

Refer to: HSA-10/LS-54

John Schwarz, PE
Sales Engineer
Component Products, Incorporated
521 Morse Avenue
Schaumburg, Illinois 60193-4529

Dear Mr. Schwarz:

Thank you for your letter of June 6, 2003, requesting Federal Highway Administration (FHWA) acceptance of your company's cast aluminum pedestal bases as breakaway bases for supporting signs, signals, vehicle detection devices, and other traffic control hardware on the National Highway System (NHS). Accompanying your letter was a report from the Texas Transportation Institute and videos of the crash tests. You requested that we find model "CPI-BAS-1P" bases, cast using a permanent mold, acceptable for use on the NHS under the provisions of National Cooperative Highway Research Program (NCHRP) Report 350 "Recommended Procedures for the Safety Performance Evaluation of Highway Features." The original sand-cast base, "CPI-BAS-1," was found acceptable via FHWA Acceptance Letter LS-38, dated August 4, 1995.

Introduction

Testing of the supports was in compliance with the guidelines contained in the NCHRP Report 350, Recommended Procedures for the Safety Performance Evaluation of Highway Features. Requirements for breakaway supports are those in the American Association of State Highway and Transportation Officials' Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals.

The Component Products square aluminum base of 319 alloy, CPI-BAS-1P, is a frangible base for mounting 114 mm (4.5 in) outside diameter galvanized pipe to support various information assemblies. The casting is 356 mm (14 in) square at the base and 394 mm (15.5 in) tall. Detailed information on the casting is shown in the enclosed drawing. A flashing beacon and a 610 x 1220 mm (24x48 in) sign, 1.5 m (5.0 ft) to the base of the sign, were attached to the 2.44 m (8.0 ft) long galvanized pipe. The pipe was threaded into the cast aluminum base and the aluminum casting was rigidly attached in the pendulum facility with four 19 mm (3.4 in) bolts. Total mass of the system was 59 kg (131.25 lbs).

Testing

Low speed pendulum testing was conducted on your company's devices. The mass of the test vehicle was 820 kg in all tests. The complete devices as tested are shown in the Enclosures.

Test #	NCHRP 350	Speed	Occup. Speed	Delta V
CPI-P1	3-60	34.2 km/h	3.3 m/s	3.2 m/s
CPI-P2	3-60	32.5 km/h*	[none recorded]	2.2 m/s
Extrapolation	[3-61]	[100 km/h]	1.7 m/s	N/a

Occup. Speed: Occupant Impact Speed: Speed at which a theoretical front seat occupant will contact the windshield. In meters per second.

Delta V: Speed change of the test vehicle. In meters per second.

* Speed was below specification due to breaking of the cable elevating the 820C pendulum. As speed below specifications is not a detriment in the 35 km/h test, these results will be acceptable.

Findings

Velocity changes, including the extrapolation for a high-speed impact, were all within acceptable limits. The only stubs remaining were shards no taller than the anchor bolts, which were set below the 4 in minimum. The results of testing met the FHWA requirements and, therefore, the devices described above and shown in the enclosed drawings for reference are acceptable for use as Test Level 3 devices on the NHS under the range of conditions tested, when proposed by a State.

Please note the following standard provisions which apply to FHWA letters of acceptance:

- Our acceptance is limited to the crashworthiness characteristics of the devices and does not cover their structural features, nor conformity with the Manual on Uniform Traffic Control Devices.
- Any changes that may adversely influence the crashworthiness of the device will require a new acceptance letter.
- Should the FHWA discover that the qualification testing was flawed, that in-service performance reveals unacceptable safety problems, or that the device being marketed is significantly different from the version that was crash tested, it reserves the right to modify or revoke its acceptance.
- You will be expected to supply potential users with sufficient information on design and installation requirements to ensure proper performance.
- You will be expected to certify to potential users that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that submitted for acceptance, and that they will meet the crashworthiness requirements of FHWA and NCHRP Report 350.
- To prevent misunderstanding by others, this letter of acceptance, designated as

number LS-54 shall not be reproduced except in full. As this letter and the supporting documentation which support it become public information, it will be available for inspection at our office by interested parties.

Sincerely yours,

Michael S. Griffith
Acting Director, Office of Safety Design
Office of Safety

FHWA:HSA-10:NArtimovich:tb:x61331:7/10/03
File: h://directory folder/nartimovich/LS54-ComponentFIN
cc: HSA-10 (Reader, HSA-1; Chron File, HSA-10;
N. Artimovich, HSA-10)