



OSHA 1926.502
OSHA 1910.140



Fall Protection

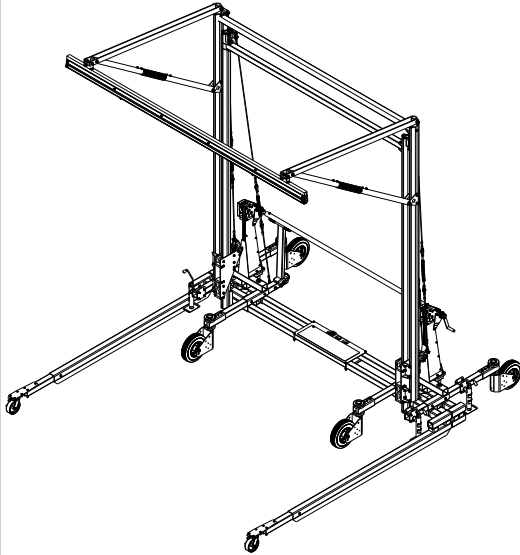
C-FRAME FAS

C-Frame Rail Fall Arrest System

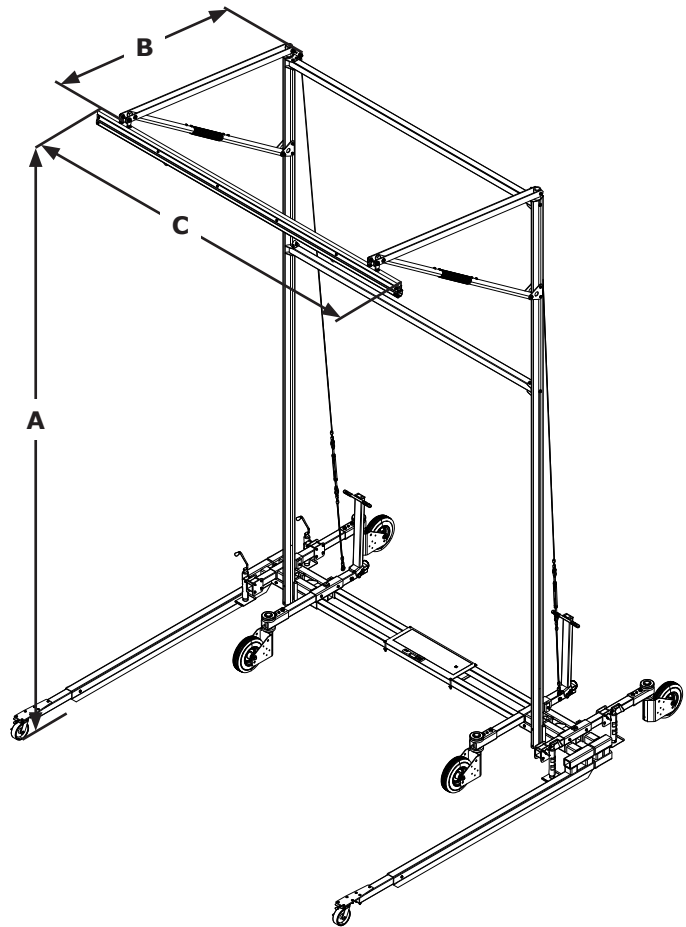
USER INSTRUCTION MANUAL

5902343 REV. D

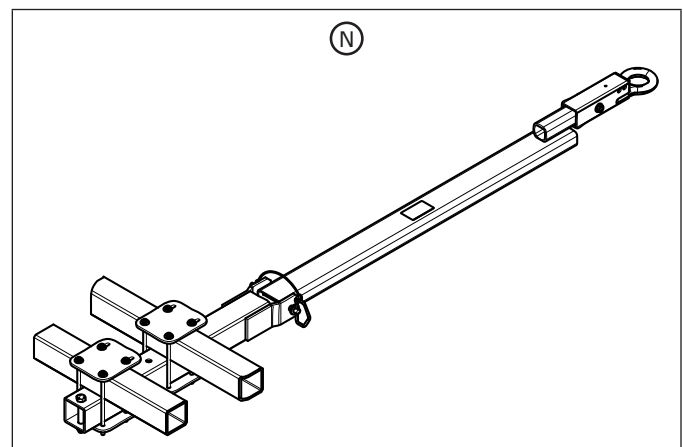
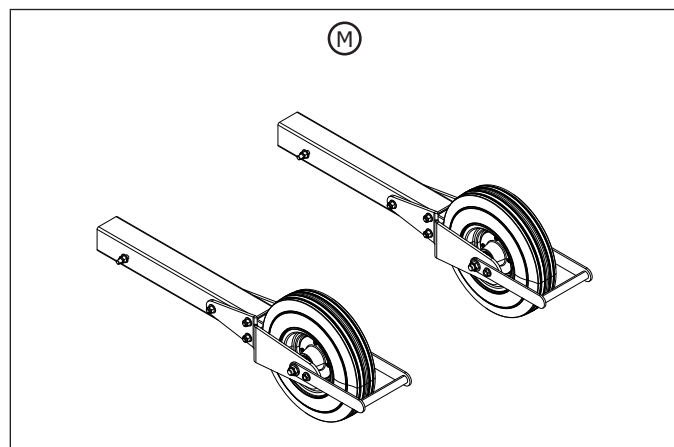
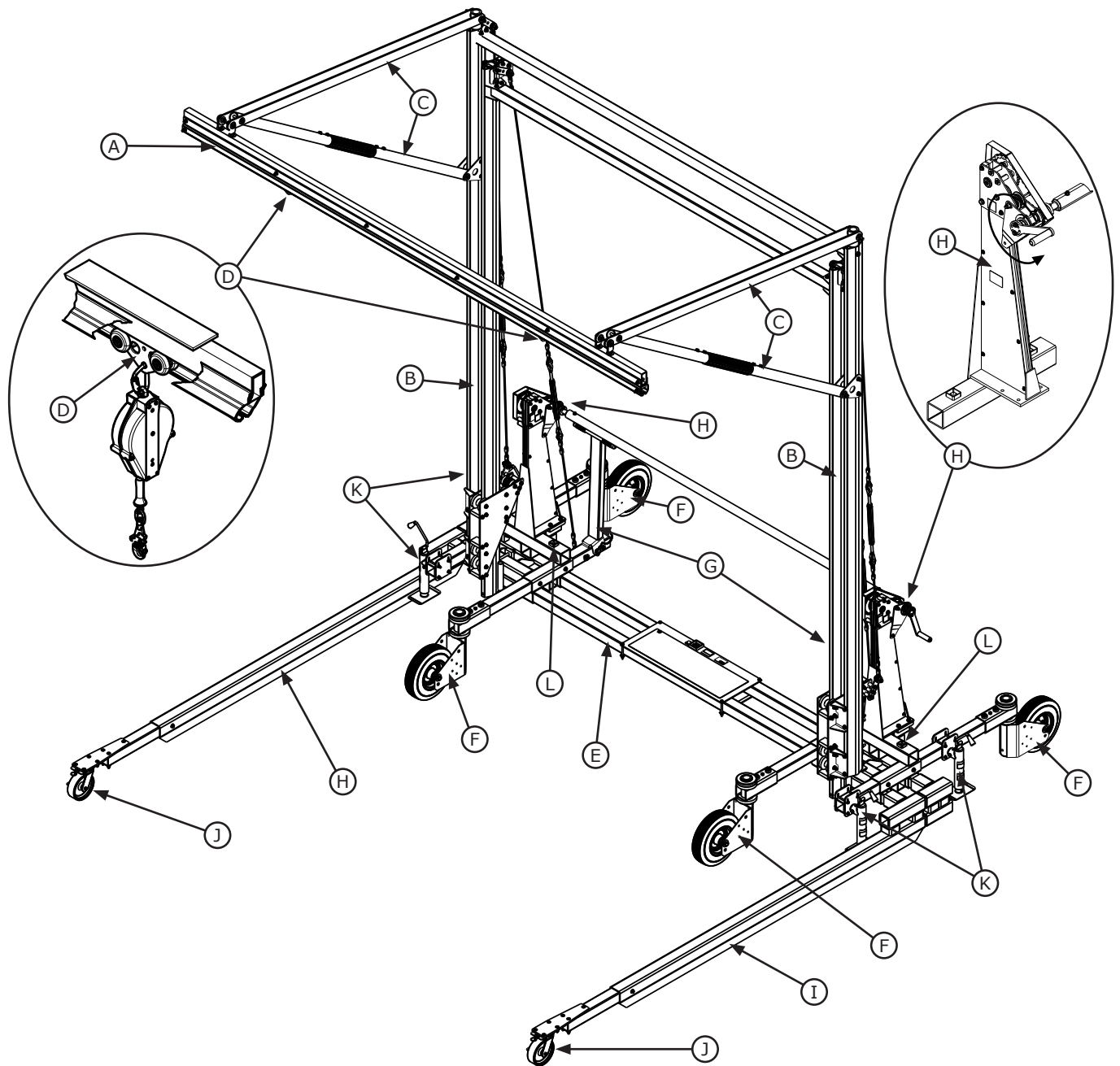
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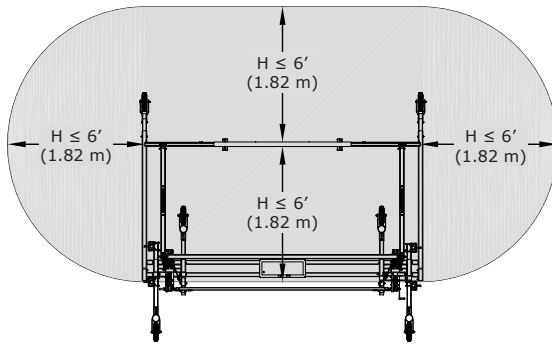
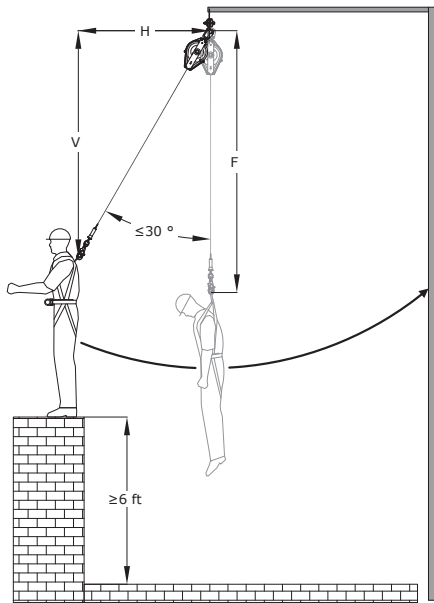


	A	B	C
8517701	12-18ft (3.6-5.5m)	8.0 ft (2.4 m)	10 ft (3.0 m)
8517703	12-18ft (3.6-5.5m)	8.0 ft (2.4 m)	15 ft (4.6 m)
8517705	12-18ft (3.6-5.5m)	8.0 ft (2.4 m)	20 ft (6.1 m)
8517707	16-26ft (4.9-7.9m)	8.0 ft (2.4 m)	15 ft (4.6 m)
8517709	16-26ft (4.9-7.9m)	8.0 ft (2.4 m)	20 ft (6.1 m)
8517711	20-34ft (6-10.4m)	8.0 ft (2.4 m)	15 ft (4.6 m)
8517713	20-34ft (6-10.4m)	8.0 ft (2.4 m)	20 ft (6.1 m)



