



Bendix® Wingman® Advanced™ – A Collision Mitigation Technology Questions & Answers

Please note: This document is designed to assist you in understanding select aspects of the Bendix® Wingman® Advanced™ system, not to serve as a performance guarantee. No system will prevent 100% of the incidents you may experience. Not all aspects of the system are referenced in this document. This information is subject to change without notice. Please refer to the Bendix Service Data Sheet SD-13-3334 or the Bendix Wingman Advanced “Operator’s Manual” for additional information about the system. No commercial vehicle safety technology replaces the most important safety components of all – a skilled, alert professional driver exercising safe driving habits, as well as continuous, comprehensive driver training.

1. What is the Bendix® Wingman® Advanced™ system and how does it operate?

Bendix® Wingman® Advanced™ delivers both adaptive cruise control with braking features along with collision mitigation technology.

The *adaptive cruise control with braking* feature of Bendix Wingman Advanced can help drivers maintain a set following distance behind a vehicle when vehicle cruise control is on and set. The system delivers active interventions including braking, if necessary to help the driver keep their distance.

The *collision mitigation technology* adds additional braking power that may help drivers mitigate a potential rear-end collision by warning the driver first, then applying brakes if necessary when a forward collision is likely to happen. ***The collision mitigation feature of Bendix Wingman Advanced is always available – whether or not vehicle cruise control is on and set.***

Along with these active interventions, Bendix Wingman Advanced delivers driver alerts that let the driver know when they may be getting too close to the vehicle in front of them. Plus, the system can provide stationary object alerts, which let the driver know of potential metallic objects – such as stalled cars – in their lane of travel. Both alerts are always available, whether cruise control is engaged or not. Finally, the system is built upon the Bendix® ESP® full stability system to help the driver address potential rollover and loss-of-control situations in a variety of weather and road situations.

While Bendix Wingman Advanced is designed to help drivers in these situations, it does not replace the need for alert, responsible drivers practicing safe driving habits, along with supportive driver training.

2. What are the differences between Bendix Wingman Advanced and Bendix® Wingman® ACB – Active Cruise with Braking?

The key difference between the Bendix Wingman Advanced system and Bendix Wingman ACB - Active Cruise with Braking – is the collision mitigation technology.

As compared to Bendix Wingman ACB - Active Cruise with Braking, the Bendix Wingman Advanced system offers collision mitigation technology that adds additional braking power that may help drivers mitigate a potential rear-end collision by warning the driver first, then applying brakes – if necessary – when a forward collision is likely to happen.

Both systems are built on Bendix® ESP® – full stability technology which helps drivers mitigate rollover and loss-of-control situations. Both systems – Bendix® Wingman® ACB and Bendix® Wingman® Advanced™ will apply the brakes to help drivers maintain a set following distance behind a forward vehicle when cruise control is on and speed is set. They deliver alerts, such as following distance, impact, and stationary object notifications.

The table below outlines the key feature differences between the various Bendix systems:

System Comparison

| Feature | Bendix® Wingman® Advanced™ | Bendix® Wingman® ACB | Bendix® VORAD® SmartCruise® |
|--|----------------------------|----------------------|-----------------------------|
| Alerts <i>(are always available whether cruise control is engaged or not)</i> | | | |
| • <i>Following Distance Alerts</i> – Audible and visual alerts which lets driver know when getting too close to forward vehicle | ✓ | ✓ | ✓ |
| • <i>Impact Alert</i> – Audible and visual alert warning the driver that a collision with the forward vehicle is likely and that they should address the situation immediately | ✓ | ✓ | ✓ |
| • <i>Stationary Object Alerts</i> – Audible and visual alert that provides driver up to 3.0 second alert when a metallic object(s) may be blocking lane of travel | ✓ | ✓ | ✓ |
| Adaptive Cruise Control with braking <i>(functions when cruise control is on and speed is set)</i> | | | |
| • Reduces throttle to help the driver maintain a set following distance behind a forward vehicle | ✓ | ✓ | ✓ |
| • Engages engine retarder to help the driver maintain a set following distance behind a forward vehicle | ✓ | ✓ | ✓ |
| • Applies foundation brakes to help the driver maintain a set following distance behind a forward vehicle | ✓ | ✓ | |
| Electronic Stability system | | | |
| • Bendix ESP full stability system to help drivers mitigate rollovers and loss-of-control situations on wet and dry roadways | ✓ | ✓ | |
| Collision Mitigation <i>(functions whether or not cruise control is on and speed is set)</i> | | | |
| • Provides audible and visual alerts to the driver and applies the brakes when the system determines a collision with forward vehicle is imminent | ✓ | | |

✓ denotes system feature

3. How does Bendix® Wingman® Advanced™ compare to competitive systems?

There are three distinct advantages Bendix Wingman Advanced has over the competition:

- Bendix Wingman Advanced will provide a stationary object alert ... the competitive system does not. Stationary object alert provides the driver up to a three (3) second alert to let them know about metallic objects which may be blocking their lane of travel.
- Bendix® Wingman® Advanced™ uses up to about 2/3 (67%) of the braking power of the vehicle ... the competition uses up to about half (50%) of the available brake power.

