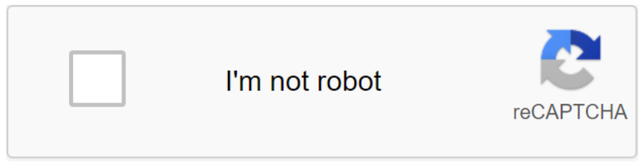
# Audi driver assist

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Jack R. Nerad May 11, 2020 For more than a decade, the world's largest automakers have been pursuing the goal of fully autonomous operation of a car - a car that can literally drive itself. The goal has proved elusive, in part because regulators don't decide how to implement the technology, but Audi is one of the luxury brands at the forefront of this search. As part of the automaker's changes to its 2021 lineup, Audi is making its Level 2 Adaptive Cruise Assist technology more widely available. This gives vehicles the ability to maintain the correct speed, lane position and the following distances on restricted roads such as motorways and motorways, all with minimal driver intervention. Audi engineers have been working on this technology for two decades. Back in 2005, Audi won the DARPA Grand Challenge for automated cars in tandem with Stanford University. Then, in 2016, Audi brought to the road the automation of Level 2 of the Society of Automotive Engineers (SAE) with the innovative Traffic Jam Assist feature, which allows you to control the wheels in 15 seconds. The following year, the A8 luxury Audi sedan unveiled the Traffic Jam Pilot, a Level 3 automated driving system that gives drivers the ability to travel hands-to-hand up to 35 mph when the car determines that it is on a restricted access, divided highway. However, the technology, while ready and available, has not received final regulatory approval and Audi has temporarily postponed the system until further notice. The Audi Adaptive Cruise Assist includes adaptive cruise control, Traffic Jam Assist and active lane centering assistance. At the vehicle's speed between zero and 95 mph, it helps the driver with acceleration and braking, maintaining speed and proper following distance, and lane maintenance and centering assistance. Designed to make long-distance high-speed cruising and stop-and-stop highway traffic less stressful and physically demanding, it requires alerting the driver who holds the steering wheel. Additional highlights, depending on the Audi model, include automatic speed adjustment based on the speed recognition system, as well as automatic speed control based on navigation system data pertaining to road and terrain. For example, if you are on a road and there is a sharp curve up, the Audi Adaptive Cruise Assist knows this based on map data and will slow the car down to a turn. The specifics of each iteration of the Audi Adaptive Cruise Assist are typical of the Audi model, so equipped, but the basic method of work is similar. Adaptive Cruise Assist uses a radar sensor in the vehicle's nose, laser scanner, front camera and ultrasonic sensors to continuously monitor the environment Tools. The brain system is the central controller of driver assistance. It constantly calculates a detailed model of the car's external environment based on the fusion of sensor data. For example, in The A6, the system draws data from up to five radar sensors, five visible light cameras, an infrared night vision camera, 12 ultrasonic sensors, and a laser scanner. Depending on the set of sensors of each vehicle, the system detects road markings, roadside structures, vehicles in adjacent lanes, as well as vehicles, others. The central controller uses this information to obtain the vehicle's virtual path and directs the vehicle to stay in it. In some models, the system determines whether the lane ahead is too narrow to allow movement side by side, and allows off-lane traffic to shift at narrow intervals. When equipped with Audi Adaptive Cruise Assist, the car automatically adapts its speed to the road situation and route, even allowing curves. In stop-and-stop traffic, the system can cause the car to stop completely, and depending on the duration of the stop, the car can resume its journey again automatically. The result, according to Audi, is less stressful, more hassle-free driving. Information in this article from Audi. This was true and accurate on May 11, 2020, but may have changed from that date. Audi's Study Find Audi on Sale Compare Cars Credit Calculator You've Now Signed up for the J.D. Power Cars newsletter. 2020 Subaru Outback Preview presented at the 2019 New York International Auto Show, the 2020 Subaru Outback has been optimized to offer better fuel efficiency, quieter and safer ride, improved technology, and turbocharged power, which is what Subaru hasn't given it an outback for a decade. Read the full review of the 2022 Hyundai Tucson Preview Read the full review of the 2022 Hyundai Kona Preliminary updated 2022 Hyundai Kona is on the way, equipped with a revised style and available in a performance-tuned N Line version that will surely turn the fun factor of a small crossover down to 11. Read the full Audi review helps drivers with a wide range of help systems - from turn and parking assistants to based road sign recognition cameras. They provide more safety, convenience and efficiency, and they pave the way for pilot driving. The turn helps to control the oncoming traffic lane with radar sensors, front camera and, in some models, a laser scanner. Monitoring is initiated as soon as the driver