



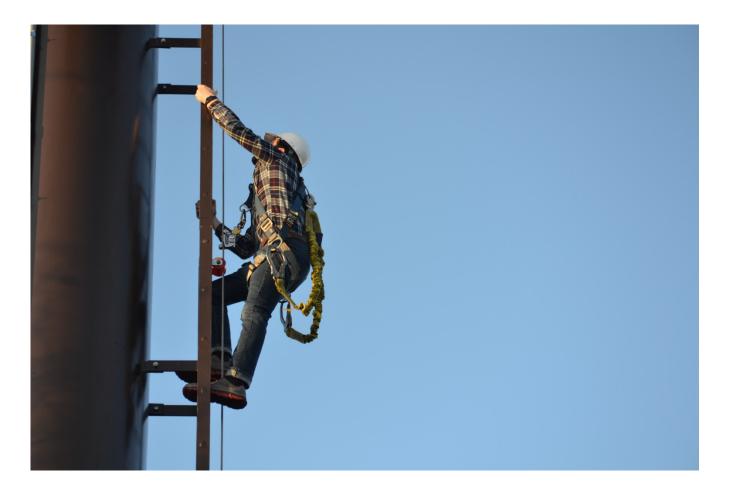
PRODUCT NAME: LAD GRAB™

Patent Pending

PART NUMBERS: *LAD GRAB2TOPBRACKET, *LAD GRAB2CABLEGUIDE, *LAD GRAB2BOTTOMBRACKET, & CABLE3/8AIRCRAFT

USER MANUAL

Do not throw away these instructions. Read and understand these instructions prior to use of the Lad Grab[™] Safety System.





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- 2. SAFETY INFORMATION AND APPLICABLE SAFETY STANDARDS
- 3. WORKER CLASSIFICATIONS
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- 5. LAD GRAB[™] INSTALLATION INSTRUCTIONS
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1. INTRODUCTION

This user manual describes the use and maintenance of the Lad Grab[™] Safety System. It should be used as part of an employee training program as required by OSHA, ANSI, CSA and CE, and must be kept with the equipment.

Installers **MUST** read and follow the manufacturer's instructions for safety equipment used with this system. This and any other included instructions **MUST** be made available to the user of the equipment. The user must understand how to safely and effectively use the Lad Grab[™] Safety System, and all fall safety equipment used in combination with the Lad Grab[™] Safety System.

Follow these instructions for proper use, inspection, and maintenance of this equipment before installing this equipment.

Before using this equipment, record the product number in the Inspection Log Section of this manual.

2. SAFETY INFORMATION AND APPLICABLE SAFETY STANDARDS

Please read, understand, and follow all safety information contained in these instructions prior to the use of this Vertical 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. When used in accord with these instructions, this product meets or exceeds ANSI-ASC A14.3-2008 and ANSI/ASSE Z359.1- 2007 as well as meeting the requirement of OSHA 29CFR Part 1910.29-2016. Consult federal and state regulatory agencies for more information on ladder safety systems and associated components.

Intended Use:

This Lad GrabTM Safety System is intended for use as part of a personal fall protection system. It is designed to protect a worker in the event of a fall while climbing fixed ladders or similar climbing structures.

Use in any other application including, but not limited to, material handling, recreational or sports related activities, or other activities not described in these Product Instructions, is **NOT** approved by Formetco® and could result in serious injury or death.

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

3. WORKER CLASSIFICATION

This Lad Grab[™] Safety System is part of a fall protection system. It is expected that all users be fully trained in the safe installation and operation of their personal fall protection system. **MISUSE of this safety system could result in serious injury or death.** It is the responsibility of the user and purchaser of this equipment to assure they are familiar with these instructions, operating characteristics, application limits, and the consequences of improper use of this equipment. For proper selection, operation, installation, maintenance, and service, refer to these Instructions and all manufacturer recommendations, see a supervisor, or contact Formetco® technical service.

WARNING It is the responsibility of a Qualified or Competent person to supervise the job site and ensure all applicable safety regulations are complied with.

Qualified Person: a person with a certification or an accredited degree and with extensive experience and commensurate professional standing, who is also proficient in planning and reviewing fall protection systems.

Competent Person: a person who is highly trained and proficient in fall protection safety programs and who is assigned by the employer to be responsible for all elements of a fall safety program, including, but not limited to, its regulation, management, and application. A Competent person can identify exiting and predicable fall hazards and has the authority to stop work in order to eliminate hazards.

