

The new Passat – world premiere

New. Business. Class.

Potsdam, July 2014

Note:

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World premiere of generation 8:

The new Passat – the high-tech business class car from Volkswagen

Technologies and design of the new Passat overcome class boundaries

First Passat to feature plug-in hybrid system and interactive digital instruments

Ten key facts about the new Passat:

1. The new Passat arrives on the European market in the fourth quarter of 2014 as a saloon and as an estate car.
2. Thanks to its innovative lightweight design, the new Passat is up to 85 kg lighter than the previous model.
3. All engines are new to the model range; they were made up to 20 per cent more fuel efficient.
4. The Passat will be offered with a plug-in hybrid drive for the first time. System power: 155 kW / 211 PS
5. The most powerful diesel in the Passat is a new TDI with 176 kW / 240 PS. Fuel consumption: 5.3 l/100 km.
6. In the top "Highline", equipment line, the new Passat has LED headlights as standard.
7. Making their debut in the Passat: City Emergency Braking function with Pedestrian Monitoring, Trailer Assist, Traffic Assist, Emergency Assist.
8. The new Passat is the first Volkswagen with an Active Info Display and Head-Up display.
9. The new Passat makes its debut as the eighth generation of the best-seller that has sold nearly 22 million units since 1973.
10. The model series is the Group's number one seller with up to 1.1 million Passat cars sold annually (2013; including derivatives).

- **Wolfsburg / Potsdam, July 2014.** The Passat is a world's best-seller. When all derivatives are included, nearly 22 million units have been built. In 2013 alone, over 1.1 million people chose to buy a model from this series. Last year, on average, somewhere in the world a Passat, or a Magotan in China, was sold every 29 seconds. That's two Passat cars a minute, 126 an hour and more than 3,000 a day. Every day. The Passat from Volkswagen is the Group's most successful model. Now Volkswagen is presenting the eighth generation of the Passat in a world premiere in Potsdam – one of the most advanced mid-class models of our time. The model will launch in European markets during the fourth quarter of this year.
- **100 per cent new.** Everything in this car is new. Its design, technologies, engines and possibilities. The Passat sets standards with an unladen weight that has been reduced by up to 85 kg and its fuel economy figures that have been improved by up to 20 per cent. For the first time, there will also be a Passat with plug-in hybrid drive system.

Positioning and design.

- **Exterior.** With the debut of the new Passat, Volkswagen is revealing a design that combines stylish clarity with a powerful image. A design that is not simply fashionable but is contemporary. A design that is not whimsical but is expressive. A design in which every line has a purpose. A design that will leave a mark on its era. The new Passat was created based on the modular transverse matrix – thanks to this platform, its proportions were made to be significantly more dynamic (including lower body, longer wheelbase, larger wheels) and its package was improved. While preserving all of its functional virtues, the Passat has gained noticeably in presence, exclusivity and dynamism. Even at night the Passat has an unmistakable look due to its newly developed LED headlights (standard from "Highline") and

standard LED rear lights. In the new Passat, Volkswagen has created saloon and estate cars that bridge over to a higher class. As the most successful European business car, the Passat represents a new type of business class – a transition car between the mid- and premium classes and between the B and C segments.

- **Interior.** Analogous to the expressive exterior is an interior that has been developed with the aesthetics, clarity and high value to match the sophisticated overall concept of the eighth-generation Passat. Based on numerous new design solutions such as a concise continuous horizontal band of air vents and technologies – such as an Active Info Display (interactive digital instruments), head-up display and an extremely low-profile ambient lighting strip – the interior has a more avant-garde and exclusive appearance than ever.

Assistance and drive systems

- **More convenience and safety.** New assistance, infotainment and convenience systems make individual mobility more sustainable, networked and communicative; they also play an active role in the driving process and make it even safer. The Passat has advanced to become a vehicle whose technologies move beyond segment boundaries. These technologies include – along with the Active Info Display and Head-Up display – systems such as an app-based Rear Seat Entertainment system for tablet computers, Front Assist plus City Emergency Braking with Pedestrian Monitoring and three new global innovations: Emergency Assist (stops vehicle in emergency), Trailer Assist (assisted manoeuvring with a trailer) and Traffic Assist.
- **Ten TSI and TDI engines.** The new Passat will be available with 10 direct injection turbocharged engines that cover a power range from 88 kW / 120 PS to 206 kW / 280 PS. All of the drive systems are new aboard the Passat. Fuel consumption of the engines, and therefore their CO₂

emissions as well, have been reduced by as much as 20 per cent. All versions are equipped with a stop-start system and a regenerative braking mode. A dual clutch gearbox (DSG) is available as an option for all engine versions, and it is standard with the top engine.

