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**SCOPE OF WORK** 

ANSI Z359.11-2014

**Full Body Harnesses** 

Safety Requirements for

LONDON FALL PROTECTION

**REPORT NUMBER** 103964877CRT-001

**ISSUE DATE** 

**DOCUMENT CONTROL NUMBER** GFT-OP-10a (6-

November 20<sup>th</sup>, 2019

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**PAGES** 

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SECTION 1 SUMMARY OF

**TESTING** 

**TEST REPORT FOR LONDON FALL PROTECTION Date:** 

December 22/ 2019

Report No.: 103964877CRT-001

## Formatted for reader simplification

TESTS COMPLETED	ANSI/ASSP Z359.11-2014 CLAUSE	STATUS
Design	3	PASS
Dynamic Feet First Drop (Dorsal) 103964877CRT-001b Data	4.3.3	PASS
Dynamic Head First Drop (Dorsal) 103964877CRT-001d Data	4.3.4	PASS
Fall Arrest Indicator (Dorsal) 103964877CRT-001b Data	4.3.6	PASS
Static Feet First 103964877CRT-001b Data	4.3.5	PASS
Static Feet First (Lanyard Parking Attachment) 103964877CRT-001b Data	4.3.7	PASS
Load Bearing Straps 103964877CRT-001b Data	7.1.1 & 7.1.2	PASS
Markings and Instructions 103964877CRT-001b Data	5	PASS

#### **SECTION 2**

This test report concludes the work anticipated in the testing phase of your project. If there are any questions regarding this report, please contact the undersigned at 607-753-6711.

COMPLETED BY:	Matthew Stevens	REVIEWED BY:	Andrew Rulison
TITLE:	Technician	TITLE:	Engineering Supervisor
SIGNATURE:	11/20/19	SIGNATURE	11/20/19

See complete Intertek data below

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Report No.: 103964877CRT-001 Date: November 20th, 2019

3933 US Rt. 11 Cortland, NY 13045

Telephone: 1 607-753-6711

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**Doug Corum London Fall Protection** 1731 Price Grange Road, Stoneville NC 27048, USA Doug@londongarmentmfg.com

Report Number.....: 103964877CRT-001

**Signed Quote Number.....:** Qu-00980833

PO Number. ....:: 52319

Name of Testing Laboratory

**Test Specification:** 

**Standard.....:** ANSI/ASSP Z359.11-2014

**Date(s) of Testing.....**: 9/3/19 – 9/9/19 & 11/15/19

**Product Description:** 

Product Type: ..... Full Body Harness

Brand Name: ..... LFP

Model Number(s): ..... Eagle Harness

Date(s) Samples Received ........: 8/22/19 - 9/6/19 - 11/14/19

November 20<sup>th</sup>, 2019

**SECTION 1 SUMMARY OF** 

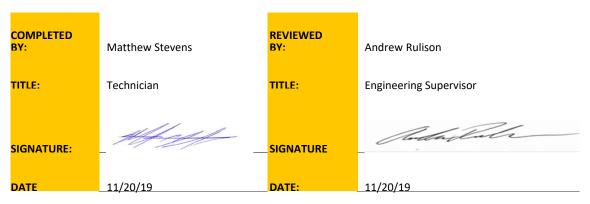
TESTING

TESTS COMPLETED	ANSI/ASSP Z359.11-2014 CLAUSE	STATUS
Design	3	PASS
Dynamic Feet First Drop (Dorsal) 103964877CRT-001b Data	4.3.3	PASS
Dynamic Head First Drop (Dorsal) 103964877CRT-001d Data	4.3.4	PASS
Fall Arrest Indicator (Dorsal) 103964877CRT-001b Data	4.3.6	PASS
Static Feet First 103964877CRT-001b Data	4.3.5	PASS
Static Feet First (Lanyard Parking Attachment) 103964877CRT-001b Data	4.3.7	PASS
Load Bearing Straps 103964877CRT-001b Data	7.1.1 & 7.1.2	PASS
Markings and Instructions 103964877CRT-001b Data	5	PASS

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#### **SECTION 2**

This test report concludes the work anticipated in the testing phase of your project. If there are any questions regarding this report, please contact the undersigned at 607-753-6711.



Please see attached test data for details.

