



U.S. Department
of Transportation
**Federal Highway
Administration**

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

May 28, 1999

Refer to: HMHS

Mr. George Giotis
Flasher Handling Corp.
125 Taylor Drive
Depew, NY 14043

Dear Mr. Giotis:

On July 23, 1998, we wrote to you finding the "Air Spill Barricade," "Opposing Lane Traffic Divider," and the "3-Rail Breakaway Barricade" acceptable for use as crashworthy devices on the National Highway System (NHS). We also commented on what was needed to qualify some of your company's other work zone traffic control devices. Since then you have sent additional information on testing of these devices and we are now prepared to address a number of them.

The Federal Highway Administration (FHWA) guidance on crash testing of work zone traffic control devices according to National Cooperative Highway Research Program (NCHRP) Report 350 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 were those lightweight which could be self-certified by the vendor, Category II devices were other lightweight devices which needed individual crash testing, Category III devices were barriers and other fixed or massive devices also needing crash testing, and Category IV devices were trailer mounted lighted signs, arrow panels, etc. The second guidance memorandum was issued on August 28, 1998, and is titled "INFORMATION: Crash Tested Work Zone Traffic Control Devices." This recent memorandum lists devices that are acceptable under Categories I, II, and III. Flasher Handling's devices generally fall in Category II requiring individual crash testing.

Air Flow and Bantam II

In your letters of September 28, 1998, and December 7, 1998, you requested FHWA acceptance of your company's "Air-Flow" and "Bantam II" Roll-Up Signs as crashworthy for use on the NHS. Accompanying your letter was a notebook of background information, product literature, and a video of crash tests conducted on "Air-Spill" products.

Your "Air-Flow" and "Bantam II" Roll-Up sign assemblies are portable sign stands that are Category II devices nominally requiring crash testing in accordance with NCHRP Report 350. Similar roll-up signs braced with fiberglass uprights and spreaders have previously been tested for the Texas Department of Transportation (DOT) under a State study at the Texas Transportation Institute (TTI). That prior testing was used to accept a number of work zone traffic control devices even though only single devices were struck head-on in each impact.

Subsequent right-angle crash testing has shown that fiberglass - braced roll-up signs on low profile temporary supports (where the fiberglass vertical brace is supported by a short metal mast) are crashworthy.

Your company's 1220-mm (48-inch) roll-up signs mounted at 460 mm (18 inches) above the ground on either an "Air Spill" base or a "Bantam II" base are similar to signs that have been successfully tested at TTI. Product literature illustrating and describing these devices is attached. We had expressed concern that the rigid steel plate of the "Air Flow Roll Up" system could lift off the ground and snag the undercarriage of the vehicle. You addressed that concern in your letter of March 15 describing the tests conducted by the New York State DOT. The report from M. Tegza of the Final Plan Review Bureau, dated October 8, 1987, attested to the satisfactory performance of the devices at various test angles.

Without additional testing we consider the "Air Spill" or "Bantam II" portable sign stands acceptable for use on the NHS with the following limitations:

- Sign panel must be plastic/fabric "roll-up" type material
- Vertical support above base is 6.35-mm thick x 44.45-mm wide (1/4-inch thick x 1 3/4-inch wide) fiberglass
- Horizontal brace is 6.35-mm thick x 44.45-mm wide (1/4-inch thick x 1 3/4-inch wide) fiberglass
- No attachments of any sort (flags, lights, additional signs) are allowed
- No metal mast may be used to support the sign (above the base assembly)

In order to qualify your portable sign stands for the full range of use up to a 1220-mm (48-inch) roll-up sign including flags, lights, additional sign panels, additional masts, etc., they must be crash tested in tandem with the second device placed 6 m downstream from, and turned at right angles to the first sign impacted. This arrangement is in accordance with our July 25, 1997, memorandum on crash testing. Ballast, lights, and/or flags should be in place during the testing if any or all of these are to be used in actual installations.

