

# Vehicle Technology Resource Alerts

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## Electronic Stability Control (ESC) Systems

- **What it is:** ESC is a vehicle technology that helps a driver maintain control of their vehicle during extreme steering maneuvers by stabilizing and keeping the vehicle headed in the driver's intended direction, even when the vehicle nears or exceeds the limits of traction.
- **How it Works:** ESC applies selective braking to individual wheels and modulates engine power and torque during sudden turns so that the driver will not lose control and the vehicle travels in the direction intended by the driver.
- **Why it's Hot:** FMVSS126 requires that all new vehicles sold in the US since Sept. 1, 2011 with a gross vehicle weight rating of 10,000 lbs. or less include ESC as standard equipment, with multi-stage manufacturers and alterers to comply by Sept. 1, 2012. Aftermarket modifications must maintain ESC functionality and cannot take a vehicle out of compliance with FMVSS 126.

## Impact of ESC Performance and FMVSS 126 on Your Business and Products

National Highway and Traffic Safety Administration Federal Motor Vehicle Safety Standard No. 126 (FMVSS 126) requires that all new passenger cars and light trucks produced since September 1, 2011 include ESC as standard equipment. Thanks to SEMA's efforts, the aftermarket community was granted a one year extension to September 1, 2012 to comply with FMVSS 126. ESC systems exist under several trade names, including GM's StabiliTrak, Ford's AdvanceTrak, Vehicle Stability Control (VSC) and Electronic Stability Program (ESP). NHTSA estimated that ESC would substantially reduce the 10,000 deaths per year due to rollover accidents and prevent 71 percent of car rollovers and 84 percent of SUV rollovers.

Electronic stability control activates when you start your car and engages automatically to help prevent oversteering and understeering through a series of sensors and an ESC microcontroller that continuously monitors vehicle direction, steering angle, and wheel and brake speed.

For SEMA Members, it is important to know that it is illegal to sell or install a product that takes a vehicle out-of-compliance with a Federal Motor Vehicle Safety Standard. The manufacturer or installer must have a reasonable basis for making a determination that the vehicle remains in compliance. The FMVSS 126 vehicle dynamics test program that SEMA has put together helps manufacturers form that reasonable basis.

NHTSA compliance involves self-certification. Manufacturers and installers must self-certify without direct interaction with NHTSA. The data and information collected from conducting an FMVSS 126 test provides manufacturers with the assurance that if something triggers a question about ESC performance or compliance, such as an accident and follow-up NHTSA investigation or lawsuit, the manufacturer will have the test documentation to demonstrate it has formed a reasonable basis with respect to compliance and done its due-diligence.

Leading SEMA companies customize with confidence and in compliance with the law by knowing how advanced vehicle technologies like ESC impact their products and businesses. Through SEMA's Vehicle Dynamics Program, aftermarket suspension manufacturers have conducted over 85 full-scale vehicle tests to demonstrate the ESC performance of aftermarket-modified vehicles.

To learn more about ESC, FMVSS 126 and how vehicle modifications, including suspension, brakes, wheels, tires and steering, may interact with ESC systems contact [John Waraniak, Vice President of Vehicle Technology](#), or [Bryan Harrison, SEMA Director of Networks](#).

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