

# FRONTLINE FALL PROTECTION INC. TEST REPORT

**SCOPE OF WORK**

Standard Evaluation to ANSI Z359.11-2021 Safety Requirements for Full Body Harnesses

**REPORT NUMBER**

105977620CRT-001

**ORIGINAL REPORT NUMBER**

105431545CRT-002

**ISSUE DATE**

October 14, 2024

**PAGES**

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**DOCUMENT CONTROL NUMBER**

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**TEST REPORT FOR FRONTLINE FALL PROTECTION INC.**

Report No.: 105977620CRT-001

Date: October 14, 2024

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**Report Number**..... : 105977620CRT-001

**Signed Quote Number**..... : Qu-01472737

**PO Number**. .... : NA

**Name of Testing Laboratory**

**Preparing the Report** ..... : Intertek Testing Services NA Inc.

**Test Specification:**

**Standard**..... : ANSI/ASSP Z359.11-2021

**Date(s) of Testing**..... : 4/27/2023 – 4/28/2023

**Product Description**..... :

**Product Type**: ..... : Full Body Harness

**Model Number**: ..... : 150DHVT-S, 150DHVT-ML, 150DHVT-XL/2X, 150DHTW-S,  
150DHTW-ML, 150DHTW-XL/2X, 150ACTW

**Shared Model Number**:..... : N/A

**Date(s) Samples Received** ..... : 4/18/2023

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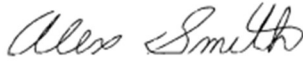

**SECTION 1**

**SUMMARY OF TESTING**

TESTS COMPLETED	ANSI/ASSP Z359.11-2021 CLAUSE	STATUS
Design	3	PASS
Dynamic Feet First Drop (Dorsal)	4.3.3	PASS
Dynamic Headfirst Drop (Dorsal)	4.3.4	PASS
Fall Arrest Indicator (Dorsal)	4.3.6	PASS
Static Feet First (Dorsal)	4.3.5	PASS
Static Feet First (Hip)	4.3.5	PASS
Static Feet First for Lanyard Parking Attachment	4.3.7	PASS

**SECTION 2**

This test report concludes the work anticipated in the testing phase of your project. Original Testing performed to 2014 Edition. Data evaluated to 2021 version as no differences in test procedures. If there are any questions regarding this report, please contact the undersigned at 607-753-6711.

<b>COMPLETED BY:</b>	Alex Smith	<b>REVIEWED BY:</b>	Matthew Stevens
<b>TITLE:</b>	Technician	<b>TITLE:</b>	Team Leader
<b>SIGNATURE:</b>		<b>SIGNATURE</b>	
<b>DATE</b>	10/09/2024	<b>DATE:</b>	10/14/2024

Please see attached test data for details.

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**SECTION 3****TESTING EQUIPMENT CALIBRATION INFORMATION**

USED FOR TEST	DESCRIPTION	MANUFACTURER	CONTROL NO.	MODEL NO.	SERIAL NO.	CAL. DATE	CAL. DUE
X	Drop Test Structure	Intertek	NA	CAT. 3	-	N/A	N/A
X	Test Torso	NA	15064	220 lbs	-	VBU	VBU
X	Load Cell	Interface	G119	-	-	5/25/22	5/25/23
X	Tape Measure	Kobalt	H422	-	-	5/13/22	5/13/23

**SECTION 3****SUPPLEMENTAL TEST DATA**

Paragraph	Test Description	Results	Compliance
3	Requirements		
3.1	Design Requirements		
3.1.1	Permanently incorporate a dorsal or sternal attachment	YES	PASS
3.1.2	Materials and constructions shall meet requirements	YES	PASS
3.1.3	FBH w/ dorsal attachment shall permanently include a sub-pelvic strap and /or waist belt	YES	PASS
3.1.4	FBH w sternal attachment shall permanently include a waist belt	YES	PASS
3.1.5	All shoulder straps shall come together and be connected at the dorsal location	YES	PASS
3.1.6	All FBH's shall permanently incorporate a waist belt or a back strap for controlling the separation of the shoulder straps	YES	PASS
3.1.7	Modular components shall design requirements		NA
3.1.7.1	Modular components shall be attached to the harness using connections that meet section 3		NA
3.1.7.2	Attachment element extender can be no longer than 24-inches		NA
3.1.8	FBH integrated into a vest shall allow visual inspection or entire FBH		NA
3.1.9	All FBH shall be equipped with a fall arrest indicator that will deploy during dynamic testing	YES	PASS
3.1.10	FBH/EA/EAL combinations shall meet the requirements of Z359.11 and Z359.13	YES	PASS
3.1.11	FBH shall include keepers for straps	YES	PASS
3.1.12	FBH shall include lanyard parking attachment	YES	PASS
3.1.13	It shall not be possible to remove elements	YES	PASS
3.1.14	All single point attachment elements must be located within 2-inches of the vertical centerline	YES	PASS
3.2	Attachment Element Requirements	YES	PASS
3.2.1	Dorsal- shall be used as the primary fall arrest attachment	YES	PASS
3.2.1.1	May be used in travel restraint or rescue	YES	PASS
3.2.1.2	Dorsal attachment shall direct the load through the shoulder straps and around the thighs	YES	PASS

