



# SURFACE VEHICLE INFORMATION REPORT

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The Effects of Front-Mounted Accessories  
on Air Bag Sensors and Crashworthiness

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1. **Scope**—Almost all light trucks now are being manufactured with at least a driver side air bag and all will have dual air bags by 1998. The driving forces behind this feature are occupant safety, federal regulations, and competition in the industry. Along with the booming popularity of pickups and SUVs, they are commonly accessorized with a wide variety of products. Many accessories for four-wheel drives in particular are mounted on the front of the vehicle. These products include grille/brush guards, winches, snow plows, replacement bumpers, bicycle carriers, etc. Concerns have arisen over the compatibility of these accessories with the vehicle's air bag system.

The vehicle manufacturers are concerned because of their huge investment in design and crash test verification of the complete vehicle system and keen awareness of the federal regulations. The crushability of the front bumper and supporting structure are key elements in the system, so alterations to that area become logical concerns.

The accessory manufacturers, dealers, and installers are concerned because the very core of their business could be at risk. The unknowns can range from fear of setting off an airbag while working on the vehicle to liability issues in an injury accident situation. In some cases, the installation of the product is contrary to recommendations from the vehicle manufacturer and may void the warranty.

The ultimate customers (end users) are in a unique situation and are not being well served in some situations. Their dilemma stems from the conflict between what a manufacturer is willing to certify for sale and what the customer needs and expectations are. Their needs in vehicle equipment can vary widely from making a living to recreational lifestyle issues to simplify the desire to individualize. The precedent for front-mounted accessories is well established. The customers for both the vehicle and the equipment are there, so finding ways for them to coexist safely is beneficial to all.

## 2. **References**

- 2.1 **Related Publications**—The following publications are provided for information purposes only and are not a required part of this document.

2.1.1 SAE PUBLICATION—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE Seminar Handbook—Sensor Design for Automobile Air Bag Systems