



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

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

In Reply Refer To:  
HSA-10/WZ-234

Mr. Jan Miller  
Traffix Devices, Inc.  
220 Calle Pinteroesco  
San Clemente, California 92672

Dear Mr. Miller:

Thank you for your letter of March 16, 2006, requesting the Federal Highway Administration's (FHWA) acceptance of a number of variations to your company's traffic control devices for use in work zones on the National Highway System (NHS). You requested that we find these modified devices 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**

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. Our new acceptance process was outlined in our memorandum "FHWA Hardware Acceptance Procedures – Category 2 Work Zone Devices" dated November 11, 2005.

You requested acceptance to all appropriate current NCHRP-350 performance criteria for these Traffix Devices Inc., (TDI) Class II Temporary Traffic Control Devices based on the attached drawings. Crash test reporting on these products were contained in the FHWA acceptance letters, WZ-24, WZ-46, WZ-73, WZ-108, and WZ-216.



Specific requests with background and discussion as follows:

**Request 1:**

Acceptance of 2 variations of “Super High Level” portable dual spring sign stands, for mounting Rigid Signs, Semi-Rigid Signs and Roll-up fabric signs at 7 ft above grade to the bottom of the sign. See enclosed drawings for reference.

**1a)** Previously Tested and Accepted “Big Buster” with extended mast top mast for use with Roll-up fabric and Semi-rigid signs of LDPE/Laminate or corrugated 16 and 10mm plastic, and

**1b)** Larger scaled “Super Buster” version of Big Buster, geometrically similar, for use with Rigid 5/8” plywood and various thicknesses of solid aluminum as well as Semi-rigid and Roll-up signs.

**Background:**

Various highway agencies are requiring 7 ft mounting heights for long and short duration projects as well as for ground mounted and portable installations. They are interested in using existing, accepted products, particularly those that may offer some component interchangeability.

**Discussion:**

It is generally understood that the greatest risk for sign mounting on both portable as well as ground mounted signs is over 18” and under 5 feet above grade to the bottom of the sign. Raising the sign height an additional 2 feet allows greater clearance for smaller and larger vehicles. Given the use of same stand materials and conformity to same basic relative product geometry, (height/ weight/ footprint/ spring strength) we can safely extrapolate that the product will perform comparably, particularly given an additional 2-foot margin of safety.

The “Big Buster” High-Level, dual spring aluminum sign stand has been tested and accepted for use with the requested standard sign materials, 5/8” plywood to roll-up signs, and Sizes, 48” x 60” and smaller, with signs mounted at 5’- 5’ 6” feet above grade to the bottom. (Ref. WZ’s-24, 73, 108 and 113) Because signs at lower mounting heights are known to be less safe, the existing successful testing on the Big Buster truly represents the “worst case scenario.”

**Conclusion:**

Based on the body of testing done by TDI on this family of products, known testing on the behavior of impacted signs at higher mounting heights, the enclosed drawings, and the typical safety matrix extrapolation procedures used in this process, we believe your requests are reasonable and appropriate.

**Request 2:**

Acceptance for your Phoenix, molded rubber Multi-Purpose sign stand base for use with 48" and smaller Roll-up fabric signs and light weight .030" sheeted plastic vertical barricade or sign panels, typically under 300 sq. inches of material, all mounted at 12" above grade, attached by sewn pocket, rivet or small bolt-set to a 1 3/4" w x 1/4" thick fiberglass pultrusion, pressure-attached to stand base by optional bracket.

**Background:**

In the interest of economy, interchangeability and a need for additional Safety Signs, Pedestrian Crossing Signs and Barricade items, you are requesting to broaden the applications for use of this product to include light weight rollup material, 0.030-in polyethylene, and 10 mm corrugated panels measuring 12 x 36 inches or smaller. The mast will typically be a 1/4" x 1 3/4" fiberglass mast, tall enough to support the sign.

**Discussion:**

Test Data indicate that Category II portable signs offer less risk of occupant compartment penetration when significantly lighter weight substrates and smaller signs are used. In all cases, this 33 lb stand base will accommodate a roll-up or polyethylene sign and frame assembly, no more than a total of 8 lbs, with a center of gravity approximately 4" inches above grade.

The "Phoenix" molded rubber, multi-purpose stand base has been tested and accepted for use from single post sign stanchions to bases for Type III barricades, with a variety of mast materials, square steel or plastic posts, and standard sign materials from 48" diamond-shaped, 0.080" thick solid aluminum and smaller to plastic and roll-up signs, mounted at various heights. (Ref. WZ's-73, 108, 113 and 189) Because all previous successful testing was done with heavier mast, heavier signs, and with much higher centers of gravity, it is safe to say they represent "worst case scenarios."

**Conclusion:**

Based on testing done by TDI on this family of products, known testing on the behavior of impacted comparable products, the enclosed drawings, and the typical safety matrix extrapolation procedures used in this process, we believe your requests are reasonable and appropriate.

**Request 3:**

Acceptance of Traffix Devices standard fold-up barricades with 12" x 24" top panels, the traditional 8" x 24" bottom panel and a standard barricade light. (Chart below)

**Background:**

Recent requests for more reflective panel surface and additional sign/arrow uses have resulted in an increase in popularity of folding barricade products with larger top panels. The lower panel remains the typical standard size. A standard barricade light attachment option is also desired, used with a bolt protector.