- **Plug-in hybrid with 155 kW / 211 PS.** For the first time, the Passat will also be offered with a plug-in hybrid drive (115-kW TSI petrol engine plus 80-kW electric motor and externally chargeable battery). With a system power of 155 kW / 211 PS, it is the most powerful plug-in hybrid from Volkswagen to date. This Passat can be driven as a genuine zero-emissions vehicle over a range of up to 50 km with all-electric power. Its hybrid fuel consumption and emission figures are similar to the excellent figures achieved by the plug-in hybrid Golf GTE (Golf GTE: 1.5 l/100 in the NEDC and 35 g CO₂/km).
- **TSI – overview of the petrol engines.** The petrol engines begin at a power output of 92 kW / 125 PS. At the next power level, there is a 110 kW / 150 PS TSI with active cylinder management; the turbocharged 1.4-litre direct injection engine has a fuel consumption figure of 4.9 l/100 km (equates to 115 g/km CO₂) – 1.3 l/100 less than the comparable previous model. Other power output levels: 132 kW / 180 PS, 162 kW / 220 PS and 206 kW / 280 PS. As mentioned, the TSI of the plug-in hybrid produces 115 kW / 156 PS. All of the TSI engines can be ordered with a dual clutch gearbox. DSG is standard in models with 220 PS, 280 PS and in the Passat with a plug-in hybrid drive.
- **High-tech TDI with 240 PS.** A technical highlight is the most powerful four-cylinder turbodiesel direct injection engine (TDI) ever offered by Volkswagen: a new 2.0-litre bi-turbo engine with 176 kW / 240 PS, which consumes just 5.3 l/100 (equates to 139 g/km CO₂). With this engine, the Saloon reaches a top speed of 240 km/h; in the Estate it is

238 km/h. Due to its high maximum torque of 500 Nm, the 240 PS Passat will be equipped with a 4MOTION all-wheel drive system and a 7-speed DSG.

- **TDI – overview of the diesel engines.** The diesel engine range at market launch begins with a 110 kW / 150 PS TDI, which consumes just 4.1 (equates to 108 g/km CO₂) – 0.5 l/100 km less than the comparable engine of the previous model. The next more powerful turbodiesels develop 140 kW / 190 PS and the stated 176 kW / 240 PS.

Equipment versions and R-Line packages

- **Three equipment lines.** As in the previous model, Volkswagen will be launching the new Passat on the market in the three equipment lines Trendline, Comfortline and Highline.
- **Passat Trendline.** Even the Passat Trendline is packed with features. All models have a stop-start system and a regenerative braking mode. Standard exterior features (excerpt): 16-inch wheels with 215 tyres and LED rear lights. Interior features include a cooled glove compartment, front centre armrest with storage compartment and height adjustment for the front seats. Convenience features of the Passat Trendline include central locking with wireless remote control and Keyless Go (button for starting and stopping the engine), Driver Alert System, Automatic Post-Collision Braking System, tyre pressure monitoring, "Composition Colour" radio system with 5-inch touchscreen, multifunction display "Plus", multifunction steering wheel, daytime running lights, hill hold assist, electronic parking brake with auto-hold function, coasting function (with DSG) and air conditioning.
- **Passat Comfortline.** Additional features of the Passat Comfortline include chrome trim around the side windows, exclusive decorative panels, comfort seats in front (12-way

ergoComfort seat for the driver, lumbar support – electrically adjustable on driver's side and manually adjustable on passenger's side), leather-trimmed multifunction steering wheel, automatically dimming rear-view mirror and door mirror (driver's side), rain sensor, ParkPilot, fog lights and Front Assist with City Emergency Braking. Also standard: 16-inch alloy wheels. The versions with 162 kW and 176 kW are also delivered with LED headlights, chrome trim on the front bumper and chrome-plated exhaust tailpipe panels in the rear bumper. The Passat TDI with 176 kW also has DCC adaptive chassis control.

