



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

1200 New Jersey Ave., SE
Washington, D.C. 20590

May 5, 2026

In Reply Refer To:
HSST-1/WZ-475

Daniel Calby
Plasticade
100 Howard Avenue
Des Plaines, IL 60018

Dear Mr. Calby:

We received your correspondence on April 9, 2025 requesting issuance of a Federal-aid reimbursement eligibility letter under the Federal-aid highway program for the roadside safety system, device, design, product, or hardware (collectively “device”) described below. We write to inform you that the device Plasticade SS315 Compact Steel Stand with Vinyl Roll-Up Sign is eligible for Federal-aid reimbursement. This letter is assigned Federal Highway Administration (FHWA) control number WZ-475.

ELIGIBILITY LETTERS

The FHWA issues Federal-aid reimbursement eligibility letters for new roadside safety devices that are crash tested in accordance with the industry standard of the American Association of State Highway and Transportation Officials (AASHTO) Manual for Assessing Safety Hardware (MASH).

FHWA, the Department of Transportation, and the United States (government) do not regulate roadside safety devices, crash test facilities, or the manufacturing industry. Issuance of eligibility letters is discretionary and provided only as a service to the states. FHWA may, at its discretion, decline to issue, revise, or rescind an eligibility letter. Eligibility letters are only issued by the FHWA Office of Safety.

Eligibility letters are issued only as notice to the states that a device is eligible for reimbursement under the Federal-aid highway program. They do not establish approval or certification for any other purpose. Issuance of an eligibility letter is not a prerequisite or requirement for state transportation agencies seeking to use Federal-aid funds for roadside safety devices. State agencies may use a device for which an eligibility letter has not been issued and seek Federal-aid reimbursement.

FEDERAL-AID REIMBURSEMENT

The request for issuance of this letter certified the device was crash tested in accordance with the industry standard of AASHTO’s MASH. This eligibility letter is based on that certification and the documentation offered in support of its issuance. The device described below is eligible for reimbursement under the Federal-aid highway program.

Name of system: Plasticade SS315 Compact Steel Stand with Vinyl Roll-Up Sign
Type of system: Work-Zone Traffic Control Device
Test Level: TL-3
Testing conducted by: Applus IDIADA KARCO Engineering, LLC
Date of request: April 9, 2025

The device and as-tested condition(s) is described as follows:

“The Plasticade SS315 Compact Steel Stand with Vinyl Roll-Up Sign is a work-zone traffic control device. The as-tested device utilized a 48.0 in. (1.2 m) reflective square vinyl roll-up sign mounted at a height of 79.0 in. (2.0 m) measured to the ground. The device has a total weight of 40.0 lbs (18.1 kg).

The SS315 sign stand consists of four (4) Steel Legs, one (1) Aluminum Tube, one (1) Compact Single Spring Base Mast, one (1) Universal Roll-Up Sign Holder, one (1) Compact Spring Base Assembly, and one (1) Vinyl Sign. Each two (2) legs are connected by one (1) Compact Base Leg Crossover Bridge and one (1) Compact Base Side Plate to make an SS315 steel leg assembly. The two (2) steel leg assemblies connect to each other using one (1) Compact Base Spring Support. The total footprint created by sign is 57.0 in. (1,447 mm) by 79.0 in. (2,006 mm).

The Aluminum Tube is a 15.3 in. (390 mm) long, 1.2 in. (32 mm) square tube that is bolted to the Compact Single Spring Base Mast. This mast is subsequently attached to the Compact Spring Base Assembly. The Aluminum Tube has the Universal Roll-Up Sign Holder attached by means of two (2) 8M x 1.25 x 50 Carriage Bolts, two (2) 8M x 1.25 Nut Nylon Locks and two (2) 9 mm I.D. 20 mm OD x 0.7 Washers. The Universal Roll-Up Sign Holder is also secured by an Aluminum Knob Screw and one (1) Female Thread Body ACME and one (1) Flange Nut 12 x 3 mm Thread ACME. The vinyl roll-up sign is mounted to the upper mast via a small Clamp J-Plate. The total sign height measured 79.0 ± 1 in. ($2,006 \pm 25.4$ mm). The legs of the sign were secured to the ground using four (4) 25.0 lbs. (11.3 kg) sandbags.”

Information about the device, including documentation such as the eligibility request, crash test reports, drawings, or images are available upon request.

Eligibility letter WZ-475 is inapplicable to devices, optional equipment, alternate materials, or other features that were not crash tested in accordance with AASHTO’s MASH.

This letter is issued only for the subject device as crash tested under AASHTO’s MASH. Later modification(s) of the device are not eligible for Federal-aid reimbursement under this letter. Notice of later modification(s) should be given to transportation agencies, facility owners, and operators (collectively “agencies”).

