

November 13, 2003

Refer to: HSA-10/LS-55

Mr. Bob Sik  
Vice President  
Akron Foundry Company  
2728 Wingate Avenue  
P.O. Box 27028  
Akron, Ohio 44319-0009

Dear Mr. Sik:

Thank you for your letter September 9 of requesting Federal Highway Administration (FHWA) acceptance of a modification to the installation conditions for your company's TB2-17 breakaway cast aluminum transformer base for use on the National Highway System (NHS). You requested that we find the use of this base on a 12-½ inch diameter bolt circle 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."

**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' (AASHTO) Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals.

**Testing**

Pendulum testing was conducted on your company's TB-2 bases, which were found acceptable in FHWA Acceptance Letters: LS-9 (January 24, 1990), LS-15 (May 30, 1990), LS-22 (September 19, 1990) and LS-24 (July 22, 1991).

Test	Base Designation	Pole Weight	Pendulum Delta V	Bolt Circle Diameter
AF-2	TB2-AF 1012 I.W.-17	494 Pounds	6.4 ft/sec	10.5
Test 1	TB-2-AF-1012-I.W.-17	548 Pounds	14.6 ft/sec	12.0

During that testing, the largest bolt circle diameter used was 12.0 inches ("Test 1"), and the velocity change was close to the maximum allowable of 16.0 feet per second when tested with a 548 pound pole. The mass of the pole and the diameter of the bolt circle appear to have a significant affect on performance, as a 494 pound pole (test "AF-2") on a 10.5 inch diameter bolt circle resulted in a velocity change less than one-half of "Test 1."

Your present request is to accommodate a retrofit proposed by the Nebraska Department of Roads (NDOR). The NDOR wishes to retrofit luminaire support foundations with existing 12-½ inch anchor bolt circles using TB-2-17 bases. The difference in bolt circle diameter results in a nominal ¼ inch difference in the position of each bolt. This appears to be within the expected construction tolerance for such installations and will be considered an acceptable variance for poles weighing no more than 548 pounds.

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-55 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,

*/Original signed by/*

John R. Baxter, P.E.  
Director, Office of Safety Design  
Office of Safety

FHWA:HSA-10:NArtimovich:tb:x61331:11/12/03

File: h://directory folder/nartimovich/LS55-AkronFIN

cc: HSA-10 (Reader, HSA-1; Chron File, HSA-10;  
N. Artimovich, HSA-10)