Type 15-FBS Breakaway Pole Replacement Development and Testing

Develop and test a replacement for the Type-15-FBS breakaway pole according to the current crash test guidelines.

WHAT IS THE NEED?

The Type 15-Flashing Beacon System (FBS) is a slip-base pole in the California Department of Transportation’s (Caltrans) Standard Plan but has not been tested to the current crash test guidelines, the American Association of State Highway and Transportation Officials’ (AASHTO) Manual for Assessing Safety Hardware (MASH) 2016. The Type 15-FBS is one of many roadside safety hardware and appurtenances that will need to meet the Federal Aid Eligibility requirements for new installations per the implementation agreement for MASH 2016.

This will require research, review, design, crash testing, test report, and publication of revised standards. The design will also have to meet Caltrans design standards and stakeholder priorities.

WHAT ARE WE DOING?

The objective of this project is to test and evaluate the crash performance of the Type 15-FBS slip base pole system under the MASH 2016 Test Level 3 criteria. This work includes a redesign of the existing Type 15-FBS system. MASH 2016 Test Level 3 criteria for “Support Structures” comprise of the following tests:

1. 3-60, 1100C (small car), 19 mph, right or left quarter point of impacting vehicle, 30 degree angle impact
2. 3-61, 1100C (small car), 62 mph, right or left quarter point of impacting vehicle, 30 degree angle impact
3. 3-62, 2270P (pickup), 62 mph, right or left quarter point of impacting vehicle, 30 degree angle impact
Redesign and retesting of the Type 15-FBS may be necessary if any of the test are not successful. When testing is completed, the research team will prepare a final report. If the testing shows that the product meets the MASH 2016 evaluation criteria, the slip base pole system will be adopted into Caltrans standards.

**WHAT IS OUR GOAL?**

The goal is to produce a replacement for the Type 15-FBS that is compliant with Caltrans design standards and meet the Federal Aid Eligibility requirements for new installations per the implementation agreement for MASH 2016.

**WHAT IS THE BENEFIT?**

The benefit of the research is a replacement of a needed product that meets the most current crash test standards and is eligible for Federal Aid.

**WHAT IS THE PROGRESS TO DATE?**

Four Type 15-FBS light standards were ordered for this project. The installation of two modified Type 15-FBS light standards was completed at the Caltrans Dynamic Testing Facility in West Sacramento, CA. One MASH 2016 test was conducted on March 7, 2018.

The second test, MASH 2019 Test 3-60 (TEST 410MASH3C20-01) was conducted on February 26, 2020. Preliminary test data results indicate that this test failed the MASH 2019 Test 3-60 evaluation criteria due to the breakaway feature of the test article not activating and the occupant impact velocity exceeding the maximum recommended value. A draft evaluation summary of the results was sent to the customer (Structures) on March 25, 2020.

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