You have successfully tested a wide array of fold-up barricade configurations, with various leg materials, plastic and metal, all with standard 8" x 24" top panels, A/C barricade lights, including impacts with a 48" diamond-shaped plastic sign. (Ref. WZ's-24, 46, and 216)

**Discussion:**

The significant difference between the previously accepted product and the requested items is the height of the Top Panel; 12" h x 24" wide vs. the standard 8" h x 24" w. The previously tested and requested items have much in common.

All feature the same legs and barricade light. All have the same height to the top of the top panel. All panels are either Injection or blow molded plastic. Weight difference is negligible (+ 1-2 lbs). Further, the product users will typically ballast the item with either your San-Fil bottom panels, also tested, or another approved ballast method.

It could be stated that the additional material would be an asset, strengthening the product in the 90-degree impact mode. Given the recent test of a barricade with a 48" diamond-shaped plastic sign, we concur your requests are a reasonable extrapolation. The various product series are as follows:

<b>Product</b>	<b>Description</b>	<b>Weight</b>	
		<b>8" x 24"</b>	<b>12"x 24"</b>
35000 Series	12ga. steel legs w/injection molded panels	17.4 lbs.	18.9 lbs.
	14ga. steel legs w/injection molded panels	14.9 lbs.	16.4 lbs.
36000 Series	Blow molded plastic legs w/injection molded panels	12.0 lbs.	13.5 lbs.
37000 Series*	Blow molded plastic legs and panels	12.0 lbs.	13.5 lbs.
39000 Series	Injection molded plastic legs and panels	10.2 lbs.	11.7 lbs.

**Conclusion:**

Given the significant amount of testing performed on this common item, and based on the body of testing done by TDI on this family of products, known testing on the behavior of impacted comparable products, the enclosed drawings, and the typical safety matrix extrapolation procedures used in this process, we concur that your requests are reasonable and appropriate.

## Findings

We concur that the devices described in the various requests above and detailed in the enclosed drawings are 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 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-234 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.
- Certain Traffix Devices Inc., devices are patented and 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 by a highway agency* for use on Federal-aid 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 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.
- 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,