Authorized Person: a person who is assigned by the employer to work around or be subject to potential or existing fall hazards.

4. LAD GRAB[™] SAFETY SYSTEM COMPONENTS AND SPECIFICATIONS

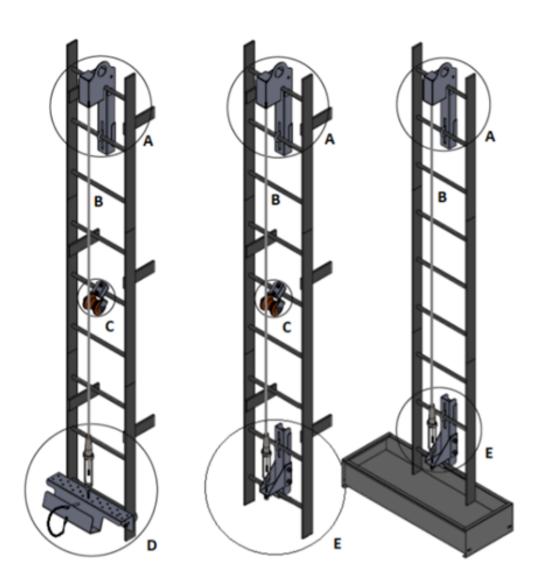
The Lad Grab[™] Safety System is made from high-grade components to ensure the greatest structural integrity.

The Lad GrabTM Safety System is configured to work with 1 X 7 or 7 x 19 cable that is 3/8" diameter galvanized steel. The Lad GrabTM Safety System can be purchased with or without cable. If the cable used is not a Formetco® supplied cable for the Lad GrabTM Safety System, the cable used **MUST** comply with the required cable specifications below:

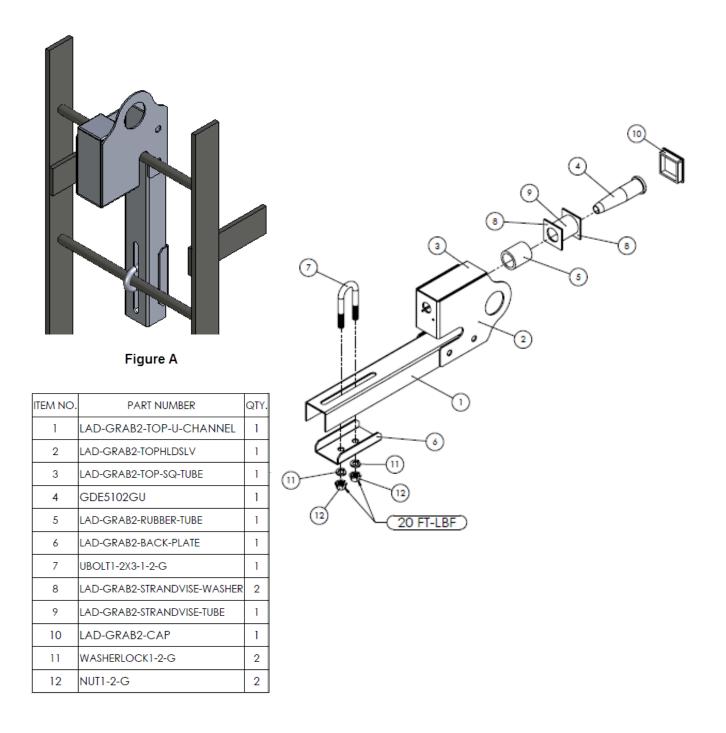
Galvanized Steel Wire Rope			
Diameter	3/8"		
Construction	1x7 or 7x19		
Minimum Breaking Load	14,400 lbs.		

