

October 12, 2004

Refer to: HSA-10/WZ-181

Mr. Peter Speer  
Bunzl Extrusion Tacoma Incorporated  
3110 70<sup>th</sup> Avenue East  
Tacoma, Washington 98424

Dear Mr. Speer:

Thank you for your letters of September 7, 8, and 9, 2004, requesting Federal Highway Administration (FHWA) acceptance of revisions to your company's T3B<sup>TM</sup> Type III Barricade as a crashworthy traffic control device for use in work zones on the National Highway System (NHS). You requested that we find the modifications described below acceptable for use with this barricade 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**

The FHWA guidance on crash testing of work zone traffic control devices is contained in two memoranda. The first, dated July 25, 1997, titled "INFORMATION: Identifying Acceptable Highway Safety Features," established four categories of work zone devices: Category I devices are those lightweight devices which are to be self-certified by the vendor, Category II devices are other lightweight devices which need individual crash testing but with reduced instrumentation, Category III devices are barriers and other fixed or heavy devices also needing crash testing with normal instrumentation, and Category IV devices are trailer mounted lighted signs, arrow panels, etc. for which crash testing requirements have not yet been established. The second guidance memorandum was issued on August 28, 1998, and is titled "INFORMATION: Crash Tested Work Zone Traffic Control Devices." This later memorandum lists devices that are acceptable under Categories I, II, and III.

A brief description of the devices follows:

The T3B Barricade is a plastic, lightweight, portable Type III barricade. The T3B 25.4mm x 210mm (1 inch x 8.25) hollow plastic barricade panels are made from a specially formulated polyolefin plastic, and the vertical uprights are 44.5-mm (1.75 inch) square thermoplastic tubing extrusions. The support legs or "skids" are 14 ga, 50.8-mm (2 inch) square perforated galvanized mild steel tubing. One 150-mm (6-inch) tall PSST stub is welded to each support leg, and the

vertical uprights are inserted into them. The T3B is available in heights between 1524 mm (60 inches) and 1829 mm (72 inches). Testing of your 2438-mm (8 foot) wide version of this barricade is detailed in the FHWA acceptance letter WZ-39 dated June 29, 2000. The fasteners used were 7.94 mm (5/16") bolts with Nylock nuts and steel washers to attach panels to the uprights.

Your present requests are is to allow the following new designs:

September 7, 2004 letter: 12-foot wide barricades using 1- $\frac{3}{4}$  inch, 12-gage PSST framing

September 8, 2004 letter: Permit the use of a PSST cross bracket for additional stability

September 9, 2004 letter: 12-foot wide barricades using 1- $\frac{3}{4}$  inch plastic X-tube uprights

| Component         | Composition                      | Dimensions                                   | Weight  |
|-------------------|----------------------------------|--|---------|
| Barricade foot    | 14 gage Qwik-Punch or PSST       | 2 x 2 x 60" w/ PSST stub or w/splice bracket | 12 lb   |
| X-Tube upright    | Thermoplastic                    | 1- $\frac{3}{4}$ x 1- $\frac{3}{4}$ x 60 in  | 3.5 lb  |
| PSST upright      | 12 or 14 gage Qwik-Punch or PSST | 1- $\frac{3}{4}$ x 1- $\frac{3}{4}$ x 60 in  | 10.3 lb |
| PSST crossbar     | 12 or 14 ga PSST (optional)      | 1- $\frac{3}{4}$ x 1- $\frac{3}{4}$ x 128 in | 22 lb   |
| T3B 8-inch panels | Thermoplastic                    | $\frac{3}{4}$ x 8- $\frac{1}{4}$ x 144 inch  | 11.9 lb |
| Hardware          | Steel                            | Various                                      | 2.0 lb  |

The connection and mounting hardware will be essentially the same as that which was crash tested. As these substitutions use hardware that has already been shown to be crashworthy, and various combinations have also proven successful, we concur that the present requests should not have a significant affect on the crashworthy performance of the barricade. Therefore, the T3B<sup>TM</sup> Type III Barricade in the variations detailed above and shown in the enclosed drawings is acceptable for use on the NHS under the range of conditions tested when proposed by a State.

Please note the following standard provisions that apply to the 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 the FHWA and the NCHRP Report 350.
- To prevent misunderstanding by others, this letter of acceptance, designated as number WZ-181 shall not be reproduced except in full. This letter, and the test documentation upon which this letter is based, is public information. All such letters and documentation may be reviewed at our office upon request.
- The T3B™ Type III Barricade is a proprietary device. The use of proprietary work zone traffic control devices in Federal-aid projects is generally of a temporary nature. They are *selected by the contractor* for use as needed and removed upon completion of the project. Under such conditions they can be presumed to meet requirement "a" given below for the use of proprietary products on Federal-aid projects. On the other hand, if proprietary devices are *specified by a highway agency* for use on Federal-aid projects they: (a) 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 alternative 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. These provisions do not apply to exempt non-NHS projects. Our regulations concerning proprietary products are contained in Title 23, Code of Federal Regulations, Section 635.411, a copy of which is enclosed.
- This acceptance letter shall not be construed as authorization or consent by the FHWA to use, manufacture, or sell any patented device for which the applicant is not the patent holder. The acceptance letter is limited to the crashworthiness characteristics of the candidate device, and the FHWA is neither prepared nor required to become involved in issues concerning patent law. Patent issues, if any, are to be resolved by the applicant.