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Paragraph	Test Description	Results				Compliance
3.2.1.3	Dorsal Attachment Element requirements		YES			PASS
3.2.1.3.1	Dynamic Feet First- see section 4.3.3		YES			PASS
3.2.1.3.2	Dynamic Head First – see section 4.3.4		YES			PASS
3.2.1.3.3	Static Feet First- see section 4.3.5		YES			PASS
3.2.1.3.4	Fall Arrest Indicator – see section 4.3.6		YES			PASS
3.2.2	The sternal attachment may be used as an alternative fall arrest attachment		YES			PASS
3.2.2.1	The sternal attachment may be used for travel restraint or rescue					NA
3.2.2.2	Sternal attachment design shall direct the load through the shoulder straps and thighs		YES			PASS
3.2.2.3	Sternal Attachment Element Requirements		YES			PASS
3.2.2.3.1	Dynamic Feet First – see section 4.3.3		YES			PASS
3.2.2.3.2	Static Feet First – see section 4.3.5		YES			PASS
3.2.2.3.3	Fall Arrest Indicator – see section 4.3.6		YES			PASS
3.2.3	Frontal attachment to be used for ladder guided type FA’s where no chance of fall in a feet first direction (may be used for work positioning)				NA	NA
3.2.3.1	Frontal Attachment Element Requirements					NA
3.2.3.1.1	Dynamic Feet First – see section 4.3.3					NA
3.2.3.1.2	Static Feet First – see section 4.3.5					NA
3.2.4	Shoulder attachments shall be used as a pair, also for rescue and entry/retrieval not for FA.					NA
3.2.4.1	Shoulder Attachment Elements Requirements					NA
3.2.4.1.1	Static Feet First – see section 4.3.5					NA
3.2.5	Waist, rear attachment for travel restraint only					NA
3.2.5.1	Waist, rear attachment shall be subjected to minimal loading, not used for FA					NA
3.2.5.2	Waist Attachment Elements Requirements					NA
3.2.5.2.1	Static Feet First – see section 4.3.5					NA
3.2.6	Hip attachments shall be used as a pair and solely for work positioning, not used for FA		YES			PASS
3.2.6.1	Hip Attachment Element Performance Requirements		YES			PASS
3.2.6.1.1	Static Feet First – see section 4.3.5		YES			PASS
3.2.7	Suspension seat shall be used as a pair and solely for work positioning, not used for FA				NA	NA
3.2.7.1	Suspension Seat Attachment Element Performance Requirements				NA	NA
3.2.7.1.1	Static Feet First – see section 4.3.5		YES			PASS
3.3	Component Requirements		YES			PASS
3.3.1	Load Bearing Straps		YES			PASS
3.3.1.1	Shall not be less than 1-5/8” (41mm)		YES			PASS
3.3.1.2	Minimum breaking strength of 5,000 lbs per section 7.1.1		YES			PASS
3.3.1.3	Straps shall be pure, non-recycled synthetic material. Any restrictions shall be marked on the FBH		YES			PASS

