



**DETROIT**  
ASSURANCE

# **DETROIT ASSURANCE® SUITE OF SAFETY SYSTEMS**

DETROIT ASSURANCE® 5.0



# The Detroit Assurance suite of safety systems delivers exceptional control, protection, and driver experience.



*Detroit Assurance radar reports the distance, velocity, width, lateral offset, type, and confidence level of the top six priority vehicles in the truck's path.*

Through radar and a proprietary high-definition camera system, Detroit Assurance 5.0 provides optimum on-road safety, integrating seamlessly into the Freightliner® new Cascadia® equipped with a Detroit® powertrain.

Using fused technology, the bumper-mounted radar and the windshield-mounted HD camera communicate with the ABS brakes, engine, and transmission in real time.

The system tracks up to 40 objects at once and identifies the top six by level of threat while refreshing 200 times per second.

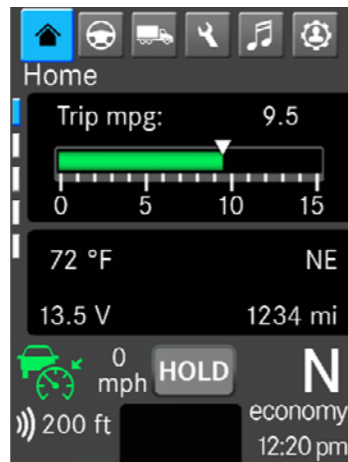
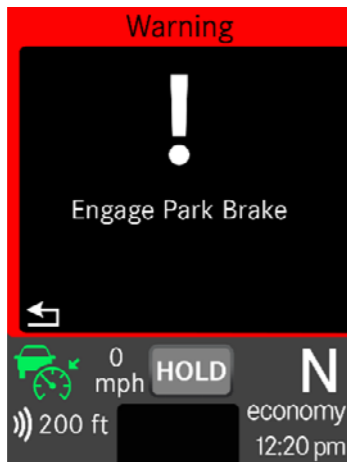
Detroit Assurance 5.0 offers unprecedented safety features for advanced on-road protection.



# Brake Hold Mode

## What Does It Do?

- Driver comfort function that holds the brakes indefinitely after activation for easier navigation of heavy traffic and prolonged stop lights.
- After the truck comes to a stop, the driver presses the brake pedal further and then releases it, in order to activate Brake Hold Mode.
- A visual sign is being displayed in the dash that Brake Hold Mode is active.
- In order for the truck to start moving again, the driver tabs on the accelerator or presses the brake pedal.
- If a driver stays in Brake Hold Mode for too long, a visual and audible warning gets issued for the driver to engage park brakes.
- If a driver gets up and leaves the truck while Brake Hold Mode is engaged without parking brakes activated, the horn sounds.



# Brake Hold Mode



## Why Did We Develop It?

- This driver comfort feature alleviates the strain of navigating a truck in crowded stop and go traffic, city traffic with prolonged stops at traffic lights, busy weigh stations, etc.
- Drivers who are less fatigued are more alert and safer drivers.

## Why Do You Need It?

- Driver fatigue is the number one cause for truck involved accidents, Brake Hold Mode can lessen driving strain to a certain degree
- Driver's comfort level can be a substantial part of job satisfaction and result in driver retention.



## Summary

- Brake Hold Mode holds a truck's brakes indefinitely upon activation, easing strain on a driver's leg during prolonged stops.
- Standard feature, no up charge.

# THE CASCADIA 116

POWERED BY THE DETROIT DIESEL DD13





## Active Brake Assist

Active Brake Assist 5.0 (ABA 5.0) is always on, detecting the distances to objects ahead in its path, calculating speed, and determining if a warning or braking action is necessary. In addition, ABA 5.0 features full braking on stationary and moving objects. The camera and radar signals are fused together for greater object recognition, which allows for enhanced braking capabilities.

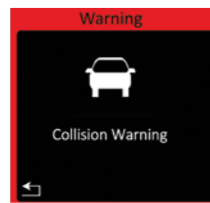
### How Active Brake Assist Works

#### ABA 5.0 Dash Displays



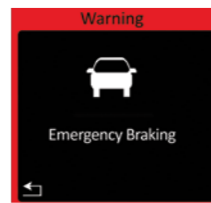
#### 1. INITIAL WARNING/ NO BRAKING

The driver receives a simultaneous visual dash alert and pulsating warning tone.



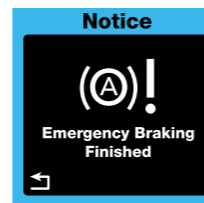
#### 2. WARNING/ PARTIAL BRAKING

If the driver does not respond to the visual/audio warning, the system will trigger a visual dash alert with solid warning tone and simultaneously initiate partial braking.



#### 3. WARNING/ FULL BRAKING

If there is still no driver input, the system will trigger a visual dash alert, solid warning tone, and engage in full braking.



#### 4. ABA FULL BRAKING EVENT FINISHED, BRAKES ON HOLD

At this point, the full braking event is finished, with the truck at a complete stop and the brakes being held.