- **Passat Highline.** Along with Comfortline features, the Passat Highline adds these exterior features: a chrome strip above the radiator grille and standard LED headlights. Also standard: a wrap-around chrome strip in the lower body area, LED rear lights with a very innovative lighting concept and 17-inch alloy wheels. Standard interior features include elegant dashboard inlays ("Brushed Aluminium" or "Brilliant Pine" fine wood; centre console in "Piano Black"), stainless steel door sill plates, seats in Alcantara / leather and heated seats in front. Added convenience features: automatic climate control (Climatronic with additional control panel for rear passengers), multi-coloured "Premium" multifunction display and automatically heated windscreen washer nozzles.
- **R-Line packages for the Passat.** Volkswagen R has developed R-Line interior and exterior packages with sporty configurations for the Passat. The interior package offers (excerpt): "Vienna leather / cloth" upholstery, an R-Line multifunction sport steering wheel with shift paddles (for DSG), stainless steel foot pedals, R-Line inlays and a black rooflining. Contents of the exterior package (excerpt): R-Line bumper, distinctive radiator grille with R-Line badge, chrome-plated trapezoidal exhaust tailpipe fittings, side sill

extensions, roof spoiler (Estate) and a gloss black diffuser. In addition, the Passat can be customised with a variety of sporty 17-, 18- and 19-inch alloy wheels.

Clarity and power bridge over to the next higher class:

Passat shows more presence, exclusivity and dynamism than ever

Sporty proportions with longer wheelbase but nearly the same length over all

Innovative interior with new ventilation layout and powerful light staging

Wolfsburg / Potsdam, July 2014. With the debut of the new Passat, Volkswagen is revealing a design that combines stylish clarity with a high level of impressive power. Clarity and power – these two elements merge on the exterior of the eighth-generation Passat to create a design that conveys exclusivity. A design that is not simply fashionable, but is contemporary. A design that is not whimsical, but is expressive. A design in which every line has a purpose. A design that will be influential in its era. While preserving all of its functional virtues, the Passat has gained noticeably in presence, exclusivity and dynamism. In the new Passat, Volkswagen has made a saloon car and an estate car with clarity and power that bridge to a higher class. As the most successful German business car, the Passat represents a new type of business class – a transition car between the mid- and premium classes and between the B and C segments.

Stylistic evolution of a model series

Initial situation. Volkswagen has been perfecting the Passat for over four decades. Internally, the now eight generations carry the designations B1 through B8. At Volkswagen, the B stands for the B-segment to which the Passat belongs (mid-class cars), and the number indicates the car's generation. In retrospect, the car's styling was primarily influenced by the B1, the original model of 1973, and all of the generations from the B5 (1996) onward. Volkswagen

introduced a paradigm shift in the Passat B5. While all previous Passat generations were balanced multi-talented cars that offered a high level of comfort, very good everyday features and above-average space, with this generation the quality and design made a leap forward, positioning the Passat in the top league of its class and making it the most successful business car. This path was consistently and successfully followed up by the B6 (from 2005) and the B7 (from 2010). Currently, the Passat – including its derivatives that were individually tailored for the Chinese and American markets – is, as noted, the most successful car of the brand and the Group with over 1.1 million units produced.

Breathtaking proportions. In light of this history of success, Klaus Bischoff, Volkswagen Head of Design, and his team posed the following question as they began to work on the B8: "What do we need to do to make a world's best-selling car even more visually attractive? There was a clear answer: "Breathtaking proportions." The team was able to realize this goal more consistently than ever, because an entirely new design platform was made available for the Passat for the first time in the modular transverse matrix (MQB). Although it is nearly as long as the previous model, the car's wheelbase grew by a considerable 79 mm; the front and rear wheels were made larger and are now positioned further out to the sides, making it possible to shorten the body overhangs significantly. At the same time, the Passat was made lower and wider. Because of the optimised engine orientation, it was possible to significantly lower the bonnet and shift the windscreen towards the rear. This "cab backward design" with mature saloon proportions resulted in a very long bonnet look with the impression of a premium-class model. It was also clear that the new Passat should get dynamic proportions. But that did not define the entire style of the design, the orientation. Klaus Bischoff: "In the new Passat we wanted to make a formal jump to the next higher vehicle class. Our objective was to sculpturally develop the potential of this vehicle into a business saloon. What was important for me was to develop significant design themes that

radiate an impressive visual presence and express the powerful sporty character of the new Passat."

Exterior design and details

Dimensions. The Saloon is 4,767 mm long and therefore 2 mm shorter than the previous model. At the same time, its wheelbase was lengthened by the aforementioned 79 mm to 2,791 mm. The front wheels were shifted 29 mm towards the front bumper, and the rear wheels 17 mm towards the rear bumper (the occupant cell was lengthened by 33 mm). The result: shorter body overhangs (67 mm less at front, 13 mm less at rear). At the same time, the Passat was made 14 mm lower (1,456 mm) and 12 mm wider (1,832 mm). These dimensions enabled a ratio of proportions that provided ideal conditions for creating a design that was as powerful as it was exclusive.

