
ADAS

Advanced Driver Assistance Systems

AUTOPISTA

ADAS – Advanced Driver Assistance Systems



- Objective
 - Understand limitations and application of the features offered by ADAS.
 - Identify relationship with HMI (Human Machine Interface).
- Application
 - Adaptive Cruise Control – ACC.
 - Assisted Steering.
 - Lane Departure Warning – LDW.
 - Blind Spot Monitoring – BSM.
 - Rear Cross Traffic Alert – RCTA.
 - Fully Automatic Park Assist – FAPA.
 - Remote Parking.



Feature evaluation

- ADAS – Function(s):
 - How does it work?
 - Ease to use.
 - Define criteria for evaluation.
 - Highlights, likes, dislikes, etc.
- Ground rules for HMI
 - Rule 1
 - Minimize eyes off the road as much as possible while driving.
 - Rule 2
 - Zero confusions.



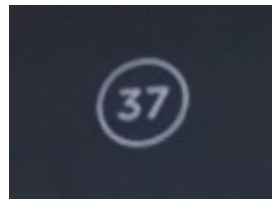
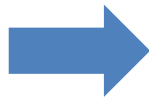
- ACC maintains the desired vehicle speed, brakes and accelerates automatically depending on traffic.
- Activation: button ("hard"/"soft"), lever, etc. e.g. Tesla S.



- Personalization: adjust vehicle speed



- Cancellation: End of feature (e.g. by applying the brakes)



Activation

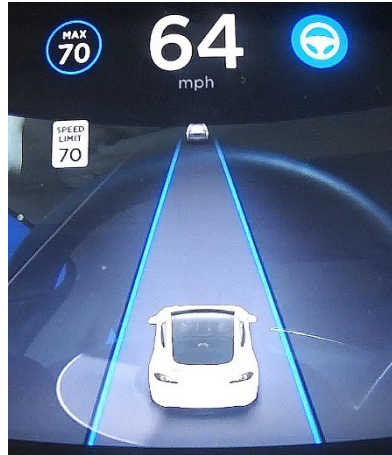
Personalization

Cancellation

Assisted Steering



- Keeps the vehicle in the lane without driver intervention.
- Activation: button (hard/soft), lever, etc. E.g. Tesla S.



- Personalization: not applicable in this function.
- Cancellation: end of the function by driver or automatic.



Activation

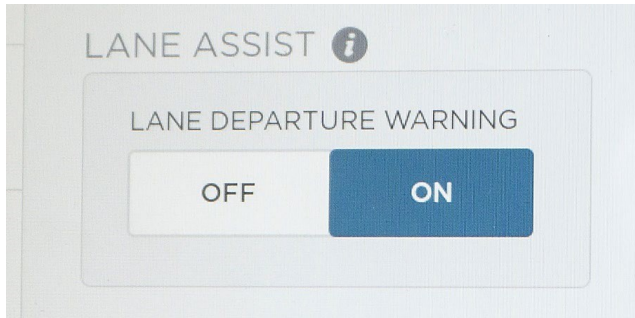
Personalization

Cancellation

Lane Departure Warning – LDW



- The function warns the driver when leaving the lane by means of an audible signal or vibration on the steering wheel.
- Activation: usually via Infotainment. E.g. Tesla S.



- Personalization: system sensitivity and vibration adjustment



- Cancellation: End of the feature via Infotainment.

Activation

Personalization

Cancellation

Blind Spot Monitoring – BSM



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- Detects approaching vehicles and warns the driver by means of light in side mirrors or cluster.
- Activation: normally always on.



- Personalization: not applicable in this function.
- Cancellation: normally it is not possible to deactivate this function.

Activation

Personalization

Cancellation

Rear Cross Traffic Alert – RCTA



- During reversing the vehicle warns the driver by sound and/or information on the cluster if there is traffic approaching.
- Activation: normally always activated.



- Personalization: not applicable in this function.
- Cancellation: normally it is not possible to deactivate this function.

Activation

Personalization

Cancellation

Fully Automatic Park Assist – FAPA



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- Vehicle looks for parking space and does the necessary maneuvers (steering, acceleration and braking).
- Activation: normally by means of button and directional pad.



- Personalization: not applicable in this function.
- Cancellation: any intervention by the driver.

Activation

Personalization

Cancellation

Remote Parking



- The vehicle is parked or exited via remote control, activation via cluster, App.
- Activation: remote control and/or cluster.



- Personalization: E.g. BMW 3er - possible programming.
- Cancellation: via remote or App.

Activation

Personalization

Cancellation

- ACC
 - Detects too late a vehicle encroaching on the lane.
 - Accelerates too sharply or too softly to regain cruising speed.
- Assisted steering
 - System does not detect the lane.
 - Not functional in the city.
- Lane Departure Warning
 - System sends erroneous messages (vibrates steering wheel unnecessarily).
 - Does not detect lane correctly on some roads.
- Blind Spot Monitoring
 - No sound system in case of a possible collision.
- Rear Cross Traffic Alert
 - Generally, a very robust system. On very few occasions the alert has been activated for no reason.

- Fully Automatic Park Assist
 - Sometimes the parking space is not detected.
 - Dependent on other parked vehicles (alignment).
 - Not parked well (too far off the curb, crooked, etc.).
 - Parking time -> too long.
 - Some drivers cannot get out of the parked space.
- Remote Parking
 - Well received by the public.
 - Some customers see this feature as just a "gimmick".