

## BENDIX® ABS-6 ADVANCED WITH ESP® STABILITY SYSTEM

### AN INTELLIGENT INVESTMENT IN STABILITY FOR VOCATIONAL VEHICLES

Bendix® ABS-6 Advanced with ESP® provides core antilock braking, along with Bendix® Smart ATC™ and ESP (covering under-steer, over-steer and rollover situations), the most effective ABS-based traction control and stability system on the market today.

#### Safety is the bottom-line

Most people don't think of a stability system as contributing to the bottom-line. But when you consider the costs of accident related vehicle damage, down-time, clean-up etc... it's easy to see how it does. For fleets looking to reduce incident potential and improve profitability, Bendix® ABS-6 Advanced with ESP provides proven value.

#### A Competitive Advantage For Your Fleet

- **Protect Profitability** – Every dollar you save through incident reduction goes directly to the bottom-line. Consider this... just to stay profit (bottom-line) neutral, a fleet operating at a 5% margin would need to increase revenue by 20 times the cost of accident related losses. That means reducing accident costs by \$100,000 is equivalent to growing top-line sales by 2 million dollars.
- **Promote Customer Satisfaction** – An accident can result in a late delivery or even damage to your customer's property, which can build ill-will and loss of confidence. Alternately, an investment in a stability system demonstrates the added value that your fleet provides.
- **Enhance Driver Training** – With vocational vehicles, often drivers don't know the vehicle is tipping because they can't feel what's happening until it's too late. Take cement mixers, for example: an asymmetrical load can alter the vehicle's center of gravity (CG) without driver knowledge, leading to a rollover situation. The ESP stability system can not only help to mitigate this event, but driving data can be monitored and used as a proactive training tool.
- **Strengthen Operational Efficiency** – The reliability of genuine Bendix components, the familiarity of an ABS-based system, along with a portfolio of easy-to-use diagnostic tools means less training and more vehicle up-time.
- **Boost Driver Retention** – A commitment to safety improves driver morale and can reduce the potential of drivers leaving the profession or going to a competitor.



Does more than just rollover mitigation – Bendix ESP also addresses many of the "loss of control" situations that can lead to rollovers or other accidents.

#### The Complete Stability Solution

Bendix® ABS-6 Advanced with ESP is the only ABS-based truck stability system capable of recognizing and assisting with both rollover and vehicle under- and over-steer driving situations and a variety of road conditions. With key sensors and valves, Bendix ESP provides a higher level of stability on both dry and wet surfaces than systems that only focus on rollover mitigation. Features include:

- **Electronic Stability Program (ESP)** – ESP helps in both rollover and loss of control situations. ESP helps to mitigate vehicle jackknives, slides, skids and loss of control through advanced monitoring of a variety of vehicle parameters and automatic, selective application of vehicle brakes. ESP, through its roll stability program helps to mitigate rollovers through advanced sensing and automatic application of vehicle brakes.
- **Bendix® Smart ATC™** – Unlike other traction control products, the Bendix® Smart ATC™ traction control system makes adjustments based on the vehicle orientation (straight vs. curve) and the driver's throttle input.
- **Core ABS** – Prevents wheel lock-up to help drivers maintain steering control while braking. Compliance with FMVSS 121 for air brake systems.
- **Diagnostics** – Bendix® ABS-6 offers a suite of diagnostic tools to keep your trucks on the road. From traditional blink codes and "Chuff" at vehicle start, to a portable remote diagnostic unit (RDU), to PRO-LINK™ compatibility, and Bendix® ACom™, our comprehensive, computer-based diagnostic software.
- **Serviceability** – Because Bendix® ABS-6 Advanced is an ABS-based system, most of the components are the same familiar parts used on your current ABS and ATC system. The additional ESP components are based on proven technology and require only simple direct part replacement.
- **Customization** – Our patent pending customization feature allows fleets to add custom functions such as lift axle actuation, trailer pressure monitoring and more.

#### Bendix® with ESP® Electronic Stability Program – What is it and how does it work?

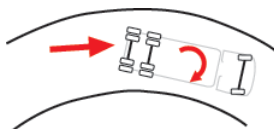
The Bendix® ABS-6 Advanced stability system continuously monitors a variety of vehicle parameters and sensors to determine if the vehicle is reaching a critical stability threshold. When such a situation develops, the Bendix® ESP® system will quickly and automatically intervene to assist the driver. The Bendix® ESP® system can selectively apply vehicle brakes, as well as de-throttle the engine typically faster than a human.



