



## AAA CENTER FOR DRIVING SAFETY & TECHNOLOGY



### 2017 JEEP COMPASS SPORT

### INFOTAINMENT SYSTEM\* DEMAND RATING

#### High Demand



The Jeep Compass Sport's Uconnect® Radio 230/REQ infotainment system received an overall high demand rating. Text messaging and audio entertainment processes required very high degrees of cognitive (mental) demand to complete tasks. The Jeep Compass' interface allowed drivers to complete most interactions, other than text messaging, quickly.

#### Standard and Optional Features in the 2017 Jeep Compass

○ Optional

● Standard

	Sport	TrailHawk	Latitude	Limited
Android Auto		●		●
Apple CarPlay		●		●
Mobile App Support		●	○	●
Text Messaging	●	●	○	●
Navigation		○	○	○
Touch Screen	●*	●	●	●
Gesture Control				
Heads-Up Display				
Voice Commands	●	●	●	●
Console Control				

\*Not available in earlier first quarter vehicles

### ABOUT THE STUDY

Researchers evaluated 30 new 2017 vehicles' infotainment systems\* to measure overall demand\*\* placed on a driver when using voice command, touch screen and other interactive technologies to make a call, send a text message, tune the radio or program navigation, all while driving down the road.

### STRENGTHS

- Center stack buttons are responsive and provide consistent feedback when pressed.
- Drivers can quickly make audio selections using either voice commands or the center stack.

### WEAKNESSES

- Using the text system, it took drivers on average 40 seconds\* to send a new message.
- Text messaging and audio entertainment processes result in very high degrees of cognitive (mental) demand.
- The voice system accepts only a strict set of commands, which are often misunderstood.

\* Infotainment System: Vehicle system that combines entertainment and information content

\*\*Overall demand measured: visual (eyes-off road), cognitive (mental), and time-on-task

\* Compared to a recommended maximum of 24 seconds

## VEHICLE OVERVIEW: CONTROLS AND DISPLAYS



VOICE COMMANDS



STEERING WHEEL COMMANDS



INSTRUMENT CLUSTER



CENTER STACK

# INFOTAINMENT SYSTEM

The Uconnect® Infotainment System offers the following features:

## CALLING AND DIALING



The Jeep Compass Sport's Uconnect® system is capable of calling contacts and dialing numbers via the voice command system. Calling and dialing functions are not supported through the center stack, though the voice command system is activated through it. While no calling and dialing functions are locked out while driving, pairing the phone is done exclusively through voice interaction while the vehicle is not in motion. Researchers<sup>^</sup> found pairing a phone via voice to be confusing and frustrating, as the system required users to complete a large number of steps before being able to access phone functions. We believe the cumbersome process will likely keep some drivers from pairing their phone for hands-free use.

On-road results found that, once a phone is paired, drivers experienced moderate demand when using voice commands to place phone calls. However, our researchers<sup>^</sup> expressed a number of design concerns. Notably, the voice system required users to stick to a narrow set of rigid voice commands. Furthermore, the function of the voice command button changes depending on the system state, potentially causing confusion. For example, during a single interaction, pressing the voice button may do one or more of the following: activate the voice system; cancel out of the voice interaction entirely; or return to the main menu.

When users adhere to the rigid command set for call placement, the system proves to be moderately demanding. This may be due in part to the quick processing time, comfortable speaking pace and the short list of available commands.

## TEXT MESSAGING



The Jeep Compass Sport's Uconnect® system allows users to send new messages as well as have incoming messages read aloud by use of the voice command system. In order to send a new message to a contact, drivers must press the phone button on the center stack and say the proper command to the voice system. The user is instructed to choose a message from 20 predefined messages that are read aloud one at a time and then interrupt at any time to select the desired message to send.

On-road data suggest that using the text messaging feature in the Jeep Compass was time-consuming and posed an overall very high demand on drivers. Researchers<sup>^</sup> found the text messaging process in the Compass frustrating, due to its complex menu structure and the overwhelming amount of auditory information offered.

Most noticeably, no task-relevant visual information, such as available commands or user input, is presented on the center stack display. While this may encourage drivers to keep their eyes on the road, as seen in the on-road data, it requires them to devote their attention to listening to the predefined messages listed one at a time, which presented a very high level of cognitive (mental) demand. It took our drivers an average of 40 seconds<sup>♦</sup> to send a new text message using this system.

Poor performance scores in our on-road testing suggest that the text message system provided in the Jeep Compass is overly complex and very highly demanding to use while driving. Researchers<sup>^</sup> do not recommend using this technology while driving.

<sup>^</sup>Researchers with expertise about how humans interact with technology evaluated the usability of the infotainment system in stationary vehicles.

<sup>♦</sup> Compared to a recommended maximum of 24 seconds



The Jeep Compass' audio entertainment system includes: AM, FM, and satellite radio; as well as media access for CDs; Bluetooth audio; and auxiliary audio. Drivers can change the audio selection with buttons in the center stack or the voice command system. Current audio information is displayed on the small, non-touch center stack digital display.

Interacting with the Jeep Compass' audio entertainment led to moderate demand on drivers in the study. When specifically using the center stack to select music, interactions were kept short but very high visual (eyes-off-road) and cognitive (mental) demand levels were imposed on drivers. While physical buttons provide haptic feedback when pressed, the large number of buttons and dials with nonconventional labeling on the center stack provided for a confusing experience.

Completing a task via voice commands took only an average of 14 seconds<sup>♦</sup> but required very high cognitive (mental) demand. Indeed, researchers<sup>^</sup> found the system to be non-intuitive. For a first-time user, the voice command process may be more challenging to use than the center stack due to the non-intuitive and system-specific voice commands required over several steps, combined with the low recognition accuracy of the system.

<sup>^</sup>Researchers with expertise about how humans interact with technology evaluated the usability of the infotainment system in stationary vehicles.

<sup>♦</sup> Compared to a recommended maximum of 24 seconds

## VEHICLE CONTROLS AND DISPLAYS

### VOICE COMMANDS



The Jeep Compass' infotainment system is equipped with a voice command system that drivers can activate and interact with by pressing the designated button in the center stack. The placement of the voice command button in the center stack is unusual in comparison to all other vehicles tested. Drivers can interact with the synthetic, female voice to pair a phone and access text messaging, audio entertainment and phone functions.

### INSTRUMENT CLUSTER



The Jeep Compass' instrument cluster, located behind the steering wheel, features four familiar gauges and two small digital displays for vehicle state information. The cluster display can be accessed via steering wheel buttons and one button protruding from the display.

### STEERING WHEEL CONTROLS



The steering wheel has six indented buttons, of which two on the left give access to the instrument cluster display. The other four buttons on the right give access to cruise control.

### CENTER STACK



The center stack has a non-touch-screen LCD display surrounded by 24 buttons and two dials. The center stack gives access to audio entertainment, as well as time of day and current audio selection. Below the audio buttons are three prominent dials and buttons used for climate control.

## VEHICLE SALES SUMMARY

The Jeep Compass is the 59th best-selling vehicle in the United States, with 94,061 vehicles sold in 2016<sup>1</sup>.

<sup>1</sup>Source: Automotive News at [autonews.com](http://autonews.com); Wall Street Journal at [wsj.com](http://wsj.com) – data updated to 2/25/2017.