

Declaration of Conformity

In Accordance with ANSI/ISEA 125-2014



Alexander Andrew, Inc. 1306 S. Alameda St Compton, CA 90221

Declaration #

S0217001c

Declaration Date

1.12.17

Tested Item #

77602K

60' 2-person Kernmantle Horizontal Lifeline System

Additional Items Conforming Under this Declaration:

77302K

771002K

77600S

77300S

Alexander Andrew, Inc. declares that the product(s) listed above is in conformity with the requirements of the following performance standard(s):

OSHA 1926.502 and 1910.66

Conformity Assessment Method in accordance with ANSI/ISEA 125-2014

Level 1

Level 2

Level 3

Level 1: FallTech Lab
Outside the Scope of
ISO/IEC Standard 17025:2005

Level 2: FallTech Lab
Within the Scope of
ISO/IEC Standard 17025:2005

Level 3: Independent 3rd Party Lab
accredited to
ISO/IEC Standard 17025:2005

Supporting
Documentation

DTP-00025

DTP-00031

Authorized Signature

Name

Martin Barila

Title

VP of Operations

Date

11.7.17

FallTech Test Report

Test Report Number	DTP-00025	Date	1/12/17	Rev	A	Rev Date	1/12/2017
Report Prepared For	Dusty Hawkins						
Initiated By	Zack Winters	Test Specification	OSHA 1926, No Applicable ANSI Standard				
Base Part #	77302K	Description	Kernmantle HLL Kit				
Proposed Part #	77302K	Built By Whom	Production	BOM	Yes		
Test Request #	DTP-00025	Date Received	12/29/16	Date Complete	1/13/2017		
Test Operator	Zack Winters	Test Operator	Mark Sasaki, Warren Faber, Jay Sponholz				

Material/Sample Identification

Sample ID	Description
77302K (Various)	30' Kernmantle HLL Kit; See DTP-000025 for Details
77602K (Various)	60' Kernmantle HLL Kit; See DTP-000025 for Details



Test Summary

Test Specification	Test Criteria	Test Result	Pass/Fail
See DTP-000025	See DTP-000025	See DTP-000025 Results	See DTP-000025 Results

Conclusion

FallTech P/N 77302K & 77602K Kernmantle HLL Kit meets the requirements of OSHA 1926, OSHA 1910, and FallTech's General Manufacturing Requirements.

Report Signatories and Approval

Lab Quality Manager		Date	2/14/2017
Witnessed by	Not Required	Date	NR
Director of Engineering		Date	2/14/2017

FallTech Test Report

Test Report Number	DTP-00025	Date	1/12/17	Rev	A	Rev Date	1/12/2017
Report Prepared For	Dusty Hawkins						
Initiated By	Zack Winters	Test Specification	OSHA 1926, No Applicable ANSI Standard				
Base Part #	77302K	Description	Kernmantle HLL Kit				
Proposed Part #	77302K	Built By Whom	Production	BOM	Yes		
Test Request #	DTP-00025	Date Received	12/29/16	Date Complete	1/13/2017		

Test Information

Description of Test	Kernmantle HLL Full System Testing		
Test Method	See DTP-000025		
Acceptance Criteria	See DTP-000025		
Test Procedure	See DTP-000025		
Conditioning Requirements	N/A	Actual Conditions	Ambient
Time Removed from Conditioning	N/A	Time Tested	N/A
Test Environment	Ambient Conditions, Outdoors		
Test By	Zack Winters	Test Date	1/2/16-1/11/13

Equipment Used

Equipment Used	Size/Type	Control Number	Calibration Date
20k Load Cell	20,000 Lbf Load Cell (+/- 0.5%)	240878	2/22/2016

Test Results

Sample ID	Characteristic	Criteria	Test Data	Pass/Fail
See DTP-000025	See DTP-000025	See DTP-000025	See DTP-000025 Results	See DTP-000025 Results