	A	B	C
8530842	20 ft (6.0 m)	8.0 ft (2.4 m)	15 ft (4.6 m)
8530843	25 ft (7.6 m)	8.0 ft (2.4 m)	15 ft (4.6 m)
8530844	20 ft (6.0 m)	8.0 ft (2.4 m)	20 ft (6.1 m)
8530845	25 ft (7.6 m)	8.0 ft (2.4 m)	20 ft (6.1 m)

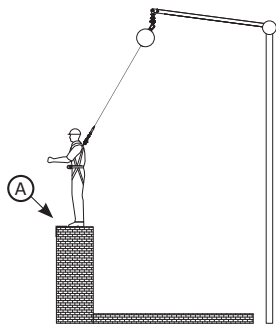




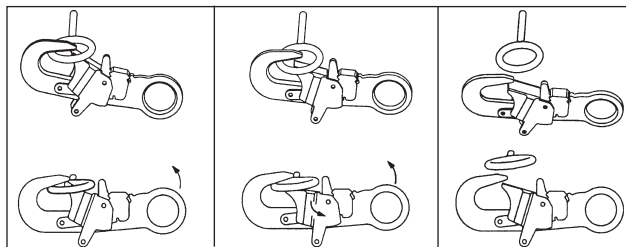
F ft (m)	← H - ft (m) →						
	0 (0.0)	1 (0.3)	2 (0.6)	3 (0.9)	4 (1.2)	5 (1.5)	6 (1.8)
0 (0.0)	0.0 (0.0)	1.0 (0.3)	2.0 (0.6)	3.0 (0.9)	4.0 (1.2)	5.0 (1.5)	6.0 (1.8)
1 (0.3)	1.0 (0.3)	1.4 (0.4)	2.2 (0.7)	3.2 (1.0)	4.1 (1.3)	5.1 (1.6)	6.1 (1.9)
2 (0.6)	2.0 (0.6)	2.2 (0.7)	2.8 (0.9)	3.6 (1.1)	4.5 (1.4)	5.4 (1.6)	6.3 (1.9)
3 (0.9)	3.0 (0.9)	3.2 (1.0)	3.6 (1.1)	4.2 (1.3)	5.0 (1.5)	5.8 (1.8)	6.7 (2.0)
4 (1.2)	4.0 (1.2)	4.1 (1.3)	4.5 (1.4)	5.0 (1.5)	5.7 (1.7)	6.4 (2.0)	7.2 (2.2)
5 (1.5)	5.0 (1.5)	5.1 (1.6)	5.4 (1.6)	5.8 (1.8)	6.4 (2.0)	7.1 (2.2)	7.8 (2.4)
6 (1.8)	6.0 (1.8)	6.1 (1.9)	6.3 (1.9)	6.7 (2.0)	7.2 (2.2)	7.8 (2.4)	8.5 (2.6)
7 (2.1)	7.0 (2.1)	7.1 (2.2)	7.3 (2.2)	7.6 (2.3)	8.1 (2.5)	8.6 (2.6)	9.2 (2.8)
8 (2.4)	8.0 (2.4)	8.1 (2.5)	8.2 (2.5)	8.5 (2.6)	8.9 (2.7)	9.4 (2.9)	10.0 (3.0)
9 (2.7)	9.0 (2.7)	9.1 (2.8)	9.2 (2.8)	9.5 (2.9)	9.8 (3.0)	10.3 (3.1)	10.8 (3.3)
10 (3.0)	10.0 (3.0)	10.0 (3.1)	10.2 (3.1)	10.4 (3.2)	10.8 (3.3)	11.2 (3.4)	11.7 (3.6)
11 (3.4)	11.0 (3.4)	11.0 (3.4)	11.2 (3.4)	11.4 (3.5)	11.7 (3.6)	12.1 (3.7)	12.5 (3.8)
12 (3.7)	12.0 (3.7)	12.0 (3.7)	12.2 (3.7)	12.4 (3.8)	12.6 (3.9)	13.0 (4.0)	13.4 (4.1)
13 (4.0)	13.0 (4.0)	13.0 (4.0)	13.2 (4.0)	13.3 (4.1)	13.6 (4.1)	13.9 (4.2)	14.3 (4.4)
14 (4.3)	14.0 (4.3)	14.0 (4.3)	14.1 (4.3)	14.3 (4.4)	14.6 (4.4)	14.9 (4.5)	15.2 (4.6)
15 (4.6)	15.0 (4.6)	15.0 (4.6)	15.1 (4.6)	15.3 (4.7)	15.5 (4.7)	15.8 (4.8)	16.2 (4.9)
16 (4.9)	16.0 (4.9)	16.0 (4.9)	16.1 (4.9)	16.3 (5.0)	16.5 (5.0)	16.8 (5.1)	17.1 (5.2)
17 (5.2)	17.0 (5.2)	17.0 (5.2)	17.1 (5.2)	17.3 (5.3)	17.5 (5.3)	17.7 (5.4)	18.0 (5.5)
18 (5.5)	18.0 (5.5)	18.0 (5.5)	18.1 (5.5)	18.2 (5.6)	18.4 (5.6)	18.7 (5.7)	19.0 (5.8)
19 (5.8)	19.0 (5.8)	19.0 (5.8)	19.1 (5.8)	19.2 (5.9)	19.4 (5.9)	19.6 (6.0)	19.9 (6.1)
20 (6.1)	20.0 (6.1)	20.0 (6.1)	20.1 (6.1)	20.2 (6.2)	20.4 (6.2)	20.6 (6.3)	20.9 (6.4)
21 (6.4)	21.0 (6.4)	21.0 (6.4)	21.1 (6.4)	21.2 (6.5)	21.4 (6.5)	21.6 (6.6)	21.8 (6.7)
22 (6.7)	22.0 (6.7)	22.0 (6.7)	22.1 (6.7)	22.2 (6.8)	22.4 (6.8)	22.6 (6.9)	22.8 (7.0)
23 (7.0)	23.0 (7.0)	23.0 (7.0)	23.1 (7.0)	23.2 (7.1)	23.3 (7.1)	23.5 (7.2)	23.8 (7.2)
24 (7.3)	24.0 (7.3)	24.0 (7.3)	24.1 (7.3)	24.2 (7.4)	24.3 (7.4)	24.5 (7.5)	24.7 (7.5)
25 (7.6)	25.0 (7.6)	25.0 (7.6)	25.1 (7.6)	25.2 (7.7)	25.3 (7.7)	25.5 (7.8)	25.7 (7.8)

← V - ft (m) →

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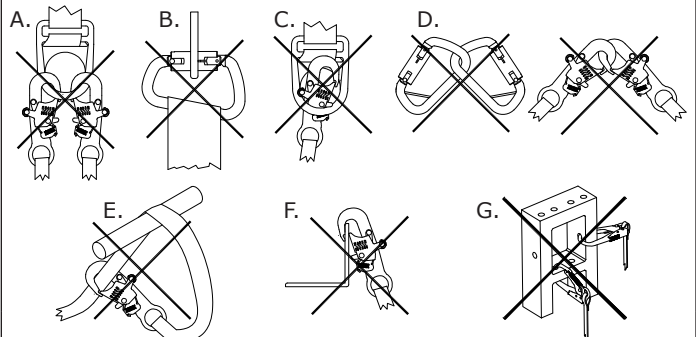