Side profile with a distinctive character line. Those encountering the new Passat for the first time will notice that the car is not a typical mid-class car based on its design; the style would also be appropriate for a car in the upper mid-class or premium class. The exclusive image of the new Passat was achieved in part by a wide variety of extremely precisely drawn edges and creases which develop individual light-reflecting surfaces. Especially distinctive in side profile is the area between the window sill (beneath the side windows) and what is known as the character line (at the height of the door handles). Here, the creases and edges in the upper area of the side panels merge to form a horizontal surface from which – viewed from front to back – the distinctive and athletic shoulder section of the Passat develops. The character line starts at the front as a lengthening of the upper headlight border into the wing, and then it is briefly interrupted by the prominent front wheel arch and then rises slightly but continuously as an actual shoulder line toward the rear (the windows and roof pillars slope inwards as on a sports car). Adding tension: Between the window sill and the character line there is an alternation of light surfaces. This modulation is

subdivided into two areas. The upper area at the front of the wing forms a wide concave surface which becomes progressively narrower towards the C-pillar of the Saloon or the D-pillar of the Estate like a tapering triangle. Beneath this, there is an area that runs in the opposite direction; it starts wide at the rear as a powerfully arched shoulder section and runs forward, also as a tapering triangle; this makes the side of the car appear more wedge-shaped than it actually is. The shoulder line and the powerful rear wheel arch are emphasised maximally by this intensive interplay of light and shadow surfaces.

High-end precision – also in production. The designers placed the door handles directly on the character line that gets another crease – a highly precise sculpting that requires production methods that are equally precise. And so far this know-how is a unique proposition by Volkswagen. Beneath the character line are the door surfaces that flare outward and the dominant wheel arches. At the very bottom, the side profile is bordered by the shaped side sills. Between the door surfaces and the transition into the side sills there is another crease with an alternation of curvature that once again generates a muscular light surface. This light surface is continued along the sides and into the rear bumper. Elegant: wrap-around chrome trim at the height of the side sill (from the "Highline"). The interplay of lines and light surfaces significantly lowers the height of the new Passat visually; as a result, the Saloon and Estate look much lower than they really are. Last but not least, another crease above the side windows and the wrap-around chrome trim of the long window surface (from the "Comfortline") and a double edge in the roof area all contribute towards this sporty and exclusive overall impression. As a result, when people look at the car they are certain, based on the extended volume of the side section, that the new Passat has been made significantly longer. In fact, however, it is 2 mm shorter than the previous model.

Front end has unmistakable presence. The Passat of 2014 arrives on the market with a completely re-designed generation of front

ends. The radiator grille is designed to be significantly larger than the headlights. In all three equipment versions (Trendline, Comfortline, Highline) it is upgraded by four chrome bars. On the sides, these bars bend inward towards the headlights in a trapezoid shape. The lowermost chrome bar of the grille is continued into the headlights. Above the grille and the headlights there is another chrome accent which extends across the entire width of the front end, and it is continued laterally in the character line (from "Highline"). In general, the headlights and the grille follow Volkswagen design DNA with their clear horizontal alignment, and they meld into a horizontal unit more than ever. Nonetheless, the designers did not rely on the width alone, but intentionally worked in parallel with diagonal angles to generate an impressive, prominent and unmistakable front-end image.

A face in the crowd. The "face" itself – the cross-bar made up of the grille and headlights – reinforces the superior image of the Passat with its strong presence. The upper chrome bar of the Passat Highline further reinforces this dynamic effect. Distinctive is the bending edge beneath the grille and the headlights with a light surface that follows the upper course of the radiator and headlights as a line. The contours of the radiator grille and the headlights are reflected in the lower bumper area. The fog lights are each arranged on the outside.

LED headlights from the "Highline". Volkswagen developed an entirely new lighting design for the eighth-generation Passat. The car is being offered with halogen and LED headlights. In particular, the LED headlights that are offered in two versions create an unmistakable look.

LED headlights (level 1). The newly developed all-LED headlights with reflector technology offered by Volkswagen represent the base level of a lighting system that is replacing xenon headlights in the Passat. The daytime running lights also use LED technology. The main areas of the daytime running lights also assume a turn indicator function. Twelve LEDs are used here which can be operated in white

or yellow. The signature of the daytime running lights is unmistakable together with the two "eyes" in the reflectors.