signals the turn. When driving from a stop, or while driving slowly to speeds of 10 km/h (6.2 mph), the system can intervene by applying the brakes to prevent the car from colliding with an oncoming vehicle when turning left or right This braking intervention keeps the vehicle within its own lane. The driver has been informed of the indicator's interference in the instrument cluster. Adaptive Cruise Control (with Stop-Go) Adaptive Cruise Control (ACC) offers relief to drivers, especially on long trips and in stop-and-go stop-and-go It maintains a predetermined distance to the front of the other vehicle by automatically accelerating and braking. The driver can choose from five levels of distance and adjust the acceleration and dynamics of the control system with Audi drive select. The system uses radar sensors and a front-facing camera. They detect in front and measure the distance to them. In conjunction with the S tronic or tiptronic, the system covers the entire speed range from 0 to 250 km/h (155.3 mph). With a manual transmission, it starts at 30 km/h (18.6 mph). When the system is turned off, the distance indicator shows the distance to the front of the other car and alerts drivers when they tail. It has a range of 60 km/h (37.3 mph) and above. Combined with S tronic or tiptronic, THE ACC also includes the Stop'Go feature. In heavy traffic, it autonomously slows the movement of the car to a halt. After a short stop, it automatically resumes traffic, following the vehicle in front. After a longer stop, the driver must touch the accelerator pedal or the control stem on the steering column. In addition to radar sensors and a front-facing camera, ultrasonic sensors also monitor the car's surroundings. Adaptive Cruise Aid (ACA) helps the driver with longitudinal and side control over the entire speed range - significantly increasing comfort on long-distance trips in particular. It includes adaptive cruise control, traffic assistance and active lane assistance. Depending on the model, the ACA uses a radar sensor in the vehicle's nose, laser scanner, front camera and ultrasonic sensors to continuously monitor the vehicle's environment. Depending on the set of sensors, the system detects road markings, roadside structures, vehicles on adjacent lanes and vehicles, other. The ACA uses this information to obtain the vehicle's virtual path and vehicle manual in it. In some models based on a modular longitudinal platform, the system also uses a laser scanner: the ACA detects if the lane is too narrow to allow side-by-side driving and allows you to compensate for driving through narrow areas. Adaptive cruise helps maintain the correct speed and the next distance through targeted acceleration and braking. The car automatically adapts its speed to the traffic situation and route, for example, on curves and cross tracks. In stop-and-go traffic as well as traffic jams, the ACA can cause the car to stop completely. Depending on the duration of the stop, the car can start automatically again. Hold assist provides a handy drive-off when the car is on the usual slopes and downhills of the street and this prevents the vehicle from moving. The system automatically switches to an electromechanical parking brake when the car stops for a longer period of time, while the retention of assistance is activated. This ensures that the car remains stationary even without parking brake. Combined with the S tronic, after stopping at a traffic light, for example, the car drives away as soon as the driver presses the accelerator pedal. The system is activated at the touch of a button. The trailer maneuver helps facilitate maneuvering in the opposite direction with the trailer. Depending on the operating concept, the driver uses rotary/button control or MMI display to adjust the angle at which the trailer should be backed up. An image from the rear view camera on the monitor shows the lines that serve as a guide. The trailer maneuver helps to turn the steering wheel and directs the trailer to the chosen course. This allows speeds of up to 10 km/h (6.2 mph). If the point of articulation is too large, the system emits a warning and it brakes in the event of an emergency. Depending on the version, either the sensor in the rotating towing rack of the trailer connection that senses the angle between the tow vehicle and the trailer, or the rear-directional camera serves as a technical basis. Operating at speeds of 65 km/h (40.4 mph), the Audi active lane helps the driver keep the vehicle in the lane. The camera detects the lanes and the track on which the car goes between them. In this case, the camera can distinguish yellow lines in construction zones and standard white markings. If the car approaches the line without activating the turn signal, the system helps the driver to return to the lane with gentle but noticeable interference in the electromechanical steering. In the MMI system, the driver determines how early the control intervention should occur. In the case of an early steering point, the system directs the driver to the middle of the lane using gentle, centric steering interventions. From the late steering point, the Audi active help band does not intervene until shortly before the detected lane