

1. What collision mitigation system is standard to IC Bus?

- Bendix ESC with Bendix Wingman Advanced

2. What is the optional upgrade?

- Bendix Wingman Fusion

3. Is Bendix ESC/ESP new to the industry?

- No, Bendix ESC/ESP has been proven over millions of miles and is operated on over 600,000 trucks and buses across the country.

4. Can a Bendix stability control or collision mitigation system be added to an existing bus?

- No, buses must be equipped from the factory.

5. Can a bus be upgraded to an Advanced or Fusion system after it is built? A stock bus for example.

- No, there will be no option to upgrade or up-fit existing vehicles at this time. Extensive hardware and body modifications make this difficult.

6. Can Bendix system be removed from a bus?

- No, the vehicles computer and brake controller is calibrated to operate with the Bendix system installed.

7. Can the Bendix Wingman Fusion camera be relocated?

- No, Bendix and IC bus specify the camera location and calibrate the system accordingly.

8. What if the camera becomes blocked or obstructed? Will the system stop functioning?

- No, if the camera becomes blocked or obstructed, the computer will automatically downgrade to the features of Bendix Wingman Advanced and notify the operator accordingly.

9. How far ahead does the radar unit scan?

- Approximately 500 feet or 166 yards, dependent upon weather conditions.

10. What happens if the radar unit becomes damaged or obstructed during operation?

- Features of the Bendix systems may be limited or non-functioning. For example, the driver may not have following distance alerts if the radar is blocked. Appropriate system status notifications will become apparent to the driver through dash warning lights, and/or the dash mounted display unit.

11. How does the system notify the operator of a fault?

- Depending on the nature of the failure, the operator may see an ABS, traction control, malfunction indicator, stability control light or any combination of the above. The dash mounted interface will also notify the operator of a system error.

12. Can any feature of the Bendix systems be turned on or off by the driver?

- Lane departure alerts are the only feature may be temporarily disabled by the driver if equipped.

13. Does the driver need to do anything differently?

- Generally, no. In winter weather it is advisable to clear the radar (and/or camera) of snow, ice, salt, slush, etc.

14. Can the bus still be equipped with a grill mounted winter front cover?

- Yes, however the radar must not be blocked by the winter front cover.

15. What sensors are unique to Bendix ESC equipped buses? What are they for?

- Brake Pressure Sensor – Measures the bus driver's braking demand
- Steering Angle Sensor – Senses the bus driver's steering direction
- Yaw Rate Sensor – Senses the overall movement of the bus

16. Can technicians continue to use Bendix ACOM for service?

- Yes, Bendix ACOM will continue to provide diagnostic information.

17. Does the Bendix ESC/ESP system require special maintenance?

- There are two areas that may require special attention. Bendix ACOM will provide detailed information.
 - Front end alignment or work – Steering angle sensor must be recalibrated to zero
 - Yaw Rate Sensor – If removed or replaced, special precautions must be taken

18. How is the system serviced?

- Technicians will find service to be similar to that of a vehicle not equipped with these systems and may continue to use Bendix ACOM diagnostic software.

19. Are any special tools required?

- Technicians may find it helpful to obtain a Digital Inclinometer (Digital Angle Gauge) to verify radar alignment periodically. This tool is available through our parts department. A Torx T-20 is also needed to align the radar.

20. Is the Bendix system available across all air brake option types?

- Yes, the Bendix systems are compatible with air disc and air drum braking systems.

21. Is the stability control system designed with school bus in mind?

- Yes, unique calculations are used in the stability control system for each vehicle type. Data relating to the vehicle center of gravity, wheelbase, weight, etc. are all unique to the individual bus.

22. Will the bus apply the brakes for stationary objects such as guide rails, dumpsters, trash cans, bridges, etc.?

- **Wingman Advanced System:** The advanced system will not apply the brakes for any stationary object, only slower moving vehicles in front of the bus. It does not have the capability of applying the brakes for stationary objects of any kind. It may provide an audible alert for a stationary object.
- **Wingman Fusion System:** The Fusion system will not apply the brakes for guide rails, dumpsters, trash cans, bridges, etc., but may apply the brakes for a stationary vehicle in the travel lane.

23. Will the bus apply the brakes for a car crossing the intersection in front of the bus, or a car coming directly at the bus?

- No, the system is designed to respond only to objects or vehicles moving in the same direction as the bus is.

24. Can the bus steer itself to avoid collisions?

- No, the bus has no ability to steer itself. The driver remains in control.

25. Do the brake lights activate when the bus stops on its own?

- Yes, this is to notify vehicles behind the bus of a stop.

26. Where can I find training documents and videos?

- Visit our website: www.leonardbus.com/training for videos, handouts, and general information.