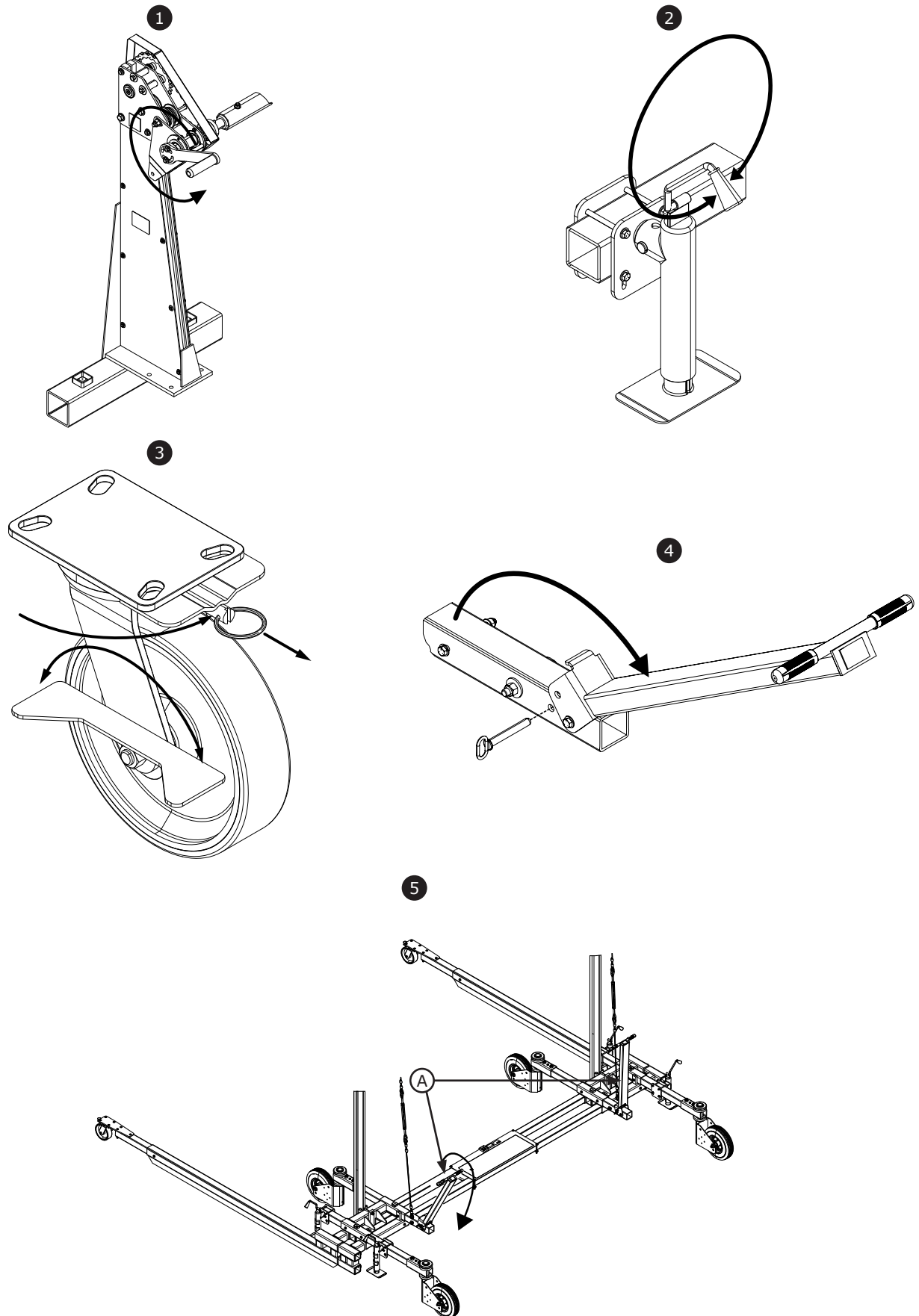
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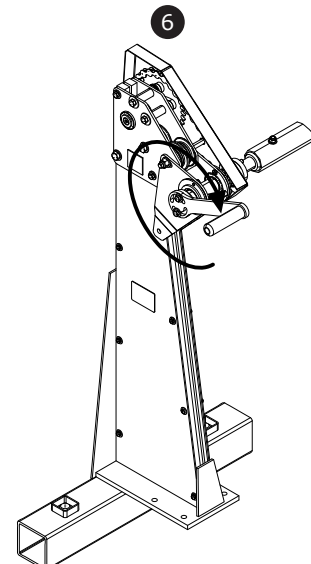
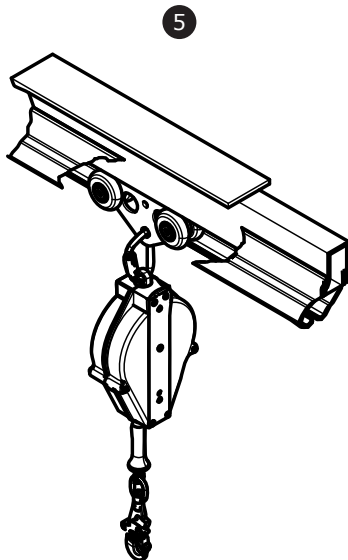
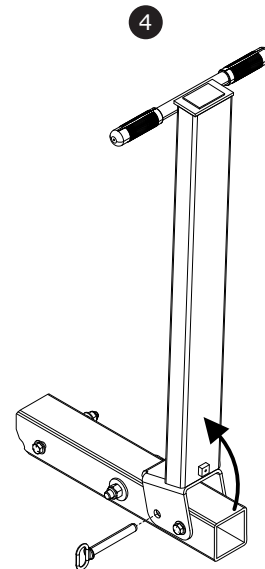
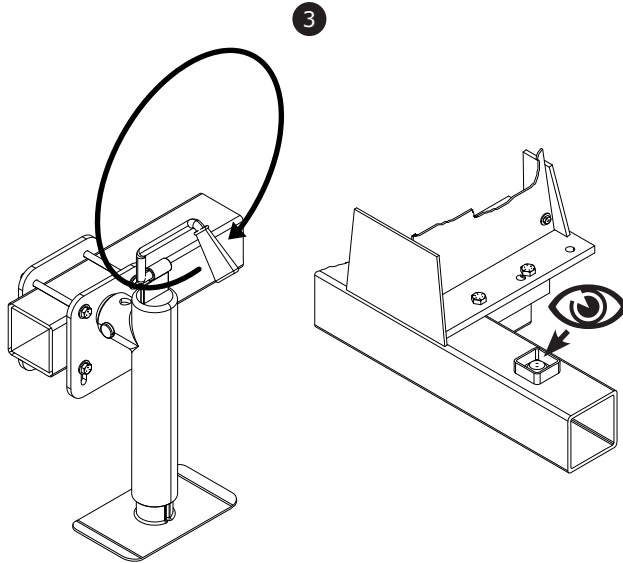
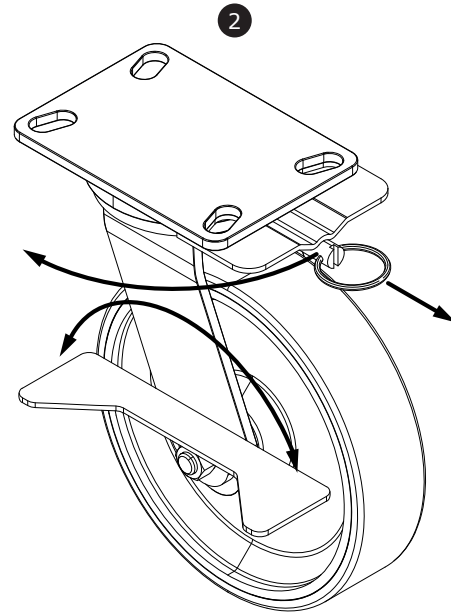
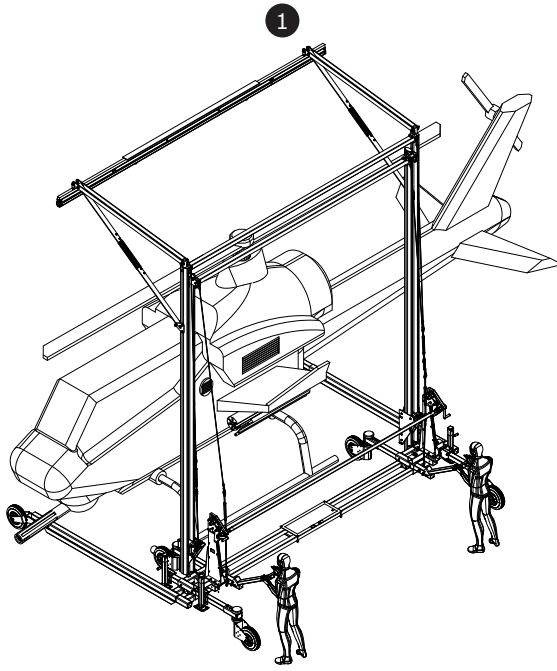
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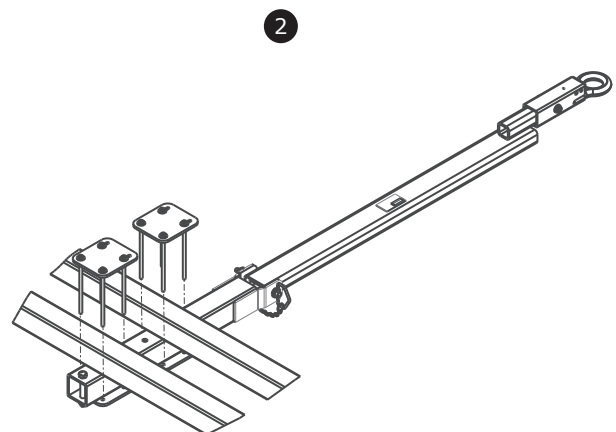
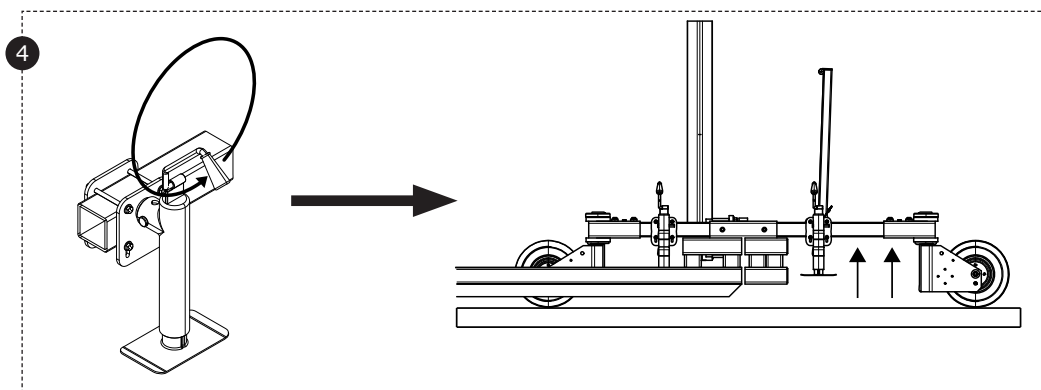
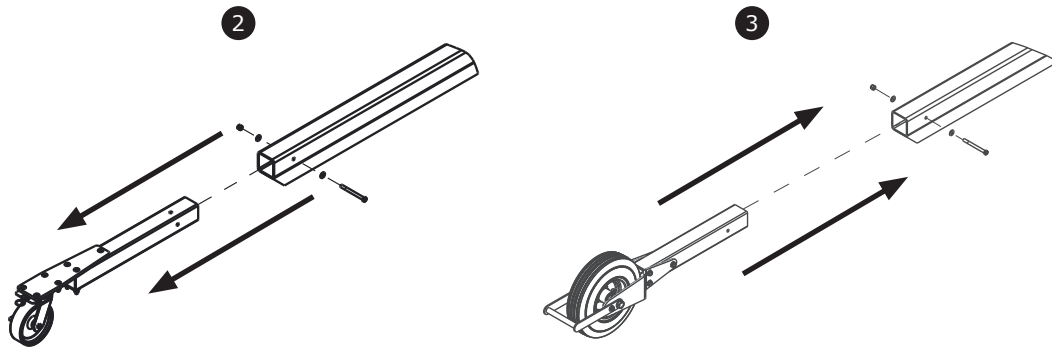
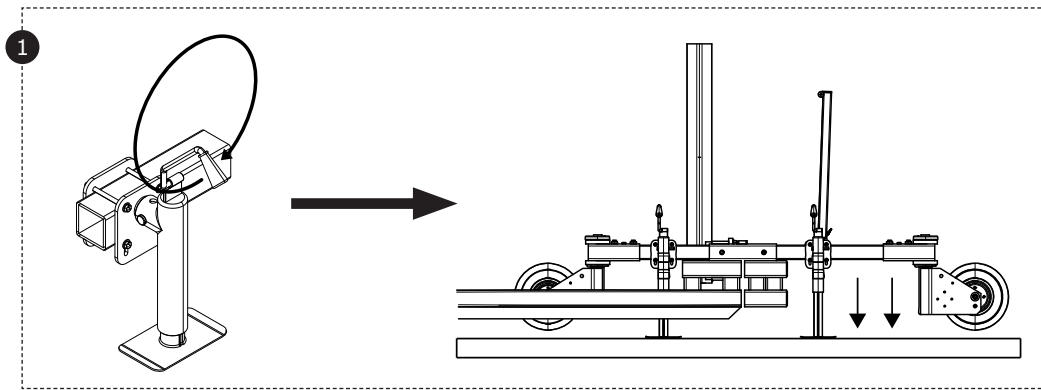
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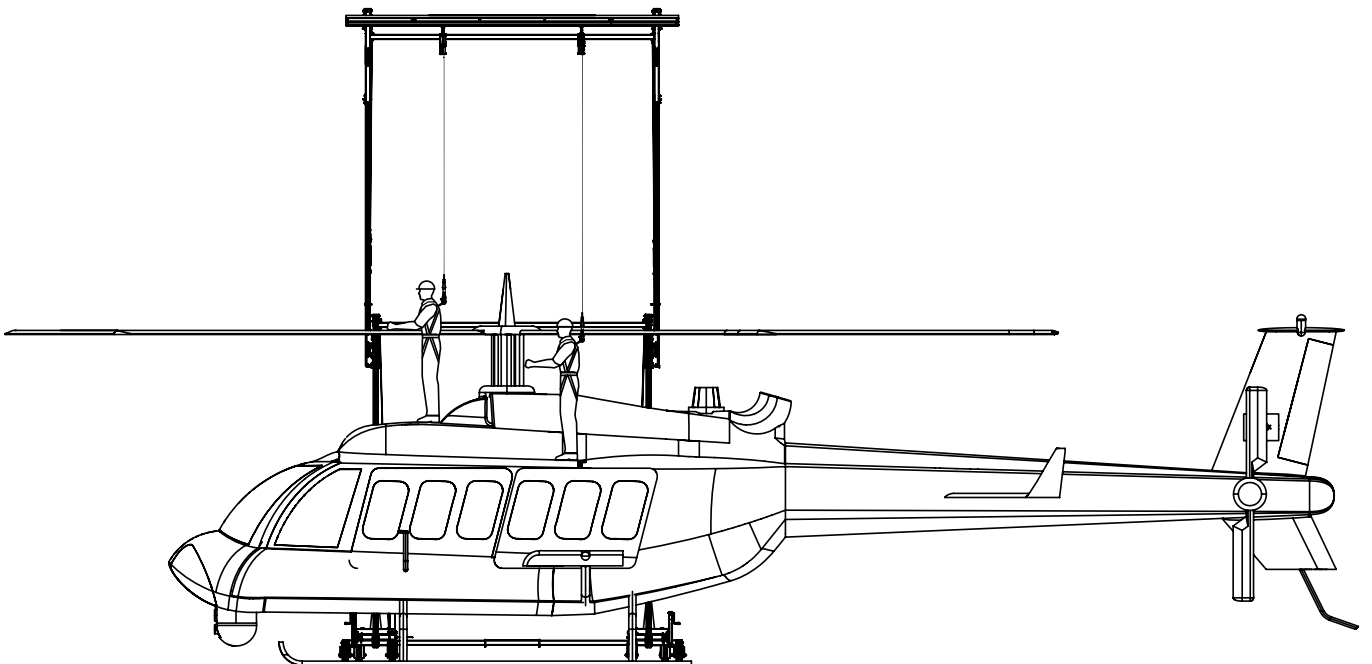
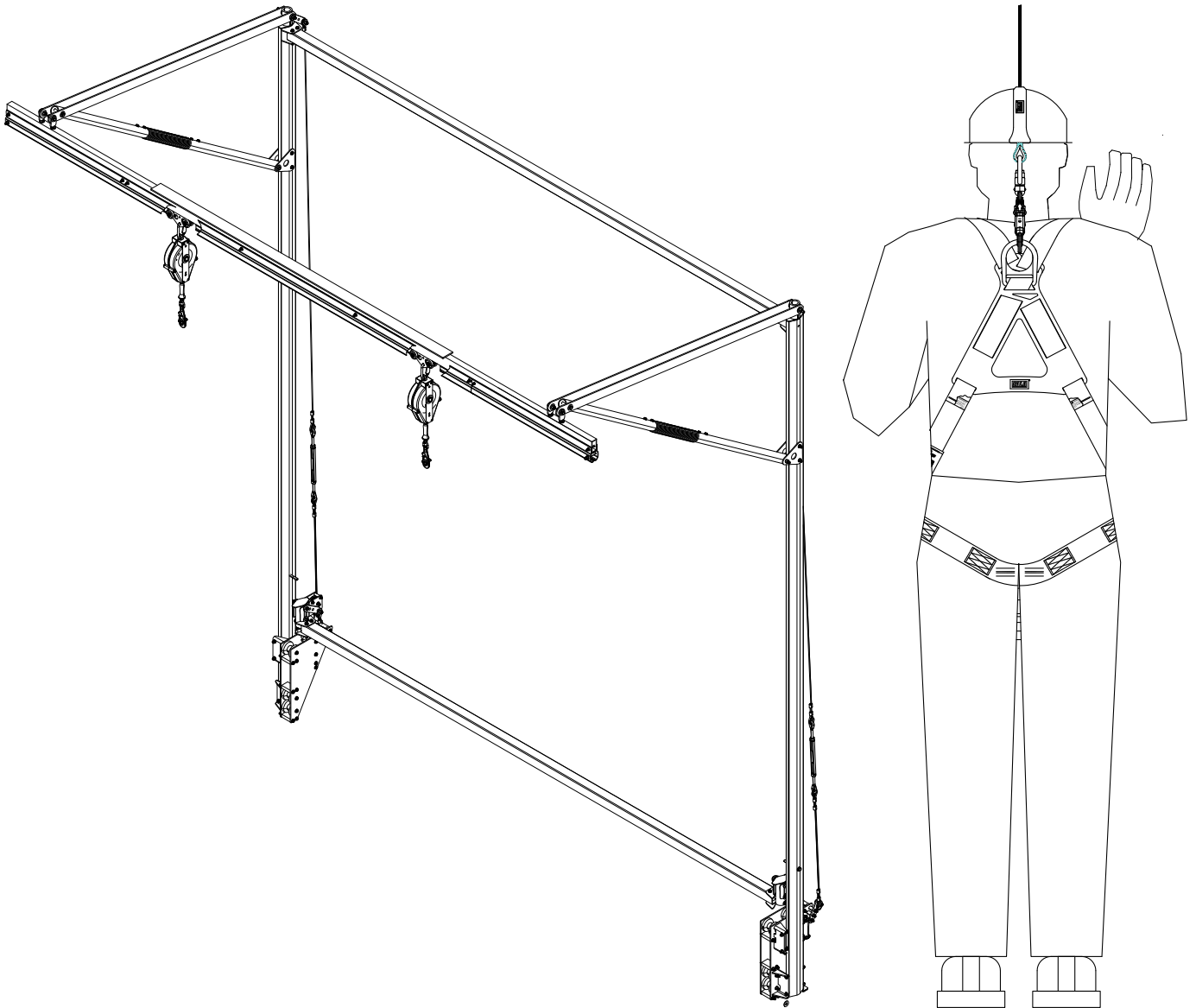
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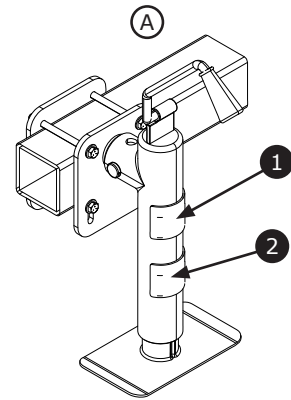
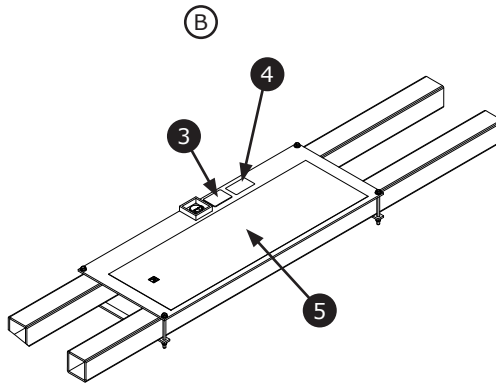
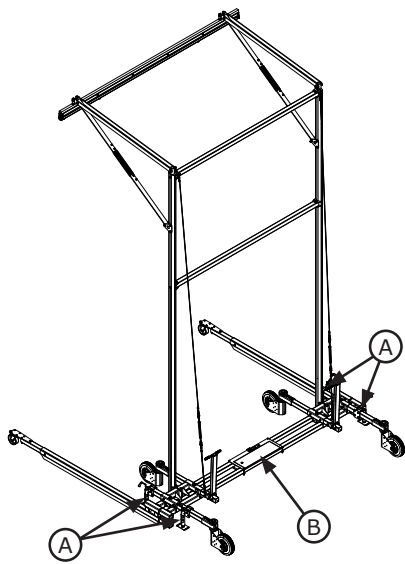