End of Report



Testing Protocol

Project/Product:	Project #103 (3CS-030716) Kernmantle HLL
Part #:	77302K/77602K
Maker/Vendor:	FallTech
Protocol Code	DTP-000025
Requested By	Zack Winters
Date	10/6/2016
# of Samples Required	17 HLLs Total - [6 PCS 77302K (30') & 11 PCS 77602K (60')] 26 PEAs Total - 18 PCS 8256, 3 PCS 82706SB1, 3 PCS 727620, & 2 PCS 8247

Section 1: Product Description

The Kernmantle HLL is a 2-person temporary rope horizontal lifeline with tensioner and integral energy absorber. The system also requires the use of personal energy absorbers connected between the user and the horizontal lifeline. The system will be offered in three lengths: 30', 60', and 100' and can be attached directly to anchor points using the provided carabiners or used with web anchor slings (concrete columns, I-beams, etc.).

Section 2: Attachment Method

The Kernmantle HLL will be attached to the testing structure's two rigid anchor points with the kit included carabiners, (7372 anchor slings around columns or 7414P weld on D-rings), at the necessary height so that the test mass does not contact the ground. The PEA(s) will be attached to the connecting O-rings on the HLL, positioned at the middle of the span. For lanyards, the shock pack will be oriented closest to the test mass. For SRDs, the orientation will vary with the type of SRD.

Section 3: Testing Instructions

Special Instructions/Notes: For the multi-person dynamic drop tests, the lumped sum test mass methodology will be followed, using a single test mass with multiple PEAs attached to the HLL. The test mass will weigh 493.5lbs for the 2-person tests. The tolerance on the test masses is +/- 2lbs.

Testing Raw Data to be Collected:

- 1) Maximum & Average Forces to the Anchor Point (Load Cell in line with HLL system)
- 2) Initial, Dynamic, and Final Sag distances of lifeline
- 3) Pretension force of lifeline after installation
- 4) Total fall clearance
- 5) HLL Energy Absorber deployment distance
- 6) Personal Energy Absorber deployment distance