markings can be crossed; then it gives corrective steering intervention in the right direction. In addition, the driver can be warned by the vibration of the steering wheel when crossing the detected road markings. Audi pre-meaning 360 detects the dangers of collision around the car and initiates specific safety measures. It includes the following driver's assistant system: Audi's pre-feeling front Audi pre-feeling rear Audi pre-feeling basic Audi pre-feeling of the main rear initiates preventive safety measures for passengers once it recognizes the critical driving condition. It uses information from various vehicle systems to determine this. For example, it intervenes if electronic stabilisation control (ESC) sensors detect skidding or hard braking. The system then pre-distributions the driver and front passenger seat belts electrically to reduce them or sideways movement. Side windows and sliding hatches are automatically closed. In addition, hazard alarm lights are activated to alert after movement. Audi Audi The sense of front/audi to the sense of the city Audi pre-sense front and Audi pre sense the city use radar sensor data and/or front-facing camera, depending on the car model to calculate the probability of collision. As part of the system's limitations, it warns of collision threats and initiates braking at certain vehicle speeds. Vehicles are detected in a range of speeds of up to 250 km/h (155.3 mph), pedestrians up to about 65 km/h (40.4 mph) or 85 km/h (52.8 mph) depending on the model as well as cyclists, depending on the system. If a collision is imminent, the system alerts the driver with visual, acoustic and tactile warnings based on a multi-stage warning concept. If necessary, the system assists in braking to reduce the speed of the vehicle or initiates the full application of the brake to avoid collision under certain circumstances. Measures are also being taken to protect the tenants. Hazard warning lights are activated, seat belts are reversed, seat position is optimized, windows and an additional panoramic glass hatch are closed. The Audi pre-sense rear uses radar sensors in the rear bumper to detect an impending rear end collision, and it initiates preventive safety measures. These include claims of front seat belts using electricity and closing windows and sliding hatches. In addition, the system activates hazard warning traffic lights to alert after moving to a critical situation. In this process, a rear-end collision warning signal (RECAS) is triggered, which flashes high-frequency warning lights. The Audi pre-sense rear is active in the background over the entire range of the car, except for trailer towing situations. Audi pre-feeling the side reacts in the event of a collision from the side. Among the ohthers he uses radar crossing sensors to help calculate the likelihood of an accident involving traffic approaching from the side. The system can detect the threat of side collisions at speeds of up to 60 km/h (37.3 mph) and apply preventive measures to protect passengers. These include: activation of dangerous lights, tension of seat belts, optimization of seat position and closing of windows, as well as an additional panoramic glass roof. In an impending side collision with a speed of more than 25 km/h (15.5 mph), the rear of the Audi AI's additional active suspension suspension lifts the body from the side at risk to 80 millimeters (3.1 inches) within half an hour. Thus, another car gets into the car in an even more impact-resistant zone. Side windowsills and floor structure hold most of the shock forces. Cabin deformity and loads, acting on passengers, especially in the chest and abdomen, up to 50 percent compared to side collisions without a suspension increase. Audi lane change assistant helps driver change lane at 15 km/h (9.3 mph) mph Faster. It uses two rear radar sensors with a scanning range of about 70 meters (229.7 feet). If the system detects a vehicle located in a blind spot or is approaching quickly from behind, a warning LED lights up in the body of the appropriate external mirror. If the driver activates the turn signal in any way, the LED flashes several times in quick succession. The exit warning improves security in city traffic. If a car is stopped and other vehicles or cyclists are classified as critical approaching from behind, the system warns passengers not to open the doors. The system does this with LED lights in the door panels. In a situation that is rated as dangerous, LEDs flicker and light red. Audi side-aid LEDs are also illuminated in the appropriate side mirror. The exit warning remains active for about three minutes after the ignition is switched off. This system is based on Audi side assistance radar sensors that monitor areas behind the vehicle and side rear. Depending on the model, the exit warning is extended by an additional function: if the system is active, the opening of electronic door locks is delayed by about one second. Preventing collisions help avoid collision help helps the driver drive around the obstacle in a critical situation. To do this, the system uses data from two radar sensors and a front-facing camera. The calculation of a suitable evasive corridor of maneuver takes into account the