1 LUBRICATION LUBRIFICATION

- CHAIN - SPRAY
LUBRIFIEZ LA CHAÎNE
(LIGHT OIL ONLY)
(PÉTROLE CLAIR SEULEMENT)
- WHEELS - GREASE
ROUE - GRAISSE

8518730 Rev. C

2 DANGER ELECTROCUTION HAZARD HASARD D'ÉLECTROCUTION



WATCH FOR OVERHEAD POWER LINES
PRÉNEZ GARDE AUX LIGNES
ÉLECTRIQUES AÉRIENNES

8516399 Rev. B



Fall Protection

SERIAL NO.: XXXXXX
Numéro de série: XXXXXX

3M.com/FallProtection
Red Wing, MN 55066, USA

MFRD(Y/M): LOT NO.: MODEL NO.: LENGTH (FT):
Fabriqué(e) (a/m) Numéro de lot: Numéro du modèle: Longueur(m):

4 WARNING

This product is approved for use with retractable devices and shock absorbers with an **AVERAGE ARRESTING FORCE OF 900 lb (4 kN) OR LESS**, to provide a safety factor of 2:1.

Retractable devices and shock absorbers must be installed, maintained and used according to the manufacturer's instructions.

8513818 Rev. B

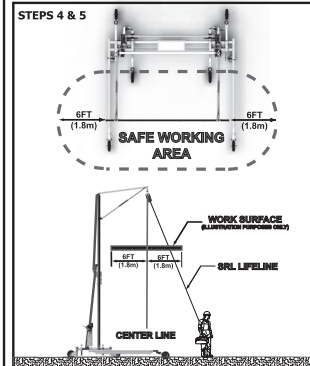
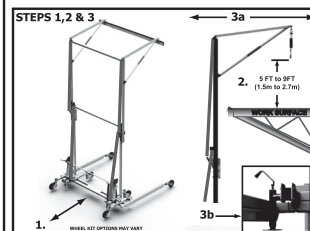
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8517713

8530842, 8530843, 8530844,
8530845

flexiguard

PORTABLE FREE STANDING
HORIZONTAL RAIL SYSTEM
OPERATORS INSTRUCTIONS

- STEP 1:** MOVE THE UNIT 1 TO 3 FEET (3-10) AWAY FROM THE WORK AREA / OBJECT.
- STEP 2:** IF THE SYSTEM IS ADJUSTABLE IN HEIGHT, ADJUST THE RAIL HEIGHT 5 TO 6 FEET (1.5-2.7m) ABOVE THE WORK SURFACE AND BY CONNECTING THE IDEAL HOOKS.
- STEP 3a:** PUSH THE UNIT INTO POSITION SO THAT THE RAIL IS CLOSE TO THE CENTER OF THE WORK AREA TO MAXIMIZE THE SAFE WORK AREA AND REDUCE THE CHANCES OF A POTENTIAL FALL.
- STEP 3b:** LOWER THE JACKS DOWN AND APPLY LIGHT PRESSURE BY JUST CONTACTING THE SURFACE. IF THE SYSTEM IS SUPPLIED WITH WHEEL LOCKS AND / OR BRAKES, ENGAGE THEM NOW.
- STEP 4:** IF APPLICABLE, PULL DOWN THE TIE LINE TO CONNECT TO THE RAIL. (NOT PROVIDED) USE A FULL BODY HARNESS TO SAFELY ACCESS THE WORKING AREA. **NOTE:** THE RAIL LINE MUST NOT DRAG OR BEND OVER A LEADING EDGE WHILE ACCESSING THE WORK AREA. TO SEPARATE THAT PROBLEM, INSPECT THE UNIT FOLLOWING OR MANUFACTURER'S INSTRUCTIONS CAREFULLY.
- STEP 5:** IF APPLICABLE, TRANSFER TAGGED LIFELINE CONNECTION TO RAIL ON THE WORKING ANCHOR POINT TROLLEY. FOLLOW GUIDELINES FOR THE SAFE WORKING AREA CAREFULLY. DO NOT EXCEED THE SAFE WORKING AREA UNDER ANY CIRCUMSTANCES.
- STEP 7:** NO MORE THAN ONE PERSON IS ALLOWED TO BE ATTACHED TO A SLIDE RAIL TROLLEY AT ANY GIVEN TIME. SEE THE WARNING LABEL BELOW TO DETERMINE THE MAXIMUM NUMBER OF OPERATORS FOR THIS SYSTEM.



