



U.S. Department  
of Transportation

Federal Highway  
Administration

July 13, 1995

400 Seventh St., S.W.  
Washington, D.C. 20590

Refer to: HNG-14

C. Richard Briden, P.E.  
Engineering Manager  
P & K Pole Products  
84 Foundry Street  
Newark, New Jersey 07105-4606

Dear Mr. Briden:

Thank you for your April 25 letter requesting Federal Highway Administration's (FHWA) acceptance of your company's aluminum breakaway bases. Your letter was accompanied by seven test reports by the Southwest Research Institute (SwRI) dated February or March 1995, and video documentation on each test. We received supplemental data from SwRI on June 12.

Pendulum testing was conducted to assess the breakaway performance of the bases. Requirements for breakaway supports are found in the American Association of State Highway and Transportation Officials' "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals." Testing guidelines are found in the National Cooperative Highway Research Program Report 350, "Recommended Procedures for the Safety Performance Evaluation of Highway Features." Both have been adopted by FHWA.

You requested individual acceptance letters for each base. This letter is for the hardware evaluated in test PK-104 dated February 1995. A summary of the test data is shown below and drawings of the cast aluminum shoe base are enclosed.

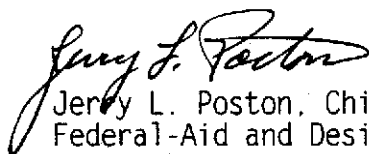
Test Number	PK-104
Support Pole Wall Thickness, mm (in)	Aluminum B-104484 Shaft 3.96 (0.156)
Pole Butt Diam., mm (in) and Base Designation P&K Drawing No.	254 (10) SB-2AFG Breakaway Base C-104826 dated May 24, 1994
Bolt Circle Diameter, mm (in) Test Article Mass, kg (wt. lbs)	381 (15) 144.2 (318)
Mounting Height, m (ft) Vehicle Mass, kg (weight, lbs)	13.7 (45.0) 820 (1808)
Test Speed, km/h (mph)	35.3 (21.9)
Occupant Impact Speed m/s (fps) Estimated 100 km/h Occup. Imp. Speed	3.7 (12.1) 2.7 (8.9)
Stub Height, mm (in)	76 (3.0)

The results of this test and the high-speed extrapolation meet the change in velocity and stub height requirements adopted by AASHTO and FHWA. Therefore, the tested aluminum breakaway base described above is acceptable for use on the National Highway System (NHS), under conditions comparable to those evaluated, when selected by a highway agency.

Our acceptance is limited to the breakaway characteristics of the system and does not cover its structural features. Presumably, you will supply potential users with sufficient information on structural design and installation requirements to ensure proper performance. We anticipate that the States will require certification from P & K Pole Products that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as those used in the tests, and that they will meet the FHWA change in velocity requirements.

Because the P & K Pole Products breakaway aluminum bases are proprietary, to be used in Federal-aid highway projects, except exempt non-NHS projects: (a) they must be supplied through competitive bidding with equally suitable unpatented items; (b) the highway agency must certify that they are essential for synchronization with existing highway facilities or that no equally suitable alternate exists; or (c) they must be used for research or for a distinctive type of construction on relatively short sections of road for experimental purposes. Our regulations concerning proprietary products are contained in Title 23, Code of Federal Regulations, Section 635.411, a copy of which is enclosed.

Sincerely yours,

  
Jerry L. Poston, Chief  
Federal-Aid and Design Division

2. Enclosures

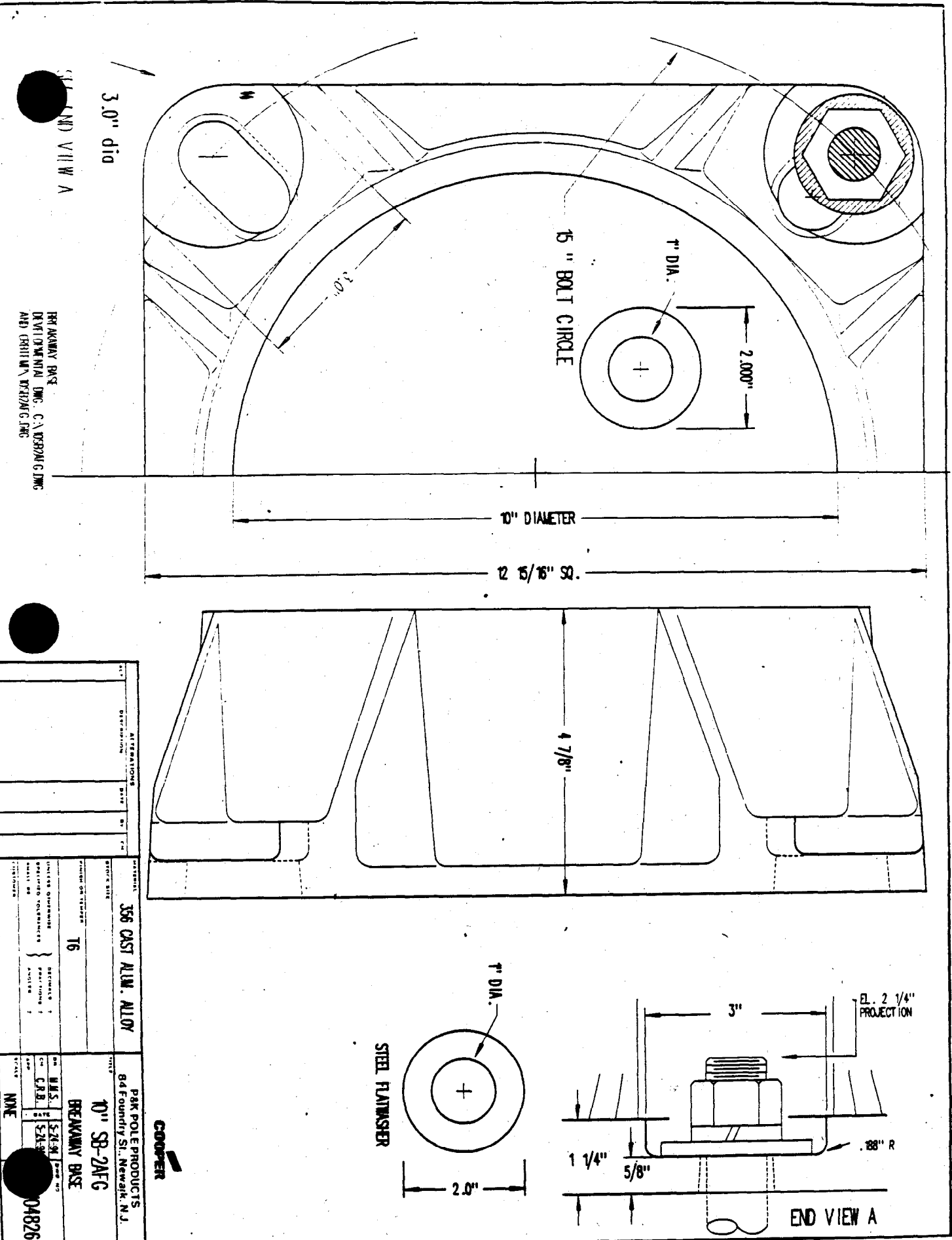


Figure 2. Manufacturer's Drawing of Test Article