Agencies should be provided appropriate information about the device’s design, installation, maintenance, materials, and mechanical properties.

Issuance of this letter is discretionary, and it may be revised or rescinded at FHWA's discretion. This letter is not a determination of compliance with the Build America Buy America Act, the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) or ownership of any intellectual property rights.

This eligibility letter is not a determination by the government that a crash involving the subject device will result in any particular outcome. It is limited to only the device's eligibility for Federal-aid reimbursement.

INTELLECTUAL PROPERTY

Issuance of this eligibility letter does not convey property rights of any sort nor any exclusive privilege. This letter is not authorization or consent by the government for the use, manufacture, or sale of any patented or proprietary system, device, design, product, or hardware for which the requester is not the patent owner. Eligibility letters are not an expression of any view, position, or determination by the government as to the validity, scope, or ownership of any intellectual property rights to a specific device. These letters do not grant, impute, suggest, or otherwise establish any ownership, distribution, or licensing rights to the requester. The government expresses no opinion about the intellectual property rights relating to any device for which this or any other eligibility letter is issued.

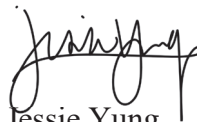
PUBLIC DISCLOSURE

To prevent any misunderstanding, and as discussed above, this Federal-aid eligibility letter is assigned FHWA control number WZ-475. It should only be reproduced in full with its attachment(s). This Federal-aid eligibility letter and the material offered by the requester supporting its issuance is public information. All eligibility letters and supporting material are subject to public disclosure under the Freedom of Information Act (FOIA). Eligibility letters are available to the public at

https://safety.fhwa.dot.gov/roadway_dept/countermeasures/reduce_crash_severity/.

If you have any questions, please contact Paul LaFleur at Paul.LaFleur@dot.gov.

Sincerely,



Jessie Yung
Director, Office of Safety Technologies
Office of Safety

Enclosures

Request for Federal Aid Reimbursement Eligibility of Highway Safety Hardware

Submitter	Date of Request:	April 01, 2025	☒ New ☐ Resubmission
	Name:	Daniel Calby	
	Company:	Plasticade	
	Address:	100 Howard Avenue, Des Plaines, IL 60018	
	Country:	United States of America	
	To:	Michael S. Griffith, Director FHWA, Office of Safety Technologies	

I request the following devices be considered eligible for reimbursement under the Federal-aid highway program.

Device & Testing Criterion - Enter from right to left starting with Test Level

!-!-!

System Type	Submission Type	Device Name / Variant	Testing Criterion	Test Level
'WZ': Crash Worthy Work Zone Traffic Control Devices	☒ Physical Crash Testing ☐ Engineering Analysis	Plasticade SS315 Compact Steel Stand with Vinyl Roll-Up Sign	AASHTO MASH	TL3

By submitting this request for review and evaluation by the Federal Highway Administration, I certify that the product(s) was (were) tested in conformity with the AASHTO Manual for Assessing Safety Hardware and that the evaluation results meet the appropriate evaluation criteria in the MASH.

Individual or Organization responsible for the product:

Contact Name:	Daniel Calby	Same as Submitter ☒
Company Name:	Plasticade	Same as Submitter ☒
Address:	100 Howard Avenue, Des Plaines, IL 60018	Same as Submitter ☒
Country:	United States of America	Same as Submitter ☒

Enter below all disclosures of financial interests as required by the FHWA 'Federal-Aid Reimbursement Eligibility Process for Safety Hardware Devices' document.

Plasticade is the manufacturer and marketer of device.

Applus IDIADA KARCO Engineering, LLC (IDIADA KARCO) is an independent research and testing laboratory having no affiliation with any other entity. IDIADA KARCO is actively Involved In data acquisition and compliance/certification testing for a variety of government agencies and equipment manufacturers. The principals and staff of IDIADA KARCO have no past or present financial, contractual or organizational interest in any company or entity directly or indirectly related to the products that KARCO tests. If any financial interest should arise, other than receiving fees for testing, reporting, etc., with respect to any project, the company will provide, In writing, a full and immediate disclosure to the FHWA.

PRODUCT DESCRIPTION

- ☒ New Hardware or Significant Modification
 ☐ Modification to Existing Hardware

The Plasticade SS315 Compact Steel Stand with Vinyl Roll-Up Sign is a work-zone traffic control device. The as-tested device utilized a 48.0 in. (1.2 m) reflective square vinyl roll-up sign mounted at a height of 79.0 in. (2.0 m) measured to the ground. The device has a total weight of 40.0 lbs (18.1 kg).

