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DRIVING SUPPORT

Driving Support is a collective term for the various systems that are available to assist and support the driver. The systems use both radar and camera to collect information.

Sales variants

Side Collision Avoidance Support

LCS2	Side Collision Avoidance Support, passenger side
LCS4	Side Collision Avoidance Support, both sides
LCS3	Active Side Collision Avoidance Support, passenger side, with emergency braking
LCS5	Active Side Collision Avoidance Support, both sides, with emergency braking (active for passenger side only)

Driver Alert Support

DAS-W	Driver Alert Support
DAS-W2	Driver Alert Support

Lane Support System

LSS-DW	Lane Keeping Support
LSS-DWC	Lane Keeping Assist
LSS-DW3	Pilot Assist, active continuous lane keeping

Headway support system

HWSS-FCB	Forward Collision Warning with Emergency Brake
HWSS-ACB	Adaptive cruise control with forward collision warning with Emergency Brake

SAFETY

- Improves safety in both city and motorway driving.
- An alert sound and a pop-up in the instrument display will prompt the driver to refocus when driver distraction is detected.
- Detects vulnerable road users.
- Designed to reduce risk of accidents and collisions.
- Fulfils UN/ECE requirements.

DRIVER APPEAL

- Easy and logical to handle.
- Audio and visual collision warning.

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Overview of features

	LCS2	LCS4	LCS3	LCS5
Monitors area on passenger side	●	●	●	●
Monitors area on driver side	—	●	—	●
Detects vulnerable road users	●	●	●	●
Emergency Braking (passenger side)	—	—	●	●
Rated by Euro NCAP	—	—	●	●
Activation speed	0 km/h	0 km/h	0 km/h	0 km/h

● Included, — Not available.

	DAS-W[1]	DAS-W2[1]
Monitors driving behaviour	●	●
Monitors driving behaviour with camera	—	●
Rated by Euro NCAP	●	—
Activation speed	65 km/h	18 km/h

● Included, — Not available.

[1] Requires HWSS-FCB/HWSS-ACB or LSS-DW/LSS-DWC.

	LSS-DW	LSS-DWC[2]	LSS-DW3[2]
Monitors deviation from driving lane	●	●	●
Corrective Steering Support	—	●	●
Continuous Steering Support	—	—	●
Rated by Euro NCAP	—	●	—
Activation speed	60 km/h	55 km/h	5 km/h

● Included, — Not available.

[2] Requires Volvo Dynamic Steering (ACTST-TO)

	HWSS-FCB	HWSS-ACB
Forward Collision Warning	●	●
Distance Alert	●	●
Emergency Braking	●	●
Adaptive Cruise Control	—	●
Auto Go	—	●
Road sign recognition	●*	●*
Rated by Euro NCAP	—	●

● Included, — Not available.

*** Requires any of the LSS-systems.**

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DRIVING SUPPORT

Side Collision Avoidance Support

There are two versions of **Side Collision Avoidance Support** (LCS2, LCS4), and two versions of **Active Side Collision Avoidance Support** (LCS3, LCS5) that assist the driver in preventing blind spot accidents with vulnerable road users when turning. These systems are part of Volvo' s wide range of safety-enhancing offers and it complies with the EU General Safety Regulation as well as applicable UN regulations such as R151.

LCS3 and LCS5 come with the additional Emergency Braking feature. When the truck is making a turn with the turn indicator on, and a vulnerable road user is detected and the driver does not break, the system will automatically activate Emergency Braking to avoid an accident.

Note that this feature only applies to objects detected on the passenger side even for LCS5.

If a truck that is built for right-hand traffic enters a country with left-hand traffic, the Emergency Braking feature is automatically adjusted so that it monitors the new kerbside* of the truck.

Side Collision Avoidance Support uses radar technology to monitor the area close to the vehicle, on the passenger side (LCS2, LCS3) or on both sides (LCS4, LCS5). This is a highly sensitive radar-based system. Therefore, it is important not to install equipment above or near the radar sensor or its coverage area, as this may affect the system's performance. Carefully follow the Volvo Body Building Instructions (VBI), chapter General.

