

Date of Hearing: July 7, 2025

ASSEMBLY COMMITTEE ON TRANSPORTATION

Lori D. Wilson, Chair

SB 480 (Archuleta) – As Amended June 26, 2025

SENATE VOTE: 39-0

SUBJECT: Autonomous vehicles

SUMMARY: Authorizes an autonomous vehicle to be equipped with automated driving system (ADS) marker lamps. Specifically, **this bill**:

- 1) Defines “ADS marker lamp” to mean a device that emits a light to indicate when an ADS is engaged in the operation of the vehicle.
- 2) Requires the ADS marker lamp to be in accordance with SAE International’s standards.
- 3) Exempts ADS marker lamps from having to be white or yellow in the front of a vehicle and red in the back of a vehicle.

EXISTING LAW:

- 1) Authorizes the operation of autonomous vehicles (AVs) on public roads for testing purposes under certain circumstances specified in the Department of Motor Vehicles’ (DMV) regulations. (Vehicle Code Section (VEH) 38750)
- 2) Defines “autonomous vehicle” to mean vehicle equipped with technology that makes it capable of operation that meets the definition of Levels 3, 4, or 5 of the SAE International's Taxonomy and Testing of Autonomous Vehicles Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles, standard J3016 (APR 2021). (VEH 38750)
- 3) Requires the color of lamps and reflected light from all reflectors, visible from the front of the vehicle, to be white or yellow (with exceptions) and for light emitted from the rear of a vehicle to be red (with exceptions). (VEH 25950)

FISCAL EFFECT: Pursuant to Senate Rule 28.8, negligible state costs.

COMMENTS: SAE International is a global professional association that is the world’s leading authority in mobility standards. SAE has over 138,000 global members who work on standardizing a variety of engineering standards, including automotive engineering, aerospace, and other transportation industries.

In 2019 SAE International made recommendations that AVs contain marker lamps when ADS are operative to provide information to road users, in the absence of a driver, as to the vehicles’ ADS status and intent. SAE International noted that such lights may make users more comfortable with the notion that a human being is not operating the vehicle and become more accepting of the technology. SAE International has indicated that concerns have been raised that ADS lamps could attract intentional interference from other road users to test the system. SAE International has recommended that these lights be turquoise to stand out from other marker lamps on a vehicle.

Having marker lamps on an AV may be particularly important for level 3 AVs. Level 3 AVs require a human operator to be able to take over the vehicle, as they have more limited operating domains (i.e. the vehicle can only drive itself in limited circumstances and will need human intervention). ADS marker lamps alert both drivers and pedestrians that they do not need visual cues (like eye contact from the driver) from the person sitting behind the driver's seat as that person is not operating the vehicle.

Mercedes-Benz is currently the only level 3 AV that can be purchased and operated on California roads. Mercedes level 3, referred to as DRIVE PILOT, can only operate without a human operator on highways during daylight at speeds less than 40 miles per hour. It cannot operate on city or county streets, in construction zones, or under certain weather conditions. In December of 2023, both California and Nevada permitted Mercedes to test turquoise-colored marker lights for automated driving on freeways as shown in the picture below. California Highway Patrol authorized this pilot program for two years.



The National Highway Safety Traffic Administration (NHTSA) has yet to require AVs to have ADS marker lamps. This bill does not require AVs to have these marker lamps, but rather authorizes them to use the ADS marker lamps so they are not in violation of California law, which currently requires front lights to be white or yellow and rear lights to be red.

According to the author, “As technology on roads continues to evolve, we have a greater number of vehicles equipped with driver-assisting technology. While vehicle manufactures have adopted technologies like adaptive cruise control and lane-keeping assistant systems many are looking to transition into autonomous driving systems. These systems are intended to improve our commutes and reduce hazardous situations on the roads. However in order to ensure the public and law enforcement are aware of these systems while they’re in use, manufactures equipping their vehicles with autonomous driving systems should be allowed to install marker lamps on the outside of their vehicle to clearly communicate with pedestrians and law enforcement when a vehicle’s automated driving system is activated. Such recommendations were made by the SAE, National Highway Traffic Safety Administration (NHTSA, and the American Association of Motor Vehicle Administrators (AMVA). Authorizing vehicles with automated driving systems to be equipped with marker lamps will strengthen public safety and promote acceptance of automated driving systems by clearly communicating to pedestrians, law enforcement, and other road users when the systems are engaged.”

The Alliance for Automotive Innovation, *writing in support of this bill*, argues “This bill provides an important safety protection clause into the state's autonomous vehicle statutes. California law governing autonomous vehicles requires that: “The autonomous vehicle has a visual indicator inside the cabin to indicate when the autonomous technology is engaged.” (CA Veh. Code Sec. 38750(c)(1)(B)) However, current law does not contemplate ADS Marker Lamp Technology for use outside of the vehicle and only addresses lights for other motor vehicle functions, allowing only white, yellow and red lights on personal vehicles.

Studies from the University of Michigan Transportation Research Institute (UMTRI) and Ulm University (Germany) support the need for a distinctive color to avoid confusion with colors assigned to other vehicle functions. The studies determined that both pedestrians and drivers more fully understood that using a different lamp color other than the current allowable standard colors (white, red, & yellow) signified that the vehicle was a different style of controlled vehicle. SB 480 takes the straightforward and important step of increasing safety on California roads by adopting the permissive use of the SAE ADS Marker Lamp lighting standards.”

Previous Legislation: AB 1777 (Ting) Chapter 682, Statutes of 2024, requires AVs to have two way communication device that enables emergency response officials that are near the vehicle to communicate effectively with a remote human operator who has situational awareness about the AV.

SB 1298 (Padilla), Chapter 570, Statutes of 2012 established conditions for the operation of AVs upon public roadways.

AB 808 (Chu) of 2019 would have required a new motor vehicle registered or sold in California to be equipped with automatic daytime running headlamps. That bill died in this committee.

REGISTERED SUPPORT / OPPOSITION:

Support

Alliance for Automotive Innovation

Opposition

None on file

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