The SS315 sign stand consists of four (4) Steel Legs, one (1) Aluminum Tube, one (1) Compact Single Spring Base Mast, one (1) Universal Roll-Up Sign Holder, one (1) Compact Spring Base Assembly, and one (1) Vinyl Sign. Each two (2) legs are connected by one (1) Compact Base Leg Crossover Bridge and one (1) Compact Base Side Plate to make an SS315 steel leg assembly. The two (2) steel leg assemblies connect to each other using one (1) Compact Base Spring Support. The total footprint created by sign is 57.0 in. (1,447 mm) by 79.0 in. (2,006 mm).

The Aluminum Tube is a 15.3 in. (390 mm) long, 1.2 in. (32 mm) square tube that is bolted to the Compact Single Spring Base Mast. This mast is subsequently attached to the Compact Spring Base Assembly. The Aluminum Tube has the Universal Roll-Up Sign Holder attached by means of two (2) 8M x 1.25 x 50 Carriage Bolts, two (2) 8M x 1.25 Nut Nylon Locks and two (2) 9 mm I.D. 20 mm OD x 0.7 Washers. The Universal Roll-Up Sign Holder is also secured by an Aluminum Knob Screw and one (1) Female Thread Body ACME and one (1) Flange Nut 12 x 3 mm Thread ACME. The vinyl roll-up sign is mounted to the upper mast via a small Clamp J-Plate. The total sign height measured 79.0 ± 1 in. (2,006 ± 25.4 mm). The legs of the sign were secured to the ground using four (4) 25.0 lbs. (11.3 kg) sandbags.

CRASH TESTING

By signature below, the Engineer affiliated with the testing laboratory, agrees in support of this submission that all of the critical and relevant crash tests for this device listed above were conducted to meet the MASH test criteria. The Engineer has determined that no other crash tests are necessary to determine the device meets the MASH criteria.

Engineer Name:	Dominick Dieterle	
Engineer Signature:	<b style="font-size: 1.2em;">Dominick Dieterle	Digitally signed by Dominick Dieterle DN: cn=Dominick Dieterle, o=Applus IDIADA, ou=Engineering, email=dominick.dieterle@idiada.com, c=US Date: 2025.04.01 11:24:34 -07'00'
Address:	9270 Holly Road, Adelanto, CA, 92301	Same as Submitter ☐
Country:	United States of America	Same as Submitter ☐

A brief description of each crash test and its result:

Required Test Number	Narrative Description	Evaluation Results
3-70 (1100C)	Per MASH 2016, Test 70 is designed to evaluate the ability of small vehicles to activate any breakaway, fracture, or yielding mechanism associated with the work zone feature during low-speed impacts. For freestanding, lightweight features, velocity changes during low-speed impacts will be within acceptable limits, even when a breakaway, fracture, or yielding feature is not incorporated. Therefore, Test 70 is considered optional for work-zone traffic control devices weighing less than 220 lbs (100 kg). The as-tested device weight was 40.0 lbs (18.1 kg) and therefore Test 70 was not performed.	Non-Relevant Test, not conducted
3-71 (1100C)	Applus IDIADA Test No. P45006-01. Test Date January 10, 2025. Crash Test Report No. TR-P45006-01-NC / TR-45007-01-NC for MASH 2016 Test 3-71 Crash Test of the SS315 Compact Steel Stand with Vinyl Roll-Up Sign. Two (2) SS315 Compact Steel Stand with Vinyl Roll-Up Sign were impacted in a single test run. The devices were spaced 60.0 ft. (18.3 m) apart and set at two (2) critical impact angles (CIA), 0° and 90°. The first device was positioned at a CIA of 0° and 16.9 in. (430 mm) to the passenger side of the vehicle's centerline. The second device was aligned 13.0 in. (330 mm) so that the intended impact point would result in 16.9 in. (430 mm) to the driver side of the vehicle's centerline. An 1100C test vehicle approached the first sign oriented at 0° at a nominal speed of 62.00 mph (100.00 km/h). The first sign was impacted at a velocity of 66.97 mph (107.77 km/h). The impact location was 17.0 in. (432 mm) from the vehicle centerline on the passenger side. The test vehicle then impacted the 90° CIA device at a velocity of 64.77 mph (104.24 km/h). The impact location was 17.8 in. (452 mm) from the vehicle centerline on the driver side. SS315 Compact Steel Stand with Vinyl Roll-Up Sign yielded and broke away in a predictable manner. There was no penetration into the occupant compartment and the deformation limits were not exceeded. The SS315 Compact Steel Stand with Vinyl Roll-Up Sign met all the requirements for MASH Test 3-71.	PASS