WARNING

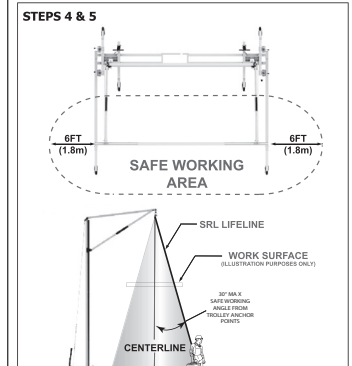
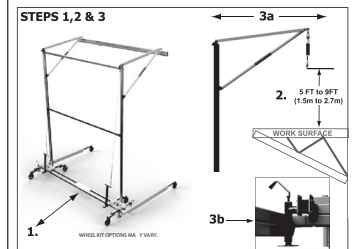
THIS PATENTED SYSTEM IS DESIGNED FOR A MAXIMUM OF **2 PERSON(S)** TO USE. CAPACITY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. FAILURE TO COMPLY MAY RESULT IN SERIOUS INJURY OR DEATH.

8518730 Rev. D



PORTABLE FREE STANDING
FIXED HORIZONTAL RAIL SYSTEM
OPERATORS INSTRUCTIONS

- STEP 1:** MOVE THE UNIT 1 TO 3 FEET (3-10) AWAY FROM THE WORK AREA / OBJECT.
- STEP 2:** SYSTEM ANCHOR HEIGHT SHOULD BE 5 TO 6 FEET (1.5-2.7m) ABOVE THE WORK SURFACE AREA.
- STEP 3a:** PUSH THE UNIT INTO POSITION SO THAT THE RAIL IS CLOSE TO THE CENTER OF THE WORK AREA TO MAXIMIZE THE SAFE WORK AREA AND REDUCE THE CHANCES OF A POTENTIAL FALL.
- STEP 3b:** LOWER THE JACKS DOWN AND APPLY LIGHT PRESSURE BY JUST CONTACTING THE SURFACE. IF THE SYSTEM IS SUPPLIED WITH WHEEL LOCKS AND / OR BRAKES, ENGAGE THEM NOW.
- STEP 4:** IF APPLICABLE, PULL DOWN THE TIE LINE TO CONNECT TO THE RAIL. (NOT PROVIDED) USE A FULL BODY HARNESS TO SAFELY ACCESS THE WORKING AREA. **NOTE:** THE RAIL LINE MUST NOT DRAG OR BEND OVER A LEADING EDGE WHILE ACCESSING THE WORK AREA. TO SEPARATE THAT PROBLEM, INSPECT THE UNIT FOLLOWING OR MANUFACTURER'S INSTRUCTIONS CAREFULLY.
- STEP 5:** IF APPLICABLE, TRANSFER TAGGED LIFELINE CONNECTION TO RAIL ON THE WORKING ANCHOR POINT TROLLEY. FOLLOW GUIDELINES FOR THE SAFE WORKING AREA CAREFULLY. DO NOT EXCEED THE SAFE WORKING AREA UNDER ANY CIRCUMSTANCES.
- STEP 7:** NO MORE THAN ONE PERSON IS ALLOWED TO BE ATTACHED TO A SLIDE RAIL TROLLEY AT ANY GIVEN TIME. SEE THE WARNING LABEL BELOW TO DETERMINE THE MAXIMUM NUMBER OF OPERATORS FOR THIS SYSTEM.



WARNING

THIS PATENTED SYSTEM IS DESIGNED FOR A MAXIMUM OF **2 PERSON(S)** TO USE. CAPACITY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. FAILURE TO COMPLY MAY RESULT IN SERIOUS INJURY OR DEATH.

8530842 Rev. B

SAFETY INFORMATION

EN

Please read, understand, and follow all safety information contained in these instructions prior to the use of this Flexiguard System. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH.

These instructions must be provided to the user of this equipment. Retain these instructions for future reference.

Intended Use:

This Flexiguard System is intended for use as part of a complete fall protection or rescue system.

Use in any other application including, but not limited to, material handling, recreational or sports related activities, or other activities not described in the User Instructions, is not approved by 3M and could result in serious injury or death.

This system is only to be used by trained users in workplace applications.

WARNING

This Flexiguard System is part of a personal fall protection or rescue system. It is expected that all users be fully trained in the safe installation and operation of the complete system. **Misuse of this system could result in serious injury or death.** For proper selection, operation, installation, maintenance, and service, refer to all Product Instructions and all manufacturer recommendations, see your supervisor, or contact 3M Technical Service.

- **To reduce the risks associated with transporting a Flexiguard system which, if not avoided, could result in serious injury or death:**
 - Ensure the system is properly secured or configured prior to transport. Refer to the User Instructions for detailed transportation requirements.
 - Only transport below 5 mph (8 km/h) and at inclines of 10° or less, or as outlined in the User Instructions.
 - Ensure the system will not contact overhead objects or electrical hazards while transporting or in use.
- **To reduce the risks associated with working with a Flexiguard system which, if not avoided, could result in serious injury or death:**
 - Inspect all components of the system before each use, at least annually, and after any fall event, in accordance with the User Instructions.
 - If inspection reveals an unsafe or defective condition, remove the system from service and repair or replace according to the User Instructions.
 - Any system that has been subject to fall arrest or impact force must be immediately removed from service. Refer to the User Instructions or contact 3M Fall Protection.
 - The substrate or structure on which the system is attached/positioned must be able to sustain the static loads specified for the system in the orientations permitted in the User Instructions or Installation Instructions.
 - Do not exceed the number of allowable users as per the User Instructions.
 - Never attach to a system until it is fully assembled, positioned, adjusted, and installed. Do not adjust the system while a user is attached.
 - Never work outside the safe work area as defined by the User Instructions.
 - Do not connect to the system while it is being transported or installed.
 - Always maintain 100% tie-off when transferring between anchor points on the system.
 - Use caution when installing, using, and moving the system as moving parts may create potential pinch points.
 - Ensure proper lockout/tagout procedures have been followed when applicable.
 - Only connect fall protection subsystems to the designated anchorage connection point on the system.
 - When drilling holes for assembly or installation of the system, ensure no electric lines, gas lines, or other critical materials or equipment will be contacted by the drill.
 - Ensure that fall protection systems/subsystems assembled from components made by different manufacturers are compatible and meet the requirements of applicable standards, including the ANSI Z359 or other applicable fall protection codes, standards, or requirements. Always consult a Competent or Qualified Person before using these systems.
- **To reduce the risks associated with working at heights which, if not avoided, could result in serious injury or death:**
 - Ensure your health and physical condition allow you to safely withstand all of the forces associated with working at height. Consult with your doctor if you have any questions regarding your ability to use this equipment.
 - Never exceed allowable capacity of your fall protection equipment.
 - Never exceed maximum free fall distance of your fall protection equipment.
 - Do not use any fall protection equipment that fails pre-use or other scheduled inspections, or if you have concerns about the use or suitability of the equipment for your application. Contact 3M Technical Services with any questions.
 - Some subsystem and component combinations may interfere with the operation of this equipment. Only use compatible connections. Consult 3M prior to using this equipment in combination with components or subsystems other than those described in the User Instructions.
 - Use extra precautions when working around moving machinery (e.g. top drive of oil rigs) electrical hazards, extreme temperatures, chemical hazards, explosive or toxic gases, sharp edges, or below overhead materials that could fall onto you or the fall protection equipment.
 - Use Arc Flash or Hot Works devices when working in high heat environments.
 - Avoid surfaces and objects that can damage the user or equipment.
 - Ensure there is adequate fall clearance when working at height.
 - Never modify or alter your fall protection equipment. Only 3M or parties authorized in by 3M may make repairs to the equipment.
 - Prior to use of fall protection equipment, ensure a rescue plan is in place which allows for prompt rescue if a fall incident occurs.
 - If a fall incident occurs, immediately seek medical attention for the fallen worker for the worker who has fallen.
 - Do not use a body belt for fall arrest applications. Use only a Full Body Harness.
 - Minimize swing falls by working as directly below the anchorage point as possible.
 - If training with this device, a secondary fall protection system must be utilized in a manner that does not expose the trainee to an unintended fall hazard.
 - Always wear appropriate personal protective equipment when installing, using, or inspecting the device/system.

☒ Prior to installation and use of this equipment, record the product identification information from the ID label in the Inspection and Maintenance Log (Table 2) at the back of this manual.

PRODUCT DESCRIPTION:

Figure 1 illustrates the Flexiguard® C-Frame Fall Arrest System (FAS). C-Frame FAS are fall protection systems with overhead anchorage connections for up to two people. They are intended for use as anchorages in a Personal Fall Arrest System (PFAS).

Figure 2 illustrates components of the C-Frame FAS. See Table 1 for component identification and specifications. A Trolley Rail assembly (A) is supported by adjustable & non-adjustable Upright Assemblies (B) and Trolley Rail Supports (C). Four-Wheeled Trolleys (D) travel back and forth in the Trolley Rail Halves. Each Trolley has a connection point for connection of a Self-Retracting Device or Energy Absorbing Lanyard. The C-Frame Bases (E) are equipped with swiveling Pneumatic or Caster Wheels (F) and Transport Handles (G) for transporting and positioning the system. The Drive Mech (H) enables raising and lowering of the adjustable C-Frame systems. Outriggers (I) with locking Caster Wheels (J) or non-swiveling Pneumatic Wheels stabilize the system during transport and use. Leveling Jacks (K) and Bubble Levels (L) are used to level the system and prevent roll during use. The Transport Wheels Kit (M) is sold separately and is designed to replace the existing front caster wheels for use when towing the system across long distances. The Tow Bar (N) is sold separately and enables transportation of the C-Frame FAS with a vehicle.

