

IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF VIRGINIA  
Alexandria Division

TRINITY INDUSTRIES, INC., et. al.,	)	
	)	
Plaintiff,	)	
	)	
v.	)	Civil Action No. 1:11cv937-CMH-TRJ
	)	
SPIG INDUSTRY, LLC, et. al.,	)	
	)	
Defendant.	)	

**DECLARATION OF WILLIAM STAMPS HOWARD**

I, William Stamps Howard, pursuant to 28 U.S.C. § 1746, declare as follows:

1. I obtained a PhD from the University of Pennsylvania from the Department of Mechanical Engineering in 1995. I also obtained a M.S. degree from the University of Pennsylvania from the Department of Mechanical Engineering in 1994.

2. I obtained an MBA from Monmouth University from the school of Business Administration in 1991.

3. I obtained a BSME from Rensselaer Polytechnic Institute from the Department of Mechanical Engineering in 1986. I also obtained a BSEE degree from Rensselaer Polytechnic Institute from the Department of Electrical Engineering in 1986.

4. I am a licensed Professional Engineer (P.E.), with licenses currently held in three states: New Jersey, Georgia, and Alabama.

5. I am a named inventor on 4 US Patents.

6. I am currently the Owner and President of Stability Technology, Inc., a position I have held since forming the company in September 2002. Stability Technology is based in Buford, GA and specializes in the design and development of industrial machinery and equipment. In my capacity as President of Stability Technology, most of my work involves the design and development of machines and equipment, or the improvement of existing machines and equipment, in a wide variety of industries.
7. I have over twenty-five (25) years of experience as a mechanical and electrical engineer, designing and developing robotics, mechanisms, machinery and equipment.
8. I am currently a practicing design engineer, specializing in the design of industrial machinery, machines and equipment (an on-going practice). I am familiar with the development process for the design and development of industrial machinery and equipment from my professional and academic background.
9. I have been involved in the development of many industrial machines and equipment in a number of different industries. I have personally designed and developed, in whole or in part, hundreds of different machines that are currently being used in thousands of factories throughout the United States and worldwide. I would estimate the total value of machinery and equipment that I've designed and/or developed to be in excess of \$100 million. I have worked with many different manufacturing companies to improve, design, or troubleshoot their production machinery and equipment, in a very wide variety of areas.