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

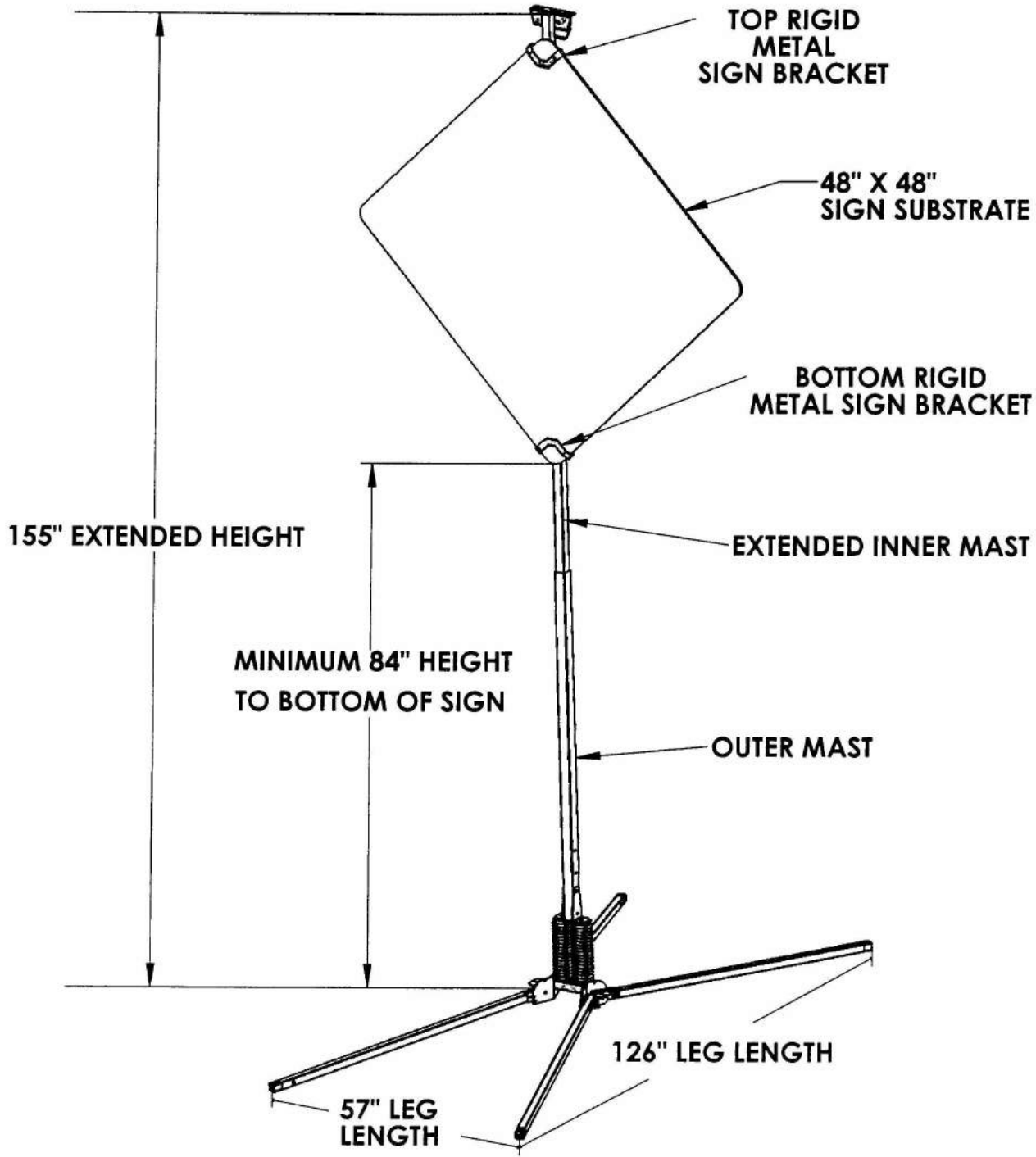
Enclosures


FHWA:HSA-10:NArtimovich:tb:x61331:7/10/06

File: h://directory folder/artimovich/WZ234-TraFFix1FIN.doc

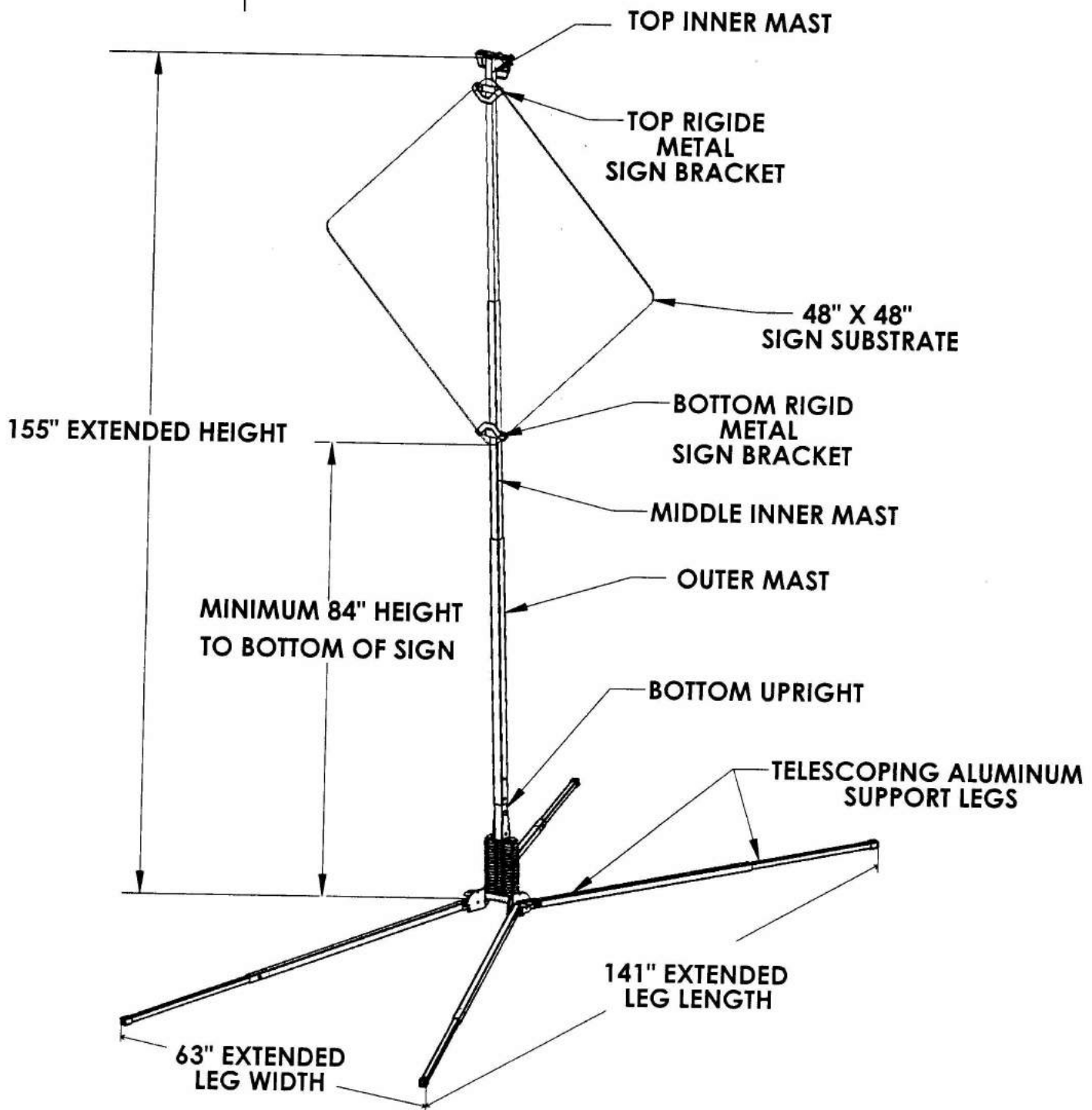
cc: HSA-10 (Reader, HSA-1; Chron File, HSA-10;  
N.Artimovich, HSA-10)