The "Air-Spill" and "Bantam II" portable sign stands are acceptable for use on the NHS when requested by a State, subject to the conditions noted above. Our acceptance is limited to the crashworthiness characteristics of the devices and does not cover their structural features, nor conformity of the devices with the Manual on Uniform Traffic Control Devices. Presumably, you will supply potential users with sufficient information on design and installation requirements to ensure proper performance. We anticipate that the States will require certification from Flasher Handling Corporation that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that submitted for acceptance.

Polypropylene Signs Mounted on Drums

On February 10 and February 25 you wrote regarding a 410-mm (24-inch) wide by 915-mm (36-inch) tall "Plastic Substrate Sign Panel" that you wish to use on the front of plastic drums. The sign panel is the same material as used in your company's "3-Rail Breakaway Barricade," 8-mm thick polypropylene. The sign panel you intend to use weighs 2.3 kg (4 lbs). The sign panel would be made stiffer using 6.35-mm (1/8-inch) thick, 25.4-mm (1-inch) wide fiberglass rods at the top and bottom and be bolted to the drum along its centerline.

Due to the flexible, lightweight nature of the polypropylene material we believe it would not adversely affect the crashworthiness of a typical plastic drum. The Texas Transportation Institute crash tested several plastic drums with plastic signs mounted on top of the drums and performance was generally satisfactory. Your application of the sign to the face of the drum is likely to be an even safer condition for an impacting vehicle. Therefore, drums with 610-mm x 915-mm (24-inch x 36-inch) polypropylene sign panels affixed to the front are acceptable for use on the National Highway System when requested by a State. Our acceptance is limited to the crashworthiness characteristics of the devices and does not cover their structural features, nor conformity of the devices with the Manual on Uniform Traffic Control Devices. Presumably, you will supply potential users with sufficient information on design and installation requirements to ensure proper performance. We anticipate that the States will require certification from Flasher Handling Corporation that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that submitted for acceptance.

3-Rail Breakaway Barricade

As mentioned above our July 23, 1998, letter found the "3-Rail Breakaway Barricade" acceptable for use. This barricade is also included in our acceptance letter "WZ-3" dated August 28, 1998. Crash testing of this barricade in the normal "head-on" orientation was used to accept this device, but questions were raised about its performance when struck end-on at an angle of 90 degrees. Testing in this orientation is called for in our July 25, 1997 memorandum, "Identifying Acceptable Highway Safety Features." On April 9 you wrote, supplying a crash test report from Calspan Corporation that included head-on and end-on crash tests, concluding that the modified design (the one currently in production) caused "only minor damage to the test vehicle and that no undue safety hazard was presented to the vehicle occupants as a result of the impact with the barricade." We believe this confirms our initial assessment that the "3-Rail Breakaway Barricade" of perforated square steel tubes and lightweight plastic sign panels are acceptable for use on the National Highway System.

Summary

Your company's "Air-Flow" and "Bantam II" Roll-Up Signs, Polypropylene Signs Mounted on Drums, and the "3-Rail Breakaway Barricade" as described above and in the enclosures are acceptable for use on the National Highway System when requested by a transportation agency. 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. Presumably, you will supply potential users with sufficient information on design and installation requirements to ensure proper performance. We anticipate that the States will require certification from Flasher Handling that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that submitted for acceptance. To prevent misunderstanding by others, this letter of acceptance, designated as number WZ-12, shall not be reproduced except in full.

