,995 cc displacement (bore x stroke = 84.5 mm x 89.0 mm (*3.3 in x 3.5 in*)). Its output is 245 kW (333 hp) at 5,500 to 6,500 rpm, and the maximum torque of 440 Nm (*324.5 lb-ft*) is available between 2,900 and 5,300 rpm. The supercharger is situated in the 90-degree V formed by the cylinder banks and is driven by a belt of the crankshaft as required. It compresses the intake air with up to 0.8 bar. Two intercoolers integrated in its housing further cool down the hot air so that even more oxygen enters the combustion chambers.

Lightning-quick response thanks to short gas paths, powerful thrust and sonorous sound – the compact three-liter V6 with its light-metal crankcase accelerates the new Audi Q7 from 0 to 100 km/h (*62.1 mph*) in 6.1 seconds, reaching a maximum of 250 km/h (*155.3 mph*). In the NEDC, however, it needs on average only 7.7 liters of fuel per 100 kilometers (*30.5 US mpg*) with 179 g of CO<sub>2</sub> per km (*288.1 g/mi*).

The 3.0 TFSI has some powerful efficiency technologies on board. An electromagnetic clutch shuts down the supercharger at loads up to 250 Nm (*184.4 lb-ft*) and engine speeds up to 4,000 rpm. Depending on the requirement, a mixed injection for particle reduction with FSI technology occurs directly into the combustion chambers and indirectly into the intake manifold. The intake and exhaust camshafts can be adjusted to 50 or 40 degrees of crank angle; friction is reduced at the chain drive, the piston rings and the camshafts. The oil cooler, water pump, cylinder liners and crankshaft have also been overhauled. Compression has increased to 10.8:1.

### **Total pulling power: The 3.0 TDI**

The 3.0 TDI in the new Audi Q7, with a 90-degree bank angle and 2,967 cm<sup>3</sup> displacement (bore x stroke = 83.0 x 91.4 mm (*3.3 x 3.6 in*)), delivers 200 kW (272 hp) of power and 600 Nm (*442.5 lb-ft*) of torque, the latter from 1500 to 3000 rpm. Acceleration from 0 to 100 km/h (*62.1 mph*) takes 6.3 seconds, with a top speed of 234 km/h (*145.4 mph*). On average, the 3.0 TDI consumes only 5.7 liters of fuel per 100 kilometers (*41.3 US mpg*), emitting only 149 grams of CO<sub>2</sub> per kilometer (*239.8 g/mi*).

The V6 TDI comes with numerous impressive high-end solutions. Its crankcase made of high-strength vermicular graphite cast iron is very light, with the entire engine weighing only about 190 kilograms (*418.9 lb*). The pistons are cooled by means of oil flowing through cast-in ducts. Their rings and pins have been optimized to minimize friction. The crankcase and cylinder heads employ separate coolant circuits. To reduce pressure loss, the water jackets of the cylinder heads are made in two parts to fit the requirement.

Relative to the previous engine, the water-cooled turbocharger has also been overhauled, with the oil pump fully variable in operation. Particularly lightweight hollow shafts serve as



camshafts. The common rail injection system develops a pressure of 2,000 bar. In the chain drive, intermediate gears with gear stages replace the large sprockets of the camshafts.

The components of the exhaust cleaning system are extremely compact and placed close to the engine in the new 3.0 TDI. The oxidation catalytic converter is installed to improve performance at a minimum distance to the turbocharger outlet, for a better temperature level. The same housing contains the diesel particulate filter with integrated SCR (selective catalytic reduction) coating. It removes particles and nitrogen oxides from the exhaust. The combination of diesel particulate filter and SCR allows a reduction of the distance of the SCR system by more than two meters relative to the predecessor, to only 30 centimeters (*11.8 in*). The result is quick response by the catalyst. A water-cooled proportioning module injects the necessary AdBlue additive. A full power mixer prepares the reductant (AdBlue and nitrogen oxides yield nitrogen and water) on the compact mixing track. Audi optionally supplies the Q7 with an AdBlue tank with a capacity increased from 12 to 24 liters (*12.7 to 25.4 US qt*).