Date: November 20<sup>th</sup>, 2019

#### **SECTION 3**

## **TESTING EQUIPMENT CALIBRATION INFORMATION**

USED FOR TEST	DESCRIPTION	MANUFACTURER	CONTROL NO.	MODEL NO.	SERIAL NO.	CAL. DATE	CAL. DUE
Х	Drop Test Structure	Intertek	NA	CAT. 3	-	N/A	N/A
Χ	Test Torso	NA	15064	220 lbs	-	VBU	VBU
X	Load Cell	PCB	N1392	-	-	6/17/19	6/17/20
X	Load Cell	PCB	L099	-	-	1/31/19	1/31/20

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#### **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	NA	NA
3.1.4	FBH w sternal attachment shall permanently include a waist belt	NA	NA
3.1.5	All shoulder straps shall come together and be connected at the dorsal location	NA	NA
3.1.6	All FBH's shall permanently incorporate a waist belt or a back strap for controlling the separation of the shoulder straps	NA	NA
3.1.7	Modular components shall design requirements	YES	PASS
3.1.7.1	Modular components shall be attached to the harness using connections that meet section 3	YES	PASS
3.1.7.2	Attachment element extender can be no longer than 24-inches	YES	PASS
3.1.8	FBH integrated into a vest shall allow visual inspection or entire FBH	YES	PASS
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	NA	NA
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	NA	NA
3.2.1.2	Dorsal attachment shall direct the load through the shoulder straps and around the thighs	YES	PASS
3.2.1.3	Dorsal Attachment Element requirements	YES	PASS

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Paragraph	Test Description	Results		Compliance
3.2.1.3.1	Dynamic Feet First- see section 4.3.3	Y	ES	PASS
3.2.1.3.2	Dynamic Head First – see section 4.3.4	N	0	PASS
3.2.1.3.3	Static Feet First- see section 4.3.5	Y	ES	PASS
3.2.1.3.4	Fall Arrest Indicator – see section 4.3.6	Y	ES	PASS
3.2.2	The sternal attachment may be used as an			
	alternative fall arrest attachment		NA	NA
3.2.2.1	The sternal attachment may be used for travel restraint or rescue		NA	NA
3.2.2.2	Sternal attachment design shall direct the load through the shoulder straps and thighs		NA	NA
3.2.2.3	Sternal Attachment Element Requirements		NA	NA
3.2.2.3.1	Dynamic Feet First – see section 4.3.3	N	A	NA
3.2.2.3.2	Static Feet First – see section 4.3.5	N	A	NA
3.2.2.3.3	Fall Arrest Indicator – see section 4.3.6	N	A	NA
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	NA
3.2.3.1.1	Dynamic Feet First – see section 4.3.3	N	A	NA
3.2.3.1.2	Static Feet First – see section 4.3.5	N	A	NA
3.2.4	Shoulder attachments shall be used as a pair, also for rescue and entry/retrieval not for FA.		NA	NA
3.2.4.1	Shoulder Attachment Elements Requirements		NA	NA
3.2.4.1.1	Static Feet First – see section 4.3.5	N	A	NA
3.2.5	Waist, rear attachment for travel restraint only		NA	NA
3.2.5.1	Waist, rear attachment shall be subjected to minimal loading, not used for FA		NA	NA
3.2.5.2	Waist Attachment Elements Requirements		NA	NA
3.2.5.2.1	Static Feet First – see section 4.3.5	N	A	NA
3.2.6	Hip attachments shall be used as a pair and solely for work positioning, not used for FA		NA	NA
3.2.6.1	Hip Attachment Element Performance Requirements		NA	NA
3.2.6.1.1	Static Feet First – see section 4.3.5	N	A	NA
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	N	A	NA
3.3	Component Requirements		ES	YES
3.3.1	Load Bearing Straps		A	YES
3.3.1.1	Shall not be less than 1-5/8" (41mm)		ES	YES
3.3.1.2	Minimum breaking strength of 5,000 lbs per section 7.1.1		A	YES
3.3.1.3	Straps shall be pure, non-recycled synthetic material. Any restrictions shall be marked on the FBH	Y	ES	PASS
3.3.1.4	Straps shall be hot cut, sealed, covered, or stitched to prevent fraying	Y	ES	PASS

