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Testimony of Ann Wilson

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Subcommittee on Commerce, Manufacturing and Trade,

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Introduction

Chairman Burgess, Ranking Member Schakowsky, members of the subcommittee:

Thank you for the invitation to testify before you on vehicle safety issues.

The Motor & Equipment Manufacturers Association (MEMA) represents more than 1,000 companies that manufacture components and systems for use in the light- and heavy-duty vehicle original equipment and aftermarket industries. Our members provide more than 734,000 direct jobs, making the motor vehicle parts industry the largest employer of manufacturing jobs nationwide.

Suppliers work closely with vehicle manufacturers to provide cutting edge, innovative systems and components for new vehicles. In fact, suppliers manufacture more than two-thirds of the value of today's vehicles. In order to meet regulatory requirements and consumer demands for safer, cleaner and more advanced vehicles, motor vehicle parts manufacturers have increasingly taken on the research, development, engineering and manufacturing of the advanced technologies necessary to meet these ever-increasing goals.

Vehicle Safety

Parts suppliers are dedicated to vehicle safety with the design and manufacturing of their components and systems for new cars and trucks, as well as the maintenance and repair of the 254 million vehicles on our nation's roadways. To fully appreciate the state of vehicle safety today, one only needs to look at the data. Earlier this year, the National Highway Traffic Safety Administration (NHTSA) issued a report that analyzed over 50 years of crash data and estimated that approximately 613,501 lives have been saved by vehicle safety technologies and associated Federal Motor Vehicle Safety Standards (FMVSS).[1] Additionally, a recent Insurance Institute for Highway Safety (IIHS) report noted that "the chances of dying in a crash in a late model vehicle have fallen by more than a third in three years... Among 2011 models, a record nine vehicles have driver death rates of zero."[2] According to the IIHS, newer vehicles are even safer. Over the past three years, recent model year vehicles have demonstrated significant improvements in safety. "There were 7,700 fewer driver deaths in 2012 alone than there would have been had vehicles remained the same since 1985." [3] The most influential safety factors are improvements to vehicle structural design and advanced vehicle technologies.

[1] NHTSA, "Lives Saved by Vehicle Safety Technologies and Associated Federal Motor Vehicle Safety Standards, 1960 to 2012: Passenger Cars and LTVs" DOT HS 812 069, January 2015
[2] IIHS *Status Report* article "Saving Lives," Vol. 50, No. 1, January 29, 2015.
[3] IIHS *Status Report* article "Saving Lives," Vol. 50, No. 1, January 29, 2015.

New technologies focus on collision avoidance, not just occupant protection. There are many advanced safety features available in the vehicle marketplace ranging from passive to active systems that either warn and/or intervene to avoid or mitigate vehicle crashes. These advanced technologies have foundational systems upon which the more complex systems are built. Over recent years, computing power and sensor technologies have rapidly evolved and improved. Many of these systems and components are available on a larger scale and offered on a broader array of vehicle price-points.

Suppliers have been key innovators, developers and manufacturers of these technologies that have evolved over the years from passive to active systems from anti-lock braking system (ABS) to electronic stability control (ESC); from forward collision and lane departure warning systems (FCW, LDW) to automatic emergency braking (AEB) systems and lane keeping systems. These and other advanced vehicle safety systems plus improvements in vehicle crashworthiness are all technologies that help drivers avoid or mitigate collisions and drastically reduce fatalities, injuries and property damage claims.

Advanced Driver Assistance Systems (ADAS) and the Impact on Safety

MEMA recently published a study, prepared by The Boston Consulting Group (BCG), on the benefits of Advanced Driver Assistance Systems (ADAS) technologies.[4] These technologies are included in the term "Advanced Automotive Technology" in the Committee draft. A complete copy of the MEMA/BCG study is included with this testimony.

The MEMA study focused on ADAS technologies that can provide immediate safety benefits and form the pathway to a partially and fully autonomous vehicle fleet that could virtually eliminate traffic fatalities. The study found that a suite of ADAS technologies have the potential to prevent 30 percent of all crashes – a total of 10,000 lives saved yearly.