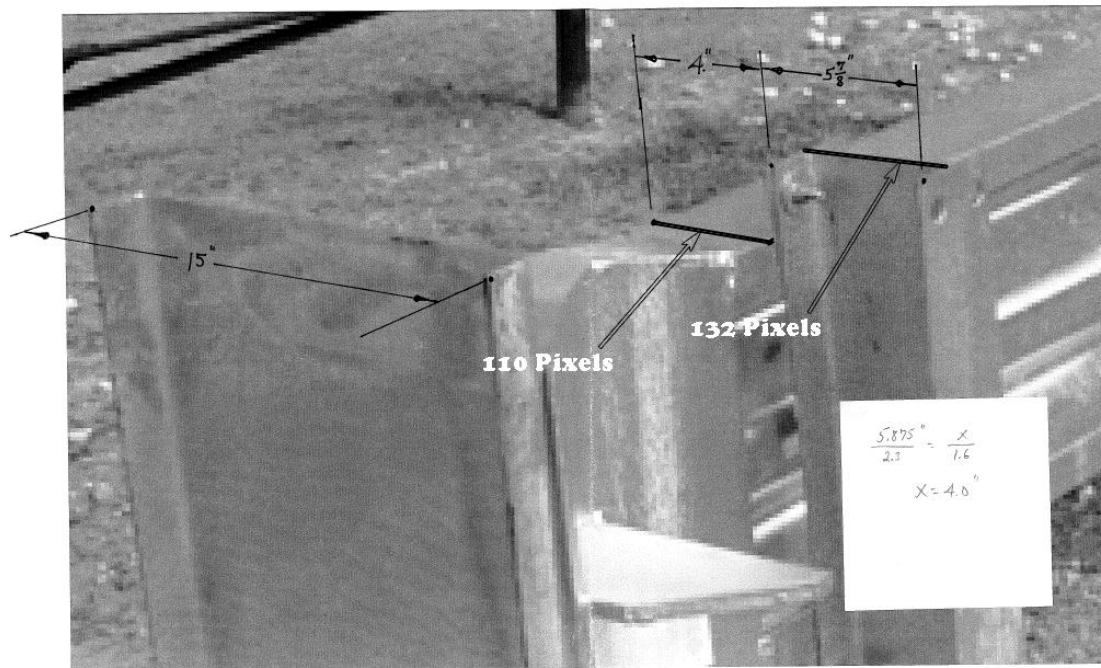
## Executive Summary

10. In Summary, I have the following opinions:
  - a. TRINTY012683 shows a 5-inch version of the ET-PLUS Extruder Terminal Rail Feeder, as explained in Paragraphs 12 – 15.
  - b. The photograph used for TRINITY012683 is a cropped section of TAMUS007835, as explained in Paragraphs 16 – 20.
  - c. TAMUS007835 shows a 5-inch version of the ET-PLUS Extruder Terminal Rail Feeder, as explained in Paragraphs 21 – 23.
  - d. TAMUS007835 is a photograph of the Truck Test, a test of Pickup Truck Redirection at beginning of length of need (3.8 m (12.5 ft) from terminal beginning). It is not a photograph of the Small Car Test at end-on, at quarter-point offset, as explained in Paragraph 24 – 35.
11. Evidence that demonstrates that TAMUS007835 is a photograph of the Pickup Truck Test includes the following:
  - a. The photograph shows the stakes and guide cables used to direct the Pickup Truck into the proper section of the rail. These items are missing in Test 3-30 – Small Car, end-on, at quarter-point offset.
  - b. The photograph show the same installation of the angle iron (between the first two support posts) as in the Truck Test, with the angle iron noticeably above the ground near the first support post. The installation of the angle iron in the Small Car test is noticeably different, in that it is virtually completely buried in the ground.
  - c. The photograph show the same Black Letters on White Background Decal, used to identify the support posts number, as in the Pickup Truck Test. In the Small

Car test, the terminal numbers are hand lettered with a black marker, without a white background.

TRINITY012683 Shows a 5-inch ET-PLUS

12. In order to measure the size of the rail feeder in TRINITY012683, I took a screen shot of the PDF file. From that, I measured the width of the I-Beam as well as the width of the Rail Feeder Chute. I found the I-Beam to be approximately 132 pixels wide, while the Rail Feeder Chute was approximately 110 pixels wide. Based on the 5.875 inch measurement of the I-Beam, the Rail Feeder Chute is seen to be approximately  $(110/132) * 5.875 = 4.9$  inches wide.



13. I also printed out TRINITY012683, and took measurements of the printed drawing. Using a caliper to obtain precise measurements, and measuring at the center of the I-Beam, I found the I-Beam to be approximately 1.26 inches wide, while the Rail Feeder Chute was 1.04 inches wide. Based on the 5.875 inch measurement of the I-Beam, the Rail Feeder Chute is seen to be approximately  $(1.04/1.26) * 5.875 = 4.85$  inches wide.

14. To the extent that I can discern from the blown-up version of the PDF, the dots marked on TRINITY012683 are slightly off, resulting in a slightly wrong measurement of the I-Beam. However, if I use the dots as marked, and measure the I-Beam at that point, I obtain a measurement of 1.30 inches. Based on the 5.875 inch measurement of the I-Beam, the Rail Feeder Chute is seen to be approximately  $(1.04/1.30) * 5.875 = 4.70$  inches wide.

15. Based on these measurements, I believe that TRINITY012683 shows a 5-inch version of the Rail Feeder on the ET-PLUS, and not a 4-inch version.