Operation of 3.0 TDI is ultra-refined and low in vibrations. An important factor is the adjustable hydraulic bearings joining the engine to the front axle subframe. During idling, they eliminate disturbing vibrations with soft characteristic curves, and in drive they switch to a higher damping level, to suppress engine vibrations.

#### **Even more efficient: 3.0 TDI with 160 kW (218 hp)**

The market launch of the Q7 in Germany will soon be followed by a second version of the 3.0 TDI with 160 kW (218 hp) and a torque of 500 Nm (*368.8 lb-ft*), the latter at 1,250 to 3,000 revolutions per minute. Technically it differs in some details from the more powerful TDI. For engine management in particular there occur need-based adjustments to the water pump, oil cooler and combustion method, among other things. The efficiency is ground-breaking: Per 100 kilometers the 3.0 TDI (preliminary data) with 160 kW (218 hp) consumes on the average 5.4 liters of fuel (*43.6 US mpg*); a CO<sub>2</sub> equivalent of 144 grams per kilometer (*231.7 g/mile*). It accelerates the new Q7 from 0 to 100 km/h (*62.1 mph*) in 7.4 seconds, and presses forcefully ahead up to a top speed of 216 km/h (*134.2 mph*).

A fourth engine for the new Audi Q7 is the 2.0 TFSI with an output of 185 kW (252 hp) and 370 Nm (*272.9 lb-ft*) of torque. It is planned primarily for the Asian markets and the USA.

#### **Drivetrain**

Newly developed from scratch, the drivetrain in the new Audi Q7\* is much sleeker than its counterpart in the previous model, undercutting the old weight by 20 kilograms (*44.1 lb*). A new quattro center differential replaces the previous transfer case, and is integrated in the eight-speed tiptronic.



### **Comfortable torque-converter transmission: The eight-speed tiptronic**

The new eight-speed tiptronic is designed as a classic torque-converter transmission, shifting smoothly, quickly and spontaneously. Its high gear number allows frequent operation of the engine close to the ideal load point, while the high spread of 7.1:1 provides a long ratio at the uppermost gear for low rpms and low fuel consumption. On the other hand, the lower gears have a sporty, short ratio.

A great strength of the new transmission is its high degree of efficiency. The basic design of the wheel sets and shift elements alone ensures a low drag torque and high efficiency. The oil pump operates on a relatively low pressure level, and the transmission is integrated in the thermal management of the engine via a heat exchanger.

A newly developed rpm-adaptive torsional vibration damper allows operation of the new Audi Q7 at extremely low engine speeds in the region of 850 rpm. Its masses move oppositely to the torsional vibrations of the engine and thereby greatly reduce undesirable excitations. The torque converter lock-up clutch can close very early – another factor greatly contributing to efficiency.

A hydraulic accumulator safeguards the start-stop function: At engine restart, its oil volume is pressed into the system by spring pressure – making the automatic transmission ready to start in no time. Technical details such as elaborate ventilation make the new eight-speed tiptronic fit for off-road use and for fording water depths up to 50 centimeters (*19.7 in*). The driver of the Q7 can have the new eight-speed tiptronic operate in automatic modes D and S or himself intervene by tapping on the elegant, flat-shaped selector lever on the console of the center tunnel or by using the standard-equipped paddles on the steering wheel. In both cases the commands are transmitted electrically – by wire – to the transmission.

The management of the eight-speed tiptronic uses the data provided by the optional MMI navigation plus to compute the best shift strategy on each section of the route. In cooperation with the optional predictive efficiency assistant and the ACC, it switches to coasting if this will save fuel. One of the clutch mechanisms then opens at the wheel sets. Coasting in this form is possible up to 160 km/h (*99.4 mph*).