Today, however, relatively few vehicles on the road have ADAS technologies and their penetration of the market is only growing at about two to five percent annually. Since the vast majority of accidents in the U.S. are caused by driver error, the lack of adoption of these technologies within the U.S. fleet is a significant missed opportunity. This is especially true considering that ADAS technologies also pave the way to partially and fully autonomous vehicles, which could further reduce accidents—and their cost to society—by 90 percent or more.

Types of ADAS Features – Aid, Warn, Assist

Many component manufacturers and systems integrators are involved in developing key ADAS features in collaboration with vehicle manufacturers. Those features include the software that will control their operation and the rigorous testing needed to validate the new technologies. ADAS can be grouped into three broad categories – those that aid the driver, those that warn the driver and those that assist the driver in performing certain basic driving functions.

> **Aid features** include visual aids such as night vision and rear-mounted cameras that enhance the driver's rear vision to facilitate parking and reversing, adaptive front headlights, and surround

[4] MEMA and BCG study, "A Roadmap to Safer Driving Through Advanced Driver Assistance Systems," September 2015

view systems. These features are enabled by technologies such as mono-vision cameras, infrared lights (for night vision) and lasers.

Aid features are not newcomers to the automotive scene. Night-vision systems have been available since 2000; rearview cameras were introduced in 2002, adaptive front headlights in 2006, and surround view systems in 2007. Component manufacturers continue to refine them, and their cost to customers is decreasing at a rate of four to nine percent a year.

Warn features alert the driver to potential dangers through sensory cues such as auditory or visual signals or vibrations. Park assist, which typically activates a beeper when a reversing driver draws near the obstacle behind, was introduced in 2002. Forward collision warning, which warns the driver of a potential collision ahead, first appeared in 2003. Lane departure warning, which typically activates a beeper or causes the driver's seat to vibrate when the vehicle drifts from its lane, came on the market in 2005.

Other warning systems include blind spot and rear cross-traffic detectors, introduced in 2006, and driver monitoring systems, also introduced in 2006.

These features are enabled by technologies such as mono- and stereo-vision cameras, ultrasonic sensors, short-range radar, and inertial steering data, as well as the microprocessors and software that govern their operation.

Assistance features actively engage steering, acceleration, and/or braking systems as needed in order to ensure the vehicle's safe operation. Such features include:

- Forward collision assist, introduced in 2008.
- Adaptive cruise control, which adjusts the vehicle's speed to maintain a constant distance from the vehicle immediately ahead of it, introduced in 2007.
- Self-parking, introduced in 2006.
- Lane keep assist, which actively returns the vehicle to its original lane when it is in danger of drifting from it, introduced in 2010.
- Pedestrian avoidance, which warns the driver of an impending collision with a pedestrian and, in some systems, will assist the driver with steering and braking to avoid collision, introduced in 2014.
- Intelligent speed adaptation, which automatically adjusts the vehicle's speed in response to the driving environment, which is likely to come on the market by 2018.

As in the case of warning and aid features, assistance features are enabled by technologies such as processors and software, mono- and stereo-vision cameras, radar (both short- and long-range), and light detecting and ranging (LIDAR) technology, which uses reflected light signals to assess the driving environment.

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Foundation for Partially Autonomous Driving

Taken together, ADAS features and sensor technologies are the building blocks of partially autonomous driving, which in certain scenarios will allow a vehicle to drive or brake without driver intervention. Some partially autonomous features will soon be available to the public. They include:

- Single-lane highway autopilot, which enables the car to operate without driver intervention as long as it remains in a single lane. It could be introduced as soon as 2016.
- Traffic jam autopilot, which takes over vehicle operation in dense, very low-speed driving environments, likely to be introduced as soon as 2017.
- Autonomous valet parking, which automatically seeks out a free parking space and parks the vehicle, coming as soon as 2017.
- Highway autopilot with lane-changing, available as soon as 2018.
- Urban autopilot, which enables autonomous driving at low speeds only. Its developers expect to roll it out it in 2022.

Market Adoption

ADAS features have a slow adoption curve primarily because of consumer understanding and acceptance and, of course, consumer willingness to pay.

For example, the install rate in new vehicles of surround-view systems, which first became available in 2010, is projected to grow to only three percent by 2020 from one percent today. Their average cost to consumers is expected to fall during that time from $900 per vehicle to $660.