LED headlights (level 2). At the next level, Volkswagen offers all-LED headlights with projection technology in the Passat. Arranged next to one another, two exceptionally low-profile lens modules project the light onto the road and generate a type of illumination that is similar to daylight. The centrepiece of these headlights is the outer multi-beam lens module. In addition to the dipped beam and main beam lights (with adaptive country road and motorway lighting), it also generates the dynamic cornering lights. Meanwhile, the inner flat-beam lens module is responsible for what is known as near-field illumination. Another highlight of the projection LED headlights is the daytime running lights with 32 LEDs. Their signature consists of two separate modules; one large "U" (which incorporates both lens modules) and one small "U", which frames the contour of the multi-beam lens module. Beneath each daytime running light, the broad indicator (12 LEDs) emphasises the light design of the headlight. In addition, the LEDs for the static turning light are located on the inside of the headlight.

LED headlights (level 2 plus Dynamic Light Assist). In the top version, the all-LED projection headlight is also controlled via a vehicle camera. For the first time, Volkswagen is combining Dynamic Light Assist (automatic main beam control) and LED technology. The camera detects vehicles ahead and oncoming vehicles, and it compares the data with the headlight electronics; it coordinates the light distribution via the control unit for the cornering light and the swivelling multi-beam lens module.

Rear section. Immediately noticeable at the rear is that the cab has a strong inward sweep, as on a sports car, and at the bottom it transitions into the wide, flared shoulder section. The rear lights have been made considerably wider and leaner. In this area, the Saloon looks like a young sibling of the Phaeton with its large boot lid surface. Especially distinctive is the crease beneath the rear lights that extends across the rear. Under this edge, the rear body draws

inward – the upper part of the rear protrudes more above the bumper than below it. Designers used this trick to exploit the greatest possible length in the rear body while still satisfying the guidelines of numerous insurance classifications that prescribe a specific deformation area in the bumper area.

Trapezoidal exhaust tailpipe trim panels. A love for details is a common thread that runs through the new Passat. One example is found at the rear of versions with larger engines: the trapezoidal chrome trim panels that are integrated to be flush with the rear bumper. The rear reflectors – trapezoidal like the tailpipes – were also worked into the bumper in an extremely precise fashion. In turn, they precisely define the termination point of the wrap-around chrome trim strip that is included from the Passat Highline. The Saloon and Estate both have these small yet refined details. The two body versions exhibit differences at the rear – beyond those directly related to the different body types – such as the positioning of the licence plate frame: This frame is in the bumper on the Saloon, while it is on the tailgate on the Estate.

Rear lights (level 1). The new Passat will be launched with all-LED rear lights. In two versions: a standard version and a top version. Both versions of the lights are two-piece and extend from the boot lid or tailgate into the side body panels. In the standard rear lights, the tail light and brake light functions as well as the indicators are performed in the outer part of the light modules. The inner segment (boot lid) integrates the reversing lights along with the tail lights and rear fog lights.

Rear lights (level 2). The lighting design of the top version is extremely distinctive. The functionality of these LED rear lights is visible while braking. In this case, the horizontal light signature switches over to a vertically oriented brake light signature – it is generated by two lines in the outer segment and one vertical line in the inner segment. The visual effect is of a flip-flop from the horizontal tail lights to the vertical brake light signature. The alternation of visual cues makes other drivers more aware of the

brake lights, contributing to traffic safety. Along with the tail lights and brake lights, the outer rear light modules also integrate the indicator light. Functions in the inner module (boot lid) are the tail light, brake light, reversing light and high rear fog light. These LED rear lights are also available in an optional smoked version ("R-Line").

Interior design and details

Exclusive atmosphere. Analogous to the elaborately designed exterior, the interior designers developed an interior whose aesthetics, clarity and high value are a match for the sophisticated overall concept of the eighth generation Passat. Due to numerous new design solutions, precisely executed details and innovative technologies such as an Active Info Display and a Head-Up display, the interior is more avant-garde, distinctive and multifaceted than ever. The modular transverse matrix made it possible to further improve interior space as well. Although the new Passat is 2 mm shorter than the previous model, interior length has grown by 33 mm. Cargo capacities have also increased. In the Estate, cargo capacity is increased by 47 to 650 litres; when the bootspace is filled to the roof, cargo capacity grows to 1,780 litres. In the Saloon cargo capacity increased by 21 to 586 litres.

Horizontal ventilation strip. The goal defined when development began of creating a feeling of lightness and generous space in the interior was realised by the designers with a lean dashboard with a consistent horizontal structure, and the front door panels are stylistically incorporated into this design. The central design element of the dashboard is an innovative air vent that extends across the entire width of the interior like a band and is designed as a functional decorative element. So there are no separately placed air nozzles in the new Passat, rather one continuous element that is only interrupted by the instruments and the analogue clock in the middle of the dashboard – it consistently unifies form and function. The clear architectural character is created by the impressive length of

the chrome fins integrated in the air vents and a decorative panel integrated beneath it. The dimensions of the air vent not only affect the design of the dashboard; they also have a positive effect on climate control performance and ventilation acoustics.