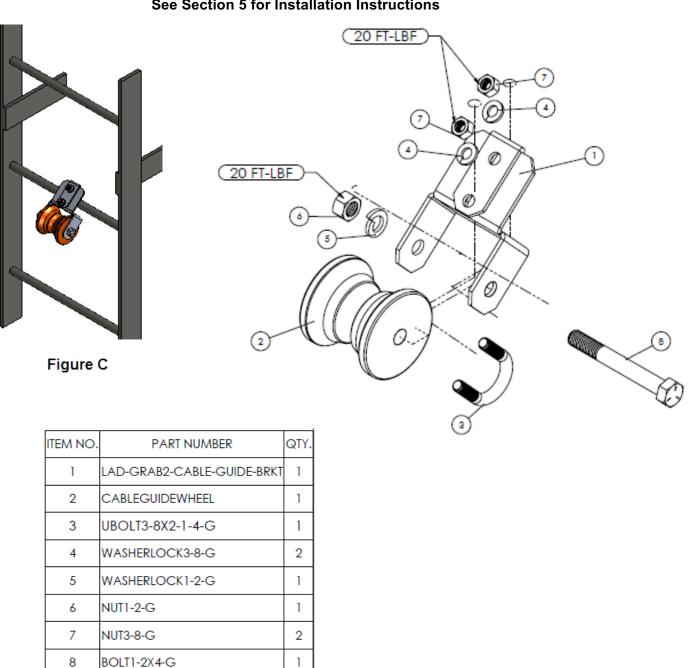
Lad Grab[™] Safety System Components

- A Top Bracket
- B Cable
- C Cable Guide Bracket
- D Ladder Stabilizer Bottom Bracket
- E Bottom Bracket



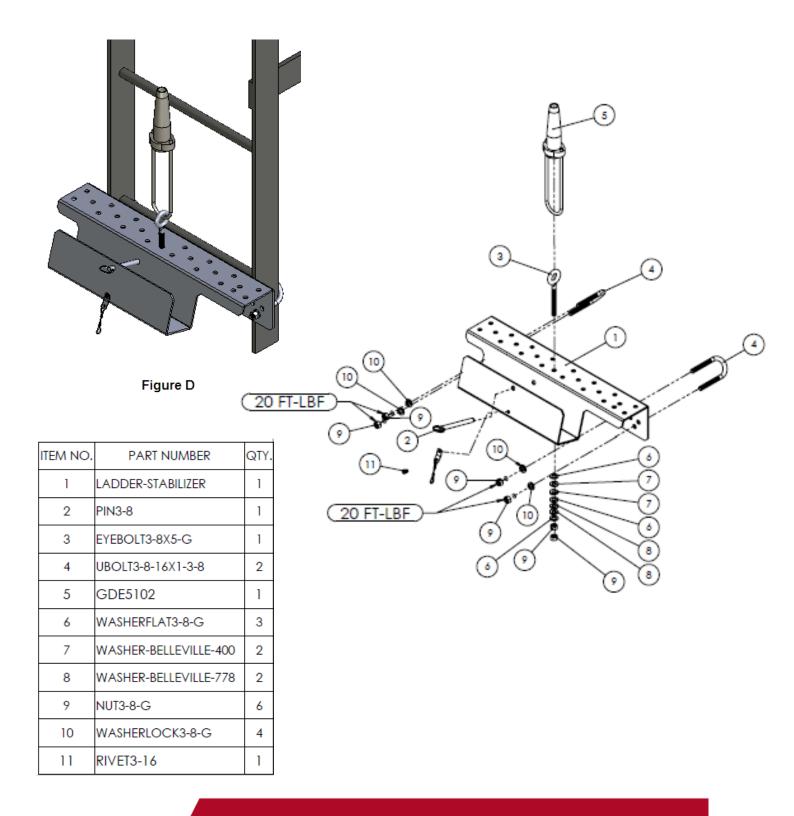
Lad Grab[™] Safety System Top Bracket Components, Figure A See Section 5 for Installation Instructions





Lad Grab[™] Safety System Cable Guide Components, Figure C See Section 5 for Installation Instructions

Lad Grab[™] Safety System Bottom Bracket Components (Ladder Stabilizer Configuration), Figure D See Section 5 for Installation Instructions



Lad Grab[™] Safety System Bottom Bracket Components (Base Configuration), Figure E

See Section 5 for Installation Instructions

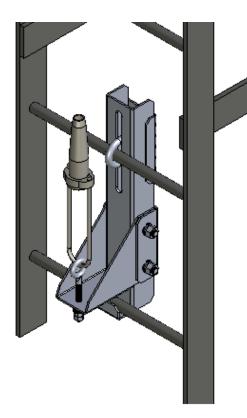
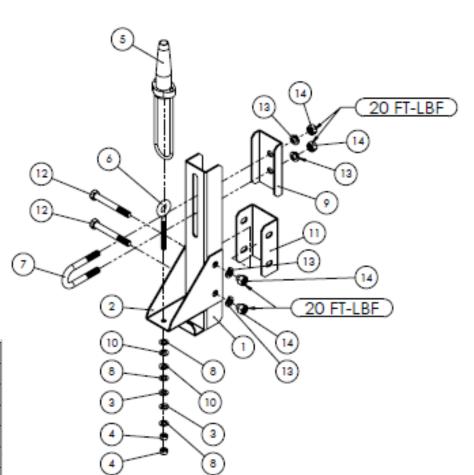