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Paragraph	Test Description		Results			Compliance
3.3.1.5	After abrasion conditioning per 7.1.2, straphave a breaking strength of at least 3,600 leasted to 7.1.1	ps shall bs when	results	NA		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 b 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	ng straps		YES		PASS
3.3.2.2	All stitching shall be lock stitched and bac	kstitched		YES		PASS
3.3.2.3	All stitching used to connect load bearing shall be contrasting in color at a distance connects			YES		PASS
3.3.3	Connecting Components			YES		PASS
3.3.3.1	Hardware shall conform to Z359.12 (excelloops)		Soft Loop Dorsal	NA		NA
3.3.3.2	Soft loops attachments may be used in pla metal connecting components			YES		PASS
3.3.3.3	Soft loop attachments shall be constructed materials that meet section 3.3.1			YES		PASS
3.3.3.4	Soft loops shall include protection from w	ear		YES		PASS
4	Qualification Testing					
4.3.3	Dynamic Feet First Drop Test:	"DOI	RSAL ATTACHMENT"			
	Test Set-up (Dorsal):  1. Don the harness on the test torso 2. Position dorsal attachment per the Mfg Instructions. 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 4. Determine drop height, attach quick release to the torso neck, lower torso to remove slack, measure height (lowest point of torso to floor) 5. Raise torso to predetermined height, release, measure MAF, measure and record final height	Drop He Max Arr Hi- initia Hf- final He – Ha Harness which is whichev Release Support fall Shall sup greater t At least	n of Dorsal Attachment Element eight rest Force al height	2.1.3.1	inches ft lbs inches inches inches inches	PASS

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Paragraph	Test Description Results					
4.3.3	Test Description  Dynamic Feet First Drop Test:  Test Set-up (Dorsal):  1. Don the harness on the test torso 2. Position dorsal attachment per the Mfg Instructions. 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 4. Determine drop height, attach quick release to the torso neck, lower torso to remove slack, measure height (lowest point of torso to floor) 5. Raise torso to predetermined height, release, measure MAF, measure and record final height	Feet First DORSAL Attachment Requirements per Section 3.2.1.3.  Sample ID: 2  Location of Dorsal Attachment Element Drop Height Max Arrest Force Hi- initial height Hf- final height He – Harness Effect (Hi-Hf) Harness effect shall not exceed 18-inches or which is stated in the Mfg. Instructions, whichever is less. Stated: 36 -inches Release from the torso Support the torso for a period of 5-minutes post fall Shall support the torso post fall of an angle not greater than 30° to vertical At least one fall arrest indicator deployed visibly and permanently	PASS			
4.3.3	Dynamic Feet First Drop Test:  Test Set-up (Dorsal):  1. Don the harness on the test torso 2. Position dorsal attachment per the Mfg Instructions. 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 4. Determine drop height, attach quick release to the torso neck, lower torso to remove slack, measure height (lowest point of torso to floor) 5. Raise torso to predetermined height, release, measure MAF, measure and record final height	Feet First DORSAL Attachment Requirements per Section 3.2.1.3.  Sample ID: 3  Location of Dorsal Attachment Element Drop Height Max Arrest Force Hi- initial height Hf- final height He – Harness Effect (Hi-Hf) Harness effect shall not exceed 18-inches or which is stated in the Mfg. Instructions, whichever is less. Stated: 36 -inches Release from the torso Support the torso for a period of 5-minutes post fall Shall support the torso post fall of an angle not greater than 30° to vertical At least one fall arrest indicator deployed visibly and permanently		inches ft Ibs inches inches inches inches	PASS	