distance, width and displacement in front and long-distance movement of the vehicle. Collision prevention assistance is available at speeds of 30 to 150 km/h (18.6 to 93.2 mph), and assumes that the driver is actively directing the entire maneuver. The driver has been informed of the indicator's interference in the instrument cluster. First, a push is made to warn the driver of the danger. If the driver then actively avoids obstacles, the assistant applies a small torque to the steering, which helps by correcting the driver's steering input or helping to make a lane change. Models like the Audi A8 (2017) use specific braking individual wheels - with it the car is made to follow the calculated course. The kerb warning identifies curbs that pose a danger to tyres or wheels. Condition: The car is moving forward or backward at speeds of up to 10 km/h (6.2 mph). If the system detects a critical situation, it alerts the driver to this in the optical display of the parking system on the MMI monitor. To scan the environment, the system primarily uses 360-degree cameras. The multi-collector brake helps multicollision brakes help to automatically brake the vehicle in the event of an accident, reducing the risk of skidding, as well as the risk of further collisions. The feature uses Collision detection sensors The severity of the accident and the decrease in speed are calculated by the safety computer. If certain thresholds are exceeded, the security computer sends the relevant message to electronic electronic Control unit (ESC) to run an automatic braking application based on the state of the system. If the driver accelerates, the vehicle does not brake automatically. The same is true if the ESC, braking system or electrical system is not functioning. The parking system plus informs the driver, visually and audibly, about obstacles in front and behind the vehicle. Warnings are issued when the distance to the detected object in the driving path is less than 90 cm (35.4 inches) - depending on the specific model - after the driver has engaged in reverse transmission and activated the system by pressing a button on the central console. Ultrasonic sensors measure distance, the MMI display depicts it visually. The white segment shows the detected object outside the driving path. Red segments represent detected objects in the trajectory. The virtual driving path display also shows a side guide line that has been pre-calculated based on the currently selected steering input. The increase in the frequency of the audible warning indicates that the distance to the obstacle is decreasing. The parking system plus informs the driver, visually and audibly, about obstacles in front and behind the vehicle. Warnings are issued when the distance to the detected object in the driving path is less than 90 cm (35.4 inches) - depending on the specific model - after the driver has engaged in reverse transmission and activated the system by pressing a button on the central console. Ultrasonic sensors are discreetly integrated into bumpers that measure distance. The MMI display depicts it visually. The white segment shows the detected object outside the driving path. Red segments represent detected objects in the trajectory. The virtual driving path display also shows side-line guides that have been pre-calculated based on the currently selected steering input and thus helps in convenient parking and exit. The increase in the frequency of the audible warning indicates that the distance to the obstacle is decreasing. At a distance of about 30 cm (11.8 inches) from the detected object, the driver hears a constant tone - a signal to stop. High-beam assist uses a camera mounted on the interior mirror. It detects light sources - headlights of oncoming vehicles, taillights of other road users and reflections of municipal restrictions signs, for example - and automatically switches between high beam and low beam lighting. This provides better visibility and a more relaxed driving experience. Drivers of oncoming vehicles are not blinded by glare. A customized speed limiter limits the speed of traffic to a value set by a driver within a speed of 30 to 250 km/h (18.6 to 155.3 mph) - which is very useful within the city or construction zones, for example. When the set limit is reached, gently smothers the speed down. The speed limit is not exceeded, even if the driver puts more pressure on the accelerator pedal. However, the driver may temporarily override the override Limit the blow down, and the speed limiter can be completely disconnected anytime from the stem of the steering column. The speed set is displayed in a cluster of devices. Cruise control maintains the desired speed continuously, starting at about 30 km/h (18.6 mph) (model dependent), provided that it can be maintained due to engine power and engine braking effects. The system offers assistance to drivers in this way - especially on long trips. At the same time, constant high-speed driving helps to reduce fuel consumption and reduce CO2 emissions. The system is controlled by a separate stem of the steering column, and the set speed is displayed in the cluster of devices. The system shuts down when the driver brakes. Crossing aid recognizes critical