



AAA CENTER FOR DRIVING SAFETY & TECHNOLOGY



2018 RAM 1500 LARAMIE

INFOTAINMENT SYSTEM* DEMAND RATING

Moderate Demand



The 2018 Ram 1500 Laramie's Uconnect® infotainment system* placed moderate demand on drivers in the study. Drivers can use either the voice system or center stack to quickly program audio entertainment or place calls. In contrast, sending text messages via voice generated very high levels of demand overall.

Standard and Optional Features in the 2018 Ram 1500

- Optional
- Standard

	Tradesman	Express	Rebel	Night	Laramie	Limited
Android Auto	○	○	●	●	●	●
Apple CarPlay	○	○	●	●	●	●
Mobile App Support						
Text Messaging	○	○	●	●	●	●
Navigation			○	○	○	●
Touch Screen	○	○	●	●	●	●
Gesture Control						
Heads-Up Display						
Voice Commands	○	○	●	●	●	●
Console Control						

ABOUT THE STUDY

Researchers evaluated 40 new 2017/2018 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, program audio entertainment or program navigation, all while driving down the road.

STRENGTHS

- When activated by the driver, the Do Not Disturb function automatically blocks all incoming calls and text messages while driving.
- The voice command system was consistent in accurately interpreting commands.

WEAKNESSES

- The center stack touch screen generated high cognitive (mental) demand when calling and dialing.
- Sending text messages to contacts subjected drivers to very high overall demand.
- Programming audio entertainment using the touch screen was a very highly demanding task likely due to its small buttons and menus dense with informational text.

* Infotainment System: Vehicle system that combines entertainment and information content.
 ** Overall demand measured: visual (eyes-off road), cognitive (mental) and time-on-task.

VEHICLE OVERVIEW: CONTROLS AND DISPLAYS



VOICE COMMANDS



STEERING WHEEL COMMANDS



INSTRUMENT CLUSTER



CENTER STACK

INFOTAINMENT SYSTEM

The Uconnect® In-Vehicle Infotainment System* offers the following features:

CALLING AND DIALING



The Uconnect® system in the Ram 1500 offers access to phone functions using the center stack touch screen and voice command system. Both methods can be used to call contacts, access favorites and dial numbers while the vehicle is in motion. The phone button on the steering wheel can be used to answer and hang up phone calls. If there is no device connected when users attempt to interact with the phone menu, the system will display a help message on the screen and guide users through the pairing process. However, the vehicle must be parked to pair a Bluetooth device. Multiple phones can be paired simultaneously and can be used for different functions. For example, if two phones are paired, one could be used for placing calls while another could be used for playing music. Users can opt to have all incoming phone calls and text messages blocked with a Do Not Disturb feature activated from within the phone menu.

Drivers engaged with phone functions experienced moderate overall demand. However, using the voice command system imposed high cognitive (mental) demand. The phone and voice command buttons on the steering wheel can both be used to activate the voice command system. Once either button is pressed, the user is cued by a single, short beep to give a command. The system provides a list of menu-specific commands, which is shown on the center stack display for additional help. System output is displayed in tiny bright green, yellow or red text, and disappears quickly before the voice interaction is over. Researchers‡ noted this may leave drivers unsure of the system's interpretation of voice commands. However, the system vocalizes its response, either the phone number or contact name, at a normal pace. This process can be bypassed by pressing either of the voice activation buttons on the steering wheel.

The center stack phone menu placed high overall demand on drivers for an average of 17 seconds[§] per interaction. Researchers‡ found drivers were unable to keep their visual (eyes-off-road) attention on the road while interacting with the touch screen and were subjected to high cognitive demand. Additionally, researchers‡ noted the phone menu was overcrowded with icons, labels and a surplus of options, leading to very high visual demand. The dial pad and full contacts list were not locked out while driving. A skip feature allows users to quickly jump to a letter of the alphabet to reduce the amount of time needed to scroll through options.

TEXT MESSAGING



The Uconnect® system provides limited text message functionality via the touch screen and full functionality via the voice command system. While the vehicle is in motion, users can begin the messaging process via the touch screen but must switch to voice commands to complete the task. Messages in the inbox can be selected by the driver to be read aloud via the voice system with no further functionality available via the center stack.

The voice system allows drivers to send pre-programmed messages to phone numbers or contacts. A list of 18 pre-programmed messages is always available for selection. However, a Uconnect® subscription is required for drivers to send free voice-dictated messages.

Sending text messages to contacts subjected drivers to very high overall demand and high cognitive demand for an average of 38 seconds[§]. The system only accepts commands in a specific format, and drivers must either remember which pre-programmed texts are available or listen to each individual option as they are read aloud by the system. Users are instructed to interrupt the system upon hearing the desired message, but researchers‡ noted the long list is read aloud quickly and without noticeable pauses between options. However, the system provides assistance when commands are given using inexact verbiage by suggesting one of the pre-programmed messages most similar to the given command.

