

Differences between the Park Assist System that Volkswagen and Toyota implement along with an overview of their similarities. The Operational Specifications and Human Interface of the Volkswagen Passat Model is compared with that of the Toyota Prius Model.

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Submitted
February 24, 2017

Introduction

This document examines parking assist systems from two different automobile manufacturers and compares both their technical capabilities and their approaches to human interface. Specifically, the types of allowable parking spaces, the steering sequence, space dimensions required for parking, and the location and types of sensors of Volkswagen's Park Assist and Toyota's Intelligent Park Assist (IPA) are compared. Additionally, examining their initiation and operation process, method of displaying information to the operator, as well as the other methods of notifying the operator result in various similarities and differences¹.

In general, the park assist system is to facilitate the process of parking for various reasons. It is a solution to the problem of constricted parking spaces. This issue is of great significance in major cities of large populations where parking in small spaces cannot be avoided.

The park assist system is semi – autonomous. Both models employ the following protocol. A space is detected; the system controls the steering wheel of the car; the operator controls the pedals; the system instructs the operator when to change into the appropriate gear; and finally the system instructs the operator when to stop and park the car – when to put the car into the park gear and turn off the engine. Semi – autonomous is to describe the fact that the system does not do everything. It only controls only the steering. While in park assist mode, the system is disabled by either the driver handling the steering or pressing the brake down fully.

¹ See Summary and Discussion for the similarities and differences tabulated.

frequency as the car gets closer to the object. When collision appears to “imminent [2]”, that is, within 20 cm of the obstacle, the beeping becomes continuous.

Not only does the Prius adopt the beeping method for such cases (although the dimensions may be different,) it also uses it for every step during the steering sequence. That is, the beep is activated when a spot has been accepted; when the user is being instructed to stop; when the user changes gears; and when IPA has finished. It is substantially more numerous than the case of the Passat.

Summary and Discussion

TABLE 1
Table of Similarities and Differences between the Park Assist System of Volkswagen and Toyota

Operational Specifications				
	Location and type of Sensors	Steering Sequence	Space Dimensions	Types of allowable Parking
Volkswagen Passat	Ultrasonic Sensors in rear and front ³ bumper.	Park assist puts vehicle in optimal position for intended reverse path.	Determined by vehicle	Parallel
Toyota Prius	Sensors in both rear and front bumper. Type of sensor not known.	n/a	Determined by vehicle	Parallel, back - in, and exiting parallel
Human Interface				
	Operator Initiation and Operation	Display of Information	Audio Notification	
Volkswagen Passat	Driver shifts gears only	Visual of intended reverse path and proximity to objects. ⁴	Beeping to inform of proximity to objects	
Toyota Prius	Driver shifts gears and is involved in 'scanning' process	Visual displays instructions, path, and proximity to objects on dashboard	Beeping for every kind of information displayed as well as for proximity to objects	

³ Not all versions have sensors in the front.