cross-movement in front of the car and warns the driver about it both visually and audible. At speeds of up to 10 km/h (6.2 mph), it initiates short braking action when needed. The crossing helps the vehicle to speed up to 30 km/h (18.6 mph). It uses data from the central zFAS computer, with the most important information supplied here by medium-range radars and a laser scanner. If the driver wants to loosen up at an intersection or exit with poor visibility, he or she can press the parking button. This sends images from 360-degree cameras to the MMI monitor. They dramatically expand the field of view, and the driver can choose from several views. Together with long-range radar and front-facing camera, the laser scanner forms a trio of sensors with different strengths that complement each other. It is these sensors and the central driver assistance controller (zFAS) that generates an image of the environment from all the sensor data that make automated driving possible in the first place. The laser scanner covers the field about 80 meters (262.5 feet) long, with an opening angle of 145 degrees. A component about the size of a fist is set in the front bumper and, regardless of speed, emits moderate pulses of light at several vertical levels, which the mirror dissipates in the form of a fan. With a wavelength in the near infrared range, extremely short flashes of light are invisible and harmless to the human eye. They are reflected by objects in front of the car and return to the laser scanner in less than one microsecond, where they are detected by photodiodes. The result is a detailed, deeply contoured, static image of the environment. The laser scanner displays other vehicles as measured cuboids, and measures information such as distance and orientation, which it distributes among partner control units. With his large horizontal diaphragm, he detects cars entering the lane very early. Details of the structures on the side of the road, such as fencing, will round the spectrum. As Radar, laser scanner also works in the dark. Automatic cleaning and heating of the coating panel keep it in working order even in inclement weather and and as long as the conditions are not too extreme. Maneuvering helps recognize moving and stationary objects more than 10 centimeters (3.9 inches), such as a pillar in a garage or a moving car. This helps to avoid impending collisions by means of warning steering pulses and autonomous braking of the car before stopping, provided that the car moves forward or in the opposite direction at a speed of no more than 10 km/h (6.2 mph). The system uses an optical parking system in MMI to display steering and parking. The surroundings are scanned with at least ultrasonic sensors and 360-degree cameras. Night vision help that Audi offers for several full-size models uses a far infrared camera. It responds to the heat sucked out by objects. Converted into black and white images, the information can be viewed in a dashboard cluster or audi virtual cockpit. The cool setting seems dark, while the animals and people seem strikingly bright. The system, which has a range of up to 300 meters (984.3 feet), can detect humans and large wildlife at a distance of about 10 to 90 meters (32.8 and 295.3 feet) and highlights them with yellow markings. When a dangerous situation is detected, a warning sound is emitted. The warning symbol appears in both the device cluster and the head-up display. Depending on the headlights, faces outside the city are illuminated by three short flashes of light. Emergency services detect within the system when the driver is inactive. In this case, the system takes control of the vehicle and automatically brakes it in a dead end in its own lane. Emergency services control the driver's steering. If he discovers that the driver is inactive, he encourages the driver repeatedly, using visual and audible warnings and brakes, to actively take control of the vehicle again. With the first strong braking push below 80 km/h (49.7 mph), hazard warning lights are also activated to alert ambient movement. If the driver remains inactive despite warnings, emergency assistance brings the vehicle to a standstill within the system. The parking brake is involved. The driver can disable emergency assistance at any time by moving the steering wheel, pressing the brake pedal or accelerator, or disabling the active assistance lane or adaptive cruise control. Park assistance can automatically steer the car into parallel or perpendicular parking spaces. It uses ultrasonic sensors located in the front and rear bumpers and on the sides. The driver should only speed up, brake and change gears. Sensors measure parking spaces along the road, passing them at a moderate speed - a maximum of 20 km/h (12.4 mph) for perpendicular parking spaces and a maximum of 30 km/h (18.6 mph) for Spaces. The message appears on the MMI display when the system finds a suitable location. The driver's only parking activities are acceleration, gear change and braking. Braking. The system handles steering. In addition, the beeps help the driver. Park help will do a few maneuvers, back and forth if necessary. It can also come out of parallel parking spaces. Depending on the model, the driver activates