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED



UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN INCHES.		<b>Traffix Devices Inc.</b> 		220 Calle Pintoresno San Clemente, CA 92672 (949) 361-5663 FAX (949) 361-9205 <a href="http://www.traffixdevices.com">www.traffixdevices.com</a>	
<b>SUPER BUSTER          W/EXTENDED INNER MAST</b>					
DRAWN BY: Felipe Almanza	DATE: 2-23-06	SIZE <b>A</b>	DWG NO. 60060 SERIES	REV —	
CHECKED BY:	DATE:	SCALE 1/1	SHEET 1 OF 1		
APPROVED BY:	DATE:				

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REV	DESCRIPTION	DATE	APPROVED



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San Clemente, CA 92672  
949. 361-5663  
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www.traffixdevices.com

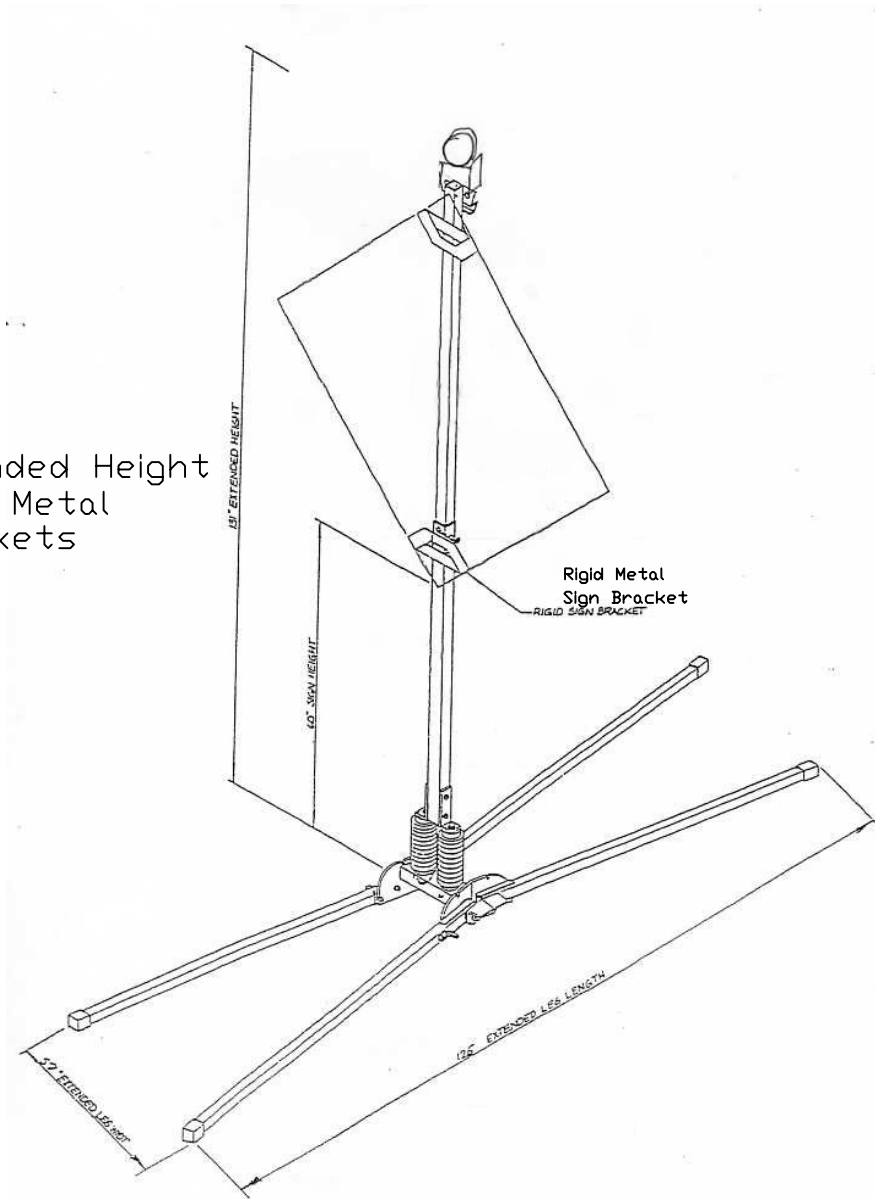
TRAFFIX  
SUPER BUSTER

DRAWN BY: Felipe Almanza	DATE: 2-21-06	SIZE <b>A</b>	DWG NO. 65000 SERIES	REV —
CHECKED BY:	DATE:	SCALE 1/1	SHEET 1 OF 1	
APPROVED BY:	DATE:			



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131" Extended Height  
With Rigid Metal  
Sign Brackets