Figure E

ITEM NO.	PART NUMBER	QTY.
1	LAD-GRAB2-BOTTOM-U-CHANNEL	1
2	lad-grab2-bottom-gusset	1
3	WASHER-BELLEVILLE-778	2
4	NUT3-8-G	2
5	GDE5102	1
6	eyebolt3-8x5-g	1
7	UBOLT1-2X3-1-2-G	1
8	WASHERFLAT3-8-G	3
9	LAD-GRAB2-BACK-PLATE	1
10	WASHER-BELLEVILLE-400	2
11	lad-grab2-bottom-back-support-plate	1
12	BOLT1-2X4-G	2
13	WASHERLOCK1-2-G	4
14	NUT1-2-G	4



5. Lad Grab[™] Installation Instructions

Generally, the Lad Grab[™] System is installed from the top of the ladder/climbing structure down. The basic procedure is:

- **Step 1** Install the Top Bracket
- Step 2 Connect one end of the Cable to the Top Bracket
- Step 3 Install the Cable Guide (if required)
- **Step 4** Install the Bottom Bracket
- Step 5 Connect the remaining end of the Cable to the Bottom Bracket
- Step 6 Tension the installed Cable
- Step 7 Inspect the installation of the Lad Grab™ System

<u>CAUTION</u>: PLEASE REVIEW AND REFERENCE THE SECTION 4 FIGURES TO INSURE THAT INSTALLATION OF THE LAD GRAB [™] SYSTEM IS COMPLETED CORRECTLY.

WARNING: FAILURE TO PROPERLY INSTALL THE LAD GRAB $^{\text{TM}}$ SYSTEM CAN RESULT IN FAILURE OF THE LAD GRAB $^{\text{TM}}$ SYSTEM AND POSSIBLE USER INJURY.

WARNING: FORMETCO RECOMMENDS THAT THE REQUIRED STRENGTH OF THE LADDER/CLIMBING STRUCTURE TO WHICH THE TOP BRACKET, THE BOTTOM BRACKET, AND THE CABLE GUIDE (IF INSTALLED) BE **AT LEAST**:

3,000 LBS. FOR 1 PERSON OPERATION, AND

4,200 LBS. FOR 2 PERSON OPERATION.

Formetco is of the opinion that it is very unlikely on a vertical system that more than one user would fall at a time. Therefore, no additional safety factors were factored into the strength requirement listed above to account for arrest loads of the second person attached to the Lad Grab[™] System. As described, the minimum strengths of the portions of the ladder/climbing structure to which the top bracket, bottom bracket, and cable guide (if used) are attached represent minimum recommended values for newly installed systems. The Qualified Person must account for the environmental or use factors that could affect the long-term strength of the anchorage connection between the Top and Bottom Brackets of the Lad Grab[™] System during installation.

A. Lad Grab[™] Safety System Top Bracket Installation

It is recommended that the climbing structure be evaluated by a qualified person prior in installation of the top bracket to insure that the climbing structure can structurally support the Lad Grab[™] Safety System. The top bracket should be positioned to allow user safe access when connecting or disconnecting from the system. The top bracket is should be positioned in the center of the selected climbing surface (such as the center of a ladder rung) for ease of climbing.

Install the top bracket by hanging it in the desired location on the top rung of the fixed ladder (preferably the center of the top rung). Secure the top bracket in place by inserting the (1) $\frac{1}{2}$ "x3.5" U bolt over the next rung down from the top and through the slot of the top bracket u channel. Install the backing plate over the threads of the U bolt. Now place the (2) $\frac{1}{2}$ " lock washers and (2) $\frac{1}{2}$ " nuts onto the threads of the U bolt and snug them against the backing plate. Ensure that the top bracket is positioned in the center of the rung. Finish by torqueing both nuts equally to 20 ft. lbs.

B. Cable Installation to Top Bracket

For some installations it may be easier to lower the cable from the top bracket down to the bottom bracket. If so, carefully lower the cable by unspooling without twisting the cable at the top connection. Do not drop the cable to the lower level.