If any of these devices is a patented product, it will be considered "proprietary." 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 for use on Federal-aid projects, except exempt, non-NHS 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. 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,



Dwight A. Horne
Director, Office of Highway Safety Infrastructure

Enclosure

FHWA:NArtimovich:db:x61320:5/27/99
cc: Reader - HMHS, Chron - Rm 3407
N. Artimovich - HMHS

Flasher Handling's Air Flow "Roll-Up" Sign

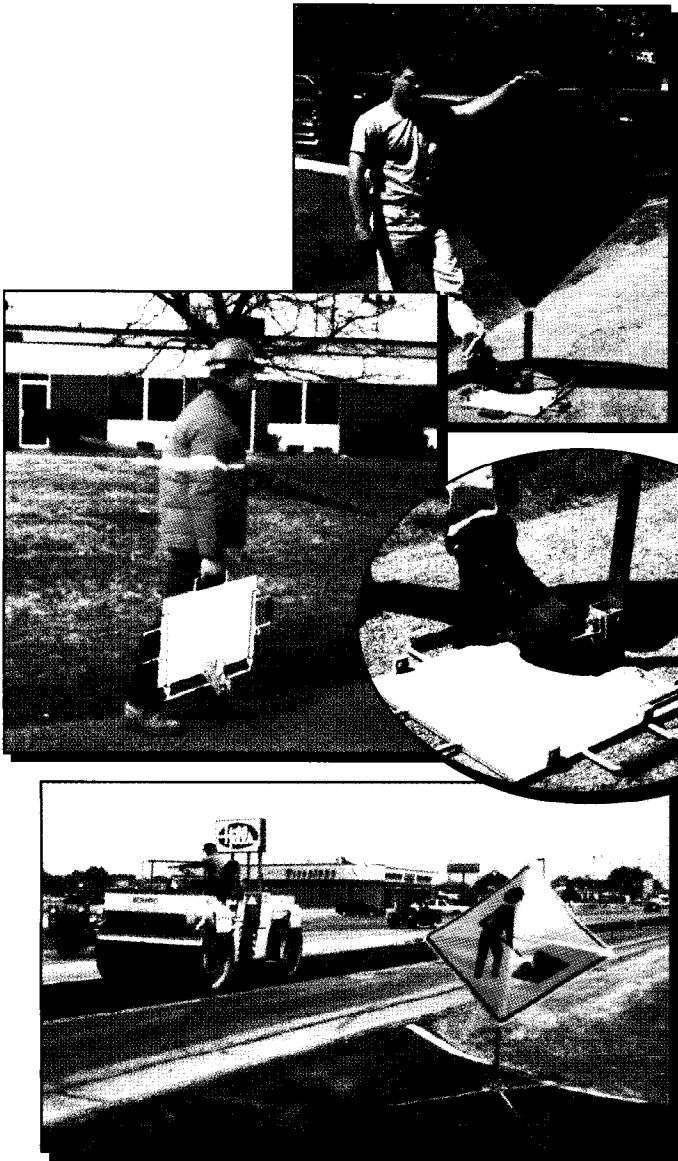
TRULY PORTABLE WORK AREA PROTECTION DURING CONSTRUCTION AND MAINTENANCE

Flasher Handling's "Roll-Up" Road Sign is the best value on the highway today. It's available in solid vinyl, retro-reflective, or mesh fabric. Sizes available are: 30" (76.2 cm), 36" (91.44 cm), and 48" (121.92 cm), all with warning legends or international symbols. Custom messages or symbols can be ordered.

Options include directional arrows, advisory speed signs, flag holders, flashing lights and a vinyl storage bag for the sign and post assembly. Base options include side handles (shown in picture).

Flasher Handling's modern design enables its standard "Roll-Up" sign to be set up or taken down in one minute or less. The fiberglass main post yields to winds, but the safety warning remains visible to motorists. The sign's solid steel base features a patented quick release bracket operated by a foot pedal. Once released from the bracket, the "Roll-Up" sign rolls around the post assembly for easy carrying or storage. The steel base plate has padded carrying handles and a retractable outrigger that adds stability in high winds.

Also available with the Bantam II sign base shown at left.