### Full Braking on Moving Pedestrian

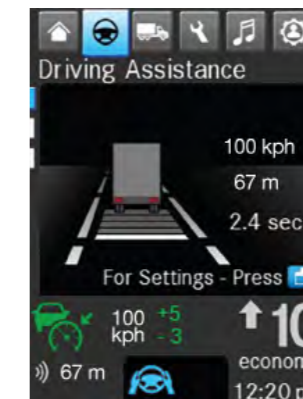
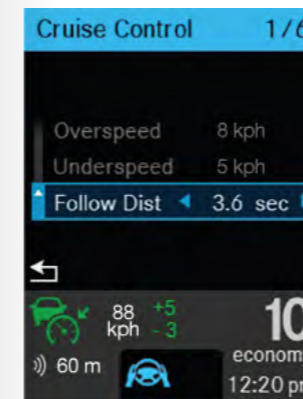
When the signal from the radar and camera system detects a moving pedestrian who is about to cross the truck's path, an audible and visual warning occurs with simultaneous partial braking, followed by full braking if the driver does not react.



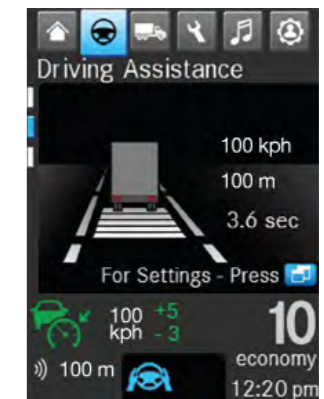
## Adaptive Cruise Control (ACC) to 0 kph

ACC automatically adjusts your truck's cruising speed to maintain a safe following distance—3.6 seconds by default on the new Cascadia—from other vehicles in its path, allowing the truck to remain in cruise control longer. The following distance can be optionally adjusted between 2.4 and 3.6 seconds within the interactive dash display.

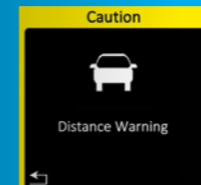
ACC now works in stop-and-go traffic. If the vehicle in front comes to a stop, the new Cascadia will also come to a full stop—0 kph—and hold indefinitely. If the vehicle in front starts to move within two seconds of coming to a stop, then the truck will resume moving at a safe following distance. If the complete stop is longer than two seconds, then the driver must push the throttle or press set/resume. ACC to 0 kph helps reduce driver fatigue, which improves the overall driver experience.



2.4 Following Distance



3.6 Following Distance



### Tailgate Warning

Independent of the ABA and ACC features, Tailgate Warning will activate according to a truck's speed and the following distance. If a driver remains at the following distances for 10 seconds or longer, a visual dash alert will get triggered:

- At speeds greater than 72 kilometres per hour, following within 2.7 seconds
- At speeds between 56 and 72 kilometres per hour, following between 1.8 and 2.7 seconds
- At speeds between 40 and 56 kilometres per hour, following at 1.8 seconds or less

Once activated, the Tailgate Warning will deactivate only at speeds of less than 40 kilometres per hour. By remaining in any Tailgate Warning mode for 10 seconds or longer, the event will become reportable via J1939 to the selected telematics system.

## Lane Assist Features



### Lane Departure Warning (LDW)

This feature auto-enables once speed exceeds 60kph. The camera system detects the reflective paint and raised reflectors in lane markers. If the truck crosses those markers without the driver using a turn signal, a Lane Departure Warning (LDW, now standard with Detroit Assurance 5.0) will be issued first. An audible warning is sent through the corresponding speaker on the side of the truck that crosses the lane marker, along with a visual warning on the instrument panel.



Lane Departure Warning off switch can disengage LDW.



### Side Guard Assist (SGA)

Side Guard Assist (SGA) detects objects in the truck's blind spot and warns the driver not to change into an occupied lane or make a left turn that would cause the truck to contact an object or person.



## Additional Features with Detroit Assurance 5.0

### Automatic Wipers/Headlamps

The new Cascadia comes equipped with a Rain/Light Sensor that detects precipitation on the windshield and low-light situations. When wiper controls are set to auto position and it starts to rain or snow, the sensor will automatically turn the wipers on. Once the precipitation stops, the sensor will turn the wipers off. When the headlight switch is in "auto" position, the Rain/Light Sensor detects low light and the headlights will automatically turn on. When lighting conditions improve, the headlights will automatically turn off.



### Intelligent High-Beam

When the driver sets the headlight switch to auto high-beam, the Detroit Assurance camera technology automatically switches to low-beams when it detects the headlights or tail lights of another vehicle, as well as city lights. Once the vehicle or city lights are out of sight, the high-beams automatically come back on.



**NOTICE:** The Detroit Assurance suite of safety systems is intended as an aid for an alert and conscientious professional driver. It should not be relied upon to operate the vehicle and is not a substitute for safe, normal driving procedures, nor will it compensate for driver impairment, such as drugs, alcohol, or fatigue. The Detroit Assurance suite of safety systems may not work as intended under all conditions, and may be affected by weather, road, and traffic conditions. Failure to drive safely and use the systems properly could result in personal injury and/or death and severe property damage. Please consult the Drivers' Manual for the vehicle for additional limitations and details.

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