CAUTION - Cable is very stiff and may spring out of coil unexpectedly. Use proper safety procedures when unrolling cable. Use appropriate safety gear, including gloves and safety glasses, when unrolling cable

Install the 3/8" diameter cable, either a 1x7 or 7x19 cable, by initially removing the top bracket cap of the top bracket. Next, one end of the cable is inserted into the steel pilot cup of the strand vise located inside of the top bracket holding sleeve. The strand vise will rise out of the bracket as the cable is run through the strand vise. Continue to run cable through the strand vise until 1" of cable end extends out of the top of the strand vise. Place the strand vise back into the top bracket holding sleeve and ensure that the strand vise is sitting flush in the strand vise washer. Lastly, reinstall the top bracket cap.

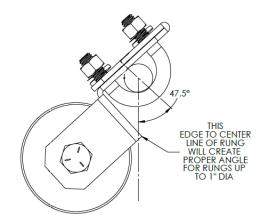
C. Lad Grab[™] Safety System Cable Guide Installation

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Cable guides protect the cable from chafing against the structure and to prevent the climber from excessively deflecting the cable from side to side. Cable guides should be evenly spaced along the cable between the top and bottom brackets, and at any point along the system where the cable may abrade against the structure. Recommended cable guide spacing is

HEIGHT			
	NUMBER	HEIGHT	NUMBER
(FEET)	OF GUIDES	(FEET)	OF GUIDES
(,	OF COIDEC	(,,	OF COIDEC
15	0	95	2
15	U	30	2
25	0	105	3
20	v	100	Ŭ
35	1	 115	3
45	1	125	3
55	1	135	4
65	1	145	4
75	2	155	4
85	2	165	5

Install the cable guide or guides, depending on the height of the fixed ladder, by inserting the (1) 3/8"X2-1/4" U bolt from the bottom side of the rung up through the cable guide bracket. Place the (2) 3/8" lock washers and (2) 3/8" nuts onto the threads of the U bolt and snug them against the bracket. Position the cable guide vertically under the top bracket. For example, when the top bracket is positioned in the center of the selected climbing surface (such as the center of a ladder rung), the cable guide should also be positioned in the center of the selected climbing surface (such as the center of a ladder rung). To allow free passage of the Cable Sleeve, we recommend the cable guide be placed at a 47.5° downward angle. As shown below, this can be done easily by lining up the bottom back edge of the cable guide bracket with center of the rung. Lastly, torque both nuts equally to 20 ft. lbs.



D. Lad Grab[™] Safety System Bottom Bracket (Base Configuration) Installation

The bottom bracket should be positioned to allow user safe access when connecting or disconnecting from the system and should be positioned to vertically mirror the position of the top bracket. For example, if the top bracket is positioned in the center of the selected climbing surface (such as the center of a ladder rung), the bottom bracket should also be positioned in the center of the selected climbing surface (such as the center of a ladder rung).

Install the bottom bracket to the bottom of the fixed ladder. First, disassemble the strand vise assembly by removing the strand vise from the aluminum yoke, and the yoke from the stainless steel bail. Insert the strand vise bail through the eye of the 3/8"x5" eye bolt attached to the Ladder Stabilizer. Squeeze the bail and slip the yoke back over the bail. Slide the strand vise back into the yoke. ENSURE that the (2) 3/8" nuts on the 5" eye bolt are located at the very bottom of the eye bolt threads. Next, insert the cable into the steel pilot cup of the strand vise and slide the strand vise up the cable and into position while ENSURING that the bottom bracket remains BELOW the bottom rung or the second from the bottom rung of the fixed ladder. Install the bottom bracket so that the hook extending from the bottom of the bracket is against the rung. Secure the bottom bracket in place by inserting the (1) 1/2"x3.5" U bolt over the next rung up from the bottom and through the slot of the bottom bracket u channel. Install the backing plate over the threads of the U bolt. Next, place the (2) 1/2" lock washers and (2) 1/2" nuts onto the threads of the U bolt and snug them against the backing plate. Ensure that the bottom bracket is positioned in the center of the on the rung of the fixed ladder. Finish by torqueing both nuts equally to 20 ft. lbs. while keep constant upward pressure on the bottom bracket so that the hook extending from the bottom of the bracket is secured against the rung.

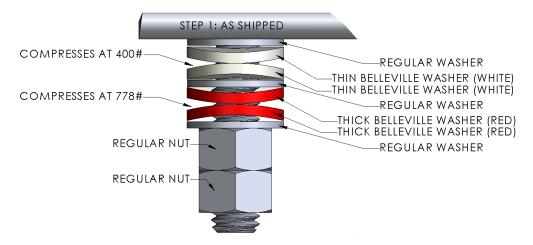
E. Lad Grab[™] Safety System Bottom Bracket (Ladder Mount Configuration) Installation

The bottom bracket should be positioned to allow user safe access when connecting or disconnecting from the system and should be positioned to vertically mirror the position of the top bracket. For example, if the top bracket is positioned in the center of the selected climbing surface (such as the center of a ladder rung), the bottom bracket should also be positioned in the center of the selected climbing surface (such as the center of a ladder rung).