PLEASE TURN THE PAGE FOR COMPLETE AIR FLOW "ROLL-UP" SIGN SPECIFICATIONS



Flasher Handling Corporation

125 Taylor Drive • Depew, NY 14043-2014
Tel: 716-681-3000 • Fax: 716-681-1188
Customer Service: 1-800-451-9636

Visit us on the web at:
www.The-Flash.com
E-Mail us at: FlasherH@aol.com

SPECIFICATIONS

Air Flow "Roll-Up" Road Signs

SIGN MODELS

SIGN SIZE	MODEL#	VERTICAL POST	HORIZONTAL POST	BASE PLATE
30" X 30" 76.2 cm x 76.2 cm	6360	1/4" X 1 3/4" X 63" .64 cm x 4.44 cm x 160.02 cm	39" 99.06 cm	3/8" X 16" x 16" .95 cm x 40.64 cm x 40.64 cm Steel 32 lbs./14.4 kg
36" x 36" 91.44 cm x 91.44 cm	6366	1/4" x 1 3/4" x 63" .64 cm x 4.44 cm x 160.02 cm	47" 119.38 cm	3/8" x 16" x 16" .95 cm x 40.64 cm x 40.64 cm Steel 32 lbs./14.4 kg
48" x 48" 121.92 cm x 121.92 cm	6368	1/4" x 1 3/4" x 84" .64 cm x 4.44 cm x 213.36 cm	64" 162.56 cm	7/16" x 16" x 16" 1.11 cm x 40.64 cm x 40.64 cm Steel 40 lbs./18.00 kg

* NOTE: Extra handles add 3 lbs/1.35 kg to base plate

OPTIONS

- "Breakaway" Extension to increase sign height
- 48" x 24" Directions Arrow (121.92 cm x 60.96 cm)
- Advisory Speed Sign
- 3-Flag Holder; 2-Flag Holder
- Flashing Light; Vinyl Storage Bag
- Bantam II Sign Base

LEGENDS

- Road Work Ahead • Utility Work Ahead • Single Lane • Right Lane Closed • Left Lane Closed •
- Entrance Exit • Mowing Ahead • Survey Crew • Men Working In Trees • Custom •

SYMBOLS

- Worker • Arrow Pointing Left • Arrow Pointing Right • Flagger • Custom •

We have a complete inventory of replacement parts in stock.



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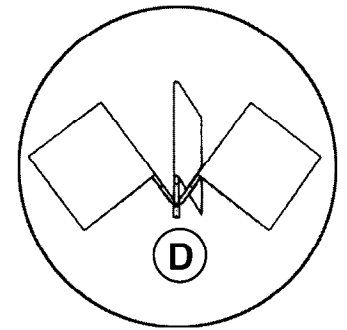
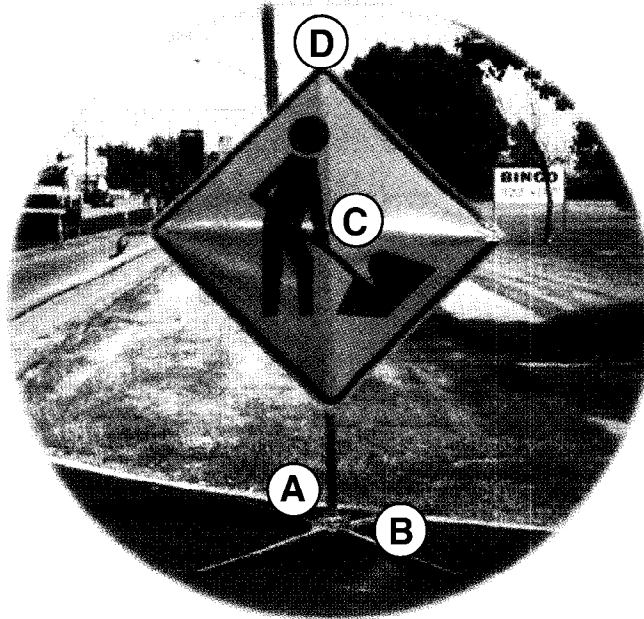
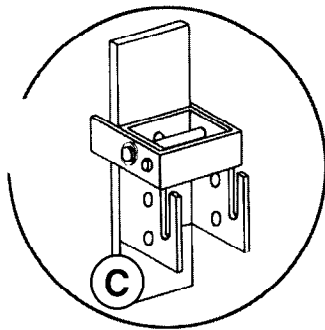
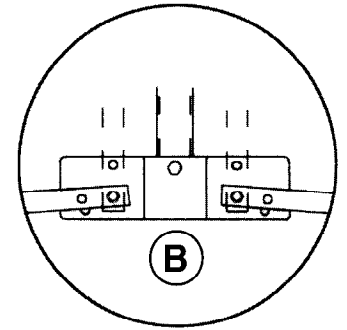
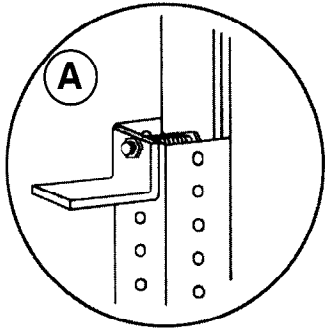
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Distributed By:

BANTAM 2

Portable Sign Frame System

For Roll-Up Signs Of All Manufacturers



- A) Spring-loaded, quick release bracket allows fast setup and take down of sign panel. (Sign panel sold separately.)
- B) Frame's four steel legs telescope and fold vertically for carrying and storage. Unit rests on base when not in use. Requires minimal storage space.
- C) With option "C" bracket posts, unit accommodates 30", 36", and 48" roll-up signs of all manufacturers.
- D) Two or three flag holder available as an option.



Flasher Handling Corporation

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PRODUCT SPECIFICATIONS

BANTAM 2

Product # PSF-48R - Bantam 2

A portable sign frame with tubular steel, spring-loaded legs.
For 30", 36" & 48" roll up signs.

BASE

4 - 1/4" (0.64 cm) thick, tubular steel, telescoping legs. Foot-pedal operated, spring-loaded. Quick Release Bracket is bolted to base. Holds or releases sign and frame for easy set up and takedown.

Quick Release Bracket - U.S. Patent No. D331605 Canadian Patent Nos. 67683, 67684

VERTICAL SIGN SUPPORT

Double fiberglass post (Optional). Dimensions: 1/4" x 1 3/4" x 63" (0.64 cm x 4.45 cm x 160.2 cm).
With option "C" bracket, accommodates 30", 36", and 48" roll up signs of all manufacturers.

SIGN HEIGHT

Minimum height to bottom of sign is 18" (45.72 cm) above the roadway.
Stored size is 9" x 9" x 25" (22.86 cm x 22.86 cm x 63.5 cm).

WEIGHT

18 lbs. (8.0 kilograms) frame only.

OPTIONS

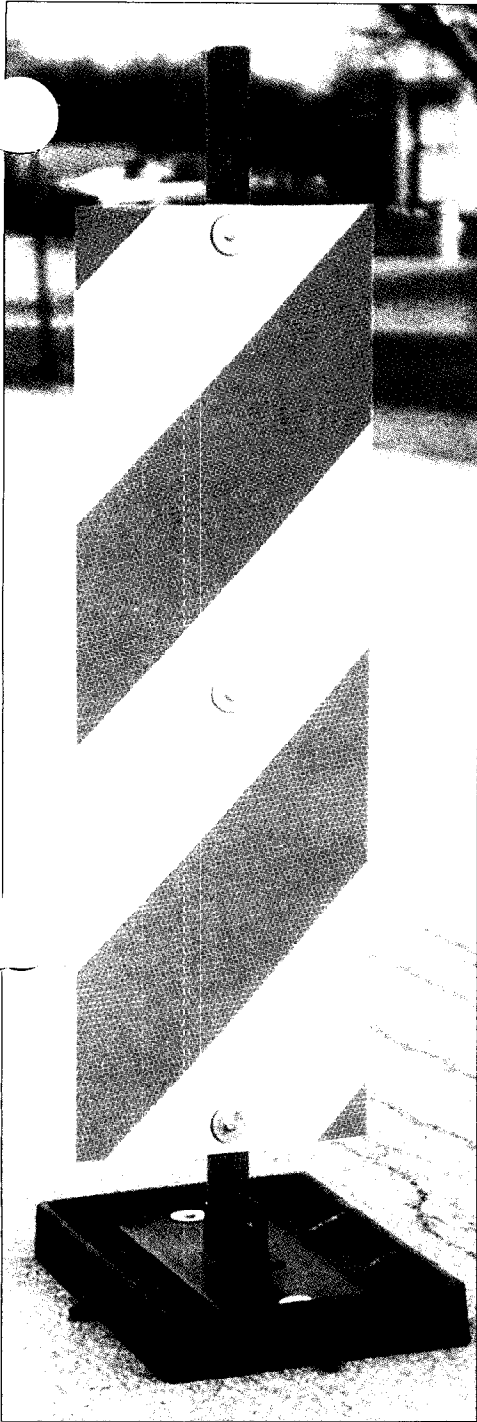
Flasher Handling Air Flow Sign with Frame.
Roll Up Sign Support & Posts (C).
Two or Three Flag Holder Assembly (D).