### **Lightning-fast redistribution: quattro permanent all-wheel drive**

The self-locking center differential – the heart of the quattro all-wheel drive system – is integrated into the housing of the eight-speed tiptronic. The design with center differential and front axle drive integrated in the tiptronic transmission is significantly more compact and lighter in weight than the transfer case of the predecessor model. It thus contributes the lion's share to the weight savings in the drivetrain.

Under normal driving conditions, the center differential, designed as a planetary drive, distributes the power between the front and rear axles in a 40:60 ratio. Should the wheels of one axle lose their grip, it can transfer as much as 70 percent of the power to the front and a maximum of 85 percent to the rear without any delay. These lock-up values are higher than



with the predecessor model, allowing a better defined distribution of torque and a high-precision, barely noticeable interplay with the control systems.

An intelligent software feature, the wheel selective torque control supplements the quattro drive. If one of the driving wheels on the inside of a curve bears an insufficient load, the torque control's management system initiates a minimum and precise brake intervention at that wheel. Self-steering behavior remains neutral longer, and handling becomes more precise, agile and stable. Traction becomes even stronger.

The rear axle differential has also been redesigned and is slightly lighter than the predecessor component. It is joined at four instead of, as before, three points on the rear axle carrier – this concept allows the use of relatively soft, comfortable bearings.

#### Chassis

The new Audi Q7 is an extremely comfortable traveling companion. On expressways it travels smoothly and confidently, affording excellent ride comfort – especially with the optional adaptive air suspension (air suspension with controlled damping). On winding interurban roads, it remains thoroughly manageable, precise and agile, and its axle articulation keeps it going nicely even when the asphalt stops. Compared with the previous model, the center of mass of the big SUV has been lowered by 50 millimeters (*2.0 in*), in part through lower installation of the engine.

The suspension has also been redesigned from scratch. Relative to the previous model it is over 100 kilograms (*220.5 lb*) lighter – an important factor for agility. Five-arm designs replace the double wishbone axles of the predecessor model at the front and rear axles. They can process the transverse and longitudinal forces separately – in the transverse direction, their bearings have a sporty stiffness, while in the longitudinal direction they are supple and soft.

#### **Minus 27 kilograms (59.5 lb): The front axle**

Two transverse links below and above as well as the track rod form the front suspension with its 1,679 mm (*5.5 ft*) track. Relative to the predecessor model, it saves 27 kilograms (*59.5 lb*) in weight. The wheel control arms and the pivot bearings are forged aluminum, the propshafts are hollow, and the wall thickness of the stabilizer varies as required. The pentagonal wheel hub made of forged steel, the aluminum damper stilts and the axle carrier made of aluminum and steel sheet also contribute to the lightweight construction.

Another major innovation in the new Audi Q7 is the electromechanical rack and pinion steering. Unlike the hydraulic unit in the predecessor model, it requires energy only during turning, thus reducing fuel consumption. The steering gear ratio of 15.8:1 is sporty and direct, and steering boost varies as a function of vehicle speed. The steering system works closely with the key driver assistance systems.

The electromechanical steering provides finely differentiated feedback from the road, responds spontaneously and is very precise. Its steering gear is placed at the level of the wheel center, and the forces directly enter the wheels. The steering rack and the servo drive are arranged in concentric circles for a very compact layout.



### **Minus 40 kilograms (88.2 lb): The rear axle**

At the rear wheel suspension the weight is reduced by 40 kilograms (88.2 lb). Their five slender rod control arms – the upper one greatly cranked for package reasons – are made of steel or aluminum, with differences in detail existing between the steel and air sprung versions. The spring arms are extruded aluminum sections. As with the front axle, the kinematics of the control arms provides highly precise wheel guidance and good roll support. Aluminum is used for the rear axle wheel carriers, while the subframe is made of high-strength steel. Throughout the entire construction, elastomer bearings with high-damping rubber mixtures and spacer sleeves enable a wide spread of stiffness along the longitudinal and transverse directions. The track measures 1,691 mm (5.5 ft).