TRINITY012683 is a Cropped Section of TAMUS007835

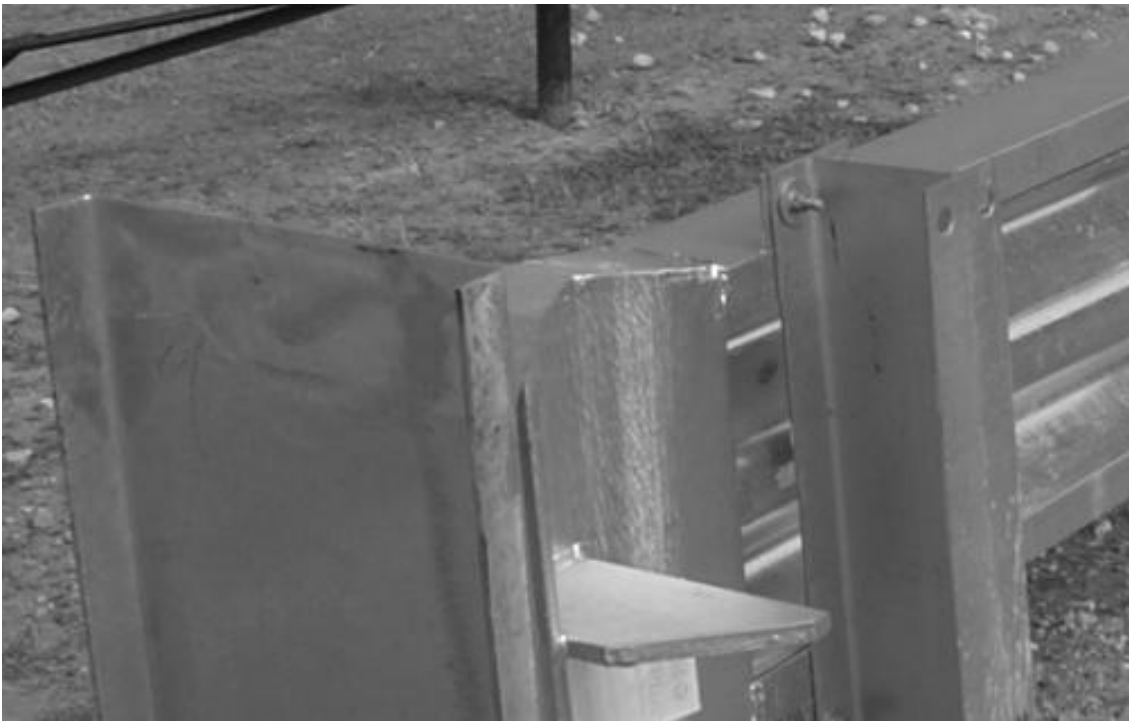
16. The photograph for TRINITY 012683 is shown below:



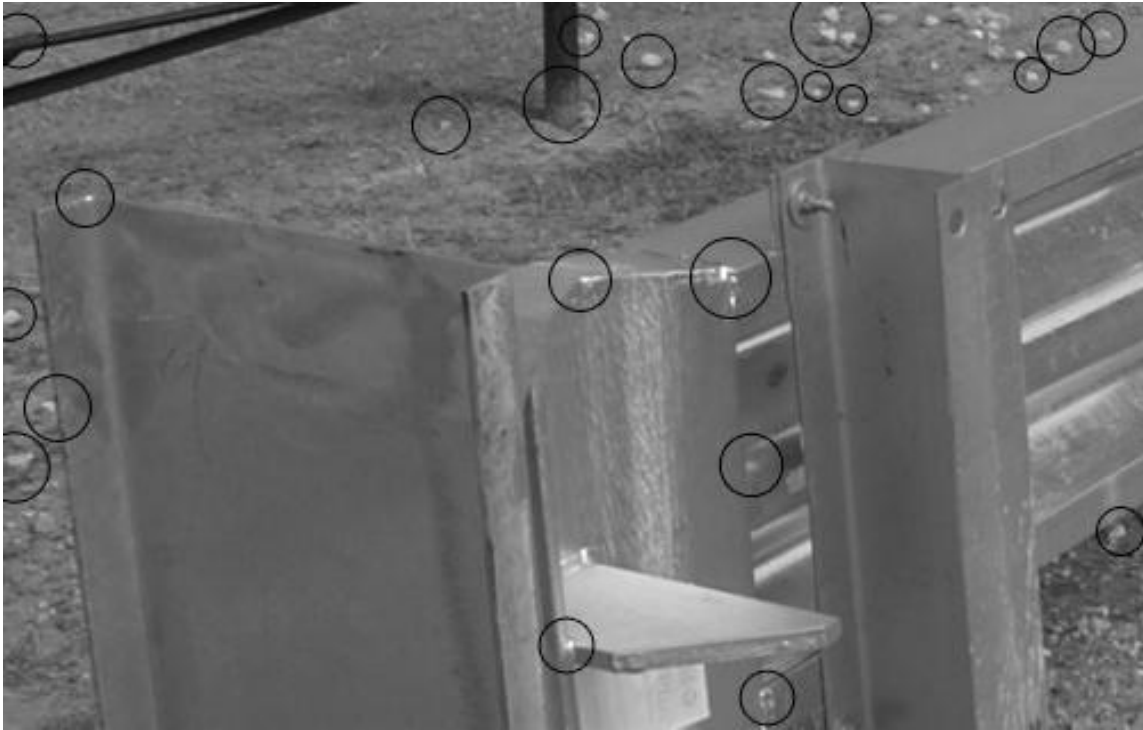
17. The photograph of TAMUS007835 is shown below:



18. The following shows TAMUS007835 cropped similar to TRINITY012683:



19. Note the following identification marks that are the same for both photographs:

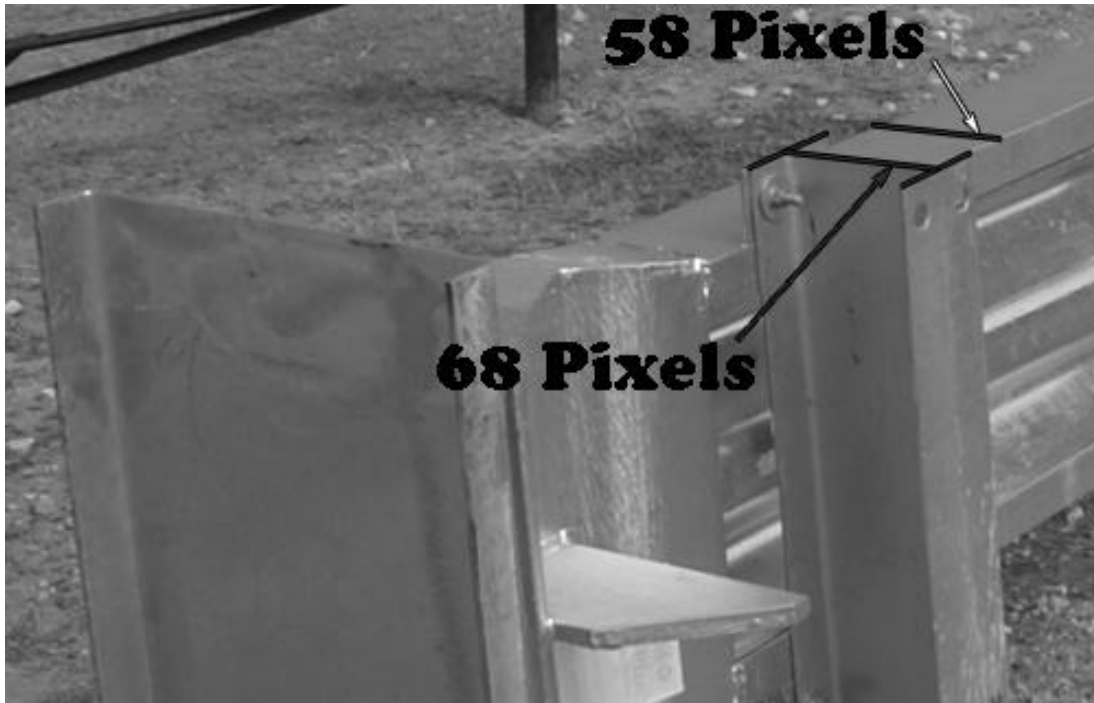


20. Therefore, in my opinion, the photograph used for TRINITY012683 is a cropped section of TAMUS007835

TAMUS007835 Shows a 5-inch ET-PLUS

21. Because I have a native JPG version of TAMU007835, rather than the image capture within the PDF (as I have with TRINITY012683), I can take more careful measurements.