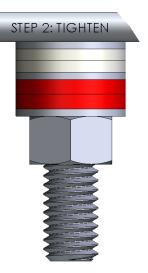
Install the bottom bracket to the bottom of the fixed ladder. First, disassemble the strand vise assembly by removing the strand vise from the aluminum yoke, and the yoke from the stainless steel bail. Insert the strand vise bail through the eye of the 3/8"x5" eye bolt attached to the Ladder Stabilizer. Squeeze the bail and slip the yoke back over the bail. Slide the strand vise back into the yoke. **ENSURE** that the (2) 3/8" nuts on the 5" eye bolt are located at the very bottom of the eye bolt threads. Next, insert the cable into the steel pilot cup of the strand vise and slide the strand vise up the cable. Raise the bottom bracket on the cable until the bottom bracket is positioned in the desired mounting location and in front of the fixed ladder. Release the bottom bracket and let the weight of the Ladder Stabilizer pull the cable semi-taunt. Next, the bottom bracket can be secured to the fixed ladder by using the (2) 3/8"x1-3/8" U bolts. Slide the U bolts over the side rails of the fixed ladder and into the back side of the Ladder Stabilizer, selecting the hole pattern that matches the width of the fixed ladder. Install the (4) 3/8" lock washers & (4) 3/8" nut onto the threads of the U bolts and snug them against the bracket. Lastly, **ENSURE** that the bottom bracket is level and finish by torqueing the nuts equally to 20 ft. lbs.

F. Tensioning the Lad Grab[™] Safety System

Tension the cable using the (1) 3/8"x5" eye bolt installed on the bottom bracket. As shipped, the Lad GrabTM Safety System comprises a tensioning system including a three washers with two sets of Belleville compression washers (1 set of opposed white Belleville washers (400#) and 1 set of opposed red Belleville washers (778#)) positioned between the washers and a bottommost and topmost nuts mounted to the threads of the eye bolt.

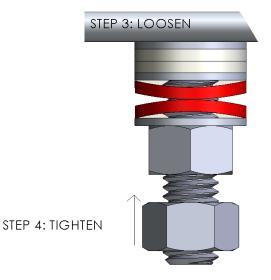


Initially, remove the bottommost 3/8" nut from the threads of the eye bolt. As shown below, use a 9/16"x6" deep socket and cordless drill to **tighten** the topmost 3/8" nut until both sets of Belleville washers are in a compressed position.



Subsequently, loosen the topmost 3/8" nut until the bottom set of Belleville washers (the red set of Belleville washers (778#)) spread open completely and the top set of Belleville washers (the white set of Belleville washers (400#)) just begin to spread open.

Next, as shown below, tighten the topmost nut back until the top set of Belleville washers (the white set of Belleville washers (400#)) flatten against each other. Now the cable is at the proper tension of 400 ft. lbs. Finally, the removed bottommost 3/8" nut must be reinstalled on the eye bolt and tightened against the topmost 3/8" nut to fix the tensioning system in place.



G. INITIAL INSPECTION of the Installed Lad Grab[™] Safety System

After installation, conduct a final inspection of the installed Lad Grab[™] Safety System as follows:

- 1. Ensure all fasteners are in place and properly tightened.
- Ensure that the Top Bracket, the Cable Guide, and the Bottom Bracket are installed 2. per instructions.
- 3. Ensure that the cable is attached to the Top and Bottom Brackets per instructions.
- 4.
- Ensure the cable is properly tensioned. Do not use the Lad GrabTM Safety System if the bottom of the cable is not 5. secured/tensioned with the bottom bracket assembly.
- 6. Ensure the cable does not abrade against the structure at any point.
- 7. Ensure that the installation and inspection information is recorded on the Inspection Log in Section 9.

6. COMPATIBILITY OF COMPONENTS AND SUBSYSTEMS

The Lad Grab[™] Safety System **MUST** be used with an approved detachable cable sleeve that is configured to be directly coupled to an approved full body harness. The use of non-approved components and subsystems (*i.e.* cable sleeves, harnesses, lanyards, etc.) may jeopardize compatibility of equipment, and could affect the safety and reliability of the complete safety system. **DO NOT USE** any cable sleeve, harness, lanyard, etc. with the Lad Grab[™] Safety System without first consulting a Qualified or Competent Person at your worksite for approval. If you have questions on the installation or suitability of this equipment for your application, contact Formetco® technical service.