- Bendix Wingman Advanced is only offered with the Bendix® ESP® stability system as a foundation ... the competitive system is offered only with a roll only system. Using full stability (ESP) means additional support to help drivers mitigate rollover and loss-of-control situations on dry, wet, snow, and ice-covered roadways, along with better braking distribution for the adaptive cruise control with braking and collision mitigation braking capabilities of Bendix Wingman Advanced.

4. How do I know if my vehicle is equipped with Bendix® Wingman® Advanced™ – a collision mitigation technology or Bendix® Wingman® ACB – Active Cruise with Braking (adaptive cruise control with braking only)?

There are several ways a driver can tell if their vehicle is equipped with Bendix Wingman Advanced or Bendix® Wingman® ACB:

- First, check with your supervisor, terminal manager or fleet safety director to see which Bendix Wingman system is installed on your specific vehicle – identified by the VIN (Vehicle Identification Number); or
- Second, use the Power-On Self Test (POST) described in Bendix® Service Data Sheet SD-13-3333 (*Bendix Wingman ACB*) or Service Data Sheet SD-13-3334 (*Bendix Wingman Advanced*) to tell which system is installed. There is a different set of audible sounds (beeps) provided at “key on” for Bendix Wingman Advanced than for Bendix Wingman ACB.

5. How much of the vehicle braking force does the Bendix Wingman Advanced system use compared to Bendix® Wingman® ACB – Active Cruise with Braking?

The Bendix Wingman ACB – Active Cruise with Braking system can use up to 1/3 of the braking force of the vehicle. Bendix Wingman Advanced can use up to 2/3 of the braking force of the vehicle.

6. How can I tell the difference between the three (3) unique alerts given by Bendix Wingman Advanced?

Carefully review the vehicle’s “Operator’s Manual” for details on the various alerts provided by the Bendix Wingman Advanced system.

7. What is the set following distance in the *adaptive cruise control with braking* feature of Bendix Wingman Advanced?

The default set following distance from a forward vehicle travelling in the driver’s lane is typically 2.8 seconds or 3.5 seconds depending on the OEM. However, a fleet has the option to change the following distance through the use of the Bendix® ACom® diagnostic software (version 6.3 or higher.) Check with your fleet manager for additional details regarding the following distance set on your fleet’s vehicles.

For vehicles equipped with a “distance-to-time gap” control:

Drivers may change the following distance setting through the use of a “distance-to-time gap” control. Note that this option may or may not be standard on your vehicle. Check with the vehicle manufacturer to see if this is available on your specific vehicle.

8. What is the Bendix® ESP® (Electronic Stability Program) stability system and why is it part of the Bendix® Wingman® Advanced™ system?

Bendix ESP is a full stability system that is an integral part of the Bendix Wingman Advanced system.

Bendix ESP – full stability technology helps drivers mitigate rollover and loss-of-control situations on dry, wet, snow, and ice-covered roadways, along with better braking distribution for the adaptive cruise control with braking and collision mitigation braking capabilities of Bendix Wingman Advanced.

Bendix® Wingman® Advanced™ uses the Bendix® ESP® stability system to provide additional information regarding your vehicle's position in a turn, and to help maintain the stability of the vehicle during automatic brake application on slick surfaces.

More information on the Bendix ESP stability system is available at www.bendix.com.

9. What data is available from the Bendix Wingman Advanced system and how do I retrieve it?

Your fleet can acquire useful data from the Bendix Wingman Advanced system using Bendix® ACom® diagnostic software (version 6.3 or higher). The software is available at no cost from Bendix via a download at www.bendix.com or a CD.

The data reported from the system includes a following distance histogram in feet and seconds; the number of hard braking events and impact alerts; trip mileage; idle time; stability events; and other useful information.

NOTE: The Bendix® Wingman® Advanced™ system is shipped from the factory with the data capturing feature turned "OFF." Fleets may turn "ON" data availability using Bendix ACom diagnostic software (version 6.3 or higher).

10. Does the Bendix® Wingman® Advanced™ system warn on stationary objects? How about non-metallic objects such as people, animals, or vehicles primarily constructed of limited metallic?

Stationary Metallic Objects:

Yes, the Bendix Wingman Advanced system does warn on stationary *metallic* objects. The "Stationary Object Alert" (SOA) feature of the system provides audible and visual alerts to the driver when approaching a stationary metallic object – such as a car, steel drum, or other sizable metallic obstruction – in the vehicle's lane of travel.

This alert is typically given up to 3.0 seconds before a potential collision with a stationary metallic object in the vehicle's lane of travel. This enables the driver to either slow down or maneuver in an attempt to avoid the object. *Stationary Object Alerts are warnings only; there is no active braking with SOA.*

The driver should always be attentive to stopped vehicles on the roadway. The Bendix Wingman Advanced system will only warn and ***will not decelerate the vehicle*** when approaching stationary metallic objects.