Table 1 – Specifications

Performance Specifications:		
Capacity:	2 Trolleys per Trolley Rail: 1 Person per Trolley with a combined weight (clothing, tools, etc.) less than or equal to 310 lbs (140.6 kg).	
Anchorage:	The structure to which the Anchorage Connector is attached must sustain loads applied in the directions permitted by the Fall Arrest System of at least 3,600 lbs (1,633 kg) plus the weight of the system.	
Dimensions:	See Figure 1 for the dimensions of each C-Frame FAS model.	
Weight:	8517701: 1,650 lbs (749 kg) 8517703: 1,970 lbs (893 kg) 8517705: 2,097 lbs (951 kg) 8517707: 2,104 lbs (954 kg) 8517709: 2,232 lbs (1,012 kg) 8517711: 2,238 lbs (1,015 kg) 8517713: 2,366 lbs (1,073 kg) 8530842: 1,450 lbs (658 kg) 8530843: 1,500 lbs (680 kg) 8530844: 1,600 lbs (725 kg) 8530845: 1,650 lbs (749 kg)	

Component Specifications:		
Figure 2 Reference	Component	Materials
(A)	Trolley Rail	Aluminum
(B)	Upright Assembly	Tubes - Aluminum Plates - Aluminum Carriage Housing - Steel Carriage Rollers - Nylatron Chain Roller - Acetal
(C)	Trolley Rail Support	Tubes - Aluminum Bars - Aluminum Gussets - Stainless Steel with EPDM cover
(D)	4-Wheeled Trolley	Wheels - Nylon Bearings - Steel 5/8" Connection Eye - Stainless Steel
(E)	C-Frame Base	Tubes - Aluminum Plates - Aluminum
(F)	Pneumatic Wheels	Rubber - Foam-filled
(G)	Transport Handles	Tube - Steel Handles - Rubber
(H)	Drive Mech	Steel; aluminum
(I)	Outrigger	Aluminum
(J)	Caster Wheels	Wheels - Urethane Mounting Tube - Aluminum.
(K)	Leveling Jacks	Steel
(L)	Bubble Level	Plastic
(M)	Transport Wheels Kit - 8530841	Rubber - Foam-filled
(N)	Tow Bar Kit - 8518243 (sold separately)	Aluminum; steel

1 Qualified Person: A person with a recognized degree of professional certificate and with extensive knowledge, training, and experience in the fall protection and rescue field who is capable of designing, analyzing, evaluating, and specifying fall protections and rescue systems to the extent required by OSHA and other applicable standards.

1.0 PRODUCT APPLICATION

- 1.1 PURPOSE:** Flexiguard™ Anchorage Systems are designed to provide anchorage connection points for a Personal Fall Arrest System (PFAS).
- 1.2 SUPERVISION:** Installation of this equipment must be supervised by a Qualified Person¹. Use of this equipment must be supervised by a Qualified Person¹.
- 1.3 TRAINING:** This equipment must be installed and used by persons trained in its correct application. This manual is to be used as part of an employee training program as required by OSHA. It is the responsibility of the users and installers of this equipment to ensure they are familiar with these instructions, trained in the correct care and use of this equipment, and are aware of the operating characteristics, application limitations, and consequences of improper use of this equipment.
- 1.4 RESCUE PLAN:** When using this equipment and connecting subsystem(s), the employer must have a rescue plan and the means at hand to implement and communicate that plan to users, authorized persons², and rescuers³. A trained, on-site rescue team is recommended. Team members should be provided with the equipment and techniques to perform a successful rescue. Training should be provided on a periodic basis to ensure rescuer proficiency.
- 1.5 INSPECTION FREQUENCY:** The Flexiguard Anchorage System shall be inspected by the user before each use and, additionally, by a competent person other than the user at intervals of no longer than one year.⁴ Inspection procedures are described in the "Inspection and Maintenance Log". Results of each Competent Person inspection should be recorded on copies of the "Inspection and Maintenance Log".
- 1.6 AFTER A FALL:** If the Flexiguard Anchorage System is subjected to the forces of arresting a fall, it must be removed from the field of service immediately and replaced or inspected by an Authorized 3M Representative.

2.0 SYSTEM CONSIDERATIONS

- 2.1 ANCHORAGE:** Structure on which the Flexiguard Anchorage System is placed or mounted must meet the Anchorage specifications defined in Table 1.
- 2.2 PERSONAL FALL ARREST SYSTEM:** Figure 1 illustrates the application of this Flexiguard Anchorage System. Personal Fall Arrest Systems (PFAS) used with the system must meet applicable OSHA, ANSI, state, and federal requirements. The PFAS shall incorporate a Full Body Harness and Self-Retracting Device (SRD) with a 900 lb (4 kN) Average Arresting Force.
- 2.3 FALL PATH AND SRL LOCKING SPEED:** A clear path is required to assure positive locking of an SRL. Situations which do not allow for an unobstructed fall path should be avoided. Working in confined or cramped spaces may not allow the body to reach sufficient speed to cause the SRL to lock if a fall occurs. Working on slowly shifting material, such as sand or grain, may not allow enough speed buildup to cause the SRL to lock.
- 2.4 HAZARDS:** Use of this equipment in areas with environmental hazards may require additional precautions to prevent injury to the user or damage to the equipment. Hazards may include, but are not limited to: heat, chemicals, corrosive environments, high voltage power lines, explosive or toxic gases, moving machinery, sharp edges, or overhead materials that may fall and contact the user or Personal Fall Arrest System.
- 2.5 FALL CLEARANCE:** There must be sufficient clearance below the user to arrest a fall before the user strikes the ground or other obstruction. Fall Clearance is dependent on the following factors:
- Deceleration Distance
 - Worker Height
 - Elevation of Anchorage Connector
 - Free Fall Distance
 - Movement of Harness Attachment Element
 - Connecting Subsystem Length
- See the Personal Fall Arrest System manufacturer's instructions for specifics regarding Fall Clearance calculation.
- 2.6 SWING FALLS:** Swing Falls occur when the anchorage point is not directly above the point where a fall occurs (see). The force of striking an object in a swing fall may cause serious injury or death. Minimize swing falls by working as directly below the anchorage point as possible. Do not permit a swing fall if injury could occur. Swing falls will significantly increase the clearance required when a Self-Retracting Device or other variable length connecting subsystem is used.
- 2.7 SHARP EDGES:** Avoid working where Lifeline or Lanyard components of the Personal Fall Arrest System (PFAS) can contact or abrade against unprotected sharp edges (see Figure 4). Where contact with a sharp edge is unavoidable, cover the edge with protective material (A).
- 2.8 COMPONENT COMPATIBILITY:** 3M equipment is designed for use with 3M approved components and subsystems only. Substitutions or replacements made with non-approved components or subsystems may jeopardize compatibility of equipment and may effect the safety and reliability of the complete system.

2.9 CONNECTOR COMPATIBILITY: Connectors are considered to be compatible with connecting elements when they have been designed to work together in such a way that their sizes and shapes do not cause their gate mechanisms to inadvertently open regardless of how they become oriented. Contact 3M if you have any questions about compatibility. Connectors (hooks, carabiners, and D-rings) must be capable of supporting at least 5,000 lbs. (22.2 kN). Connectors must be compatible with the anchorage or other system components. Do not use equipment that is not compatible. Non-compatible connectors may unintentionally disengage (see Figure 5). Connectors must be compatible in size, shape, and strength. If the connecting element to which a snap hook or carabiner attaches is undersized or irregular in shape, a situation could occur where the connecting element applies a force to the gate of the snap hook or carabiner (A). This force may cause the gate to open (B), allowing the snap hook or carabiner to disengage from the connecting point (C).

Self-locking snap hooks and carabiners are required by ANSI Z359 and OSHA.

2.10 MAKING CONNECTIONS: Snap hooks and carabiners used with this equipment must be self-locking. Ensure all connections are compatible in size, shape and strength. Do not use equipment that is not compatible. Ensure all connectors are fully closed and locked.

3M connectors (snap hooks and carabiners) are designed to be used only as specified in each product's user's instructions. See Figure 6 for examples of inappropriate connections. Do not connect snap hooks and carabiners:

- A. To a D-ring to which another connector is attached.
- A. In a manner that would result in a load on the gate. Large throat snap hooks should not be connected to standard size D-rings or similar objects which will result in a load on the gate if the hook or D-ring twists or rotates, unless the snap hook complies is equipped with a 3,600 lb (16 kN) gate. Check the marking on your snap hook to verify that it is appropriate for your application.
- B. In a false engagement, where features that protrude from the snap hook or carabiner catch on the anchor, and without visual confirmation seems to be fully engaged to the anchor point.
- C. To each other.
- D. Directly to webbing or rope lanyard or tie-back (unless the manufacturer's instructions for both the lanyard and connector specifically allows such a connection).
- E. To any object which is shaped or dimensioned such that the snap hook or carabiner will not close and lock, or that roll-out could occur.
- F. In a manner that does not allow the connector to align properly while under load.

3.0 INSTALLATION

IMPORTANT: Installation of the Flexiguard® C-Frame Fall Arrest System (FAS) must be supervised by a Qualified Person¹. The installation must be certified by a Competent Person as meeting the criteria for a Certified Anchorage, or that it is capable of supporting the potential forces that could be encountered during a fall.

3.1 PLANNING: Plan your fall protection system prior to installation of the Flexiguard C-Frame FAS. Account for all factors that may affect your safety before, during, and after a fall. Consider all requirements, limitations, and specifications defined in Section 2 and Table 1.

3.2 MOVING THE SYSTEM: Figure 7 illustrates transport of the C-Frame FAS. Prepare and move the system as follows:

1. **Lower the Trolley Rail:** Crank the Hand Crank Chain Drives counterclockwise until the Trolley Rail is fully lowered. The two Hand Crank Chains Drive are synchronized by a Connector Tube so it is not necessary to crank both Chain Drives. (For adjustable C-frame systems only.)

☒ Do not raise or lower the Trolley Rail while in use. Vertical movement of the Trolley Rail at the time of a fall may impede proper operation of the attached Fall Arrest system(s), resulting in serious injury or death.

2. **Raise the Leveling Jacks:** Crank the handle on each Leveling Jack until the jack is fully raised.
3. **Unlock the Outrigger Caster Wheels (if present):** For each Caster Wheel: Flip the Brake Pedal parallel to the ground to release the Wheel Brake. Pull out and rotate the Caster Swivel Lock 90° to allow the wheel to caster 360°.
4. **Release the Transport Handles:** For Each Transport Handle: Remove the Detent Pin from Push Bar Mounting Bracket. Pivot the Transport Handle downward. Reinsert the Detent Pin above the tube to prevent pivoting of the Transport Handle while pushing.
5. **Move the System:** Push or pull the C-Frame FAS to the work area with the Transport Handles. If equipped with a Tow Bar, the C-Frame FAS can be transported longer distances with a Tow Vehicle with a Pintle or similar hitch. The Transport Wheel Kit (8530841) is recommended for transporting the system when using the Tow Bar (8518243).

☒ Never transport the Flexiguard C-Frame Fall Arrest System on slopes greater than 5°. Excessive slopes may cause system tip-overs resulting in serious injury or death.

☒ When transporting the Flexiguard C-Frame Fall Arrest System, be aware of overhead obstructions and electrical hazards which may result in serious injury or death.

