



**AUTOMOTIVE
ENGINEERING**

FACT SHEET



ACTIVE PARKING ASSIST SYSTEMS

BACKGROUND & METHODOLOGY

Parallel parking can be challenging for drivers who are not well practiced. In addition to the difficulty of the parallel parking maneuver itself, city traffic and impatient drivers can intensify an already stressful situation.

In an effort to ease this stress, park assist systems were first introduced in the U.S. market in 2006. The early systems utilized ultra-sonic sensors and a sophisticated camera to determine the size of the parking space and accurately back the vehicle into the spot. In recent years, the performance of these systems has evolved and improved and, due to lower costs, more automakers offer this feature to new car buyers.

AAA tested park assist technology to better understand how automakers are implementing this feature and whether systems are capable of parking more accurately than a non-assisted* driver.

To understand how park assist systems benefit consumers, AAA pursued two lines of inquiry:

1. **How well do park assist systems function compared to a non-assisted* driver?**
2. **How well does park assist technology work in real-world parking scenarios?**

KEY FINDINGS

- Drivers using tested park assist systems experienced **81 percent fewer curb strikes** than drivers parking without* assistance.
- Tested park assist systems were able to parallel park using **47 percent fewer maneuvers** than unassisted* drivers. While several systems completed the task in as little as one maneuver, manual* parking required 2-3 maneuvers.
- On average, park assist systems were able to park a vehicle **10 percent faster** than a driver parking manually*.
- Tested park assist systems were able to park **37 percent closer to the curb** than unassisted* drivers.
- **Eight in ten (79 percent) U.S. adult drivers feel confident** in their parallel parking ability.
- Among U.S. adult drivers, **86 percent of men** feel confident in their parallel parking ability, while **71 percent of women** report feeling confident.
- **Most U.S. adult drivers (72 percent) would not trust self-parking vehicle technology** to parallel park their vehicle. Men and women distrust the technology equally.



METHODOLOGY

In partnership with the Automobile Club of Southern California's Automotive Research Center, AAA's automotive engineering team set up a closed course parallel parking test to ensure consistency and safety for test personnel and vehicles. For real-world accuracy, field research in California and Florida established that parallel parking space dimensions averaged 24 feet by 8 feet. The average distance between a car parked ahead of and behind an open parallel parking space was determined to be 26 feet.

Test Procedure:

- Four drivers each tested five vehicles.
- Each driver parked each vehicle five (5) times consecutively without park assist.
- Each driver parked each vehicle five (5) times consecutively with park assist.
- Elapsed time and parked vehicle position was measured after each parking maneuver.

Measurements:

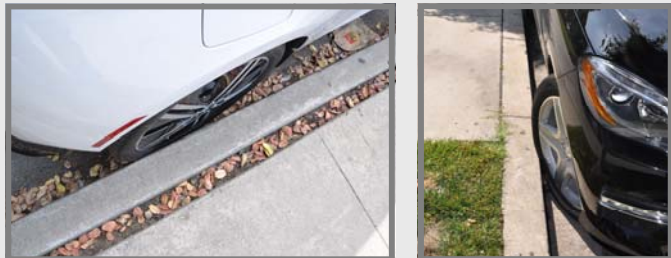
- Distance between front and rear bumpers of surrounding vehicles.
- Distance to curb from the centerline of the front and rear tires.
- Time to park measured from when the reverse lights illuminated to when the driver indicated the parking procedure was complete.
- Number of forward and backward maneuvers necessary to park.
- Number of curb strikes.



AAA RECOMMENDATIONS

- If living in an urban environment and/or faced with parallel parking on a regular basis, a vehicle with park assist technology can make parallel parking easier and less stressful.
- Studies have shown that many older drivers have difficulty parking and often rate parking, particularly parallel parking, as stressful. With benefits including reduced twisting of the upper body, older drivers should consider park assist technology on their next vehicle purchase along with other [Smart Features for Older Drivers](#).
- To prevent wheel and tire damage, automakers should consider increasing the distance a vehicle parks itself from a curb.
- Parallel parking is a skill that all drivers should master. While park assist technology is helpful, parallel parking skills can improve with practice.

CURB CHECK



All vehicles performed well during real-world testing and, in some cases, their performance exceeded expectations.

However, one observation noted throughout the testing process involved the exceedingly short distances observed between the vehicles' wheels and the curb. **Parking close to the curb may result in an increased chance of damage to the tire sidewall or wheel.**

According to AAA Driver Training, the ideal distance from the wheel to the curb should be six to eight inches. AAA's test vehicles positioned the wheel between one-half inch to three inches from the curb when using park assist.