Sincerely yours,

*/Original Signed by/*

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

Enclosures

FHWA:HSA-10:NArtimovich:tb:x61331:10/7/04  
File: h://directory folder/nartimovich/WZ181-BunzlFIN1  
cc: HSA-10 (Reader, HSA-1; Chron File, HSA-10;  
N. Artimovich, HSA-10)

Sec. 635.411 Material or product selection.

(a) Federal funds shall not participate, directly or indirectly, in payment for any premium or royalty on any patented or proprietary material, specification, or process specifically set forth in the plans and specifications for a project, unless:

(1) Such patented or proprietary item is purchased or obtained through competitive bidding with equally suitable unpatented items; or

(2) The State highway agency certifies either that such patented or proprietary item is essential for synchronization with existing highway facilities, or that no equally suitable alternate exists; or

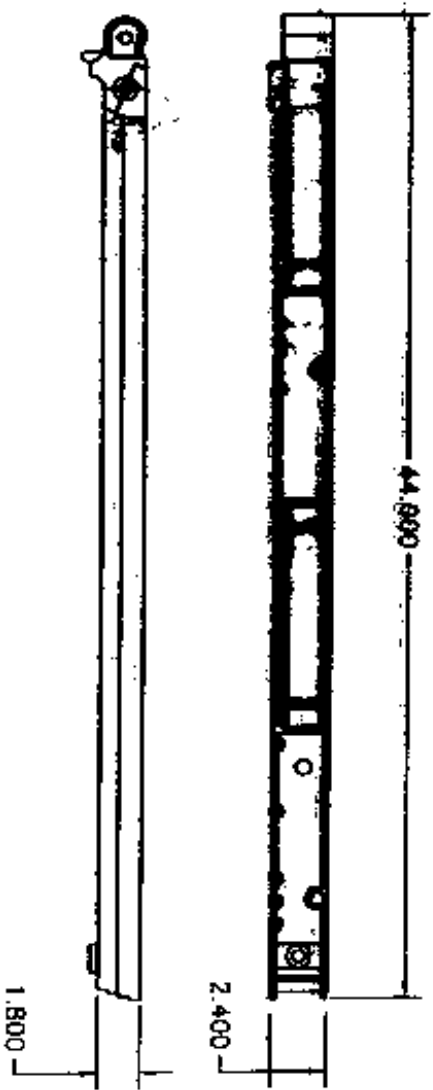
(3) Such patented or proprietary item is used for research or for a distinctive type of construction on relatively short sections of road for experimental purposes.

(b) When there is available for purchase more than one nonpatented, nonproprietary material, semifinished or finished article or product that will fulfill the requirements for an item of work of a project and these available materials or products are judged to be of satisfactory quality and equally acceptable on the basis of engineering analysis and the anticipated prices for the related item(s) of work are estimated to be approximately the same, the PS&E for the project shall either contain or include by reference the specifications for each such material or product that is considered acceptable for incorporation in the work. If the State highway agency wishes to substitute some other acceptable material or product for the material or product designated by the successful bidder or bid as the lowest alternate, and such substitution results in an increase in costs, there will not be Federal-aid participation in any increase in costs.

(c) A State highway agency may require a specific material or product when there are other acceptable materials and products, when such specific choice is approved by the Division Administrator as being in the public interest. When the Division Administrator's approval is not obtained, the item will be nonparticipating unless bidding procedures are used that establish the unit price of each acceptable alternative. In this case Federal-aid participation will be based on the lowest price so established.

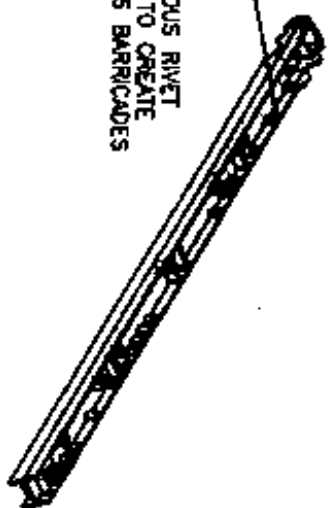
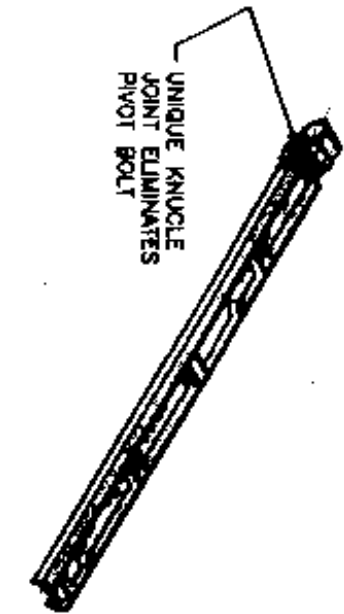
(d) Appendix A sets forth the FHWA requirements regarding (1) the specification of alternative types of culvert pipes, and (2) the number and types of such alternatives which must be set forth in the specifications for various types of drainage installations.