3.3 PREPARING THE SYSTEM: Figure 8 illustrates preparation of the C-Frame for work. Position and prepare the system as follows:

1. **Position the C-Frame:** Position the C-Frame on a flat surface within the Safe Work Area (see Figure 3). Ideally the Trolley Rail should be centered over the intended work area. Outriggers can extend under the serviced vehicle if sufficient gap is present.
2. **Lock the Outrigger Caster Wheels (if present):** For each Caster Wheel: Push down on either end of the Brake Pedal to lock the Wheel Brake. Pull out and rotate the Caster Swivel Lock 90° to lock the caster and prevent the wheel from swiveling.
3. **Lower the Leveling Jacks:** Crank the handle on each Leveling Jack clockwise until the Jack Pad contacts the ground and then crank the handle an additional 5 revolutions. If surface is uneven adjust each jack accordingly. Bubble Levels are mounted on the C-Frame Base near each jack to assist in leveling the system.
4. **Secure the Transport Handles:** For Each Transport Handle: Pivot the Transport Handle up until the pin holes in the Push Bar Mounting Bracket align with the pin holes in the Corner Tube. Insert the Detent Pin through all holes in the Mounting Bracket and Corner Tube.
5. **Install Fall Arrest Equipment:** A Fall Arrest subsystem is required. Attach a Self-Retracting Device (SRD) to each of the 4-Wheeled Trolleys. Tag Lines lines should be attached to the SRD Lifelines to allow retrieval and connection of the lifeline after the Trolley Rail is raised.
6. **Raise the Trolley Rail (Adjustable Systems Only):** Crank the Hand Crank on one of the Hand Crank Chain Drives until the Trolley Rail is at sufficient height to ensure a Safe Work Area (see Figure 3). Raise the Trolley Rail high enough to ensure the Working Angle of the lifeline does not exceed 30° when working within the allowable 6 ft. (1.8 m) Work Radius.

3.4 INSTALLING THE TRANSPORT WHEELS KIT (8530841): The Transport Wheels Kit may be installed for transporting the C-Frame FAS long distances and in coordination with the Tow Bar Kit (8518243). See Figure 9 for reference. To install the Transport Wheels Kit:

1. **Lower the Leveling Jacks:** Crank the handle on each Leveling Jack clockwise until the Jack Pad contacts the ground and both of the front Caster Wheels are off the ground.
2. **Remove the Caster Wheel Assembly:** Remove the 1/2" bolt from the Outriggers on both sides of the system and then remove the Caster Wheel Assembly.
3. **Insert the Transport Wheel Assemblies:** Insert the 8530841 Transport Wheel Assembly into the Outriggers on

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both sides of the system. Bolt the Transport Wheels into place using the 1/2" hardware. Torque the hardware to 60 ft*lbs (81 N*m).

4. **Raise the Leveling Jacks:** Raise each Leveling Jack again so that the wheels of the C-Frame FAS are resting on the ground.

3.5 INSTALLING THE TOW BAR KIT (8518243): The Tow Bar Kit may be installed for transporting the C-Frame FAS using the hitch of a vehicle. See Figure 10 for reference. To install the Tow Bar Kit:

1. **Center the Tow Bar on the Base:** Center the Tow Bar on the C-Frame Base. If necessary, move the label plate of the C-Frame FAS to either end of the system.
2. **Attach the Tow Bar to the Base:** Fasten the clamps of the Tow Bar to the cross tubes of the C-Frame Base using the 3/8" hardware. Torque the hardware to 45 ft*lbs (61 N*m).

4.0 USE

☒ Consult your doctor if there is any reason to doubt your fitness to safely absorb the shock from a fall arrest or suspension. Age and fitness seriously affect a worker's ability to withstand falls. Pregnant women or minors must not use DBI-SALA equipment unless in an emergency situation.

☒ Never exceed the Capacity maximums specified in Table 1. Exceeding the stated capacity could collapse or tip the system, resulting in serious injury or death.

- 4.1 **BEFORE EACH USE:** Verify that your work area and Personal Fall Arrest System (PFAS) meet all criteria defined in Section 2 and a formal Rescue Plan is in place. Inspect the C-Frame Fall Arrest System per the 'User' inspection points defined on the "Inspection and Maintenance Log" (Table 2). If inspection reveals an unsafe or defective condition, do not use the C-Frame FAS. Remove the system from service and contact Capital Safety regarding replacement or repair.

☒ Figure 3 illustrates the Safe Work Area for the C-Frame Fall Arrest System. The gray shading on the table designates safe working distances where the angle of the Lifeline is less than or equal to 30° from vertical and the Horizontal Distance (H) from the anchorage connection point is less than or equal to 6 ft (1.82 m). NEVER work at a Horizontal Distance (H) and Vertical Distance (V) that results in a calculated Vertical Fall Distance (F) exceeding the gray shaded values on the table in Figure 3.

☒ Never use the C-Frame Fall Arrest System for Fall Protection without the Outriggers securely installed. Use of the C-Frame without the Outriggers can tip the system resulting in injury or death.

- 4.2 **FALL ARREST CONNECTIONS:** Figure 11 illustrates the C-Frame and its Fall Arrest Connections. Users must wear a Full Body Harness connected to the C-Frame Trolley Rail with a Fall Arrest subsystem (Self-Retracting Device). The Trolley Rail is equipped with two Four-Wheel Trolleys that travel back-and-forth inside the Rail Halves. One Self-Retracting Device (SRD) can be connected to each Four-Wheel Trolley. Connect the lifeline on the SRD to the back Dorsal D-Ring on the Harness. A Tag Line can be attached to the SRD Lifeline and used to retrieve the lifeline for connection to the user's harness.

☒ When transferring between SRDs, always maintain 100% tie-off to ensure fall arrest protection in the event of a fall.

☒ No more than one person, meeting the Capacity requirements specified in Table 1, shall be attached to the Glide Four-Wheel Trolley.

☒ Inappropriate or incompatible connections between components of the Personal Fall Arrest System (PFAS) may result in serious injury or death. See Section 2 for details regarding connector compatibility and safe connections.

5.0 INSPECTION

- 5.1 **INSPECTION FREQUENCY:** The C-Frame FAS must be inspected at the intervals defined in Section 1. Inspection procedures are described in the "Inspection and Maintenance Log" (Table 2). Inspect all other components of the Fall Protection System per the frequencies and procedures defined in the manufacturer's instructions.
- 5.2 **DEFECTS:** If inspection reveals an unsafe or defective condition, remove the C-Frame FAS from service immediately. Do not attempt to repair the Fall Arrest System.
- 5.3 **PRODUCT LIFE:** The functional life of the C-Frame FAS is determined by work conditions and maintenance. As long as the product passes inspection criteria, it may remain in service.

6.0 MAINTENANCE, SERVICING, STORAGE

- 6.1 **CLEANING:** Periodically clean the metal components of the C-Frame FAS with a soft brush, warm water, and a mild soap solution. Ensure parts are thoroughly rinsed with clean water.
- 6.2 **SERVICE:** Only 3M or parties authorized in writing by 3M may make repairs to this equipment. If the Flexiguard System has been subject to fall force or inspection reveals an unsafe or defective conditions, remove the system from service and contact 3M regarding replacement or repair.

6.3 STORAGE AND TRANSPORT: The C-Frame FAS is designed to be stored outdoors during normal weather conditions. If the weather is severe, it is recommended to store the system in an area that protects against damage to the system. Store the C-Frame FAS and associated fall protection equipment in a cool, dry, clean environment out of direct sunlight. Avoid areas where chemical vapors may exist. Thoroughly inspect components after extended storage. If the system is transported long distances, it should be disassembled and all components secured and protected from severe conditions during transport.

<input checked="" type="checkbox"/> <i>When transporting the C-Frame FAS, do not exceed transport speeds of 5.0 mph (8.0 km/h).</i>

7.0 LABELS

Figure 12 illustrates labels on the C-Frame FAS. All labels must be present and should be replaced if they are not fully legible.

Table 2 – Inspection and Maintenance Log

Inspection Date:		Inspected By:	
Components:	Inspection: (See Section 1 for <i>Inspection Frequency</i>)	User	Competent Person
Tie-Back Cable and Turnbuckle Assemblies (Diagram 1)	Inspect Turnbuckles for damage and proper adjustment.	<input type="checkbox"/>	<input type="checkbox"/>
	Check Tie-Back Cables for slack. Cables must be tight enough to apply slight pressure on the system structure, DO NOT OVERTIGHTEN. Inspect cables, for kinks (1), cut or broken wires (2), bird-caging (3), welding splatter (4), corrosion, chemical contact areas, or severely abraded areas. (see Diagram 1).	<input type="checkbox"/>	<input type="checkbox"/>
Rail Support Assemblies (Diagram 2)	Check Rails Supports (1) for structural defects or damage including bends, corrosion, etc.	<input type="checkbox"/>	<input type="checkbox"/>
	Inspect fasteners (2) on Rail Supports to ensure they are tight.	<input type="checkbox"/>	<input type="checkbox"/>
	Visually inspect the Gussets (3) for straightness. Ensure there is no visible deformation or bend, indicating previous exposure to fall arrest forces.	<input type="checkbox"/>	<input type="checkbox"/>
Trolley Rail Assembly (Diagram 3)	Visually inspect fasteners (1) on the Trolley Rail to ensure they are tight.	<input type="checkbox"/>	<input type="checkbox"/>
	Inspect the Rail Track (2) for structural defects. Rail Track must be straight without any bends or dents.	<input type="checkbox"/>	<input type="checkbox"/>
	Visually inspect the Trolley Four-Wheel Trolleys (3) for damage to the trolley and excessive wheel wear. Ensure the Trolleys roll freely in Trolley Rail and the wheels are securely attached.	<input type="checkbox"/>	<input type="checkbox"/>
Upright Assemblies and Carriages (Diagram 4)	Inspect the Vertical Uprights (1) and Carriages (2) for defects or structural damage including bends, corrosion, etc.	<input type="checkbox"/>	<input type="checkbox"/>
	Inspect Carriage Rollers (3) for cracks, chips, or excessive wear.	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/> <i>Roller Grease Zerk (5) should be greased monthly, or more frequently under extreme environmental conditions or heavy use.</i>	<input type="checkbox"/>	<input type="checkbox"/>
	Inspect fasteners on Uprights and Carriages to ensure they are tight. <input checked="" type="checkbox"/> <i>Do not adjust Threaded Rods (4). They are preset by the manufacturer.</i>	<input type="checkbox"/>	<input type="checkbox"/>
Vertical Drive Mechanisms (Diagram 5)	Inspect the Brake Wear Indicators (1) while lowering the Work Platform. If the Brake Wear Indicator is in the Red zone (2), remove the Drive Mechanism from service and contact the manufacturer.	<input type="checkbox"/>	<input type="checkbox"/>
	Inspect fasteners on the Drive Mechanism to ensure they are tight.	<input type="checkbox"/>	<input type="checkbox"/>
	Visually inspect the Drive Connector Bar (3). The bar should be straight and the connectors on each end should be tight.	<input type="checkbox"/>	<input type="checkbox"/>
	Inspect the Drive Chain (4) for slack. Deflection of the chain should not be more than 1/2 in (13 mm).	<input type="checkbox"/>	<input type="checkbox"/>
	Lubricate the Drive Chain with light oil (5) and grease Bearings.		<input type="checkbox"/>
Base and Wheels (Diagram 6)	Inspect Base, Outriggers, and Tow Bar (if present) for structural damage including bends, dents, cracks, corrosion, etc.	<input type="checkbox"/>	<input type="checkbox"/>
	Inspect the Leveling Jacks (3) for damage or deformities. Ensure crank handles operate smoothly and that operation raises and lowers each Jack properly.	<input type="checkbox"/>	<input type="checkbox"/>
	Inspect the Pneumatic Wheels (1) and Caster Wheels (2) for damage or deformities. Ensure wheels roll freely and that the brakes and locking mechanism work properly. Grease wheel bearings if necessary.	<input type="checkbox"/>	<input type="checkbox"/>
	Check for flats in the wheels.	<input type="checkbox"/>	<input type="checkbox"/>
Labels (Figure 12)	Verify that all labels are securely attached and are legible (see ' <i>Labels</i> ').	<input type="checkbox"/>	<input type="checkbox"/>
PFAS and Other Equipment	Additional Personal Fall Arrest System (PFAS) equipment (harness, Self-Retracting Device, etc) that are used with the Flexiguard System should be installed and inspected per the manufacturer's instructions.	<input type="checkbox"/>	<input type="checkbox"/>