7. LAD GRAB[™] SAFETY SYSTEM USE

BEFORE EACH USE inspect the safety system according to the Inspection Section 8. Verify from the inspection log that the safety system has been formally inspected within the last year. **DO NOT USE** an improperly maintained Lad Grab[™] Safety System and **DO NOT CLIMB** a structure that is not in good condition.

PLAN your use of the Lad Grab[™] Safety System **before starting work**. Consider all factors that will affect your safety **before starting your work**.

To avoid serious injury or death, follow the safety information in this section:

Ensure the Lad Grab[™] Safety System is rated for the required number of users (**two users being the maximum authorized** for the Lad Grab[™] Safety System).

There are hazards associated with connecting and disconnecting from the Lad Grab[™] Safety System. Use secondary fall arrest protection. Ensure adequate anchor points, landing platforms, or other means are available at connection and disconnection points to allow safe transitions to and from the system.

Identify hazards in the work area that could cause injury to the user or damage to the Lad Grab[™] Safety System, such as: high heat, electrical hazards, chemical hazards, falling objects, or moving machinery.

Use proper safety procedures when climbing. Do not carry tools or equipment by hand. Keep your hands free for climbing. Secure carried items to avoid dropping them on climbers below. Climb within your ability. Long climbs may require several rest stops during ascent or descent to avoid exhaustion. Use proper work positioning equipment or rest lanyards for rest breaks. **DO NOT** climb in high winds or severe weather.

Equipment subjected to the forces of a fall arrest **MUST** be immediately removed from service and use.

Connect the detachable cable sleeve and the full body harness to the Lad Grab[™] Safety System according to the detachable cable sleeve and the full body harness manufacturer's instructions. Harnesses and connectors used in conjunction with the Lad Grab[™] Safety System **MUST** be compliant with manufacturer's instructions and **MUST** be of compatible size and configuration. Snap hooks, carabiners, and other connectors **MUST BE SELECTED AND APPLIED** in a compatible fashion. All risks of disengagement **MUST** be eliminated. All snap hooks and carabiners **MUST** be self-locking and self-closing and **MUST** never be connected to each other. Any harnesses and connectors used in conjunction with the Lad Grab[™] Safety System **MUST** be cleared for use by a Competent or Qualified Person **PRIOR** to use with the safety system.

8. INSPECTION

At least every 12 months, a Competent Person must inspect the Lad Grab[™] Safety System and the completed inspection must be logged on the Lad Grab[™] Safety System inspection log sheet. The Competent Person **must** sign their initials and note the date that the inspection was completed.

Before Each Use: Visually inspect the Lad Grab[™] Safety System, the full body harness, the detachable cable sleeve, and ladder structure. Check the Lad Grab[™] Safety System label to verify that annual inspection is current. If the condition of any component of the Lad Grab[™] Safety System or any coupled component is in doubt, do not use.

IMMEDIATELY REMOVE the Lad Grab[™] Safety System from service if any defects or damage is found or if the Lad Grab[™] Safety System is exposed to the forces of a fall arrest. After a fall arrest, the Lad Grab[™] Safety System can be placed back in service upon completion of a complete inspection.

INSPECT the detachable cable sleeve and the full body harness according to the detachable cable sleeve and the full body harness manufacturer's instructions.

Annual Lad Grab[™] Safety System Inspection Process:

WARNING: The annual Lad Grab[™] Safety System Inspection Process must be accomplished by a Competent Person.

Lad Grab[™] Safety System Top Brackets:

Inspect for proper installation per Lad Grab[™] Safety System Installation Instructions.

Check for visible damage or corrosion. Look for cracks, bends or wear that could affect the strength and operation of the bracket. Replace parts if defects are found.

Check for loose or missing fasteners that secure the top bracket to the structure. If fasteners are loose, retighten as necessary to the torque levels listed in the Lad Grab[™] Safety System Installation Instructions (to 20 ft. lbs. of torque). Replace or retighten if defects are found.

Lad Grab[™] Safety System Bottom Bracket:

Inspect for proper installation per Lad Grab[™] Safety System Installation Instructions.

Check for visible damage or corrosion. Look for cracks, bends or wear that could affect the strength and operation of the bracket. Replace parts if defects are found.