This feature is continuously on and will provide warnings in all types of weather situations – including rain, snow, or fog – and at night. During testing, drivers have found this to be an especially useful feature in limited visibility situations.

As you approach objects with limited metal surfaces (such as recreational vehicles, horse-drawn buggies, motorcycles, logging trailers, etc...) traveling in your lane, the Bendix Wingman Advanced system ***may not be able to react to them and automatically manage the set following distance*** between your vehicle and the forward vehicle. You should always be alert and aware when driving and approaching all types of vehicles and objects.

Non-Metallic Objects:

No, the Bendix Wingman Advanced system will ***not*** warn or react on animals or people.

In addition, the system will ***not*** react or warn on other ***non-metallic*** objects.

11. When should you not use the *adaptive cruise control with braking* features of the Bendix® Wingman® Advanced™ system?

Carefully review the Bendix® Service Data Sheet SD-13-3334 or the Bendix® Wingman® Advanced™ “Operator’s Manual” for a complete listing.

Always turn off cruise control – and thus, the adaptive cruise control with braking features of the Bendix Wingman Advanced system – when entering turning lanes, entering or exiting highways, driving through construction zones, or similar situations.

12. How do you maintain the Bendix Wingman Advanced system?

Radar sensor obstruction *must* be monitored routinely.

As part of your pre-trip vehicle inspection, check to see that there is no mud, snow, ice build-up, or other obstruction in front of the sensor. You should inspect the radar sensor mounting and remove any obstruction that may impair the sensor functioning.

Also inspect the bumper and sensor for any potential damage that may result in misalignment of the radar sensor. *The Bendix Wingman Advanced radar sensor will not function properly if misaligned.* Information may also appear on the dash read-out to let you know if the radar sensor is misaligned. Re-aligning the radar sensor requires a qualified technician to inspect and repair.

The Bendix Wingman Advanced system braking requires properly maintained foundation (Drum or Disc) brakes which meet appropriate safety standards and regulations. Optimal brake performance also requires the vehicle be equipped with properly sized and inflated tires with a minimum safe tread depth.

NOTE: Please refer to the Bendix Service Data Sheet SD-13-3334 for additional maintenance information.

13. What is the Bendix warranty on the Bendix Wingman Advanced system?

The Bendix Commercial Vehicles Systems LLC warranty is 3 years/350,000 miles, whichever comes first, for parts; and 1 year/100,000 miles, whichever comes first, for labor. Please contact your vehicle manufacturer regarding any potential warranty claims. Damage to the sensor or improper maintenance practices will void this warranty.

14. How to get the Bendix Wingman Advanced system:

Currently, Bendix is working with all our Bendix® Wingman® ACB - Active Cruise with Braking system truck manufacturers – International, Kenworth, Mack, Peterbilt and Volvo to make the Bendix Wingman Advanced system available. As the system becomes available at particular OE’s, Bendix and/or the OE will make appropriate announcements. Please check with Bendix or your dealer regarding option availability in the near future.

NOTE: The Bendix® ESP® full stability system, if not standard on a vehicle, must also be purchased with the Bendix Wingman Advanced system.

15. Will installing a “deer guard” on the front of a truck affect the performance of Bendix Wingman Advanced?

Yes. Bendix Wingman Advanced will not work in these circumstances. The radar must have a clear, unobstructed view of the road in front of the truck in order to operate.

16. Is it true that brake system Diagnostic Trouble Codes (DTCs) will cause Bendix Wingman Advanced to set a DTC itself?

Yes, many Diagnostic Trouble Codes (DTCs) set by the brake system will cause the Bendix Wingman Advanced system to set a DTC and not operate. You *must* correct any active DTCs shown on the brake

system, engine or vehicle before trying to diagnose DTCs present on the Bendix® Wingman® Advanced™ system.

17. Can Bendix® BlindSpotter® be ordered with Bendix Wingman Advanced?

For most OEMs, you can order Bendix® BlindSpotter® with Bendix Wingman Advanced or by itself. Check your dealer for specific order information. (Keep in mind that Bendix BlindSpotter is a separate, independent system from Bendix Wingman Advanced and provides only warnings – no active interventions – through a separate display mounted on the window pillar of the vehicle.)

18. If the dealer says that Bendix Wingman Advanced is not available on the make of tractor being purchased, what should I do?

Please check with your dealer regarding how the vehicle manufacturer may be able to review and update your vehicle specification to include the Bendix Wingman Advanced system on the vehicles you are ordering. You may also discuss your ordering needs with your Bendix representative.

19. Want to learn more about Bendix® Wingman® Advanced™ – a collision mitigation technology?

Please refer to the “Operator’s Manual” included with the vehicle. Copies of the Bendix® Wingman® ACB “Operator’s Manual” are also available in the document library at www.bendix.com. For technical information, please refer to Bendix Service Data Sheet SD-13-3334.

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