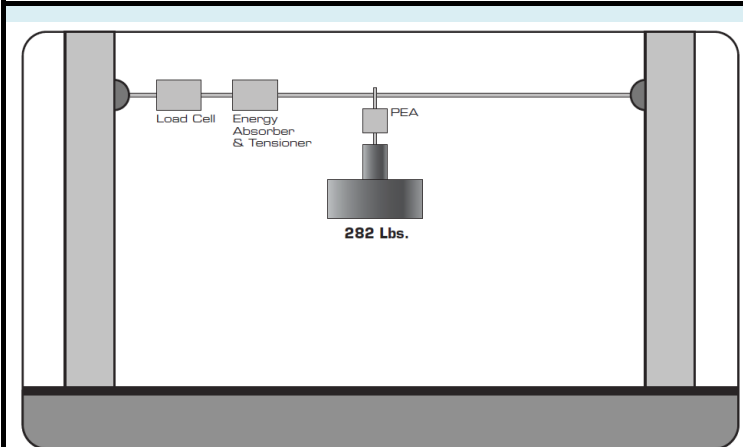


Figure 1: 1-Person Drop Test Configuration

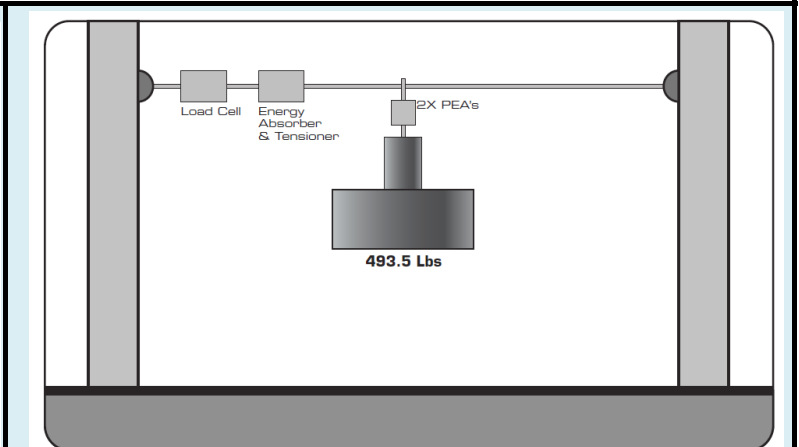


Figure 2: 2-Person Drop Test Configuration

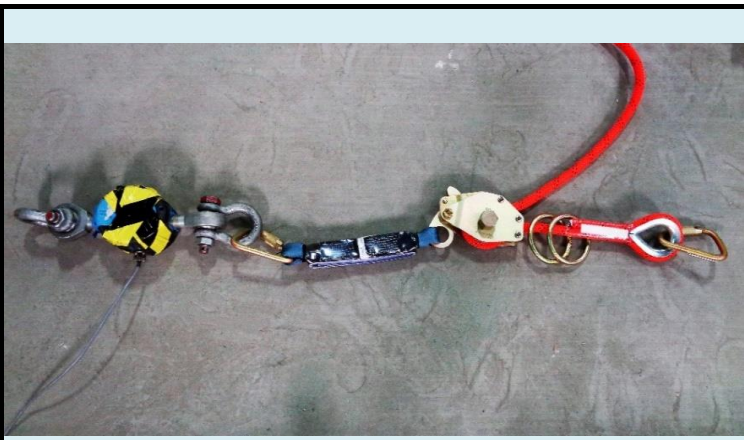


Figure 3: Kernmantle HLL Test Configuration Mockup

Section 4: Dynamic Testing

Test	Standard	Section	Name	Requirement	Direction/ Loading	Equipment	Gauge	# of Samples	PEA Description
1	N/A	N/A	30' Span, 1-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 1	Load Cell	1	8256 6' FF Lanyard
2	N/A	N/A	30' Span, 1-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 1	Load Cell	1	8256 6' FF Lanyard
3	N/A	N/A	30' Span, 1-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 1	Load Cell	1	8256 6' FF Lanyard
4	N/A	N/A	30' Span, 2-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 2	Load Cell	1	8256 6' FF Lanyards
5	N/A	N/A	30' Span, 2-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 2	Load Cell	1	8256 6' FF Lanyards
6	N/A	N/A	30' Span, 2-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 2	Load Cell	1	8256 6' FF Lanyards

7	N/A	N/A	55' Span, 1-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 1	Load Cell	1	8256 6' FF Lanyard
8	N/A	N/A	55' Span, 1-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 1	Load Cell	1	8256 6' FF Lanyard
9	N/A	N/A	55' Span, 1-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 1	Load Cell	1	8256 6' FF Lanyard
10	N/A	N/A	55' Span, 2-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 2	Load Cell	1	8256 6' FF Lanyards
11	N/A	N/A	55' Span, 2-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 2	Load Cell	1	8256 6' FF Lanyards
12	N/A	N/A	55' Span, 2-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 2	Load Cell	1	8256 6' FF Lanyards
13	N/A	N/A	55' Span, 1-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 1	Load Cell	1	82706SB1 6' DuraTech SRD (SRD to Test Mass)
14	N/A	N/A	55' Span, 2-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 2	Load Cell	1	82706SB1 6' DuraTech SRDs (SRDs to Test Mass)
15	N/A	N/A	55' Span, 1-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 1	Load Cell	1	727620 20' Contractor SRD (SRD to HLL)
16	N/A	N/A	55' Span, 2-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 2	Load Cell	1	727620 20' Contractor SRDs (SRD to HLL)

17	N/A	N/A	55' Span, 2-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 2	Load Cell	1	8247 12' FF Lanyards
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Sign-Off Section