22. As shown, I carefully measured the width of the I-Beam in the figure below, and found it to be approximately 68 pixels. I also carefully measured the width of the Rail Feeder portion of the ET-PLUS, using a parallel line. I measure the width as 58 pixels.



23. Based on the 5.875 inch measurement of the I-Beam, the Rail Feeder Chute is seen to be approximately  $(58/68) * 5.875 = 5.01$  inches.

TAMUS007835 is a Photograph of the Truck Test 3-35

24. There are three area of photograph TAMUS007835 that positively identify it as a section of the rail from the 3-35 Pickup Truck Test (see the photograph below):
- a. The Stake and Guide cable (Area 1)
  - b. The Angle Iron (Area 2)
  - c. The Support Post Numbering (Area 3)

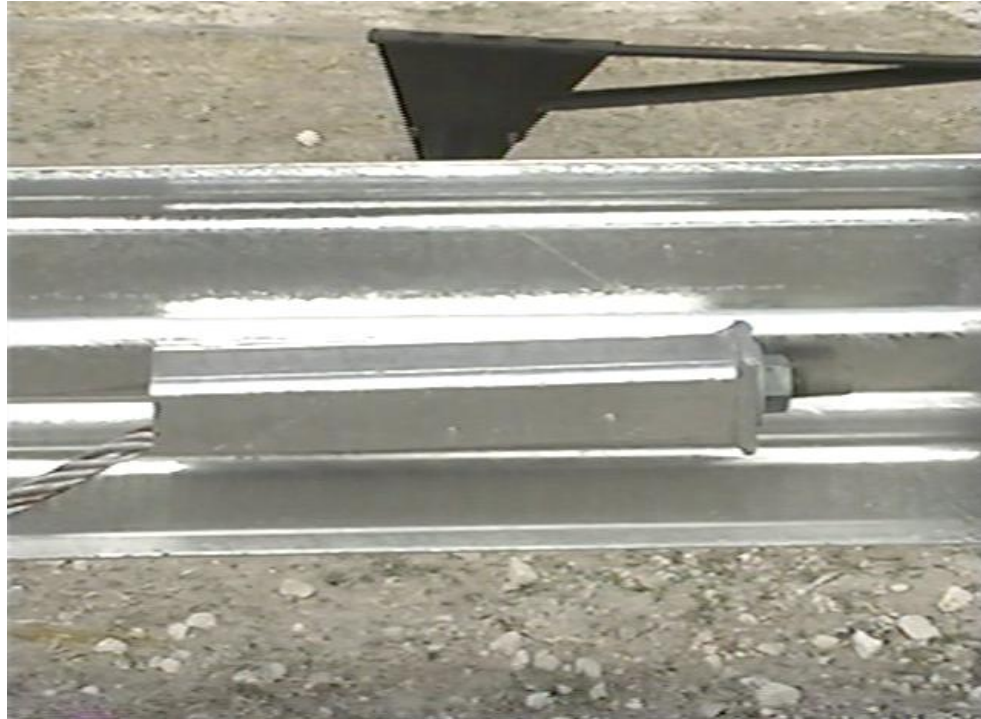




25. Photograph TAMUS007835 contains a stake and guide cables to guide the Pickup Truck into the guard rail at the proper point. This is shown enlarged below:



26. This stake and guide cables are present in the Pickup Truck Test. See the following four screen captures from 2:47, 1:13, 4:26 and 0:34 of the video, respectively. In all cases, the stake and/or cable can be clearly seen.