*** The kerbside is the side closest to the pavement when parked. In countries with right-hand traffic, the kerbside is on the right side of the truck, while in countries with left-hand traffic, it is on the left side.**

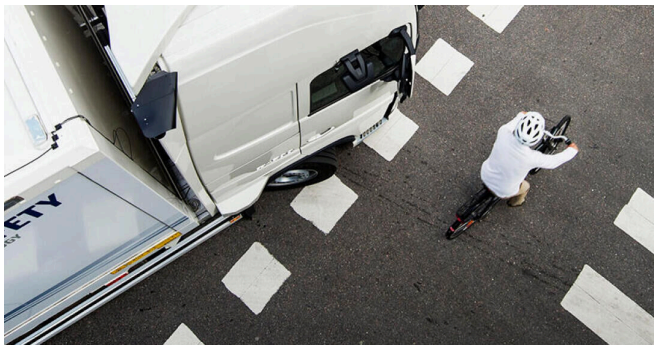
The Side Collision Avoidance Support system is a highly sensitive radar-based system. Therefore, it is important not to install equipment above or near the radar sensor or its coverage area, as this may affect the system's performance. Carefully follow the Volvo Body Building Instructions (VBI), chapter General.

The system monitors the area close to the vehicle along the full truck combination length. In this area, the system can detect both other vehicles and vulnerable road users (cyclists, pedestrians etc.).

LCS2 and LCS4 have two levels of alerting the driver – **Information** and **Warning**.

LCS3 and LCS5 have an additional feature in Emergency Braking of the vehicle, activated when the indicator towards the passenger side is turned on. This emergency braking function is active up to 20 km/h.

Note that LCS2 and LCS3 only monitor the passenger side of the vehicle.



Side Collision Avoidance Support monitors the area close to the vehicle and can detect vulnerable road users.

LCS4/LCS5 is also equipped with a Door Opening Warning System. This function alerts the driver when the door is opened and an object is approaching from behind in the monitored area. The system is active a few minutes after the engine shutdown.

The system can be disabled by a switch (if the truck is specified with a switch) on the dashboard. The disabled status is then shown on the switch and in the instrument cluster.

You can find full explanations of the system's capacities in Driver Guide.

A static light in the rear-view mirror informs the driver that an object is detected on the side of the vehicle.

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DRIVING SUPPORT

Front Short Range Assist

LCS4 and LCS5, in combination with HWSS-FBC, or HWSS-ACB also includes Front Short Range Assist.

This is a system that meets the GSR 2025 legal demands. It detects, informs and warns the driver of the presence of vulnerable road users in the blind spot in front of the vehicle.

The head-up display indicates:

- Information: Amber with a constant light.
- Warning: Red with a flashing light and sound.

Driver Alert Support

Driver Alert Support (DAS-W or DAS-W2) is a system designed to prevent accidents caused by tired or distracted drivers.

The system monitors driving behaviour and the position of the truck in relation to the lane and the roadside. It detects the typical characteristics of a drowsy or distracted driver. If erratic behaviour is detected, the system will warn the driver through visual and auditory messages to focus on driving. The sound system is automatically muted when these warnings are presented.

Driver Alert Support improves active safety by reducing the risk of accidents caused by driver inattention/distraction.

Driver Alert Support (DAS-W or DAS-W2) is a system designed to prevent accidents caused by tired or distracted drivers.

The system monitors driving behaviour and the position of the truck in relation to the lane and the roadside. It detects the typical characteristics of a drowsy or distracted driver. If erratic behaviour is detected, the system will warn the driver through visual and auditory messages to focus on driving. The sound system is automatically muted when these warnings are presented.

The DAS-W2 includes all the functions of DAS-W, plus it uses a camera that has driver eye tracking to detect drowsiness and driver distractions.

No driver behaviour will be recorded in the vehicle or sent to the back office. Deviation messages will be logged in the safety report, but no video footage will be captured by the camera.

The system is switched on automatically when the ignition is turned on. For DAS-W, it is active at speeds above 65 km/h, while the DAS-W2 is active at speeds exceeding 18 km/h.

This feature requires HWSS-FCB/HWSS-ACB or LSS-DW/LSS-DWC/LSS-DW3 since DAS-W and DAS-W2 use the same components for reading reference data (lane and roadside).

DAS-W and DAS-W2 can be turned off using a switch (if the truck is specified with a switch) on the dashboard, which disables all Driving Monitoring System functions, not just the camera. The disabled status is then shown on the switch and in the instrument cluster.

Lane Keeping Support

The Lane Keeping Support system (LSS-DW) is a driving support system designed to alert the driver during unintentional lane departure. It also alerts where unintentional deviations from the lane departure can result in accidents.