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Paragraph	Test Description Results				
4.3.4	Dynamic Head First Drop Test:  Test Set-up (Dorsal):  1. Don the harness on the test torso 2. Position dorsal attachment bearing point 8 +/- 1 inch below the top of the shoulder (or maximum lowest position) 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 4. Attach quick release to the torso crotch, lower torso to remove slack 5. Raise torso to predetermined height, release, measure MAF	Head First DORSAL Attachment Requirements per Section 3.2.1.3.  Sample ID: 1 Location of Dorsal Attachment Element Drop Height Max Arrest Force Release from the torso Support the torso for a period of 5-minutes post fall Shall support the torso post fall of an angle not greater than 30° to vertical At least one fall arrest indicator deployed visibly and permanently	PASS		
4.3.4	Dynamic Head First Drop Test:  Test Set-up (Dorsal):  1. Don the harness on the test torso 2. Position dorsal attachment bearing point 8 +/- 1 inch below the top of the shoulder (or maximum lowest position) 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 4. Attach quick release to the torso crotch, lower torso to remove slack 5. Raise torso to predetermined height, release, measure MAF	Head First DORSAL Attachment Requirements per Section 3.2.1.3.  Sample ID: 2  Location of Dorsal Attachment Element Drop Height  Max Arrest Force Release from the torso  Support the torso for a period of 5-minutes post fall Shall support the torso post fall of an angle not greater than 30° to vertical  At least one fall arrest indicator deployed visibly and permanently		inches ft lbs No 25.8°	PASS
4.3.4	Dynamic Head First Drop Test:  Test Set-up (Dorsal):  1. Don the harness on the test torso 2. Position dorsal attachment bearing point 8 +/- 1 inch below the top of the shoulder (or maximum lowest position) 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 4. Attach quick release to the torso crotch, lower torso to remove slack 5. Raise torso to predetermined height, release, measure MAF	Head First DORSAL Attachment Requirements per Section 3.2.1.3.  Sample ID: 3  Location of Dorsal Attachment Element Drop Height Max Arrest Force Release from the torso  Support the torso for a period of 5-minutes post fall  Shall support the torso post fall of an angle not greater than 30° to vertical  At least one fall arrest indicator deployed visibly and permanently		inches ft lbs No  21.2°	PASS

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Paragraph	Test Description	Results		Compliance
4.3.5	Static Feet First Test:	Results	Compliance	
Test Set-up (Dorsal):  1. Don the harness on the test torso 2. Secure crotch of test torso to test equipment 3. connect to attachment element 4. mark locations of buckles and adjusters 5. apply 3,600 lb load and maintain for 1-minute 6. Release load and evaluate sample		Feet First DORSAL Attachment Requirements per Section 3.2.1.3.  Sample ID: 1,2,3  Release from the torso Slippage – Crotch Strap Adjuster, Right Slippage – Crotch Strap Adjuster, Left Slippage – Chest Strap Adjuster, Center Slippage – Chest Strap Adjuster, Right Slippage – Chest Strap Adjuster, Right Slippage – Chest Strap Adjuster, Left Slippage – Other Slippage – Other Strap tear further than adjacent eyelet adjuster Straps shall show no signs of tearing  "Slippage through any adjuster shall not exceed 1-in	PASS  28 28 28 28 28 28 28 28 28 28 28 28 28	
4.3.6	Fall Arrest Indicator Test:  Test Set-up (Dorsal):  1. Don the harness on the test torso 2. Position dorsal attachment per the Mfg Instructions. 3. Attach quick release to the neck of the test torso 4. Attach a Z359.13 compliant 6-foot EAL to the test anchorage 5. lower torso until test shackles are straight but no load 6. raise torso 24-inches	DORSAL Attachment Requirements per Section 3.2.1.3.  Sample ID: 1,2,3  At least one fall arrest indicator shall deploy visibly and permanently	4 YES	PASS
	((CT A TYC FIRST FYROTT			
4.3.7	"STATIC FEET FIRST T	EST FOR LANYARD PARKING ATTACH	MENT ELE	MENT"
4.3./	Static Feet First Test:  Test Set-up:  1. Don the harness on the test torso 2. Secure crotch of test torso to test equipment 3. connect to attachment element 4. apply steady load until connection between lanyard parking attachment and test lanyard separate 6. Record maximum force applied	Static Feet First Requirements per Section 3.1.12  Sample ID:  Maximum disengagement load Load exceed 120 lbs  Static Feet First Requirements per Section 3.1.12  Sample ID:  Sample ID:  Static Feet First Requirements per Section 3.1.12  Sample ID:  Static Feet First Requirements per Section 3.1.12  Sample ID:  Static Feet First Requirements per Section 3.1.12  Sample ID:  3  Maximum disengagement load Load exceed 120 lbs	53   lbs Yes 97   lbs no	PASS