Table 2 – Inspection and Maintenance Log

[illegible]

Diagram 1

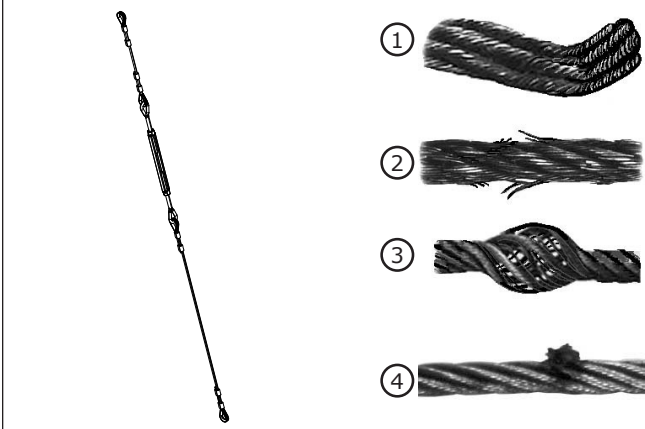


Diagram 2

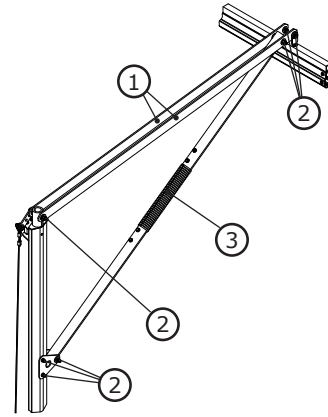


Diagram 3

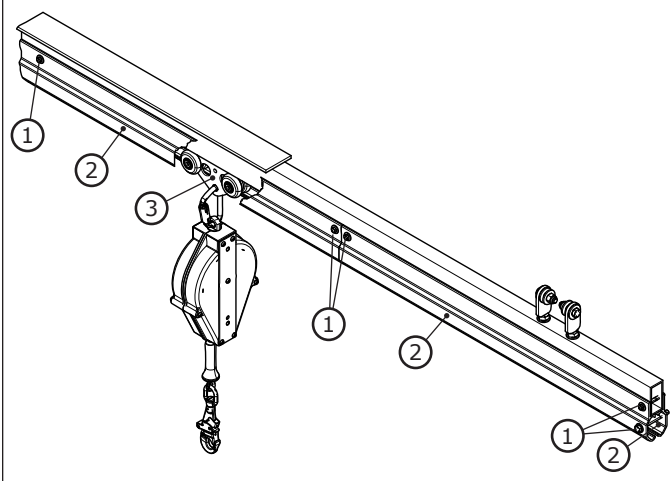


Diagram 4

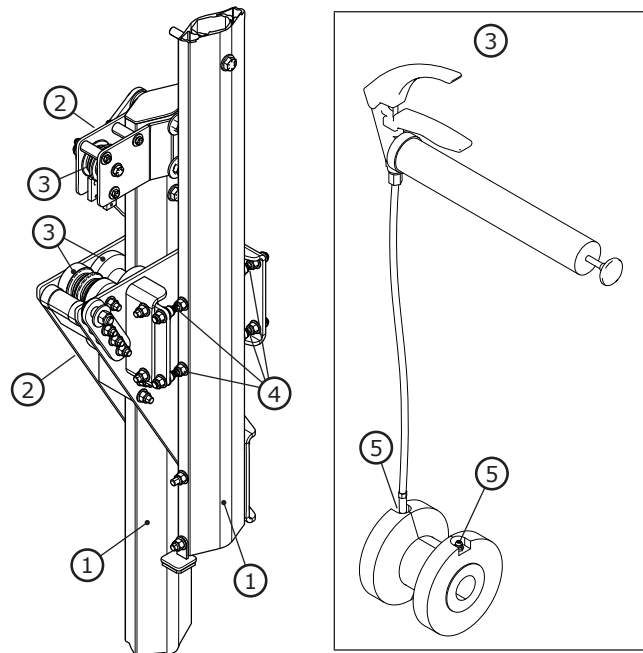


Diagram 5

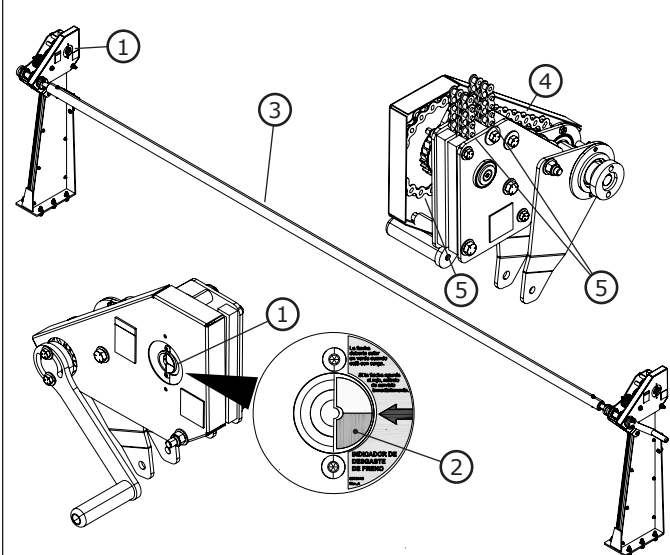
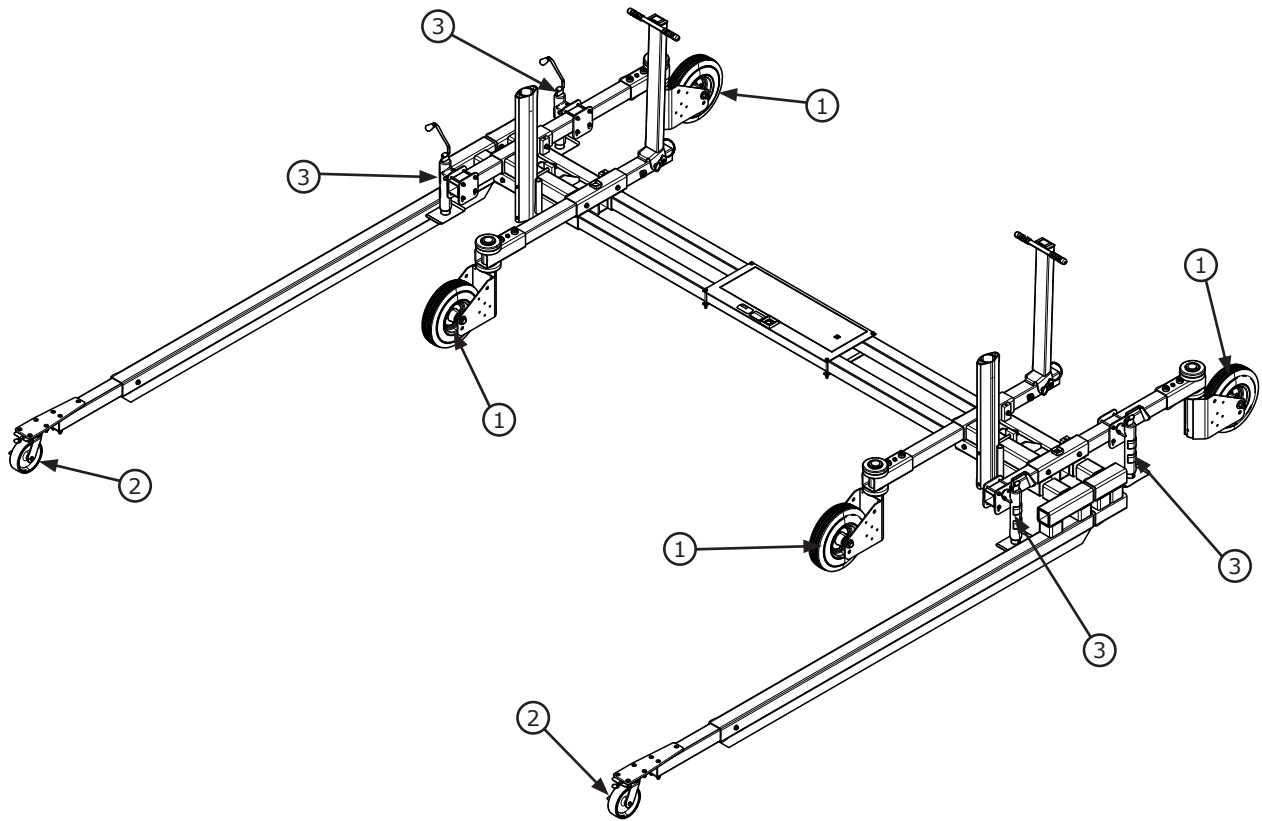


Diagram 6



U.S. PRODUCT WARRANTY, LIMITED REMEDY AND LIMITATION OF LIABILITY

WARRANTY: THE FOLLOWING IS MADE IN LIEU OF ALL WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Unless otherwise provided by applicable law, 3M fall protection products are warranted against factory defects in workmanship and materials for a period of one year from the date of installation or first use by the original owner.

LIMITED REMEDY: Upon written notice to 3M, 3M will repair or replace any product determined by 3M to have a factory defect in workmanship or materials. 3M reserves the right to require product be returned to its facility for evaluation of warranty claims. This warranty does not cover product damage due to wear, abuse, misuse, damage in transit, failure to maintain the product or other damage beyond 3M's control. 3M will be the sole judge of product condition and warranty options.

This warranty applies only to the original purchaser and is the only warranty applicable to 3M's fall protection products. Please contact 3M's customer service department at 800-328-6146 or via email at 3MFallProtection@mmm.com for assistance.

LIMITATION OF LIABILITY: TO THE EXTENT PERMITTED BY APPLICABLE LAW, 3M IS NOT LIABLE FOR ANY INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES INCLUDING, BUT NOT LIMITED TO LOSS OF PROFITS, IN ANY WAY RELATED TO THE PRODUCTS REGARDLESS OF THE LEGAL THEORY ASSERTED.



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