TRAFFIX BIG BUSTER DUAL SPRING FOLDING LEG SIGN STAND

TRAFFIX BIG BUSTER DUAL SPRING FOLDING LEG  
SIGN STAND WITH RIGID METAL SIGN BRACKETS

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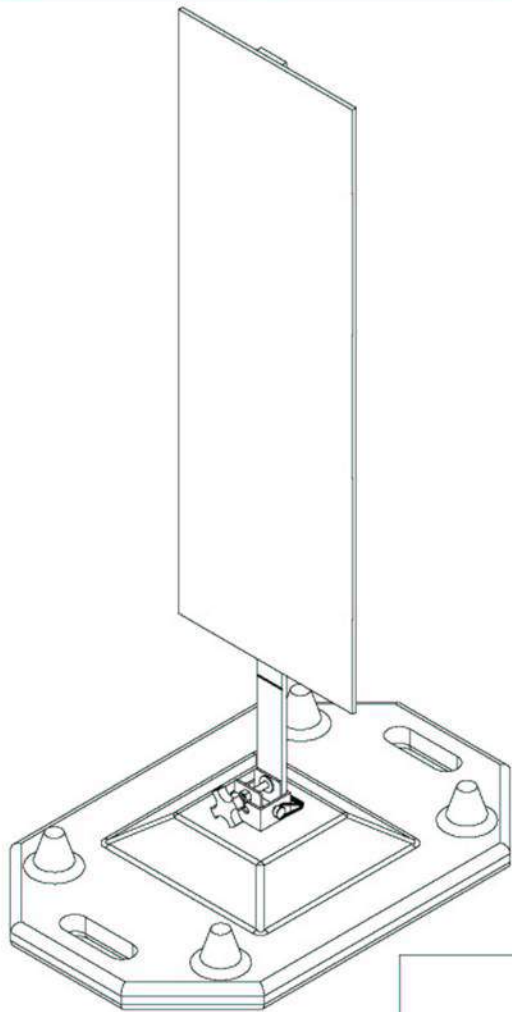


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www.traffixdevices.com

TRAFFIX BIG BUSTER WITH DUAL  
SPRINGS AND FOLDING LEG STAND

DRAWN BY:	DATE:
CHECKED BY:	DATE:
APPROVED BY:	DATE:

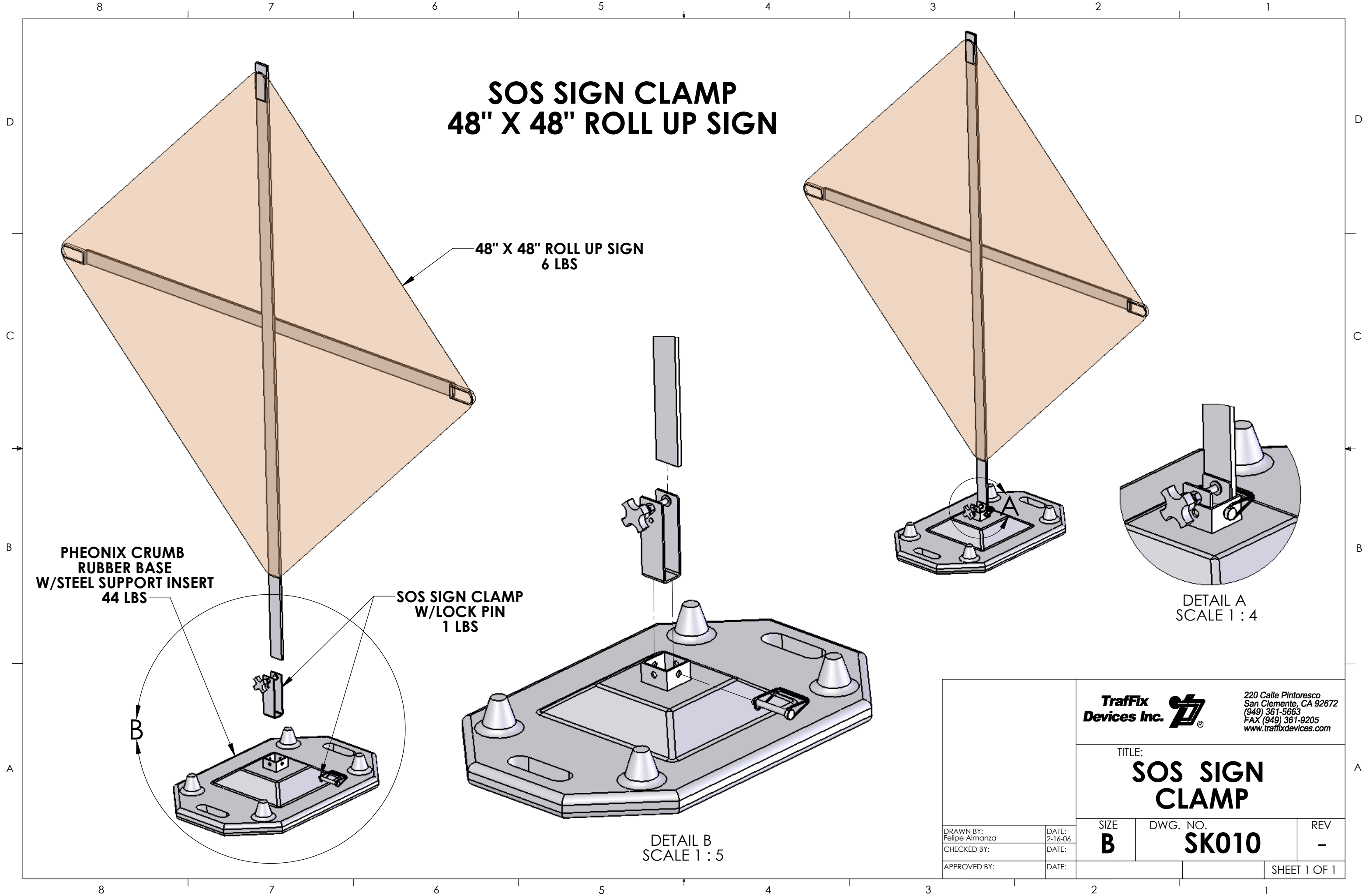
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SCALE 1/1	SHEET 1 OF 1	