Required Test Number	Narrative Description	Evaluation Results
3-72 (2270P)	Applus IDIADA Test No. P45007-01. Test Date January 10, 2025. Crash Test Report No. TR-P45006-01-NC / TR-45007-01-NC for MASH 2016 Test 3-72 Crash Test of the SS315 Compact Steel Stand with Vinyl Roll-Up Sign. Two (2) SS315 Compact Steel Stand with Vinyl Roll-Up Sign signs were impacted in a single test run. The devices were spaced 60.0 ft. (18.3 m) apart and set at two (2) critical impact angles (CIA), 0° and 90°. The first device was positioned at a CIA of 0° and was aligned 19.7 in. (500 mm) to the passenger side of the vehicle's centerline. The second device was positioned at a CIA of 90° and was aligned 15.7 in. (400 mm) to the driver side of the vehicle's centerline. A 2270P test vehicle approached the first sign oriented at 0° at a nominal speed of 62.00 mph (100.00 km/h). The first sign was impacted at a velocity of 60.79 mph (97.84 km/h). The impact location was 18.9 in. (480 mm) from the vehicle centerline on the passenger side. The test vehicle then impacted the 90° CIA device at a velocity of 59.96 mph (96.50 km/h). The impact location was 16.1 in. (410.0 mm) from the vehicle centerline on the driver side. The SS315 Compact Steel Stand with Vinyl Roll-Up Sign yielded and broke away in a predictable manner. There was no penetration or deformation into the occupant compartment. The SS315 Compact Steel Stand with Vinyl Roll-Up Sign met all the requirements for MASH Test 3-72.	PASS

Full Scale Crash Testing was done in compliance with MASH by the following accredited crash test laboratory (cite the laboratory's accreditation status as noted in the crash test reports.):

Laboratory Name:	Applus IDIADA KARCO Engineering, LLC.	
Laboratory Signature:	Dominick Dieterle Digitally signed by Dominick Dieterle DN: cn=Dominick Dieterle, o=Applus IDIADA, ou=Engineering, email=dominick.dieterle@idiada.com, c=US Date: 2025.04.01 11:42:55 -0700	
Address:	9270 Holly Road, Adelanto, CA, 92301	Same as Submitter ☐
Country:	United States of America	Same as Submitter ☐
Accreditation Certificate Number and Dates of current Accreditation period :	TL 371: November 13, 2024 - November 13, 2026	

Submitter Signature*: Daniel Calby

Digitally signed by Daniel Calby
Date: 2025.04.09 10:10:48
+05'00'

Submit Form

ATTACHMENTS

Attach to this form:

- 1) Additional disclosures of related financial interest as indicated above.
- 2) A copy of the full test report, video, and a Test Data Summary Sheet for each test conducted in support of this request.
- 3) A drawing or drawings of the device(s) that conform to the Task Force-13 Drawing Specifications [[Hardware Guide Drawing Standards](#)]. For proprietary products, a single isometric line drawing is usually acceptable to illustrate the product, with detailed specifications, intended use, and contact information provided on the reverse. Additional drawings (not in TF-13 format) showing details that are relevant to understanding the dimensions and performance of the device should also be submitted to facilitate our review.

FHWA Official Business Only:

Eligibility Letter		
Number	Date	Key Words

MASH 2016 Test 3-71 Summary

0° CIA

90° CIA



0.000 seconds

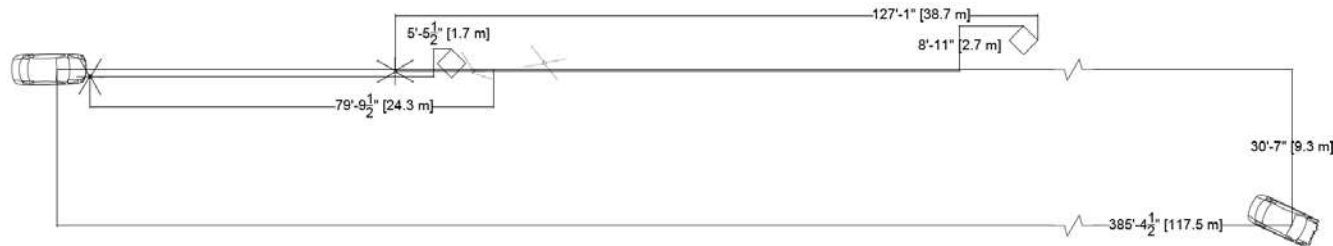
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General Information

Test Agency.....Applus IDIADA
Test No.....P45006-01
Test Designation.....3-71
Test Date.....1/10/25

Test Article

Name / Model.....SS315 Compact Steel Stand with Vinyl Roll-Up Sign
Type.....Work-Zone Traffic Control Device
Device Height6.9 ft. (2.1 m)
Key Elements.....Roll-Up Sign, Steel Legs, Spring Assembly
Road Surface.....Smooth, clean concrete

Test Vehicle

Type / Designation.....1100C
Year, Make, and Model.....2021 Kia Rio
Curb Mass.....2,494.5 lbs (1,131.5 kg)
Test Inertial Mass.....2,430.6 lbs (1,102.5 kg)
Gross Static Mass.....2,592.6 lbs (1,176.0 kg)