This system uses a camera positioned in the upper centre area of the windscreen and alerts the driver with an acoustic signal from the speakers. It operates at speeds from 60 km/h and can be activated/deactivated with a switch in the instrument panel. It is activated automatically when the truck is started.

The function is not available on narrow roads. The minimum lane width is approximately 2.8 m.

Lane Keeping Assist

The Lane Keeping Assist system (LSS-DWC), together with Volvo Dynamic Steering (ACTST-STO), guides the vehicle back in lane when it detects that the truck deviates from the driving line. This system both alerts and provides automatic steering assistance and it will not alert or assist in steering when the corresponding direction indicator is activated and the lane is empty.

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The Lane Keeping Assist uses a front-facing camera to track the lane markers. When the truck is on its way to cross the line, the system supports the driver with a gentle Steering to come back to the middle of the lane again.

If the vehicle is equipped with Side Collision Avoidance Support, the system will detect nearby vehicles and provide guidance even when the direction indicator is activated. If the driver attempts to change lanes while using the direction indicator, and the system detects a vehicle in the designated lane, it will automatically steer the truck back to its original lane, regardless of the activated direction indicator.

The system is activated in speeds above 55 km/h.

The system can be disabled by a switch (if the truck is specified with a switch) on the dashboard. The disabled status is then shown on the switch and in the instrument cluster.

The functions in Lane Keeping Assist are handled with a switch in the instrument panel.

Note! The system is not aware of weather conditions and friction of the road surface.

The Lane Keeping function is not available on narrow roads. The minimum lane width is approximately 2.8 m.

Volvo Dynamic Steering (ACTST-TO) is required for Lane Keeping Assist (LSS-DWC).

Pilot Assist System

The Pilot Assist system (LSS-DW3), besides the functions in LSS-DWC, continuously guides the vehicle to keep its position in the lane.

When the system detects a small deviation from the driving line, it gently corrects the course to keep the vehicle steady in the lane.

In order to function, The Pilot Assist System requires a hand on the steering wheel. This means it is not equivalent to an autonomous driving system. In order to activate the Pilot Assist, the seat belt must be used. If the seat belt is released during driving, the Pilot Assist will be deactivated.

The Pilot Assist can be activated as soon as the vehicle is above 8 km/h. And it can be resumed at lower speeds.

Note! The system is not aware of the weather conditions and the friction of the road surface.

The lane keep functions is not available on narrow roads. The minimum lane width is approximately 2.8 m.

Volvo Dynamic Steering (ACTST-TO) is required for Pilot Assist (LSS-DW3).

Safe Assisted Stop

After 15 seconds, if there are no hands detected, the driver will get a first warning. After 30 seconds, another warning but this time with a sound. If the truck still doesn't detect the driver steering, it will perform a controlled braking to standstill, activate parking brake, turn on warning lights and unlock doors.

For trucks that do not have LSS-DW3 (Pilot Assist) but are equipped with DAS-W2 (Updated Driver Alert System) and VDS, the truck will monitor if the driver closes their eyes for more than 5 seconds. If so, the truck will warn the driver and perform a controlled braking to standstill, activate the parking

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brake, turn on warning lights and unlock doors.

Headway Support System

Forward Collision Warning

(Included in HWSS-FCB and HWSS-ACB)

The Forward Collision Warning (FCW) system is designed to alert the driver if there is a risk for a potential collision with a vehicle or other road user ahead (bicyclists or pedestrians). A first warning is given when the distance to the vehicle or road user ahead decreases and the system detects a certain risk of collision. This pre-warning is indicated by a constant red LED light reflected on the windscreen.

Forward Collision Warning with a red light signal reflected in the windscreen.

If the risk of collision is not addressed by the driver, the second stage is engaged with a flashing light and an additional acoustic signal.

The FCW system is activated each time the vehicle is started and is active at speeds above 5 km/h. The system can be manually switched off using the switch on the instrument panel.

Distance Alert

(Included in HWSS-FCB and HWSS-ACB)

The Distance Alert part of FCW makes it easier for truck drivers to keep a safe distance to the vehicle ahead and avoid critical situations. Distance Alert warns drivers with a red light in the windscreen as soon as the truck gets too close to the vehicle ahead.