### **Efficient control system: Audi drive select**

The standard-equipped driving dynamics system Audi drive select completes the versatile character of the new Audi Q7. It integrates up to twelve technological modules, depending on the equipment level. Standard are the eight-speed tiptronic, electromechanical power steering, engine management, the automatic air conditioning and the engine sound. Added are options such as adaptive air suspension, the new all-wheel steering, the headlights and the adaptive cruise control.

Audi drive select provides efficiency, comfort, auto, dynamic, individual and offroad as standard modes. In conjunction with adaptive air suspension the allroad mode is added, while the offroad mode becomes lift/offroad. The air suspension, which also serves as a level control, is a further new development. Its shock absorbers are lighter in weight than on the predecessor model – the entire system weighs about 10 kg (22.0 lb) less. In the front suspension struts, air springs enclose the shock absorbers; they are separated in the rear suspension.

A central control unit called ECP (Electronic Chassis Platform), which manages all body control systems, regulates the operation of the shock absorbers within milliseconds for each wheel individually. Electromagnetically actuated valves inside vary the flow of hydraulic fluid – this concept allows an especially large spread between sporty and comfortable rolling.

The adaptive air suspension can adjust the ride position of the body as required. At the offroad level, which is limited to a speed of 80 km/h (49.7 mph), the body lies 25 millimeters (1.0 in) above the normal level, while at the lift level (up to 30 km/h (18.6 mph)) another 35 mm (1.4 in) are added. For comfortable loading the body drops 55 millimeters (2.2 in) at the press of a button. At 120 or 160 km/h (74.6 / 99.4 mph) the body is automatically lowered by 15 mm (0.6 in), to reduce drag and increase stability. The lowering thresholds differ slightly depending on the mode set in Audi drive select. Audi also provides a sport version of the adaptive air suspension on request.



### **Innovation in the segment: All-wheel steering**

Another optional system for the new Audi Q7 is all-wheel steering – a technology nowhere else to be found in the SUV segment. At the rear axle is installed a steering system with electrical spindle drive and two track rods that turns the rear wheels a few degrees in the same or opposite direction relative to the front wheels, depending on the situation.

At low speeds, the rear wheels turn in the opposite direction. The large SUV thus becomes significantly even more agile, and its turning radius smaller by up to one meter (*3.3 ft*) – as noticed quite clearly by the driver during maneuvering and parking. At slow speeds between five and 15 km/h (*3.1 - 9.3 mph*), the oppositely directed steering can range up to five degrees. At higher speeds the rear wheels follow the movement of the front wheels by an angle of up to 3.5 degrees. Turning in the same direction improves the steering response and further increases stability in evasive maneuvers.

The new Q7 rolls on standard 18-inch wheels with 255/60 or 235/65 tires for the entry-level version with TDI engine. Alternatively, Audi and quattro GmbH offer other wheels in different designs and dimensions. The 19-inch wheels have tires of size 255/55, the 20-inch wheels tires of size 285/45 and the 21-inch wheels tires of size 285/40. All tires have been optimized for rolling resistance, without compromising performance. A repair kit and a tire pressure indicator are standard, with a collapsible spare wheel and an actively measuring control system optionally available.

### **Powerful: The brake system**

Large, interior-ventilated brake disks safely decelerate the new Audi Q7\*; at the front axle they are grasped by rigid and yet light-weight six-piston calipers in aluminum. At the front axle the disks are 350 or 375 millimeters (*13.8 / 14.8 in*) in diameter, at the rear axle 330 or 350 mm (*13.0 / 13.8 in*), depending on the equipment and engine of the large SUV. At a later point in time, Audi will be supplying carbon fiber ceramic brake disks, which are especially lightweight and resistant to abrasion. The electromechanical parking brake, updated with convenient hill hold and startup functions, acts on the rear wheels.

The Electronic Stabilization Control (ESC) also belongs to a new generation. Its operation is considerably finer-tuned and more precise than the system in the previous model. In the ESC offroad mode, engine intervention is largely deactivated and braking intervention slightly reduced. When the new Q7 is traveling off-road, the stabilization control allows greater slip during braking and acceleration for improved traction.