Stylish ambient lighting. Beneath the air vent and the decorative panel there is an extremely low-profile ambient light strip that continues into the doors. Its wrap-around lighting effect defines the space and creates a pleasant mood. This staging begins when the central locking system is opened by wireless remote control or by Keyless Access. In this case, the central lighting unit in the headlining dims first and immerses the centre console in a warm light; immediately thereafter, the inside door handles are illuminated, and the wrap-around ambient light as a narrow, fine strip in the dashboard and door panels is activated (the three available colours "Cyan", "White" and "Amber" and the intensity can be set from the "CAR" menu in the infotainment system). At nearly the same time, the footwell is also immersed in an orientation light. As soon as the ignition is activated, the wrap-around ambient lighting and the illumination of instruments and switches are dominant; all other light sources are dimmed to an individually preset level. When the ignition is shut off, all light sources are ramped up again to simplify orientation.

Driver-oriented architecture. The designers placed special value on a driver-oriented design and a very spacious feeling of the front interior area. Therefore, starting from the seating position of the driver, the dashboard builds upwards in the space to the two sides of the instruments, inclined slightly towards the windscreen. This creates a spacious feeling as well as an ideal ergonomic landscape. The centre console also has an extremely clean layout, is well organised, and the controls are easy to access. The infotainment system is integrated high on the console and is easy to see; the climate controls are positioned beneath it. Since the console between the driver and front passenger has a sporty incline up towards the

infotainment system, the gear shift gate is up high, and the gear shift grip is in an ideal ergonomic position.

Active Info Display. In the Passat, Volkswagen is launching an instrument cluster that has been designed as a full interactive display: the Active Info Display. All instruments are implemented virtually via software. Only the icon lights at the lower border of the display are still implemented in hardware. Navigation information can be shown in 2D or 3D views on a 12.3-inch display. Its resolution of 1,440 x 540 pixels enables extremely precise, high-quality graphics and interactive display of all details. Take the Navigation mode, for instance: Here the speedometer and tachometer are relocated to the sides in order to create more space for the map. Information on driving, navigation and assistance functions can be integrated into the graphic areas of the speedometer and tachometer as needed. Data that is displayed on the centre console via the infotainment system, such as phone contact pages or CD covers, can also be shown in the Active Info Display in the Passat. Volkswagen is offering the Active Info Display as an optional alternative to analogue instruments.

Head-up display. The new Passat will now also be the first Volkswagen to have a Head-Up display. It projects important information, such as vehicle speed or navigation pictograms, directly into the driver's primary visual field. Thanks to the projection of the Head-Up display, the driver's eyes can remain focused on the road while reading data such as vehicle speed. Reaction time can also be significantly reduced by projecting warning messages directly into the driver's visual field. The Head-Up display of the Passat is a "combined solution": the data is projected onto an extending glass panel before the windscreen. Developers succeeded in attaining the same display quality as in much more expensive windscreen systems. When it is not in use, the display can be lowered into the dashboard to protect it, and the opening is closed flush to the dashboard surface. To the driver's eyes, the projected data appears to be displayed around two metres in front of the Passat. The results:

because drivers do not have to shift their gaze back and forth between the instruments and the street nearly as often, they do not have to constantly refocus their eyes, and this reduces eye fatigue. The Head-Up display is activated by a separate control next to the rotary light switch. The driver can decide – from the menu of the infotainment system – which information should be displayed: momentary speed, speed limit, navigation instructions, information on assistance systems or warnings.

The technical innovations of the new Passat:

Networked assistance systems introduce new era of safety

New infotainment systems with mobile online services and MirrorLink™

Assistance systems look around the corner and detect pedestrians in hazardous situations

Wolfsburg / Potsdam, July 2014. New assistance, infotainment and convenience systems make individual mobility more sustainable, networked, communicative, driving-active and even safer. The Passat – Germany's most successful business car – has advanced to create a new business class whose technologies overcome segment boundaries. These technologies include – along with the Active Info Display (a completely digital instrument cluster), extending Head-Up display, new Rear Seat Entertainment system for tablet computers, Front Assist plus City Emergency Braking with Pedestrian Detection, Emergency Assist (stops vehicle in emergency), Trailer Assist (assisted manoeuvring with a trailer) and a new traffic jam assistant.