		<b>Traffix Devices Inc.</b> 		220 Calle Pintoresco San Clemente, CA 92672 (949) 361-5683 FAX (949) 361-9205 <a href="http://www.traffixdevices.com">www.traffixdevices.com</a>
		TITLE: <b>PHOENIX BASE          12X36 SIGN</b>		
DRAWN BY: GEOFF MAW CHECKED BY: DATE:	DATE: 3/15/06 DATE:	SIZE <b>B</b>	DWG. NO. <b>SKXX2</b>	REV
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# SOS SIGN CLAMP

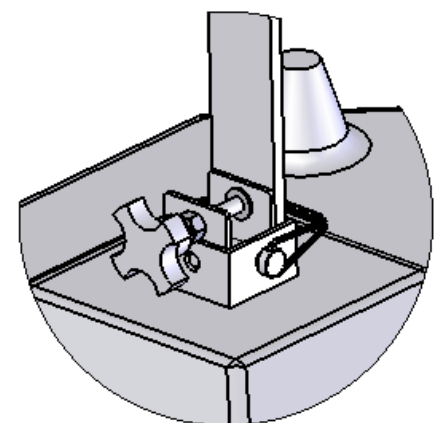
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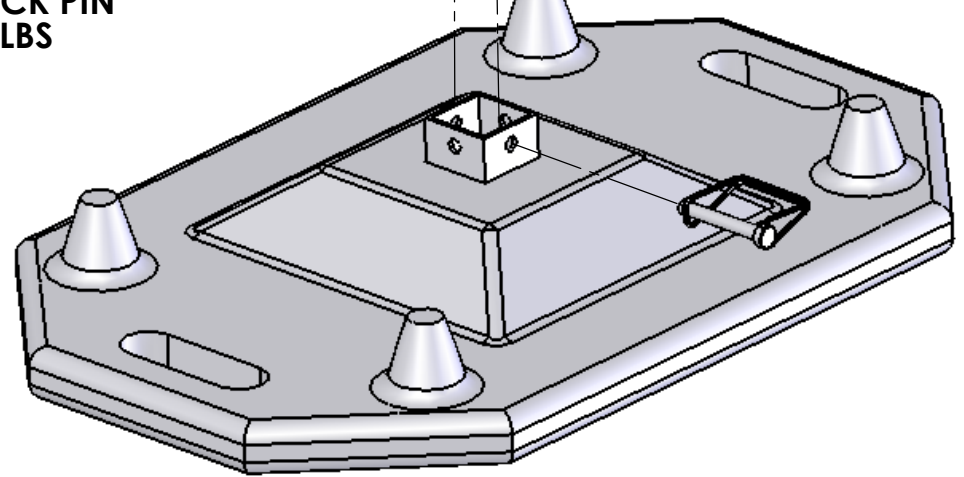
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PHEONIX CRUMB  
RUBBER BASE  
W/STEEL SUPPORT INSERT  
44 LBS