the system either with a button on the center console or through a button on the lower infotainment display. The maximum speed of all maneuvers is 7 km/h. (predictive) efficiency to help the efficiency help helps the driver to drive proactively and save fuel. The system works closely with Adaptive Cruise Control (ACC) or Adaptive Cruise Assistance (ACA). It gets access to data on the predictive route from navigation and information from the car to X. To detect road signs and other vehicles, efficiency helps uses the front camera as well as data from the front and back of radar sensors. The driver shows relevant information in the dashboard or in the virtual cockpit of the Audi and head-up display as soon as it would be reasonable to remove the foot from the right pedal. Symbols of speed limit, bends, roundabouts, cities or descents that indicate a slowdown to the driver are displayed based on route data and road signs recognition.

Depending on the model, the gas pedal also pulsates against the sole of the driver's foot - a clear instruction to remove the foot from the gas. If cruise aid is enabled or the ACC is activated, efficiency helps to actively regulate. It slows down and speeds up predictively and adapts speed to the course of the road and road situation, as well as taking the vehicles driving ahead into account. At the request of the driver, the system controls the operation of the engine on a free wheel and at the shoreline in cooperation with other control units. The predictive system always maintains a driving style that reflects the chosen driving program - from efficient to sporty - and uses opportunities to recuperation in Audi e-tron. The driver can override the system at any time by accelerating and braking. In addition, drivers can individually activate, deactivate, and customize many of their detailed features in MMI. Depending on the model, management, for example, can be adapted to the course of the road in three stages: slow, medium or fast. Cross-traffic help rear cross traffic help the rear alerts the driver of approaching vehicles he deems critical when slow to back up, such as when pulling out of a perpendicular parking spot. To do this, it uses rear radar sensors. They cover the area at the back, including lanes left and right behind the vehicle. Warnings are progressive - the original visual warning displayed on the MMI display (in the park help display). The situation is presented in the virtual top view and in the types of camera back and back side. Red Arrows point of the vehicle in the direction from which there is a potential danger. If the driver does not respond to the visual display, the display, sounds in front of the system warns the driver with a brake push. This helps to avoid accidents when leaving parking spaces. The (remote) parking pilot and remote garage pilot (remote) parking pilot and remote garage pilot make parking extremely easy and convenient. Both systems allow the car to automatically roll into parallel or perpendicular sports parking or into the garage. They control the steering, gas, brakes and automatic transmission. The driver either sits in the car (the pilot of the parking lot), or monitors the maneuver from the outside with the help of a smartphone (the pilot of remote parking and the remote pilot of the garage). He or she activates the appropriate systems using the parking button on the MMI display. If the vehicle is moving at an average speed, ultrasonic sensors measure parking spaces along the road. The garage pilot also uses a laser scanner. The message appears on the MMI display when the system finds a suitable location. The driver can now stop, choose the control of the smartphone in MMI, go out and start the parking maneuver from his phone. This is done by pressing the Audi AI button in the myAudi app and holding it for the duration of the parking procedure. The driver sees a live image with 360-degree cameras on the smartphone display. The maximum distance from the car is six meters (19.7 feet). The car drives into the parking lot at speeds of up to 6 km/h (3.7 mph), maneuvering several times if necessary. The car can only pull forward into the garage. Once the vehicle reaches its final position, the tiptronic is set on the P and both the engine and ignition are off. When it's time to leave again, the driver can start the car with a smartphone and drag it out of the parking space or garage. The driver can also start the pilot parking while sitting at the wheel by pressing the AI button on the central console of the tunnel. This button should also be pressed throughout the parking procedure. The (remote) parking pilot and remote garage pilot operate intelligently and comfortably. For example, a sedan can also pull into the garage if it needs to drive in an arc to do so. Inside the garage, the car can pull very close to walls and obstacles such as bicycles - or it just won't enter the garage if there is not enough space. Its innovative laser scanner is particularly useful here. The reverse camera simplifies maneuvering by showing the area behind the vehicle on the MMI display. It shows a calculating motion path based on the angle of the steering, as well as auxiliary lines and guide lines. For parallel