27. This stake and guide cables set up in a completely different manner in the Small Car Test, since it is an axial test. See the following three screen captures from 1:42, 5:14 and 5:35 of the video, respectively. In all three cases, the stake and cable are clearly absent from the location as shown in TAMU007835







28. Finally, TAMSU007883, a photograph of the results of the Small Car Test, also does not show the stake and cable guides:



29. Photograph TAMUS007835 contains an angle iron, which is slightly above the ground (especially near support post 1, in the lower left hand corner of the photo). See the enlarged photo below:

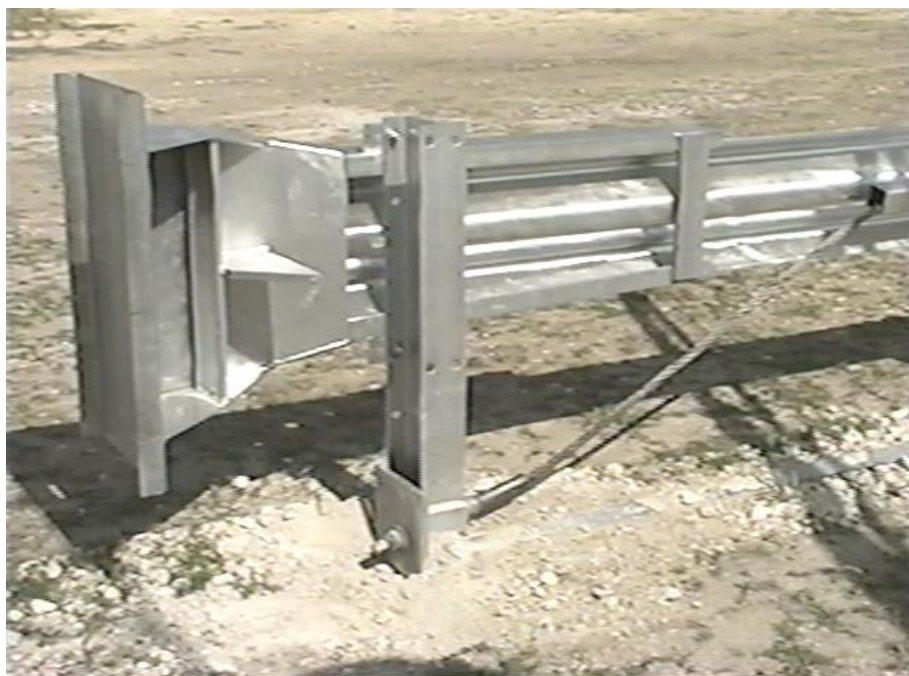


30. This slightly-above-ground angle iron is present in the Pickup Truck Test. See the following screen capture from 7:03 of the Pickup Truck Test video. In this case, the slightly-above-ground angle iron (near the first support post) can be clearly seen.



31. In the Small Car Test, the angle iron is buried in the ground to a much greater extent. See, for example, the following screen capture from 2:19 and 2:28 of the video, respectively. As can be seen, there is no slightly-above-ground angle iron; instead, the angle iron appears to be fully buried in the ground.





32. Photograph TAMUS007835 contains Black-Letters-on-White Decals marking the Support Post numbers. See the follow enlarge section of TAMUS007835:



33. In the video for the Pickup Truck Test, the Black-Letters-on-White Decals can be seen. For example, see the following screen capture at 0:45 of the Pickup Truck Test Video:



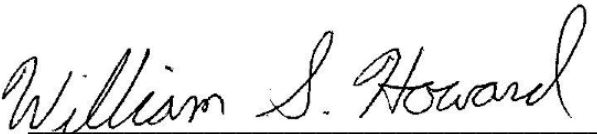
34. In the video for the Small Car Test, the Support Posts are numbered quite differently. It appears to be a hand lettering using a black marker. And there is

clearly no white background. See the following video captures from 8:42 and 8:51 of the Small Car Test video:



35. Therefore, in my opinion, TAMUS007835 is a photograph of the Truck Test, a test of Pickup Truck Redirection at beginning of length of need (3.8 m (12.5 ft) from terminal beginning). It is not a photograph of the Small Car Test at end-on, at quarter-point offset.

I declare under the penalty of perjury under the laws of the United States of America that the foregoing is true and correct. Executed on October 16, 2012.

  
William Stamps Howard