Impact Conditions

Impact Velocity (Target).....62.14 mph (100.00 km/h)
Impact Velocity (Actual) D1.....66.97 mph (107.77 km/h)
Impact Velocity (Actual) D2.....64.77 mph (104.24 km/h)
Device 1 Angle.....0.0°
Device 2 Angle.....90.0°
Location / Orientation (Target) D1... 16.9 in. (430 mm) From veh. CL on Pass.
Location / Orientation (Target) D2... 16.9 in. (430 mm) From veh. CL on Driv.
Location / Orientation (Actual) D1... 17.0 in. (432 mm) From veh. CL on Pass.
Location / Orientation (Actual) D2... 17.8 in. (452 mm) From veh. CL on Driv.
Device 1 Kinetic Energy.....300.3 kip-ft (407.2 kJ)
Device 2 Kinetic Energy.....301.7 kip-ft (409.1 kJ)
Minimum KE Required.....288 kip-ft (390 kJ)

Exit Conditions

Device 1 Exit Velocity.....65.45 mph (105.3 km/h)
Device 2 Exit Velocity.....62.72 mph (100.94 km/h)
Vehicle Resting Position.....385.4 ft. (117.5 m) Downstream
30.6 ft. (0.7 m) Passenger
Vehicle StabilitySatisfactory
Maximum Roll Angle.....N/A*
Maximum Pitch Angle.....N/A*
Maximum Yaw Angle.....N/A*

Occupant Risk

Longitudinal OIV.....Not Applicable*
Lateral OIV.....Not Applicable*
Longitudinal RA.....Not Applicable*
Lateral RA.....Not Applicable*
THIV.....Not Applicable*
PHD.....Not Applicable*
ASI.....Not Applicable*

Test Article Deflections

0° Sign Debris Field (longitudinal) ... 79.8 ft. (24.3 m)
0° Sign Debris Field (lateral).... 5.5 ft. (1.7 m)
90° Sign Debris Field (longitudinal).. 127.1 ft. (38.7 m)
90° Sign Debris Field (lateral)..... 8.9 ft. (2.7 m)

Vehicle Damage

Vehicle Damage Scale.....12-FD-1
CDC.....12FDAW1
Maximum Deformation.....0.0 in. (0 mm)

* Not Applicable, device weighs less than 220 lbs (100 kg)

Figure 3: Summary of Test 3-71

MASH 2016 Test 3-72 Summary

0° CIA

90° CIA



0.000 seconds

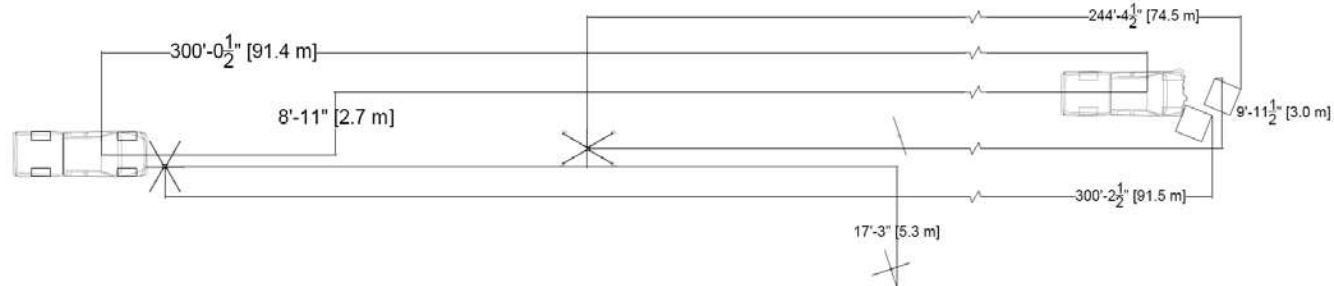
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General Information

Test Agency..... Applus IDIADA
Test No..... P45007-01
Test Designation..... 3-72
Test Date..... 1/10/25

Test Article

Name / Model..... SS315 Compact Steel Stand with Vinyl Roll-Up Sign
Type..... Work-Zone Traffic Control Device
Device Height 6.9 ft. (2.1 m)
Key Elements..... Roll-Up Sign, Steel Legs, Spring Assembly
Road Surface..... Smooth, clean concrete

Test Vehicle

Type / Designation..... 2270P
Year, Make, and Model..... 2020 Ram 1500
Curb Mass..... 4,936.1 lbs (2,239.0 kg)
Test Inertial Mass..... 5,002.2 lbs (2,269.0 kg)
Gross Static Mass..... 5,002.2 lbs (2,269.0 kg)