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

[§] Compared to a recommended maximum of 24 seconds.

‡ Researchers with expertise about how humans interact with technology evaluated the usability of the infotainment system in stationary vehicles.

AUDIO ENTERTAINMENT



The system hosts AM, FM and XM radio; Bluetooth audio; and ports for auxiliary and two USB connections. Users can access all audio sources via the steering wheel controls, touch screen or voice command interface.

Programming audio entertainment demonstrated an overall moderate demand on drivers whether accessed via the center stack or voice commands. Drivers were able to promptly adjust audio using voice commands, taking an average of 18 seconds[◊], while keeping their visual attention on the road. The voice system quickly processes a wide range of audio-related commands with high accuracy and provides on-screen examples of commands for novice users. Using voice-commands generated very high levels of cognitive demand, which researchers[‡] noted was likely due to the highly specific commands required to select music from a USB source.

Researchers[‡] remarked that the touch screen showed superior performance in terms of task time, requiring only 13 seconds[◊] on average. However, very high levels of visual and cognitive demand were demonstrated while doing so.

All audio sources are not housed within the same menu structure, separating radio functions from other connected media. Researchers[‡] found that each menu looks similar, with available sources within the larger category located on the left side and current audio selection displayed in the center of the screen. They also noted that small buttons line the outer edges of the menus, making them difficult to press. Researchers[‡] remarked that some aspects of this feature assist users in making audio selections — the simple and familiar structure of the menus, the presence of favorite stations along the top of the screen and the capability to directly tune to a desired station.

VEHICLE CONTROLS AND DISPLAYS

VOICE COMMANDS



The 2018 Ram 1500 comes equipped with a voice command system that allows drivers to access audio entertainment, call contacts and dial numbers, send pre-programmed text messages, and change the climate temperature in the cab. The voice command system is initiated by two multifunctional activation buttons on the steering wheel.

Upon activation, a short beep indicates the system is listening and ready for a command. Users can interact with the system using a one-shot style command or a multistep interaction. A variety of voice commands are accepted by the Uconnect[®] system, and context-dependent command examples are displayed on the touch screen. The system uses a natural-sounding female voice and voice response length is customizable; users can choose between brief or detailed responses.

INSTRUMENT CLUSTER



The instrument cluster located behind the steering wheel features a 7-inch LCD display, which drivers can control using buttons located on the right side of the steering wheel. Surrounding the screen are standard gauges including battery, tachometer, engine temperature, oil temperature, analog speedometer and fuel. The small LCD screen within the tachometer houses all of the instrument cluster menus including a digital speedometer, vehicle information, fuel economy, trip information audio, stored messages and screen setup, which the user can navigate using a direction pad on the left side of the screen.

[◊] Compared to a recommended maximum of 24 seconds.

[‡] Researchers with expertise about how humans interact with technology evaluated the usability of the infotainment system in stationary vehicles.

STEERING WHEEL CONTROLS



The 2018 Ram 1500 uses six buttons on either side of the front of the steering wheel that provide access to voice commands, phone voice commands, instrument cluster functions, audio entertainment and cruise control. Each side also has hidden up/down rocking buttons with a central button located behind the steering wheel. Buttons on the right adjust volume and change the audio source, those on the left are used for seeking and the central button cycles through presets.

CENTER STACK



The center stack is equipped with a highly responsive 8.5-inch, full-color touch screen. The system is structured without a traditional home screen. However, a fixed menu ribbon at the bottom of the display provides access to radio, media, climate control, apps, phone, settings and other controls (steering wheel, seat heating and ventilation, and the auto-dimming mirror). Color schemes and display settings are customizable, though targets in the menu ribbon are not.

Manual buttons located directly below the center stack display facilitate users' interactions with the screen. Users can scroll through menus and make selections, using the tuning knob on the right side as a scrolling wheel in conjunction with the adjacent back button. The volume knob on the right side also allows users to mute or power down audio sources, and the touch screen can be turned off completely with the button located to the right of the volume knob.

Dual climate-control functions for driver and passenger seats can be adjusted via the touch screen. Manual climate controls are also available on the center stack. A central knob regulates fan speed and houses the default climate control and off settings. A/C and air recycle controls and two color-coded buttons used to adjust driver temperature are located to the left of the central knob. Passenger temperature controls, as well as front and rear defrost, are located on the right. A detached collection of buttons low on the center stack activate the heated steering wheel and the seat coolers and heaters. Although the manual interface is symmetrical and uncluttered, the lower buttons are difficult to reach.

VEHICLE SALES SUMMARY

The 2018 Ram pickup is the third bestselling vehicle in the United States, with 500,723 sold during 2017.^s