DRISI

Caltrans Division of Research, Innovation and System Information

Research Notes

Developing Test Procedures to Evaluate Tire Traction Control Devices

Evaluate what technologies are available, create test procedures, and test various tire traction control devices.

Maintenance

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Project Title:
Traction Control Device Study

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WHAT IS THE NEED?

During the winter months, motorists may encounter tire traction controls (or "chain control") in the California mountain regions. There are three levels of tire traction control requirements in California.

- Requirement One (R1): Chains or snow tread tires required. Snow tires must have a tread depth of 6/32" with a "M & S" imprint on the tire's sidewall.
- Requirement Two (R2): Chains required on all vehicles except four-wheel drives or all-wheel drives with snow tread tires on all four wheels. NOTE: four-wheel and all-wheel drive vehicles must carry traction devices in chain control areas).
- Requirement Three (R3): Chains are required on all vehicles, no exceptions.

Caltrans, partnering with California Highway Patrol (CHP) and local law enforcement, have to ensure the safety of the motorists by enforcing the tire traction restriction conditions. New tire traction devices are emerging which Caltrans, CHP and local law enforcement are unsure if they meet the definition of tire traction devices as noted in the California Vehicle Code. The California Vehicle Code, Section 605 defines tire traction devices as follows: "Tire traction devices" are devices or mechanisms having a composition and design capable of improving vehicle traction, braking, and cornering ability upon snow or ice-covered surfaces.

Tire traction devices shall be constructed and assembled to provide sufficient structural integrity and to prevent accidental detachment from vehicles. Tire traction devices shall, at the time of manufacture or final assembly, bear a permanent impression indicating the name, initials, or trademark of the assembling company or primary manufacturer, and the country in which the devices were manufactured or assembled in final form.

According to the vehicle code, Caltrans and CHP will allow any device that claims that it is in compliance with the Vehicle Code. All of the vendors claim that their devices are in compliance while driving on snow, but Caltrans sets up the tire traction device inspection sites well below the snow line which leaves a few to several miles traveled with the tire traction control device on wet roadway surfaces depending on changing snow conditions. This research is to evaluate what technologies are available, create test procedures, and test various tire traction control devices.

WHAT ARE WE DOING?

To evaluate if the new devices comply with the description of a tire traction control device identified in the California Vehicle Code, the researchers propose the following work:

- Research into the types of traction control devices that are currently available.
- Research into the test methods used for the establishment of performance criteria for traction control devices.
- Development of new experimental methods, if necessary, and establishment of performance criteria for traction control devices.

Spikes Spider Traction Control Device

WHAT IS OUR GOAL?

This research's goal is to develop performance criteria that Caltrans can use on existing and future tire traction control devices.

WHAT IS THE BENEFIT?

Caltrans Division of Maintenance will have a better understanding of the tire traction control devices tested in this research. The research will also lead to performance based criteria and testing methods that can be adopted by Caltrans to evaluate future tire traction control devices. Moreover such performance based criteria could promote the development of new and improved tire traction control devices.

WHAT IS THE PROGRESS TO DATE?

The researcher recently started investigating the available tire traction control devices and existing test methods used for the establishment of performance based criteria.

Cloth Traction Control Device

Traditional Chain Traction Control Device

Z-Chain Traction Control Device

Traditional Cable Traction Control Device