In contrast, rearview cameras have rapidly penetrated the market, thanks in large part to legislation that mandated their installation in all new vehicles by 2018 and the inclusion of rearview video systems in the U.S. New Care Assessment Program (NCAP) as a “Recommended Advanced Technology Feature.” Introduced in 2002, the rearview cameras and parking assist features reached 40 percent market penetration in 2010 and 56 percent in 2015. Rearview cameras will be featured on 100 percent of new vehicles by 2018. Their cost to the consumer, meanwhile, has plummeted from an average of $722 per vehicle in 2010 to $550 today. By 2020, the average cost should drop to $418 per vehicle.

Better consumer information and education as well as market incentives will increase the take-rate of ADAS technologies and MEMA supports the efforts of this Committee to promote ADAS technologies through the expansion of NCAP and expanded credits for Greenhouse Gas emissions.

Comments and Recommendations on Committee Discussion Draft

Title II, Section 202

The legislation as drafted would place an unreasonably short period of time on suppliers – three business days – to identify all part numbers subject to a recall. At the same time, vehicle manufacturers are given five business days to provide all Vehicle Identification Numbers (VIN) for recalled vehicles. While suppliers work closely with vehicle manufacturers during the recall process, in many cases the

same component for a recalled vehicle may have multiple part numbers depending on the model year and other factors. Therefore it can take additional time for a supplier to provide a complete and accurate list of relevant part numbers. Accordingly, we believe that the same timeframe - five business days - should apply equally to suppliers and vehicle manufacturers.

Title III, Section 303

MEMA supports the inclusion of suppliers and independent repair shops in the proposed Automotive Cybersecurity Advisory Council (ACAC), as suppliers play a leading role in many of the advanced electronics in today's vehicles. However, the objectives of the ACAC appear to be similar to those being address by the automotive industry Information Sharing & Analysis Center (ISAC). MEMA believes industry led groups can be more effective in addressing cybersecurity issues.

At the same time, MEMA would like to highlight a growing concern. New car dealers only represent approximately 14.3 percent of the total automotive service outlets and 28.1 percent of the service bays where light vehicles can go for repairs and maintenance. The majority of service (approximately 70 percent) is performed by the independent aftermarket. Technology in new vehicles contain enhanced electronic information about vehicle systems that are critical to diagnostic and repair work. The independent aftermarket must have access to this data to ensure that motorists have access to a wide range of repair options as they do today.

Title IV, Section 403

The discussion draft would require suppliers to retain virtually any and all documents for a period of 10 years concerning "malfunctions" that "may" be related to safety issues. This language as drafted is overly broad and vague, and sets a difficult standard to meet. During the design, engineering and testing process for every part or component, refinements and improvements are typically applied. Early testing for parts or components may result in adoptions or changes. However, that does not mean a safety risk exists. In the alternative, the Committee should direct NHTSA to consider whether additional document retention requirements are necessary.

Title V, Section 501

As previously discussed, suppliers have a critical role in the design, engineering, testing and manufacturing of advanced technologies for use in vehicles and accordingly suppliers must be specifically included in the Advanced Automotive Technology Advisory Committee (AATAC). Furthermore, the 35 percent threshold specified in ((a) (c) (1)) for inclusion of a technology on the Monroney label is too high. Collision avoidance systems currently available in new vehicles should be required to be listed as part of the NCAP rating on all new vehicle labels that include the technology. MEMA does support the language as drafted requiring the label to indicate if a vehicle is not equipped with such technology.

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Title V, Section 502

MEMA supports awarding credits for advanced technologies for Greenhouse Gas emissions. The use of these technologies will result in better traffic flow, less fuel consumed and few vehicle emissions. However, there should not be a difference in credits for vehicles with at least three advanced vehicle technologies (three or more grams per mile) and vehicles with one connected vehicle technology (six or more grams per mile).

Advanced automotive technologies are now active and available in the marketplace, and a vehicle with at least three of these technologies is actively working to improve that vehicle's performance, using less fuel and reducing emissions. Connected vehicle technology, including Dedicated Short Range Communications (DSRC) systems exist, but are not in use in the vehicle fleet.

Conclusion

MEMA thanks the Committee for its foresight in working to provide greater consumer acceptance of ADAS technologies. The industry is committed to working with Congress to establish new and innovative ways to increase the adoption of these lifesaving technologies and to address other critical safety concerns.