SOS SIGN CLAMP  
W/LOCK PIN  
1 LBS



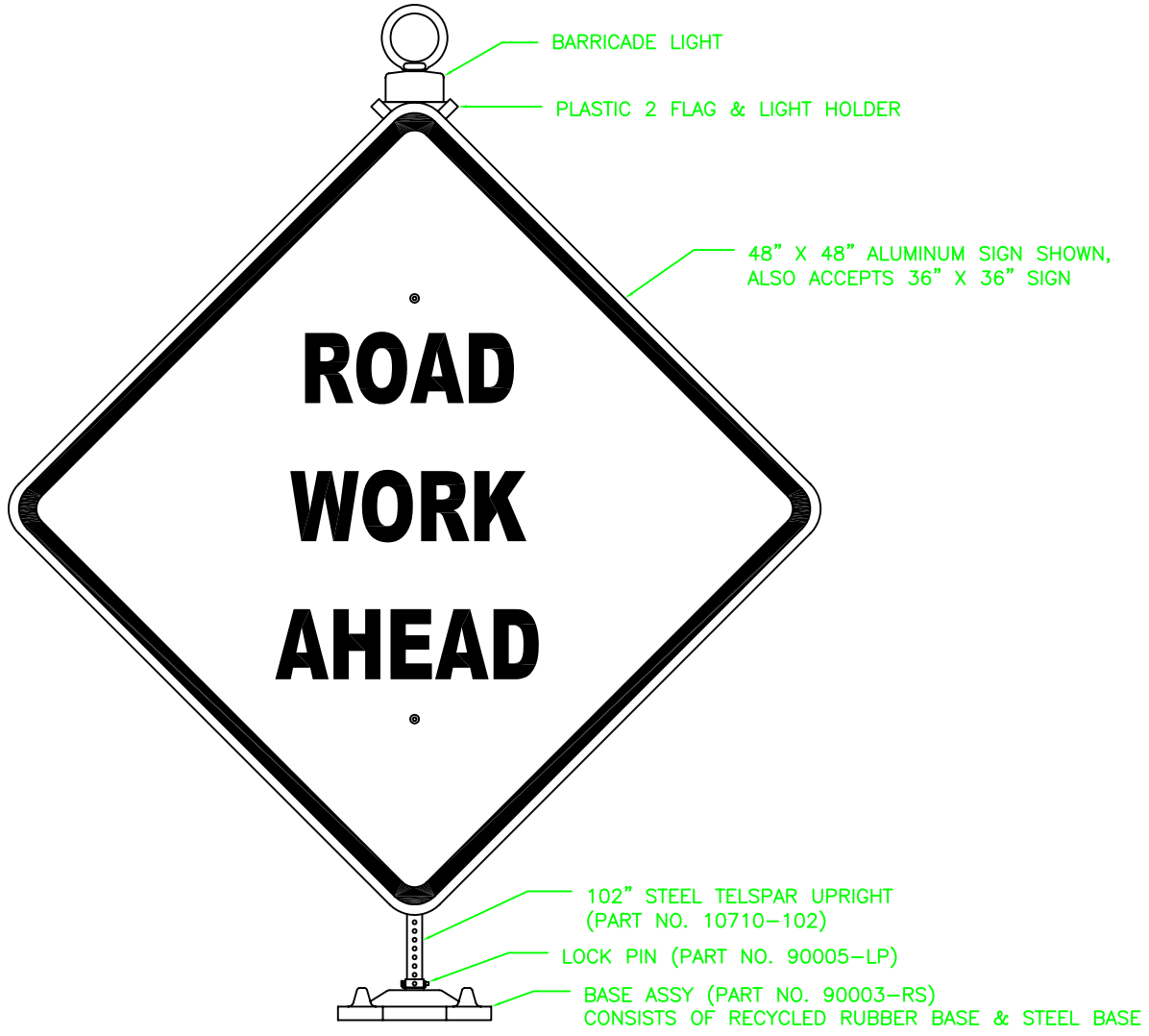
DETAIL A  
SCALE 1 : 4



DETAIL B  
SCALE 1 : 5

DRAWN BY: Felipe Almanza CHECKED BY: DATE: APPROVED BY: DATE:		<b>TraFix Devices Inc.</b> 		220 Calle Pintoresco San Clemente, CA 92672 (949) 361-5663 FAX (949) 361-9205 www.trafixdevices.com	
		TITLE: <h3>SOS SIGN CLAMP</h3>			
SIZE <b>B</b>	DWG. NO. <b>SK010</b>	REV -		SHEET 1 OF 1	

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED



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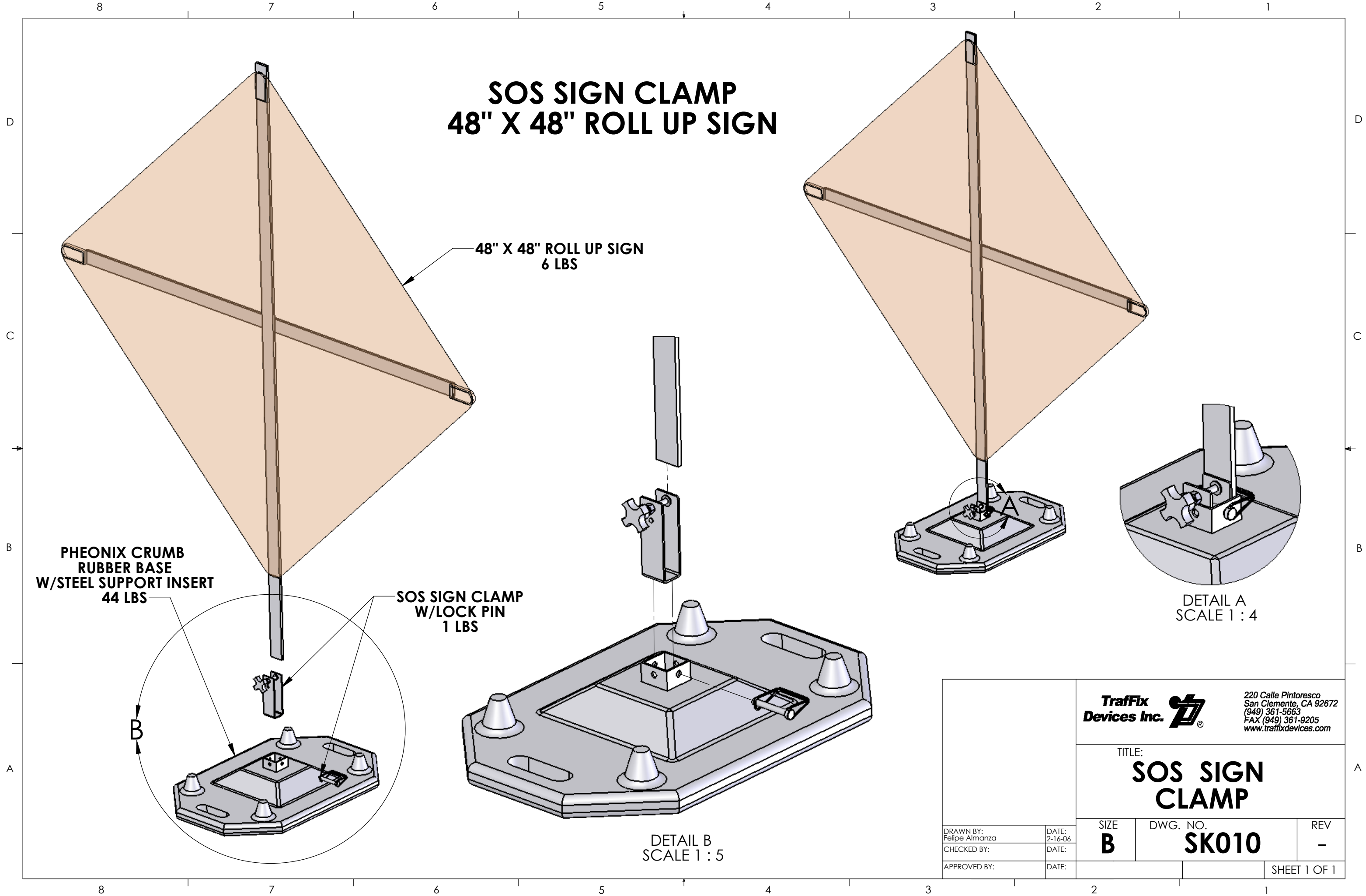
PHOENIX SIGN STAND ASSEMBLY  
WITH TELSPAR LIGHT AND SIGN