Electronic Signoff on Arena PLM			Electronic Signoff on Arena PLM			Electronic Signoff on Arena PLM		
VP Business Development Dusty Hawkins			Production Manager Dan Redden			Sr. PLM Cory Schurian		
						FTE-08 Rev B		1/30/2014



Testing Results Form

Project/Product:	Project #103 (3CS-030716) Kernmantle HLL
Part #:	77302K/77602K
Maker/Vendor:	FallTech
Protocol Code:	DTP-000025
Date:	2/9/2017

Description: 30' Span, 1 Person Drop Test using 8256 6' FF SAL (6' Length)

Standard: N/A

TEST	RESULTS	COMMENTS
Test # 1	PASS	Max Force: 1151.6 lbs Avg Force: 856.9 lbs Fall Clearance: 24.2 ft
Test # 2	PASS	Max Force: 1192.2 lbs Avg Force: 853.8 lbs Fall Clearance: 23.5 ft
Test # 3	PASS	Max Force: 1299.4 lbs Avg Force: 913.6 lbs Fall Clearance: 24.2 ft

Description: 30' Span, 2 Person Drop Test using 8256 6' FF SALs (6' Length)

Standard: N/A

TEST	RESULTS	COMMENTS
Test # 4	PASS	Max Force: 1832.8 lbs Avg Force: 1254.5 lbs Fall Clearance: 27.2 ft
Test # 5	PASS	Max Force: 2079.0 lbs Avg Force: 1029.9 lbs Fall Clearance: 26.8 ft
Test # 6	PASS	Max Force: 1862.6 lbs Avg Force: 1295.2 lbs Fall Clearance: 27.1 ft

Description: 55' Span, 1 Person Drop Test using 8256 6' FF SAL (6' Length)

Standard: N/A

TEST	RESULTS	COMMENTS
Test # 7	PASS	Max Force: 1281.0 lbs Avg Force: 961.6 lbs Fall Clearance: 27.3 ft
Test # 8	PASS	Max Force: 1334.7 lbs Avg Force: 975.3 lbs Fall Clearance: 27.2 ft
Test # 9	PASS	Max Force: 1321.0 lbs Avg Force: 977.8 lbs Fall Clearance: 28.3 ft

Description: 55' Span, 2 Person Drop Test using 8256 6' FF SALs (6' Length)

Standard: N/A

TEST	RESULTS	COMMENTS
Test # 10	PASS	Max Force: 2007.9 lbs Avg Force: 1289.4 lbs Fall Clearance: 32.3 ft
Test # 11	PASS	Max Force: 2518.6 lbs Avg Force: 1343.6 lbs Fall Clearance: 31.0 ft
Test # 12	PASS	Max Force: 2623.5 lbs Avg Force: 1383.7 lbs Fall Clearance: 31.0 ft

Description: 55' Span, 1 Person Drop Test using 82706SB1 6' DuraTech Web SRD (SRD to Test Mass)

Standard: N/A

TEST	RESULTS	COMMENTS
Test # 13	PASS	Max Force: 1595.4 lbs Avg Force: 1078.1 lbs Final HLL Sag: 8.53 ft

Description: 55' Span, 2 Person Drop Test using 82706SB1 6' DuraTech Web SRDs (SRDs to Test Mass)

Standard: N/A

TEST	RESULTS	COMMENTS
Test # 14	PASS	Max Force: 2145.3 lbs Avg Force: 1274.1 lbs Final HLL Sag: 13.28 ft

Description: 55' Span, 1 Person Drop Test using 727620 20' Contractor Cable SRD (SRD to HLL)

Standard: N/A

TEST	RESULTS	COMMENTS
Test # 15	PASS	Max Force: 1412.8 lbs Avg Force: 1028.7 lbs Final HLL Sag: 11.12 ft

Description: 55' Span, 2 Person Drop Test using 727620 20' Contractor Cable SRDs (SRDs to HLL)