Check for loose or missing fasteners that secure the bottom bracket to the structure. If fasteners are loose, re-tighten as necessary to the torque levels listed in the Lad Grab[™] Safety System Installation Instructions (to 20 ft. lbs. of torque). Re-tighten or replace if defects are found.

Lad Grab[™] Safety System Cable Guide:

Check cable guide for damage. Look for wear or damage to roller mechanism. Cable guides should restrain the cable and prevent cable contact with the ladder/structure. Replace parts if defects are found.

Check cable guide fasteners. The fasteners should secure the cable guide in position. If fasteners are loose, re-tighten as necessary to the torque levels listed in the Lad Grab[™] Safety System Installation Instructions (to 20 ft. lbs. of torque).

Lad Grab[™] Safety System Cable and Cable Tension:

Inspect the cable for corrosion, kinks or damage that will affect strength and impede the cable sleeve from traveling on the cable. If there are any nicks or kinks in the ladder cable, the cable must be inspected by a qualified or competent person prior to use. Inspect for signs of abrasion against the ladder or structure. Replace the cable if defects are found.

Inspect the cable tension. Cable should be tight enough to prevent contact with the ladder/structure. Retension the cable if necessary in accord with the cable tensioning instructions provided in Section 5. Belleville washers are reusable and will flare open should the system lose tension on the cable. **DO NOT** over-tension the system.

Ladder/Climbing Structure:

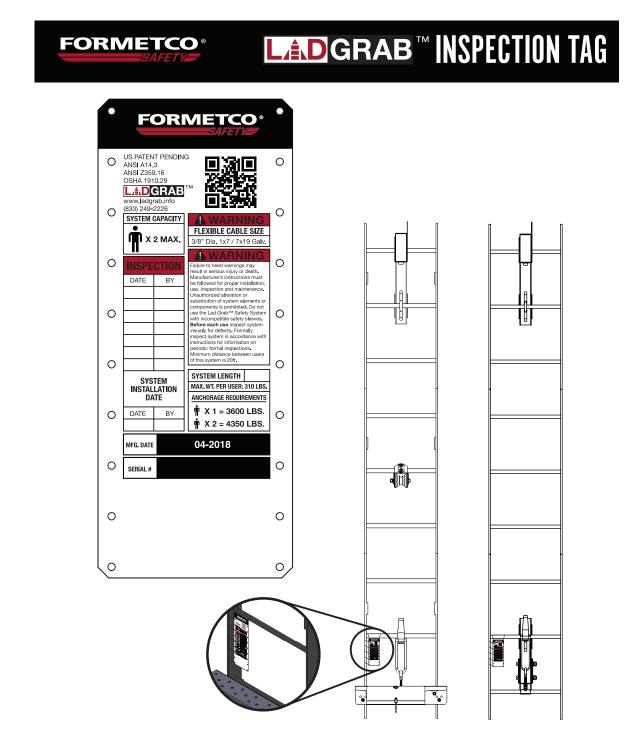
Inspect the ladder/climbing structure to which the Lad Grab[™] Safety System is attached.

Ensure that the ladder/climbing structure is free of all damage, including, but not limited to, rot, rust, cracking, sharp and/or abrasive edges and surfaces, and hazardous materials. **DO NOT USE if the condition of the structure is questionable.** Consult instructions and/or personnel familiar with the structure prior to use.

If **any** portion of the Lad Grab[™] Safety System fails inspection, **IMMEDIATELY REMOVE** the safety system from service and contact Formetco® to inquire about its return or repair.

WARNING: Failure to heed warnings may result in serious injury or death. Manufacturer's instructions supplied with this product at time of shipment must be followed for proper installation, use, inspection and maintenance. Unauthorized alteration or substitution of system elements or components is prohibited. Do not use the Lad Grab[™] Safety System with incompatible safety sleeves. **Before each use** inspect system visually for defects. Formally inspect system in accordance with instructions at least annually. Refer to instructions for information on periodic formal inspections.

9. LAD GRAB[™] INSPECTION TAG



10.INSPECTION LOG

Date of FIRST USE: _____

Lad Grab™ Safety System Part Number:_____

User must inspect prior to **EACH** use. Competent Person other than User **MUST** complete formal inspection at least every 6 months.

Separate inspection logs are required for each Lad Grab[™] Safety System in use.

Initials	Date: DD/MM/Year

If any defects or damage is found in any component of the Lad Grab[™] Safety System, the safety system **MUST BE IMMEDIATELY REMOVED FROM SERVICE**.