Infotainment systems

Infotainment component system. The new Passat is launching with second-generation infotainment systems from Volkswagen. The latest systems of this modular infotainment platform (MIB) enables a maximum degree of connectivity in coupling to external devices. Its various interfaces include an interface to smart phones and related apps via MirrorLink™. The infotainment systems also have faster processors (optimised booting, quicker route calculation, smoother touchscreen performance, perfected voice dialogues) and new

displays with higher resolution (in the 6.5-inch systems). The range of devices consists of the 5-inch systems "Composition Touch" and "Composition Colour", the 6.5-inch systems "Composition Media" and "Discover Media" (plus navigation) with four-times better resolution (6.5-inch compared to 5.8-inch first-generation display) and the latest version of the 8.0-inch "Discover Pro" radio-navigation system.

External interfaces in detail. Even with the "Composition Touch", music can be fed into the system via either an AUX-IN connector, SD card or optionally via a USB stick and Bluetooth. An iPod/iPhone interface is also available. From the "Composition Colour" system, a CD drive is also integrated, and from the "Composition Media" a Bluetooth, SD card and USB interface are supplied as standard. The "Discover Media" system (entry-level navigation system) can also be equipped with WLAN as an option. In the "Discover Pro" – the top navigation system – features include the premium mobile phone interface (rSAP profile), a DVD drive and an optional TV tuner. MirrorLink™ is an option offered for the "Composition Media" or "Discover Media", and it is standard in the "Discover Pro" system.

Car-Net: basic functions. Car-Net is offered for the Passat in combination with the "Discover Media" and "Discover Pro" radio-navigation systems. This sub-brand that was introduced in 2014 incorporates mobile online services. For instance, Car-Net makes it possible to integrate "Traffic Information Online" into dynamic route guidance and to incorporate public and personalised Points of Interest (POI) into navigation. In addition, it will be possible to incorporate 360-degree panoramic images from a street perspective into the displayed image via "Google Street View" and to call up a realistic photographic map display based on the Google Earth™ map service (Google Maps). Other new content in the "Discover Media" and "Discover Pro" systems includes the functions "Parking space information" (number of available spaces in parking garages including location), "Fuel station prices" (current fuel prices

including location), "Weather", "News" and "Vehicle status report" (e.g. maintenance information). Also new: "POI and destination input"; from the "Discover Media" destinations and POIs may be selected via PC, tablet or smart phone, and they can later be transferred to the navigation system.

Rear Seat Entertainment. The wide variety of devices that can be integrated in the new Passat includes tablets. New possibilities are created by the ability to network external devices with the car's infotainment system via WLAN. The integration of a new kind of Rear Seat Entertainment, for instance. The key here is an app that makes the infotainment system and tablet compatible. Via WLAN the tablets can access many different functions of the "Discover Media" and "Discover Pro" systems. To optimise operating convenience or to view movies comfortably, Volkswagen offers a tablet holder as an accessory for the Passat; it also supplies the device with power.

Assistance and convenience systems

Area View. The camera-based Area View, which gives the driver a view of the car's surroundings, celebrated its world premiere in the Touareg in 2010. The system was developed to enable a 360-degree overview of the near surroundings and the traffic situation. The system was significantly advanced for the new Passat. Volkswagen is implementing the new generation of Area View for the first time in the Passat. The system is distinguished by extended functional features, higher camera resolution, obstacle detection and new 3D bird's eye view perspectives.

Park Assist. Park Assist enables semi-automatic parking in parking spaces parallel or perpendicular to the road. It can also back the car out of parallel parking spaces. With perpendicular parking spaces, the system not only assists in parking the car in reverse; it can also semi-automatically park in a forward direction.

Trailer Assist. Driving in reverse with a trailer is a challenge even for drivers who are experienced in this. Volkswagen is the world's first carmaker to market an assistance system that makes manoeuvring a trailer easier than ever: Trailer Assist. To back a trailer into an entryway from the street, all the driver needs to do is stop at a suitable spot and engage reverse gear. The system is activated by pushing a button. Then the current driving angle and possible driving angles are displayed in the instrument cluster. This is done by processing data from the rear view camera via image processing algorithms that evaluate the observed pivot angle of the trailer. In this assistant, the mirror adjustment switch serves as a sort of joystick, and the driver can use it to adjust the desired driving direction of the car-trailer combination. The Passat follows the steering commands given by the driver via the mirror adjustment switch, and the driver only needs to operate the accelerator pedal and the brakes. The driving direction of the Passat is set by automatic control of the electromechanical servo steering system. It is always possible to make a correction via the mirror adjustment control.