Standard: N/A

TEST	RESULTS	COMMENTS
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Test # 16	PASS	Max Force: 2317.2 lbs Avg Force: 1324.3 lbs Final HLL Sag: 13.28 ft
<i>Description: 55' Span, 2 Person Drop Test using 8247 12'FF SALs (6' Length)</i>		
<i>Standard: N/A</i>		
TEST	RESULTS	COMMENTS
Test # 17	PASS	Max Force: 2985.6 lbs Avg Force: 1529.7 lbs Fall Clearance: 32.6 ft
Special Comments		
<p>Test #12: Maximum force is within Load Cell error of 5% to 2,500 lbs, so 5,000 lbs minimum anchor strength still meets 2:1 safety factor.</p> <p>Test #17: Use of heavyweight classification (310 to 425 lbs) lanyards will be limited to single worker to maintain 5,000 lbs minimum anchor strength and 2:1 safety factor.</p>		
Form Completed by FallTech Engineer:		Date:
Zack Winters		2/13/2017
		FTE-10 Rev A
		7.1.13

FallTech Test Report

Test Report No.	DTP-000031	Rpt. Date	8/3/2017	Rpt. Rev		Rev Date	
Report Prepared For	FallTech						
Initiated By	Mark Sasaki	Test Specification(s)	OSHA 1926, No Applicable ANSI Standard				
Part No.	771002K	Part No. Revision	A				
Part Description	100' Kernmantle HLL System						
Test Request No.	DTP-000031	Date Complete	7/28/2017				
Test Operator(s)	Zack Winter, Tyler Wilson, Adam Shakouj						

Material/Sample Identification

Sample ID	Description
771002K (Various)	100' Kernmantle HLL Kit; See attached DTP-000031 Protocol for Details



Test Summary

Test Specification	Test Criteria	Test Result	Pass/Fail
See attached DTP-000031 Protocol	See attached DTP-000031 Protocol	See attached DTP-000031 Results	See attached DTP-000031 Results

Conclusion

FallTech P/N 771002K Kernmantle HLL Kit meets the requirements of OSHA 1926, OSHA 1910, and FallTech's General Manufacturing Requirements.

Report Signatories and Approval

Lab Quality Manager		Date	8/3/2017
Director of Engineering		Date	8/3/2017
Witnessed by	Not Required	Date	N/A

FallTech Test Report

Test Report No.	DTP-000031	Rpt. Date	8/3/2017	Rpt. Rev		Rev Date	
Report Prepared For	FallTech						
Initiated By	Mark Sasaki	Test Specification(s)	OSHA 1926, No Applicable ANSI Standard				
Part No.	771002K	Part No. Revision	A				
Part Description	100' Kernmantle HLL System						
Test Request No.	DTP-000031	Date Complete	7/28/2017				

Test Information

Description of Test	Kernmantle HLL Full System Testing		
Test Method	See attached DTP-000031 Protocol		
Acceptance Criteria	See attached DTP-000031 Protocol		
Test Procedure	See attached DTP-000031 Protocol		
Conditioning Requirements	N/A	Actual Conditions	Ambient
Time Removed from Conditioning	N/A	Time Tested	N/A
Test Environment	Ambient Conditions, Outdoors		
Test By	Zack Winters	Test Date	7/26/17 - 7/28/17

Equipment Used

Equipment Used	Size/Type	Control Number	Calibration Date
10k Load Cell	10,000 Lbf Load Cell (+/- 0.5%)	342183	4/25/2018

Test Results

Sample ID	Characteristic	Criteria	Test Data	Pass/Fail
See attached DTP-000031 Protocol	See attached DTP-000031 Protocol	See attached DTP-000031 Protocol	See attached DTP-000031 Test Results	See attached DTP-00031 Test Results

End of Report



Testing Protocol

Project/Product:	Project #103 (3CS-030716) Kernmantle HLL
Part #:	771002K
Maker/Vendor:	FallTech
Protocol Code	DTP-000031
Requested By	Zack Winters
Date	12/24/2016
# of Samples Required	6PCS 771002K & 9PCS 8253

Section 1: Product Description

The Kernmantle HLL is a 2-person temporary rope horizontal lifeline with tensioner and integral energy absorber. The system also requires the use of personal energy absorbers connected between the user and the horizontal lifeline. The system will be offered in three lengths: 30', 60', and 100' and can be attached directly to anchor points using the provided carabiners or used with web anchor slings (concrete columns, I-beams, etc.).