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3.3.1.4	Straps shall be hot cut, sealed, covered, or stitched to prevent fraying		YES			PASS																																							
3.3.1.5	After abrasion conditioning per 7.1.2, straps shall have a breaking strength of at least 3,600 lbs when tested to 7.1.1		YES			PASS																																							
3.3.1.6	In areas of concentrated wear straps shall be protected		YES			PASS																																							
3.3.1.7	Spacing between eyelets centers shall be between 1-1/8- 2 inches		YES			PASS																																							
3.3.2	Thread and Stitching		YES			PASS																																							
3.3.2.1	Shall have the same material as load bearing straps		YES			PASS																																							
3.3.2.2	All stitching shall be lock stitched and backstitched		YES			PASS																																							
3.3.2.3	All stitching used to connect load bearing members shall be contrasting in color at a distance of 12-inches		YES			PASS																																							
3.3.3	Connecting Components		YES			PASS																																							
3.3.3.1	Hardware shall conform to Z359.12 (except soft loops)		YES			PASS																																							
3.3.3.2	Soft loops attachments may be used in place of metal connecting components		YES			PASS																																							
3.3.3.3	Soft loop attachments shall be constructed of materials that meet section 3.3.1				NA	NA																																							
3.3.3.4	Soft loops shall include protection from wear				NA	NA																																							
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4.3.3	<p>Dynamic <b>Feet First</b> Drop Test:</p> <p><u>Test Set-up (Dorsal):</u></p> <ol style="list-style-type: none"> <li>Don the harness on the test torso</li> <li>Position dorsal attachment per the Mfg Instructions.</li> <li>If equipped with chest strap (section 4.3.2), locate strap +/-2 inches on torso from datum E figure 5 and 1b of standard</li> <li>Determine drop height, attach quick release to the torso neck, lower torso to remove slack, measure height (lowest point of torso to floor)</li> <li>Raise torso to predetermined height, release, measure MAF, measure and record final height</li> </ol>	<table border="1"> <thead> <tr> <th colspan="3">Feet First DORSAL Attachment Requirements per Section 3.2.1.3.1</th> </tr> </thead> <tbody> <tr> <td>Sample ID:</td> <td colspan="2">1</td> </tr> <tr> <td>Location of Dorsal Attachment Element</td> <td>8</td> <td>inches</td> </tr> <tr> <td>Drop Height</td> <td>5</td> <td>Ft</td> </tr> <tr> <td>Max Arrest Force</td> <td>4219</td> <td>Lbs</td> </tr> <tr> <td>Hi- initial height</td> <td>128"</td> <td>inches</td> </tr> <tr> <td>Hf- final height</td> <td>145"</td> <td>inches</td> </tr> <tr> <td>He – Harness Effect (Hi-Hf)</td> <td>17"</td> <td>inches</td> </tr> <tr> <td>Harness effect shall not exceed 18-inches or which is stated in the Mfg. Instructions, whichever is less. Stated:</td> <td>18</td> <td>inches</td> </tr> <tr> <td>Release from the torso</td> <td>No</td> <td></td> </tr> <tr> <td>Support the torso for a period of 5-minutes post fall</td> <td>Yes</td> <td></td> </tr> <tr> <td>Shall support the torso post fall of an angle not greater than 30° to vertical</td> <td>Yes</td> <td>6.2°</td> </tr> <tr> <td>At least one fall arrest indicator deployed visibly and permanently</td> <td>Yes</td> <td></td> </tr> </tbody> </table>				Feet First DORSAL Attachment Requirements per Section 3.2.1.3.1			Sample ID:	1		Location of Dorsal Attachment Element	8	inches	Drop Height	5	Ft	Max Arrest Force	4219	Lbs	Hi- initial height	128"	inches	Hf- final height	145"	inches	He – Harness Effect (Hi-Hf)	17"	inches	Harness effect shall not exceed 18-inches or which is stated in the Mfg. Instructions, whichever is less. Stated:	18	inches	Release from the torso	No		Support the torso for a period of 5-minutes post fall	Yes		Shall support the torso post fall of an angle not greater than 30° to vertical	Yes	6.2°	At least one fall arrest indicator deployed visibly and permanently	Yes		PASS