The many ESC functions also include hill descent control – it sets the speed within the range of four to 30 km/h (*2.5 - 18.6 mph*) during off-road downhill travel to the value indicated by the driver's operation of the accelerator and brake pedal.

Besides the large possible axle articulation, a ground clearance of up to 245 mm (*9.6 in*) also has a positive effect on off-road operation of the new Audi Q7. In conjunction with the adaptive air suspension and MMI navigation plus the new Audi Q7 has a display showing the



pitch and roll angles of the car in a clear and precise form. The driver has the possibility of adding additional information packets to the display. The information package “Angle” shows the steering wheel angle as well as the maximum attained tilt angle, while “Position” shows the geographical altitude, compass, and GPS coordinates. The air filter has been moved from the area of the headlights to the engine – an advantage when fording.

### **A wide variety: The driver assistance systems**

The Audi Q7 offers the currently widest selection of driver assistance systems on the world market. In addition to the standard systems, there are the individual options of Audi active lane assist, Audi side assist, parking system plus, park assist, night vision assistant, reversing camera and camera-based recognition of traffic signs.

A whole series of other systems are bundled in packages. The assistance package Tour includes adaptive cruise control (ACC) with traffic jam assist, Audi active lane assist, predictive efficiency assistant, Audi pre sense front, collision avoidance assist and turn assist. The assistance package City offers parking system plus, reversing camera and Audi side assist, as well as Audi pre sense rear, exit warning and the cross-traffic assist in the rear. In conjunction with the assistance package City or even separately Audi offers the assistance package Parking, comprising park assist and the 360 degree cameras. Another package is the Technology selection. Its components are the night vision assistant, the head-up display and the Audi virtual cockpit.

– Fin –

En 2014, AUDI AG a livré environ 1 741 100 automobiles à ses clients. Le constructeur a atteint un chiffre d'affaires de 49,9 milliards d'€ et un résultat d'exploitation de 5,03 milliards d'€. Il est représenté sur plus de 100 marchés dans le monde entier et produit aux sites d'Ingolstadt et de Neckarsulm (Allemagne), de Győr (Hongrie), de Bruxelles (Belgique), de Bratislava (Slovaquie), de Martorell (Espagne), de Kaluga (Russie) et de Jakarta (Indonésie). Les usines de Changchun, Foshan et Aurangabad assemblent des voitures uniquement pour les marchés locaux. En 2015, Audi démarrera la production à São José dos Pinhais (Brésil), puis San José Chiapa (Mexique) en 2016. AUDI AG possède plusieurs filiales à 100% dont quattro GmbH (Neckarsulm), Automobili Lamborghini S.p.A. (Sant'Agata Bolognese/Italie) et Ducati Motor Holding S.p.A. (Bologne/Italie).

AUDI AG emploie quelque 80 000 personnes dans le monde entier, dont environ 55 800 en Allemagne. Entre 2015 et 2019, AUDI AG projette d'investir 24 milliards d'euros au total, surtout dans de nouveaux produits et les technologies durables. Audi assume sa responsabilité en tant qu'entreprise et a fait de la durabilité des processus et des produits un objectif stratégique. L'objectif à long terme est la mobilité à bilan carbone neutre.

En 2014, Audi a enregistré 57 214 immatriculations en France.

En cette année 2015, Audi France célèbre la 9<sup>ème</sup> édition des Audi talents awards, programme d'engagement sociétal dont la vocation est de faire émerger et accompagner les jeunes talents dans les domaines de l'art contemporain, du design, du court métrage et de la musique à l'image. Illustration de l'avant-gardisme, valeur fondamentale de l'entreprise, cette initiative aujourd'hui reconnue dans le paysage culturel français se démarque par des programmes d'accompagnement des lauréats toujours plus performants.

Acteur majeur des grandes courses automobiles avec l'Audi RS 5 DTM et l'Audi R18 TDI e-tron quattro, partenaire officiel des Fédérations Internationale et Française de Ski, Audi s'engage en compétition pour éprouver les dernières innovations technologiques.