(e) Reference in specifications and on plans to single trade name materials will not be approved on Federal-aid contracts.



UNIQUE KNUCLE  
JOINT ELIMINATES  
PIVOT BOLT

NUMEROUS RIVET  
HOLES TO CREATE  
VARIOUS BARRICADES



|          |            |                      |                                       |            |
|----------|------------|----------------------|---------------------------------------|------------|
| REV      | 01         | INITIAL RELEASE      | JIL                                   | 11-17-2003 |
| REV      | ---        | REVISION DESCRIPTION | BY                                    | DATE       |
| MATERIAL | POLYOLEFIN | COLOR AND FINISH     | THIRD ANGLE PROJECTION                |            |
|          |            | WHITE                | TOLERANCES UNLESS OTHERWISE SPECIFIED |            |
|          |            |                      | 2 PL. DECIMALS ± N/A                  |            |
|          |            |                      | 3 PL. DECIMALS ± N/A                  |            |
|          |            |                      | ANGLES ± N/A                          |            |

**CTM Cortina**  
**Tool & Molding Co.**  
 10708 WEST GRAND AVENUE, PANNONIA PARK, IL 60131

**MODULAR BARRICADE LEG, 44"**  
**M-CADE AND TYPE II BARRICADES**  
**FOR FACTORY OR FIELD USE**

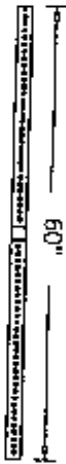
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 DRAWING NUMBER 97-1100

DRAWN BY JIL DATE 11-17-2003  
 CHECKER DATE

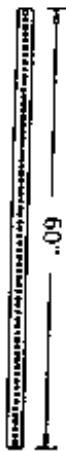
REVISION 01

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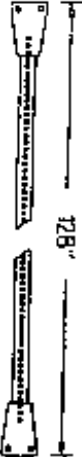
2" PSST BARRICADE FOOT



1.75" PSST UPRIGHT

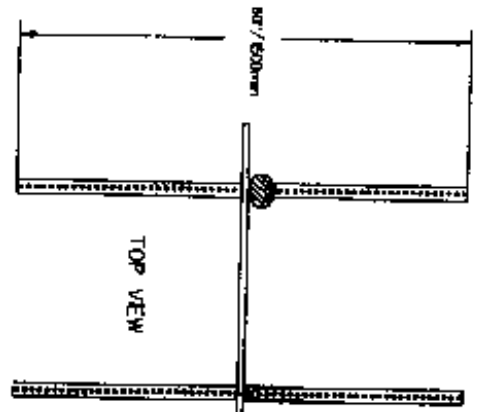


1.75" PSST CROSSBAR (OPTIONAL)

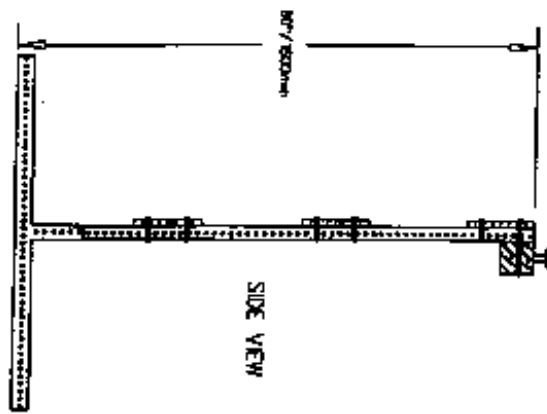


SHOWN WITH 2" PSST BARRICADE FOOT AND OPTIONAL LIGHT

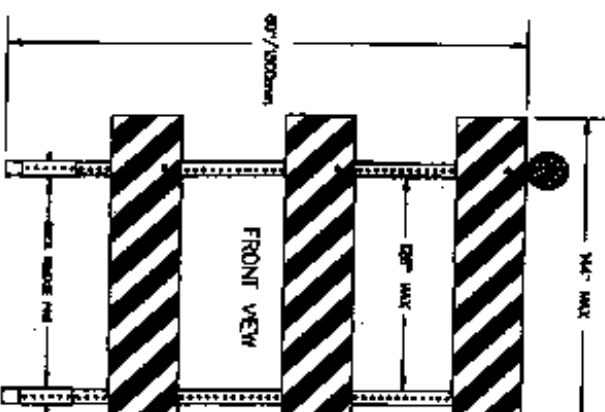
APPROVED WARNING LIGHT



SIDE VIEW



FRONT VIEW



PART NAME  
**T3B BARRICADE 12-FOOT W/PSST UPRIGHTS**

DEPT. ASST. ENGINEERING MANAGER  
DATE  
9-7-04



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"Creating Products to Save Lives"

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Autocad CD Available

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Tacoma, Washington 98424 Eng. 1

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