Impact Conditions

Impact Velocity (Target)..... 62.14 mph (100.00 km/h)
Impact Velocity (Actual) D1..... 60.79 mph (97.84 km/h)
Impact Velocity (Actual) D2..... 59.96 mph (96.50 km/h)
Device 1 Angle..... 0.0°
Device 2 Angle..... 90.0°
Location / Orientation (Target) D1... 19.7 in. (500 mm) From veh. CL on Pass.
Location / Orientation (Target) D2... 15.7 in. (400 mm) From veh. CL on Driv.
Location / Orientation (Actual) D1... 18.9 in. (480 mm) From veh. CL on Pass.
Location / Orientation (Actual) D2... 16.1 in. (410 mm) From veh. CL on Driv.
Device 1 Kinetic Energy..... 749.9 kip-ft (1016.7 kJ)
Device 2 Kinetic Energy..... 749.6 kip-ft (1016.3 kJ)
Minimum KE Required..... 594.0 kip-ft (806.0 kJ)

Exit Conditions

Device 1 Exit Velocity..... 60.68 mph (97.65 km/h)
Device 2 Exit Velocity..... 58.63 mph (94.36 km/h)
Vehicle Resting Position..... 300.0 ft. (91.4 m) Downstream
8.9 ft. (2.7 m) Driver
Vehicle Stability Satisfactory
Maximum Roll Angle..... N/A*
Maximum Pitch Angle..... N/A*
Maximum Yaw Angle..... N/A*

Occupant Risk

Longitudinal OIV..... Not Applicable*
Lateral OIV..... Not Applicable*
Longitudinal RA..... Not Applicable*
Lateral RA..... Not Applicable*
THIV..... Not Applicable*
PHD..... Not Applicable*
ASI..... Not Applicable*

Test Article Deflections

0° Sign Debris Field (longitudinal) ... 300.2 ft. (91.5 m)
0° Sign Debris Field (lateral).... 17.3 ft. (5.3 m)
90° Sign Debris Field (longitudinal).. 244.5 ft. (74.5 m)
90° Sign Debris Field (lateral)..... 9.9 ft. (3.0 m)

Vehicle Damage

Vehicle Damage Scale..... 12-FD-1
CDC..... 12FDEW8

Maximum Deformation..... 0.0 in. (0 mm)

* Not Applicable, device weighs less than 220 lbs (100 kg)