Section 2: Attachment Method

The Kernmantle HLL will be connecto to 7414 Weld-On anchors, attached directly to the test structure. The personal energy absorbers (PEAs) will be attached to the connecting O-rings on the HLL, positioned at the middle of the span, with the shock pack closest to the test mass.

Section 3: Testing Instructions

Special Instructions/Notes: For the multi-person dynamic drop tests, the lumped sum test mass methodology will be followed, using a single test mass with multiple PEAs attached to the HLL. The test mass will weigh 493.5lbs for the 2-person tests. The tolerance on the test masses is +/- 2lbs.

Testing Raw Data to be Collected:

- 1) Maximum & Average Forces to the Anchor Point (Load cell in line with HLL system)
- 2) Initial, Dynamic, and Final Sag distances of lifeline
- 3) Pretension force of lifeline after installation
- 4) Total fall clearance
- 5) HLL Energy Absorber deployment distance
- 6) Personal Energy Absorber deployment distance

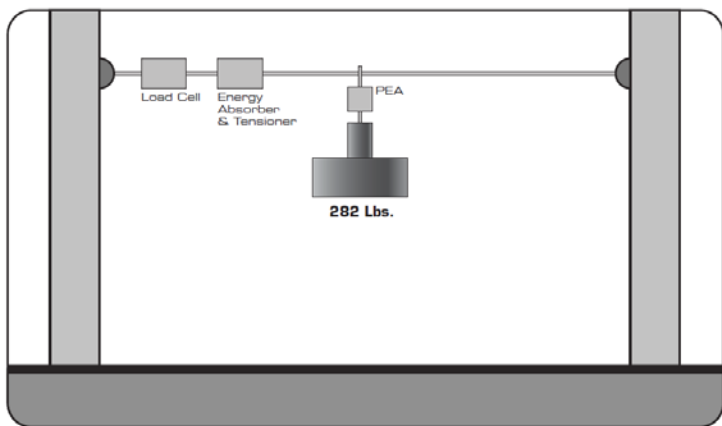


Figure 1: 1-Person Drop Test Configuration

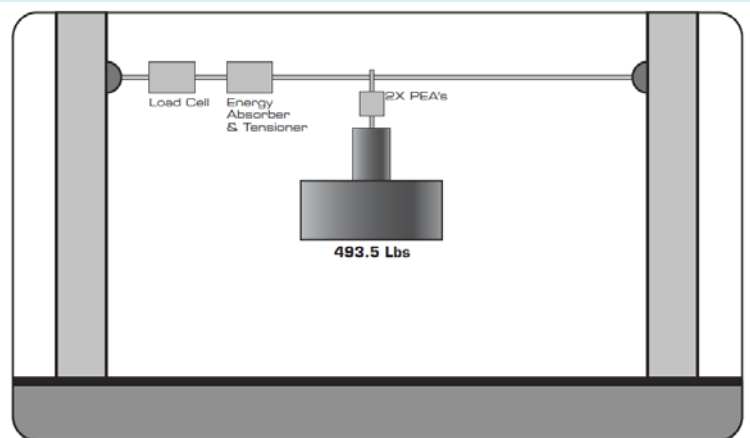


Figure 2: 2-Person Drop Test Configuration

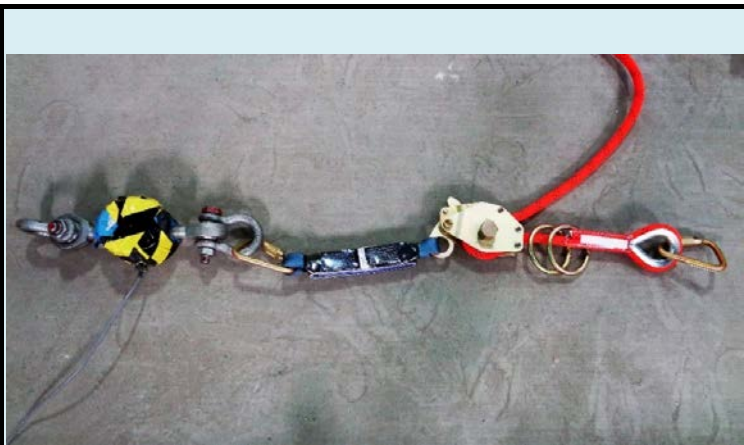


Figure 3: Kernmantle HLL Test Configuration Mockup

Section 4: Dynamic Testing

Test	Standard	Section	Name	Requirement	Direction/ Loading	Equipment	Gauge	# of Samples	Comments
1	N/A	N/A	100' Span, 1-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 1	Load Cell	1	8253 6' FF SAL
2	N/A	N/A	100' Span, 1-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 1	Load Cell	1	8253 6' FF SAL
3	N/A	N/A	100' Span, 1-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 1	Load Cell	1	8253 6' FF SAL
4	N/A	N/A	100' Span, 2-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 2	Load Cell	1	8253 6' FF SAL
5	N/A	N/A	100' Span, 2-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 2	Load Cell	1	8253 6' FF SAL