Flasher Handling Corp.

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Distributed By:



U.S. Patent No. 4,798,017 - Foreign Patent 1303433
U.S. Patent D-331605

Flasher Handling's "AIR SPILL" BARRICADES



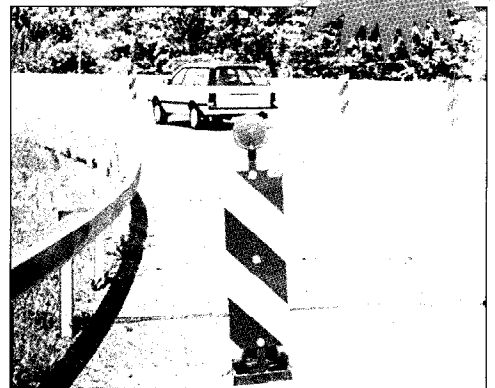
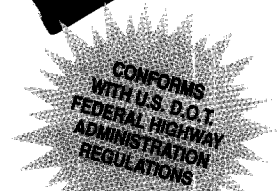
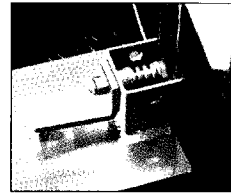
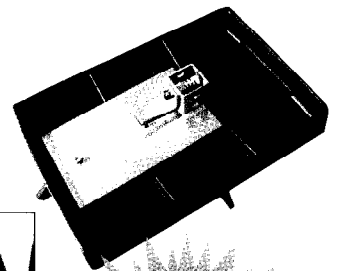
Work Faster and Smarter!

"Air Spill" barricades get more protection and safety on the job faster because they're so easy to handle. "Air Spill" units can be loaded off or on to trucks by one man. Most important, they are so stable no sand-bagging is necessary when the units are ordered with ballast plates.

The reflective panel and post are held firmly in place by a unique, patented quick release bracket that is operated by a foot pedal. The bracket locks or releases the vertical panel instantly.

The "air spilling" action of the flexible panel and the rubber base with its bolted ballast plates keep the "Air Spill" barricade upright in winds up to 55 mph. If struck by a vehicle, the panel releases from the bracket and flutters to the ground harmlessly. It does not become a road hazard as often is the case with a barrel or drum.

"Air Spill" barricades direct traffic positively day and night. They take up much less roadway than barrels and drums and they don't require sandbagging.



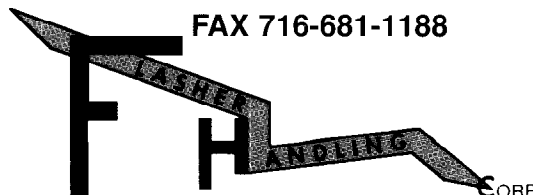
TO ORDER...FOR PRICING...FOR MORE INFORMATION

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**NCHRP 350
ACCEPTED**