Figure 4: Summary of Test 3-72

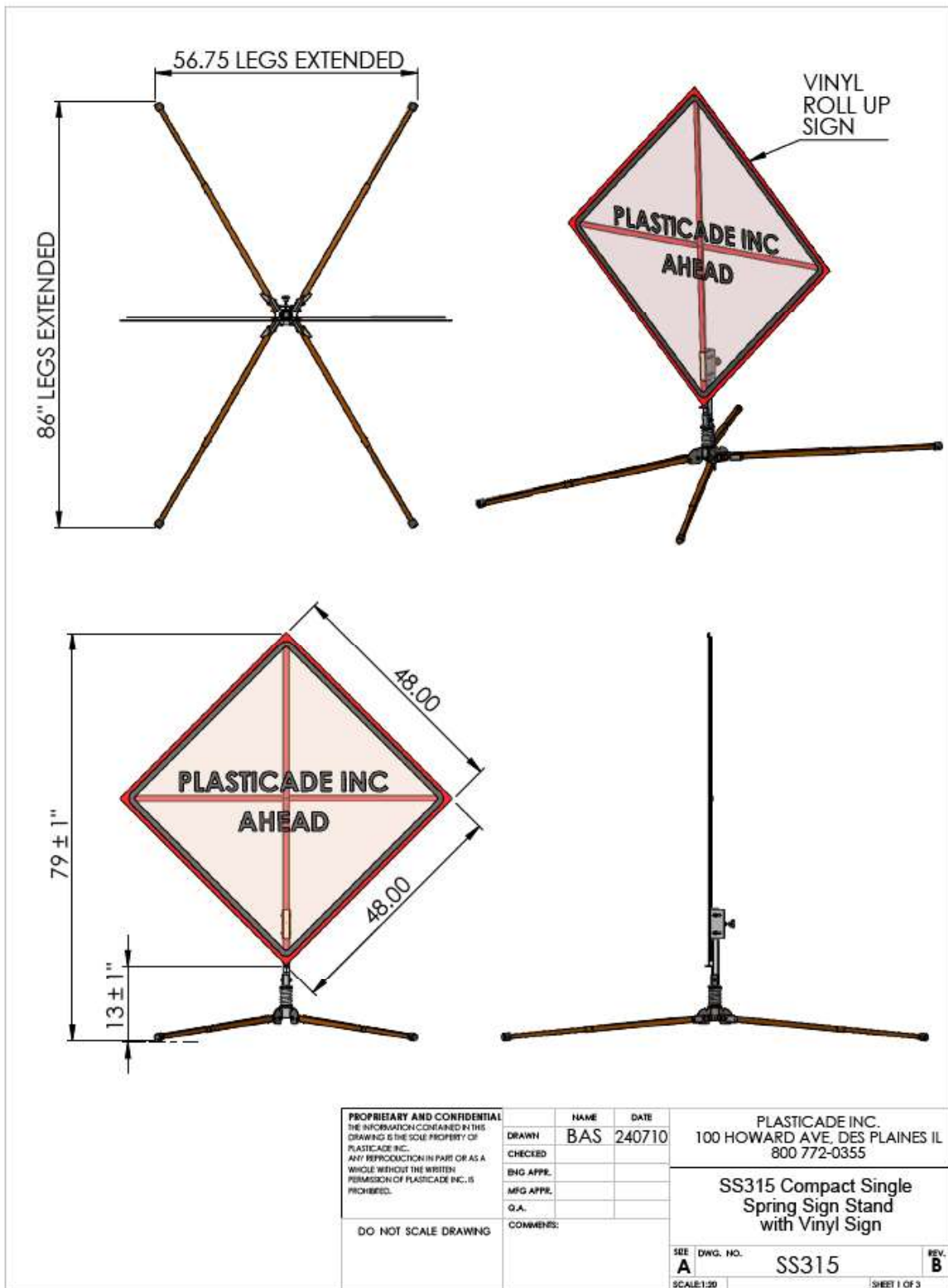


Figure 1: SS315 Compact Single Spring Sign Stand with Vinyl Sign

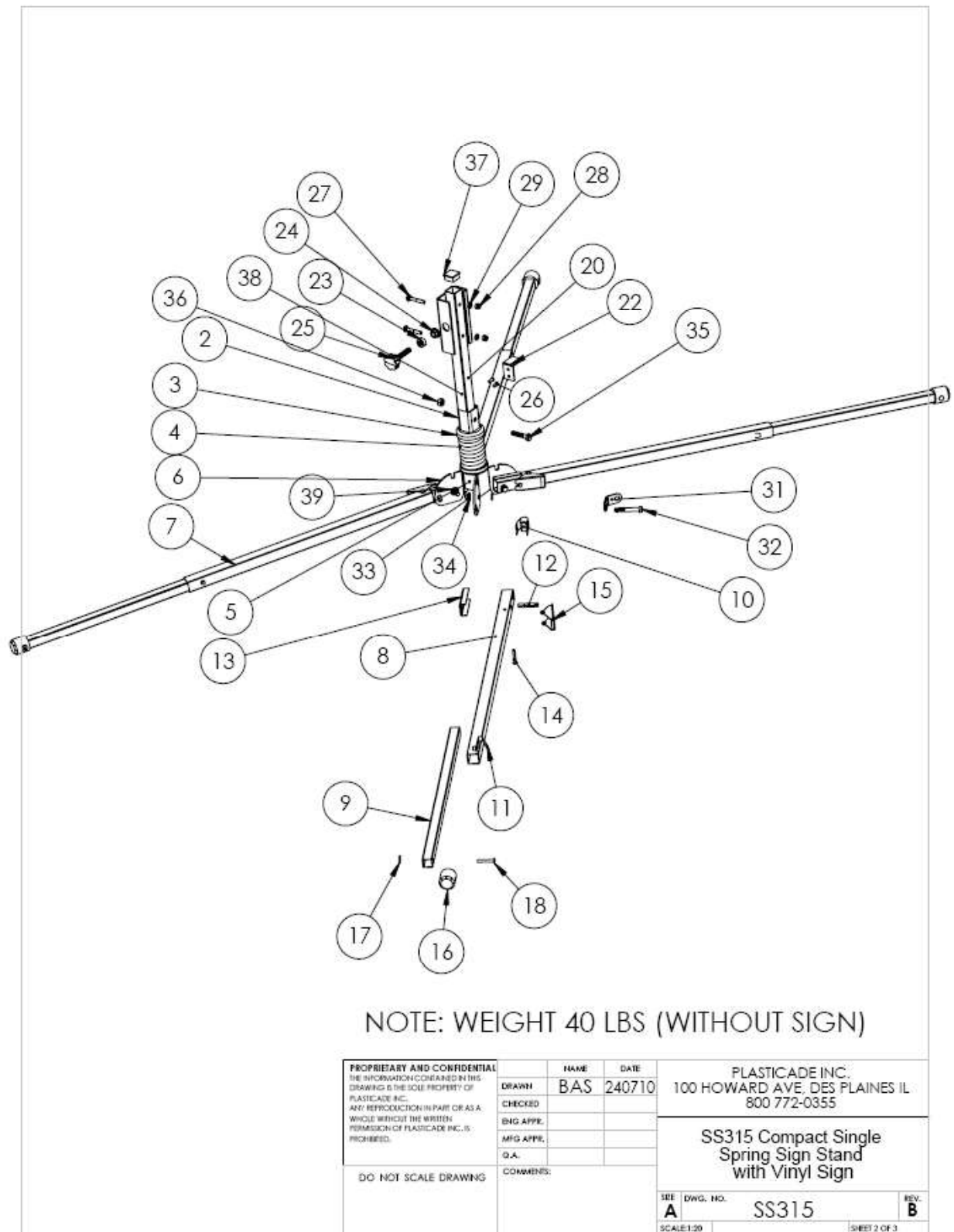


Figure 2: Compact Single Spring Sign Stand (Exploded View)