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4.3.4	<p>Dynamic <b>Head First</b> Drop Test:</p> <p><u>Test Set-up (Dorsal):</u></p> <ol style="list-style-type: none"> <li>1. Don the harness on the test torso</li> <li>2. Position dorsal attachment bearing point 8 +/- 1 inch below the top of the shoulder (or maximum lowest position)</li> <li>3. If equipped with chest strap (section 4.3.2), locate strap +/-2 inches on torso from datum E figure 5 and 1b of standard</li> <li>4. Attach quick release to the torso crotch, lower torso to remove slack</li> <li>5. Raise torso to predetermined height, release, measure MAF</li> </ol>	<table border="1"> <thead> <tr> <th colspan="3">Head First DORSAL Attachment Requirements per Section 3.2.1.3.2</th> </tr> </thead> <tbody> <tr> <td>Sample ID:</td> <td colspan="2">1</td> </tr> <tr> <td>Location of Dorsal Attachment Element</td> <td>8</td> <td>inches</td> </tr> <tr> <td>Drop Height</td> <td>6</td> <td>ft</td> </tr> <tr> <td>Max Arrest Force</td> <td>1989</td> <td>lbs</td> </tr> <tr> <td>Release from the torso</td> <td colspan="2">No</td> </tr> <tr> <td>Support the torso for a period of 5-minutes post fall</td> <td colspan="2">Yes</td> </tr> <tr> <td>Shall support the torso post fall of an angle not greater than 30° to vertical</td> <td>Yes</td> <td>7.4°</td> </tr> <tr> <td>At least one fall arrest indicator deployed visibly and permanently</td> <td colspan="2">Yes</td> </tr> </tbody> </table>	Head First DORSAL Attachment Requirements per Section 3.2.1.3.2			Sample ID:	1		Location of Dorsal Attachment Element	8	inches	Drop Height	6	ft	Max Arrest Force	1989	lbs	Release from the torso	No		Support the torso for a period of 5-minutes post fall	Yes		Shall support the torso post fall of an angle not greater than 30° to vertical	Yes	7.4°	At least one fall arrest indicator deployed visibly and permanently	Yes		PASS
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4.3.4	<p>Dynamic <b>Head First</b> Drop Test:</p> <p><u>Test Set-up (Dorsal):</u></p> <ol style="list-style-type: none"> <li>1. Don the harness on the test torso</li> <li>2. Position dorsal attachment bearing point 8 +/- 1 inch below the top of the shoulder (or maximum lowest position)</li> <li>3. If equipped with chest strap (section 4.3.2), locate strap +/-2 inches on torso from datum E figure 5 and 1b of standard</li> <li>4. Attach quick release to the torso crotch, lower torso to remove slack</li> <li>5. Raise torso to predetermined height, release, measure MAF</li> </ol>	<table border="1"> <thead> <tr> <th colspan="3">Head First DORSAL Attachment Requirements per Section 3.2.1.3.2</th> </tr> </thead> <tbody> <tr> <td>Sample ID:</td> <td colspan="2">2</td> </tr> <tr> <td>Location of Dorsal Attachment Element</td> <td>8</td> <td>inches</td> </tr> <tr> <td>Drop Height</td> <td>6</td> <td>ft</td> </tr> <tr> <td>Max Arrest Force</td> <td>1902</td> <td>lbs</td> </tr> <tr> <td>Release from the torso</td> <td colspan="2">No</td> </tr> <tr> <td>Support the torso for a period of 5-minutes post fall</td> <td colspan="2">Yes</td> </tr> <tr> <td>Shall support the torso post fall of an angle not greater than 30° to vertical</td> <td>Yes</td> <td>7.7°</td> </tr> <tr> <td>At least one fall arrest indicator deployed visibly and permanently</td> <td colspan="2">Yes</td> </tr> </tbody> </table>	Head First DORSAL Attachment Requirements per Section 3.2.1.3.2			Sample ID:	2		Location of Dorsal Attachment Element	8	inches	Drop Height	6	ft	Max Arrest Force	1902	lbs	Release from the torso	No		Support the torso for a period of 5-minutes post fall	Yes		Shall support the torso post fall of an angle not greater than 30° to vertical	Yes	7.7°	At least one fall arrest indicator deployed visibly and permanently	Yes		PASS
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Paragraph	Test Description	Results	Compliance																																				
4.3.5	<p>Static <b>Feet First</b> Test:</p> <p><u>Test Set-up (Dorsal):</u></p> <ol style="list-style-type: none"> <li>1. Don the harness on the test torso</li> <li>2. Secure crotch of test torso to test equipment</li> <li>3. connect to attachment element</li> <li>4. mark locations of buckles and adjusters</li> <li>5. apply 3,600 lb load and maintain for 1-minute</li> <li>6. Release load and evaluate sample</li> </ol>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center;">Feet First DORSAL Attachment Requirements per Section 3.2.1.3.3</th> </tr> </thead> <tbody> <tr> <td style="width: 20%;">Sample ID:</td> <td colspan="2" style="text-align: center;">1,2,3</td> </tr> <tr> <td>Release from the torso</td> <td></td> <td style="text-align: center;">no</td> </tr> <tr> <td>Slippage – Crotch Strap Adjuster, Right</td> <td style="text-align: center;">0</td> <td style="text-align: center;">inches</td> </tr> <tr> <td>Slippage – Crotch Strap Adjuster, Left</td> <td style="text-align: center;">0</td> <td style="text-align: center;">inches</td> </tr> <tr> <td>Slippage – Chest Strap Adjuster, Center</td> <td style="text-align: center;">0</td> <td style="text-align: center;">inches</td> </tr> <tr> <td>Slippage – Chest Strap Adjuster, Right</td> <td style="text-align: center;">0</td> <td style="text-align: center;">inches</td> </tr> <tr> <td>Slippage – Chest Strap Adjuster, Left</td> <td style="text-align: center;">0</td> <td style="text-align: center;">inches</td> </tr> <tr> <td>Slippage – Other</td> <td style="text-align: center;">na</td> <td style="text-align: center;">inches</td> </tr> <tr> <td>Slippage – Other</td> <td style="text-align: center;">na</td> <td style="text-align: center;">inches</td> </tr> <tr> <td>Strap tear further than adjacent eyelet adjuster</td> <td colspan="2" style="text-align: center;">na</td> </tr> <tr> <td>Straps shall show no signs of tearing</td> <td style="text-align: center;">Yes</td> <td></td> </tr> </tbody> </table> <p>“Slippage through any adjuster shall not exceed 1-inch”</p>	Feet First DORSAL Attachment Requirements per Section 3.2.1.3.3			Sample ID:	1,2,3		Release from the torso		no	Slippage – Crotch Strap Adjuster, Right	0	inches	Slippage – Crotch Strap Adjuster, Left	0	inches	Slippage – Chest Strap Adjuster, Center	0	inches	Slippage – Chest Strap Adjuster, Right	0	inches	Slippage – Chest Strap Adjuster, Left	0	inches	Slippage – Other	na	inches	Slippage – Other	na	inches	Strap tear further than adjacent eyelet adjuster	na		Straps shall show no signs of tearing	Yes		PASS
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4.3.6	<p>Fall Arrest Indicator Test:</p> <p><u>Test Set-up (Dorsal):</u></p> <ol style="list-style-type: none"> <li>1. Don the harness on the test torso</li> <li>2. Position dorsal attachment per the Mfg Instructions.</li> <li>3. Attach quick release to the neck of the test torso</li> <li>4. Attach a Z359.13 compliant 6-foot EAL to the test anchorage</li> <li>5. lower torso until test shackles are straight but no load</li> <li>6. raise torso 24-inches</li> </ol>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;">DORSAL Attachment Requirements per Section 3.2.1.3.4</th> </tr> </thead> <tbody> <tr> <td style="width: 20%;">Sample ID:</td> <td style="text-align: center;">1,2,3</td> </tr> <tr> <td>At least one fall arrest indicator shall deploy visibly and permanently</td> <td style="text-align: center;">Yes</td> </tr> </tbody> </table>	DORSAL Attachment Requirements per Section 3.2.1.3.4		Sample ID:	1,2,3	At least one fall arrest indicator shall deploy visibly and permanently	Yes	PASS																														
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4.3.7	<ol style="list-style-type: none"> <li>1) Secure the crotch of the test torso to the static test equipment ensuring the direction of the pull on the attachment simulates a feet first fall</li> <li>2) Connect the attachment element to the static test equipment using a test lanyard.</li> <li>3) Apply and steadily increase the load until a disengagement load of not more than 120 pounds (0.5 Kn)</li> </ol>	<table border="1"> <thead> <tr> <th>Sample ID:</th> <th colspan="2">1-3</th> </tr> </thead> <tbody> <tr> <td>Sample 1 (break load)</td> <td>24</td> <td>lbs</td> </tr> <tr> <td>Sample 2 (break load)</td> <td>23</td> <td>lbs</td> </tr> <tr> <td>Sample 3 (break load)</td> <td>26</td> <td>lbs</td> </tr> </tbody> </table>	Sample ID:	1-3		Sample 1 (break load)	24	lbs	Sample 2 (break load)	23	lbs	Sample 3 (break load)	26	lbs	PASS																								
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**SECTION 5**

**REVISION HISTORY**

REPORT NUMBER	DATE OF REVISION	DESCRIPTION OF CHANGE:	PROJECT OWNER	REVIEWED BY
105431545CRT-002	4/28/2023	Original Report	Alex Smith	Matthew Stevens
105431545CRT-002	08/04/2023	Report Extension (Model Number & Shared Model Number)	Alex Smith	Matthew Stevens
105431545CRT-002	10/02/2023	Updated Model Number and Shared Model Number	Alex Smith	Matthew Stevens
105886145CRT-001	07/15/2024	Report Revision remove Model # / Add new Model #	Alex Smith	Matthew Stevens
105977620CRT-001	10/09/2024	Report Extension	Alex Smith	Matthew Stevens