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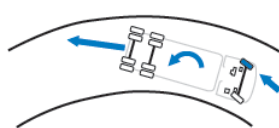
### Driving Scenario:

The vehicle speed around a curve exceeds the ability for the tires to hold the vehicle orientation, causing the vehicle to slide and begin to over-steer. The momentum of the load further pushes the truck, exacerbating the situation.



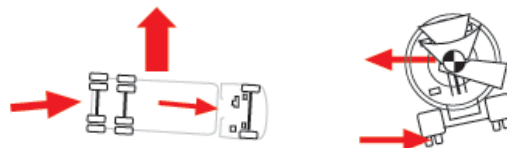
### System Response:

The Bendix® ABS-6 Advanced with ESP® stability system senses the driver's intended path and compares it to the actual situation to identify an over-steer situation. In an attempt to correct the vehicle orientation and reduce speed if required, the system quickly applies braking pressure to only the appropriate wheels.



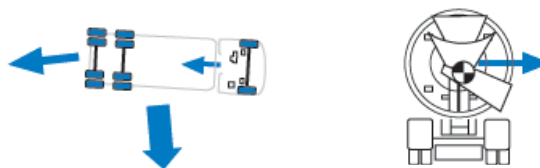
### Driving Scenario:

A vehicle enters a curve too fast, on high friction pavement, resulting in high lateral (side) forces acting at the vehicle's center of gravity (CG). The high friction between the wheels and the pavement create a "hinge" effect allowing the forces at the CG to push the vehicle over.



### System Response:

The Bendix® ABS-6 Advanced with ESP® stability system applies pressure to all truck brakes and reduces engine throttle to quickly reduce vehicle speed and therefore mitigate the tendency of the vehicle to roll over.



## All Stability Systems Are Not Created Equal

Evaluating competitive stability offerings can be confusing. Considering cost alone is not likely to result in the best solution to meet your return on investment, safety, and driver acceptance goals. To determine the effectiveness of a stability system, consider the following key factors:

- 1) The system's ability to detect potential instability situations quickly and completely;
- 2) The speed and accuracy of system intervention;
- 3) The ability of the system to apply ample braking; and
- 4) The system's capabilities on wet, snow and ice covered surfaces.

The table below identifies the key features and components of stability systems to provide a clear picture of the Bendix® ESP® advantage.

	Feature	What it does	Why it matters	Wabco® RSC	Bendix® ABS-6 Advanced w/ESP®
Bendix® ESP® Sensor Technology	Wheel Speed Sensor	Monitors the wheel rotation at individual wheels	Allows the system to determine vehicle speed and monitor wheel lock-up to optimize braking	✓	✓
	Lateral Acceleration Sensor	Senses the side or lateral forces acting on the vehicle	Side or lateral forces are used to detect a roll situation	✓	✓
	Steering Angle Sensor	Senses the driver's steering and direction	An early indicator of a potential critical maneuver. Helps the system to respond faster and more accurately		✓
	Brake Pressure Sensors	Measures the driver's braking demand	Allows the system to accurately supplement the driver throughout the maneuver		✓
	Yaw Rate Sensor	Senses the rotation of the vehicle	Allows the system to monitor the true orientation of the vehicle and compare it to the driver's intention		✓
Bendix® ESP® Performance Enhancement	Multi-level Sensing	Cross checks multiple system sensors	Improves the reaction time and accuracy of the intervention		✓
	Tuning	Different trucks have different stability characteristics. Tuning adapts the stability system to account for these differences	Improves the ability of the stability system to match the intervention of the situation		✓
	All Axle Braking	The ability to apply brakes at all axles	Provides the best opportunity to reduce vehicle speed in the shortest time		✓
	Individual Corner Braking	The ability to apply individual brakes	Provides the capability to control under- and over-steer situations		✓

**Bendix® ABS-6 Advanced with ESP® helps you make an intelligent investment in stability. For more information talk to your Account Manager, call 1-800-AIR-BRAKE (1-800-247-2725) or visit [www.bendix.com](http://www.bendix.com) today.**