Figure 3: Compact Single Spring Sign Stand Item List

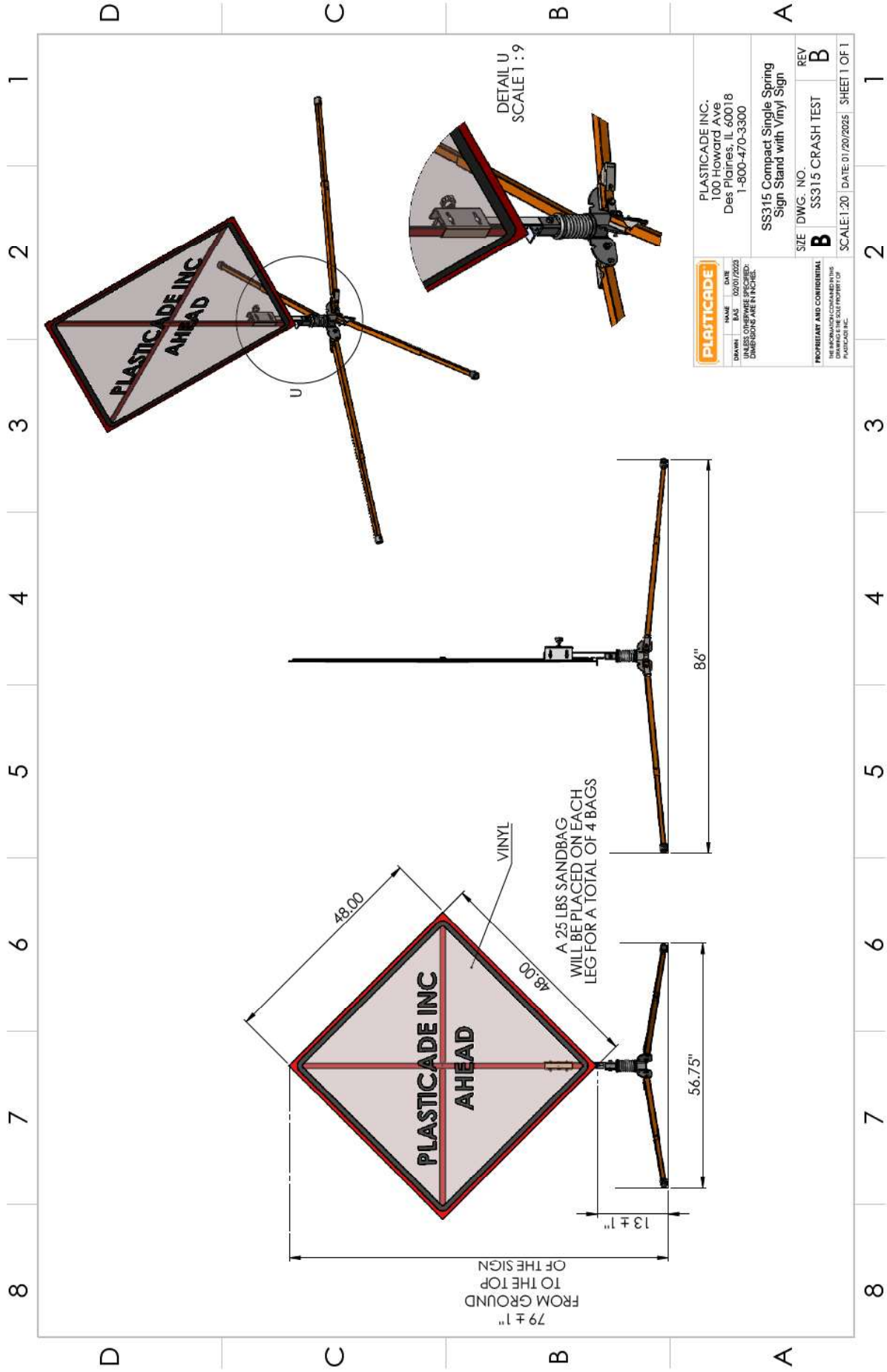


Figure 4: SS315 Compact Single Spring Sign Stand with Vinyl Sign (Crash Test)