6	N/A	N/A	100' Span, 2-Person Drop Test	Test mass does not hit ground, system remains intact, forces to anchor point must be below 5000 lbs.	Test mass should start drop from 1' above HLL system line	See Special Instructions Above, Figure 2	Load Cell	1	8253 6' FF SAL

Sign-Off Section

Electronic Signoff on Arena PLM	Electronic Signoff on Arena PLM	Electronic Signoff on Arena PLM
Director of Engineering Mark Sasaki	Production Manager Dan Redden	Sr. PLM Cory Schurian
		FTE-08 Rev B
		1/30/2014



Testing Results Form

Project/Product:	Project #103 (3CS-030716) Kernmantle HLL
Part #:	771002K
Maker/Vendor:	FallTech
Protocol Code:	DTP-000031
Date:	8/2/2017

Description: 100' Span - 1 Person Drop - 8253

Standard: N/A

TEST	RESULTS	COMMENTS
Test #1	PASS	Max Force: 1535.6 lbs Avg Force: 913.6 lbs Fall Clearance: 35.6 ft
Test #2	PASS	Max Force: 1369.9 lbs Avg Force: 955.9 lbs Fall Clearance: 35.9 ft
Test #3	PASS	Max Force: 1411.8 lbs Avg Force: 980.5 lbs Fall Clearance: 35.65 ft

Description: 100' Span - 2 Person Drop - 8253

Standard: N/A

TEST	RESULTS	COMMENTS
Test #4	PASS	Max Force: 2630.5 lbs Avg Force: 1337.6 lbs Fall Clearance: 40.3 ft
Test #5	PASS	Max Force: 2465.5 lbs Avg Force: 1513.4 lbs Fall Clearance: 40.38 ft
Test #6	PASS	Max Force: N/A Avg Force: N/A Fall Clearance: 41.3 ft

Special Comments

Summary: This test protocol, test execution, and test results serve as the certification testing for the 100' Kernmantle HLL system. Based on these results, I recommend the move to production on this product. These items have passed FallTech's internal testing requirements.

Note: Red colored text of Maximum/Peak Force values denoted that the product used in this configuration will not meet a 2:1 safety factor when used with 5,000 lb. rated anchor points.

Form Completed by FallTech Engineer:	Date:
Tyler Wilson	8/2/2017
	FTE-10 Rev A 7.1.13