parking, the last lines are precisely sent to the parking space in combination with steering pivot points. The blue surface in the camera image indicates where the vehicle will be located after the parking procedure. The reverse camera is discreetly integrated into the trim strip of the trunk handle of the luggage compartment. It is activated as soon as clamps the reverse gear or presses the presses button. Traffic assistance is a subsystem of adaptive cruise control (ACC) or adaptive cruise assistance (ACA). In vehicles with automatic transmissions, traffic jam help can take on certain steering tasks at a range of up to 65 km/h (40.4 mph) on roads that are in good condition, as long as traffic moves slowly. The system uses radar sensors and a front-facing camera. It directs the car, making gentle steering movements within the system and focuses on road markings, roadside structures and other vehicles on the road. When the cork helps reaches its system limits - for example, when traffic thins or there is a sharp curve forward - the driver must take on the task of driving again. If the driver does not do so, the system warns the driver in several stages. As a last resort, it autonomously leads the car to a safe stop. Four 360-degree cameras on the vehicle scan the immediate surroundings and show obstacles inside. Drivers can choose from different types that simplify parking and maneuvering. The virtual overhead view shown on the MMI display gives the driver an overview of the overall parking situation. The panoramic view of the front and back covers an angle of almost 180 degrees and provides better visibility when exiting close parking spaces, courtyard entrances and tangled intersections. The guide lines in the reverse camera review facilitate parking in perpendicular spaces and trailers for leads. The view from the front camera helps in maneuvering, as it detects obstacles in front of the car. The system is automatically activated when moving in the opposite direction or at the touch of a button. An additional feature for some models is a virtual 3D view. The driver can use the touch screen to turn steplessly and enlarge the image of the car and the actual surroundings of the vehicle. There is also a view of the front or rear tires, so the driver can pull the car right next to the curb. Camera-based road signs detect road signs such as speed limit signs (including digital signs), no entry zones, entry restriction signs and other auxiliary signs, and shows them to the driver in graphic form. They then appear in the driver's information system and/or Audi's virtual cockpit, as well as in the display with your head up. The camera on the windshield also detects time limits, such as in construction zones, as well as time and weather restrictions. The system shows the current speed limit. For example, if a wet road uses a lower speed, you'll see this value if you have windshield wipers on it. Speed limits that are in effect only at certain times are only displayed at this time. In addition, the driver may choose a warning threshold as compensation for the legal speed limit. When this threshold is exceeded, a visual warning is given. Central driver assistance controller Conditional automatic driving at level 3 is based on two innovations: a sensor mounted with a laser and the central driver assistance controller, known as zFAS, for short. A computer about the size of a tablet constantly processes sensor signals and uses them to create a complete image of the car's environment. To do this, it uses processors from the world's leading companies - NVIDIA (Tegra K1), ALTERA (Cyclone V), Infineon (Aurix) and Mobileye with Eye-3 imaging engine. The data of the merger sensor is read into the merger layer in the zFAS block and merges to create a complex environment model. It includes moving objects, stationary obstacles and a road model. The latter is generated on a normal navigation map, as well as on road markings and borders that detect sensors. The vehicle is oriented within its lane in the model, and this positional information comes into the navigation map that the driver sees. This information offers the driver many advantages, for example, in difficult intersection situations. zFAS serves as the central interface for manned driving functions and for almost all assistance systems. Whether the system is an assist in crossing, emergency braking, adaptive driving assistant or traffic jam pilot - its functions are no longer related only to a specific sensor. Each system uses a model of the car's environment and can work more efficiently as a result of the high accuracy of this model. This allows the vehicle, for example, to recognize the tail part of the cork and brake properly. The principle of the central level of synthesis, based on standardized sensor interfaces, gives Audi another advantage - independence from the specifics of sensors. Developers can replace individual sensors whenever the best devices are ready for the market. ready for the market. audi a4 driver assist. audi q5 driver assist. audi q7 driver assist. audi q3 driver assist. audi driver assistance package. audi driver assistance package review. audi driver assistance package 2019. audi driver assistance package q5