DRAWN BY:	DATE: 01-06-04
CHECKED BY:	DATE:
APPROVED BY:	DATE:

SIZE <b>A</b>	DWG NO. 90000 SERIES	REV —
SCALE 1/1	SHEET 1 OF 1	

# SOS SIGN CLAMP

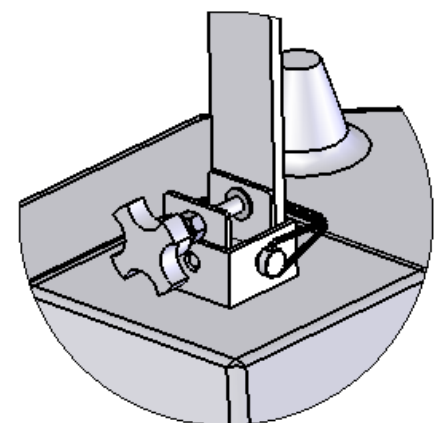
## 48" X 48" ROLL UP SIGN



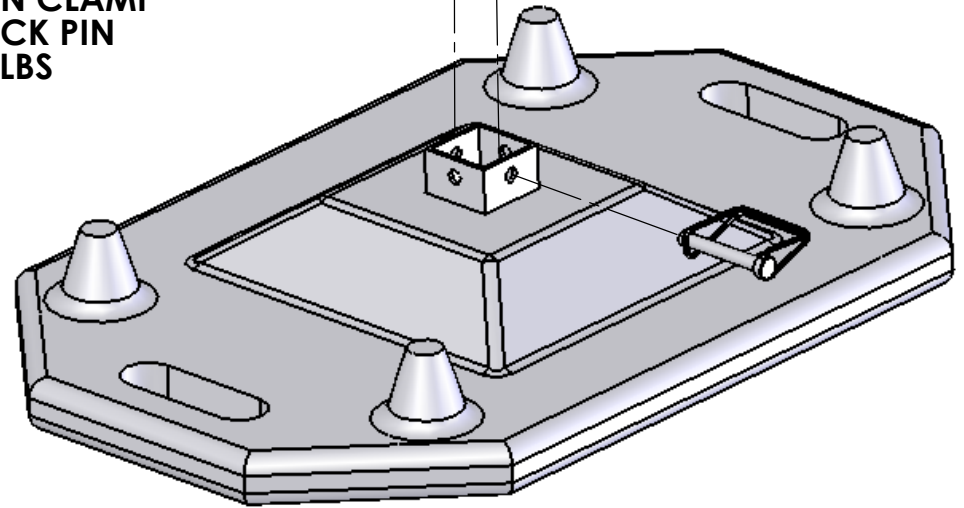
48" X 48" ROLL UP SIGN  
6 LBS

PHEONIX CRUMB  
RUBBER BASE  
W/STEEL SUPPORT INSERT  
44 LBS


SOS SIGN CLAMP  
W/LOCK PIN  
1 LBS



DETAIL A  
SCALE 1 : 4



DETAIL B  
SCALE 1 : 5

DRAWN BY: Felipe Almanza CHECKED BY: DATE: APPROVED BY: DATE:		<b>TraFix Devices Inc.</b> 		220 Calle Pintoresco San Clemente, CA 92672 (949) 361-5663 FAX (949) 361-9205 www.trafixdevices.com	
		TITLE: <b>SOS SIGN CLAMP</b>			
SIZE <b>B</b>	DWG. NO. <b>SK010</b>	REV -		SHEET 1 OF 1	