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Daragraph	Test Description	Poculto				Compliance
Paragraph 7 1 1 7 1 2	Test Description	Results				Compliance
7.1.1, 7.1.2	Load Bearing Strap Test:	Requirements per S Sample ID:				
	Tensile Test: 1. attach straps to drums and test per	Straps shall be no less than 1-5/8" (4 wide				
	section 7.1.1	Requirements per Section				
	2. shall meet 5,000 lb-f breaking	Sample 1 (break load)			lbs	
	strength	Sample 2 (break load)			lbs	
		Sample 3 (break load) Sample 4 (break load)			lbs lbs	
	Abrasion Test:	Sample 4 (break load) Sample 5 (break load)			lbs	PASS
	1. attach and test straps with the abrasion	Sample 5 (bleak load)			lbs	
	tester per section 7.1.2	Requirements per S		000	100	
	2. Tensile test following abrasion test	Sample 6 (abrasion, then break load)		600	lbs	
	3. shall meet 3,600 lb-f breaking strength	Sample 7 (abrasion, then break load)	) >3	600	lbs	
	strength	Sample 8 (abrasion, then break load)			lbs	
		Sample 9 (abrasion, then break load)			lbs	
		Sample 10 (abrasion, then break load			lbs	
			Average >3	600	lbs	
_						
5		"Marking and Instructions"				
5.1	Marking Requirements					
5.1.1	Shall be in English					PASS
	with UL969-2001 (section 7.2.1)					PASS
5.1.3	Full Body Harnesses shall be marked with	he following:				
	Marking	Comments	YES	NO	NA	
	Materials of Construction	Comments	X	110	11/21	
	Size or range of sizes		X			
	Part number and model designation		X			
	Year of manufacture		X			
	Manufacturer's name or logo		X			
	Warning to follow the manufacturer's instructions included with the equipment at time of shipment from the manufacturer		X			
	A label permanently attached to the lanyard parking attachment which states, "Park Lanyard Here", See Instructions		X			PASS
	A label as defined in figure 10a & 10b of the standard		X			

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Paragraph	Test Description		Results				Compliance
5.2	Instructions Requirements						
5.2.1	Instructions shall be in English, and affixed to the						PASS
	equipment at time of shipment from the manufactur						PASS
5.2.2	Instructions shall contain the following inform	nation:					
	Instructions	Com	ments	YES	NO	NA	
	Appendix A of the standard in it's entirety			X			
	A statement that the manufacturer's instructions shall be provided to the users			X			
	Manufacturers name, address, and telephone						
	number			X			
	Manufacturer's part number and model			X			
	designation for the equipment						
	Intended use and purpose of the equipment Length of Harness Effect			X			
	Proper method of use and limitations on use of						
	the equipment			X			
	Illustrations showing locations of markings on the equipment			X			PASS
	Reproduction of printed information on all markings			X			
	Inspection procedures required to assure the equipment is in serviceable condition and operating correctly			X			
	Criteria for discarding equipment which fails inspection			X			
	Procedures for cleaning, maintenance, and			v			
	storage			X			
	Reference to Z359.11			X			
	Acceptable use for all attachment elements (see Appendix A of the standard)			X			
5.2.3	Instructions shall require that only the equipment manufacturer, or persons or entities authorized in w by the manufacturer, shall make repairs to the equipment						PASS
5.2.4	Instructions shall require the user to remove equipm from service if it has been subjected to the forces of arresting a fall and will include information on insp of load indicators	nent					PASS
5.2.5	Instructions shall require the user to have a rescue p and the means at hand to implement it when using t equipment						PASS
5.2.6	Instructions shall provide warnings regarding:		•				
	Warnings	Com	ments	YES	NO	NA	
	Altering the equipment			X			
	Misusing the equipment			X			
	Using combinations of components or sub- systems, or both, which may affect or interfere with the safe function of each other			X			
	Exposing the equipment to chemicals, heat, flames, or other environmental conditions, which may produce a harmful effect and to consult the manufacturer in case of doubt			X			PASS
	Using the equipment around moving machinery and electrical hazards			X			
	Using the equipment near sharp edges or abrasive surfaces			X			
	Exposure to light (UV degradation)	<u> </u>			<u> </u>	X	
6	User Inspection						
7	References						

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## **SECTION 5**

#### **REVISION HISTORY**

REPORT NUMBER	DATE OF REVISION	DESCRIPTION OF CHANGE:	PROJECT OWNER	REVIEWED BY
103964877CRT-001	11/20/19	Original Report	Matthew Stevens	Andrew Rulison

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# Sample Picture(s)



Date: November 20<sup>th</sup>, 2019

Sample Picture(s) Continued

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