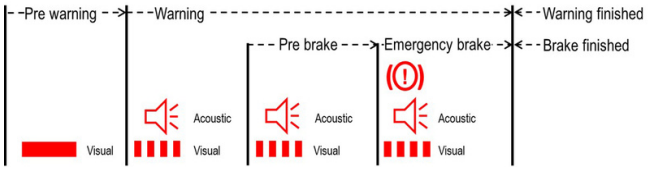
The function is intended for use on major roads outside cities and is active at speeds over 60 km/h.

When adaptive cruise control is active, the Distance Alert will be inactive.

Emergency Braking

(Included in HWSS-FCB and HWSS-ACB)

The Emergency Braking system adds an extra layer of safety to the FCW system. If immediate action is not taken when the FCW system warns and the system considers the risk of a collision to be imminent, the vehicle brakes are applied automatically together with the flashing light and the acoustic signal from the FCW.



The different steps of the Forward Collision Warning with Emergency Brake. In certain situations, the system may skip steps of the process to respond to the criticality of the situation. The pre-warning is available above 30 km/h.

The Emergency Braking system is activated each time the vehicle is started and is available at speeds above 10 km/h. It is highly recommended to only switch this system off when having front-mounted accessories that can interfere with the system, e.g. a snow plough.

The Emergency Braking system is designed to handle more and significantly tougher situations than the UN/ECE requirements for 2028, including, in certain circumstances, braking from 80 km/h to a standstill to prevent collision with stationary vehicles.

The system can be disabled by a switch (if the truck is specified with a switch) on the dashboard. The disabled status is then shown on the switch and in the instrument cluster.

Note! Several factors can reduce the performance of the Forward Collision Warning with Emergency brake systems. It is the driver's responsibility to drive safely and always remain in control of the vehicle. It is a complementary tool and not a substitute for maintaining a safe travelling distance from the vehicle in front.

Adaptive cruise control including stop and go function

Adaptive Cruise Control (ACC) is a driver support system that helps you maintain a safe distance from the vehicle ahead by automatically adjusting your speed. The system accelerates and brakes as needed to keep the selected distance. To activate either ACC or standard Cruise Control, your seat belt must be fastened. If you release the seat belt while driving, the system will automatically deactivate for your safety.

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ACC responds only to moving vehicles in front of your truck and uses partial braking power, which means its ability to slow down the vehicle is limited. When driving in hilly conditions, ACC may adjust the time gap to the vehicle ahead to optimise energy use.

Adaptive Cruise Control adapts and maintains the selected distance to the vehicle ahead.

The Stop and Go function is especially useful in slow-moving traffic. It allows your truck to come to a complete stop at least 5 metres behind the vehicle in front. If traffic starts moving again within two seconds, the truck will automatically resume driving. However, if the stop lasts longer than two seconds, you will need to reactivate the system by pressing the resume button or the accelerator pedal.

See the **Cruise Control Fact sheet** for more information on ACC cruise behaviour.

Euro NCAP

The European New Car Assessment program (Euro NCAP) is consistently evaluating safety features of new cars, and from 2024 Euro NCAP started evaluating heavy trucks. With the Vision Zero in aim, Volvo Trucks is always trying to be on the cutting edge of road safety for truck drivers and other road users.

Certain of the features mentioned in this fact sheet are included in the Euro NCAP protocols, and are marked as such in the tables.

Deactivation of support systems

To be able to disable these systems, some additional sales variants are needed. The truck then comes with a switch on the dashboard.

The disabled status is then shown on the switch and in the instrument cluster.

Sales variants

LCSDE	Possible to disable LCS
LCSDE-U	Not possible to disable LCS
DASDE	Possible to disable DAS-W
DASDE-U	Not possible to disable DAS-W
LSSDE	Possible to disable LSS
LSSDE-U	Not possible to disable LSS
HWSSD	Possible to disable HWSS
HWSSD-U	Not possible to disable HWSS

Road sign recognition

Road sign recognition systems are a little different depending on where the truck is used. Intelligent Speed Assist (ISA) uses traffic signs or map data, depending on whether the General Safety Regulation (GSR) is valid or not in the region.

Volvo Trucks offers two versions of road sign recognition in order to meet customers demand. Both versions have the same functionality with the exception that TSRS2 can be permanently switched off.

Sales variants

TSRS	Road sign recognition (GSR compliant, cannot be permanently disabled)
TSRS2	Road sign recognition (Not GSR compliant, can be permanently disabled)