Side Assist with Rear Traffic Alert. This system can make a contribution towards avoiding serious accidents, in two situations in particular. First, on the motorway, because it detects quickly overtaking vehicles and slow vehicles in the blind spot, warns the driver and thereby makes overtaking safer. If the camera-based Lane Assist is installed in addition to Side Assist, the system responds to a steering movement towards the hazardous side with a warning stage (even if the turn indicator is not set), and the vehicle actively countersteers when a lane change is initiated. Second: When backing out of a parking space. The reasons: Rear Traffic Alert revolutionises backing out of parking spaces perpendicular to the carriageway in reverse. The radar-based sensor module detects vehicles that are approaching from the side. In case of an imminent collision, Rear Traffic Alert first outputs a visual warning then an acoustic warning. If the driver ignores the hazard, and there is high risk of collision, Rear Traffic Alert automatically initiates a brake intervention.

Traffic Assist. Volkswagen developed its Traffic Assist based on Lane Assist and Adaptive Cruise Control (ACC). The system makes driving in traffic jams or stop-and-go traffic much more comfortable. The foundation for the system is an adaptive lane tracking function at speeds below 60 km/h. The system not only makes countersteering corrections when the car is leaving the lane; rather, Lane Assist continually keeps the Passat in the centre of the lane by means of adaptive lane tracking. Adaptive Cruise Control (ACC) is another assistance system that is integrated in Traffic Assist. Because when ACC is active it automatically handles braking and accelerator pedal including at stop-and-go traffic speeds. ACC and Lane Assist merge to form Traffic Assist: The system enables assisted transverse and longitudinal tracking. The car automatically steers, accelerates and brakes, but under the condition that drivers keep their hands on the steering wheel and participate in steering, so that they can intervene at any time.

Emergency Assist. Another system in which Lane Assist and ACC merge to create a new assistance system is Emergency Assist: as soon as the sensors detect that the driver is not exhibiting any steering, braking or acceleration activities, the system initiates various escalation stages of arousing the driver awake, and if the driver is still inactive it initiates an emergency stop. The hazard lights unit is automatically activated, and the Passat executes a slight steering manoeuvre to make surrounding traffic aware of the hazardous situation. ACC prevents the vehicle from colliding with traffic ahead. Emergency Assist from Volkswagen is the first system of its kind in the world. Moreover, in any Passat with an integrated mobile phone interface, the "Euro emergency phone number 112" can be called via "SOS emergency call" over the infotainment system, to place a call to an emergency response dispatcher in case of an emergency. This requires a phone coupled to the infotainment system via Bluetooth or an active SIM card in the "Premium" mobile phone interface.

Front Assist with City Emergency Braking. Front Assist is a system for warning and automatic braking in case of an imminent collision. One system component of Front Assist is City Emergency Braking. While Front Assist warns of insufficient space to vehicles ahead in traffic and frontal collision hazards at higher speeds and automatically brakes the vehicle if necessary, the City Emergency Braking function performs this role in urban traffic. Until now, the Emergency Braking system could only detect vehicles. In the new Passat, the more advanced system also recognises pedestrians for the first time. Front Assist with City Emergency Braking is another example of democratisation of driver assistance systems, because Volkswagen already offers this technology as standard from the Passat Comfortline.

Progressive steering. Progressive steering lets the Passat driver steer with smaller steering wheel inputs and fewer turns of the steering wheel to achieve a desired bend radius in turning. This means that the driver does not have to reach over the steering wheel as much in tight turns. In the new Passat, progressive steering is being offered in combination with a sport chassis or dynamic chassis control (DCC). With progressive steering, it takes 2.1 turns of the steering wheel to reach the end position; without the optional system it is 2.75 turns. Progressive steering enables more precise and relaxed driving in the middle steering angles up to high speeds. On country roads with lots of bends, and when making turns, the driver experiences a plus in dynamics due to the more direct layout. At slow speeds, such as in the city or in parking, the Passat offers significantly easier handling thanks to the small steering inputs that are required.

Easy Close. Easy Open – the counterpart of Easy Close – was introduced in the seventh-generation Passat Estate in 2010. If the car is equipped with Keyless Access (automatic locking and engine starting system), a purposeful movement of the foot at the back of the vehicle is all that is needed to open the boot. The human-machine interface here is a proximity sensor near the bumper, which

detects the virtual kick movement. In the eighth-generation Passat Estate this automatic boot lid opening function is now being supplemented by the Easy Close closing function. The Estate's boot lid does not close until the person with the Passat key moves away from the back of the car; this gives the person an opportunity to conveniently remove luggage or shopping goods from the boot beforehand. The vehicle is also locked automatically. The closing function is activated by a double button in the boot lid.