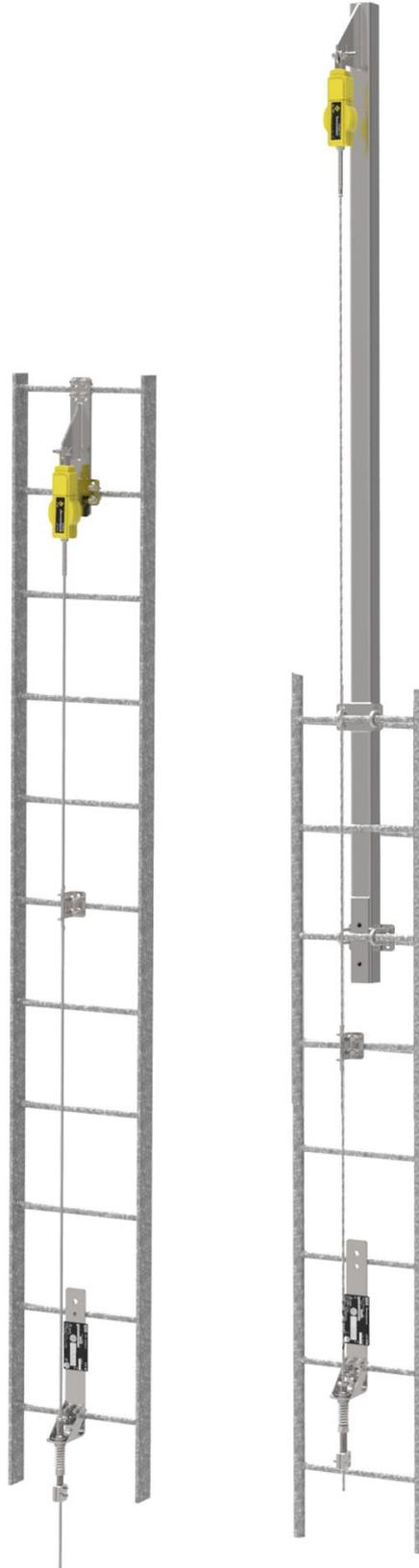


MSA Latchways® Ladder System

Installation instructions for 5/8" (Ø16 mm) to 1" (Ø25 mm) rungs



Systems overview



Important information

Individuals or organisations carrying out the installation of a MSA Latchways ladder fall protection system shall read, understand and follow these instructions without deviation.

- Individuals or organisations carrying out the installation of the Latchways ladder fall protection system shall be competent in the installation and working knowledge of Latchways fall protection system.
- Individuals or organisations carrying out the installation who are not competent in the installation and working knowledge of Latchways fall protection systems must complete training by MSA Latchways or MSA Latchways registered training partner before proceeding with any form of installation.
- Determine if the proposed ladder is an appropriate structure for fixing to, and is capable of withstanding fall arrest loads. The top anchor fixing position shall be capable of sustaining:
 - **ANSI Z359.16-2016** specifies that the top anchor should be capable of withstanding at least 2700 lb (12 kN) equal to double the maximum allowable arrest force.
 - a. **It is a requirement for engineered systems that all loads are resolved and approved by a P.E. qualified Engineer prior to installation.**
 - **CSA Z259.2.5** specifies the top anchorage shall be capable of withstanding a load of 5000lb (22.2 kN)
 - **EN 353:1** specifies the top anchorage shall be capable of withstanding a load of 15 kN (3380 lbs). The energy absorber will limit the force to a maximum of 6 kN (1350 lbs). The 15 kN load requirement allows for a factor of safety of 2.5, as required by EN 353:1.
 - **AS/NZ 1891.4** specifies anchorages for 2 persons shall be capable of withstanding a load of 21 kN (4720 lbs).
- The maximum recommended angle for installation of vertical systems measured from the vertical plane is 15°, for installations which may not fall within these parameters contact Latchways for advice on the most appropriate product for the application.
- Before commencing any installation, ensure that all Technicians are aware of the rescue procedure and how it should be safely implemented.
- Latchways vertical fall arrest system should be anchored at the top and the bottom of the system with the 8 mm cable in between these two points should be tensioned to 270 lbs (1.2 kN). The correct tension can be verified by either checking that the tension indicator disc rotates or that the visual tension indicator assembly is set within the correct range. (See detailed information on tensioning the system in the bottom anchor installation section of this document.)
- Latchways Vertical Guided Type Fall Arrestor (GTFA) may only be removed from the system by the use of two consecutive deliberate actions, it is impossible for a Latchways GTFA to accidentally run off the system at any point. When planning the installation, where a fall risk is present at an access/egress position, consideration must be given for the provision of a fall arrest anchorage point for use whilst connecting/disconnecting from the system.
- Shall not add, omit or substitute any of the components.
- Always ensure that a recognised safe method of climbing is used when installing. Either twin lanyard enabling continuous attachment, articulated boom lift or the use of the lifeline following the installation of the top anchor.

Approvals

- EN 353:1
- ANSI Z359.16
- CSA Z259.2.5
- AS/NZS 1891.3

Ladder vertical system kit details						
Part number	Description	Kit Numbers				
		30901-00	30902-00	30903-00	30904-00	30905-00
	Lifeline Length	20' (6 m)	40' (12 m)	55' (17 m)	75' (22 m)	90' (27 m)
	Maximum Ladder Length	20' (6 m)	40' (12 m)	55' (17 m)	75' (22 m)	90' (27 m)
Part number	Description	Kit components				
30071-00	Top Anchor	1	1	1	1	1
30043-00	Top anchor fixing kit	1	1	1	1	1
30900-##	Energy absorber lifeline assembly	30900-06	30900-12	30900-17	30900-22	30900-27
30034-00	Ladder mount helix cable guide	1	2	3	4	5
30041-00	Cable guide fixing kit	3	4	5	6	7
35600-00	Bottom anchor assembly	1	1	1	1	1
35001-00	System label	1	1	1	1	1
00900-24	5 mm security Allen key	1	1	1	1	1

Extension post vertical system kit details						
Part number	Description	Kit Numbers				
		31901-00	31902-00	31903-00	31904-00	31905-00
	Lifeline Length	30' (9 m)	45' (13 m)	60' (19 m)	80' (24 m)	100' (30 m)
	Maximum Ladder Length	23' (7 m)	36' (11 m)	55' (17 m)	75' (22 m)	92' (28 m)
Part number	Description	Kit components				
30001-12	Extension post	1	1	1	1	1
30004-00	Extension post fixing kit	1	1	1	1	1
30900-##	Energy absorber lifeline assembly	30900-09	30900-13	30900-19	30900-24	30900-30
30034-00	Ladder mount helix cable guide	2	3	4	5	6
30041-00	Cable guide fixing kit	4	5	6	7	8
35600-00	Bottom anchor assembly	1	1	1	1	1
35001-00	System label	1	1	1	1	1
00900-24	5 mm security Allen key	1	1	1	1	1

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Kit components

				
<p>30071-00 Galvanized Top anchor</p>	<p>30043-00 Top anchor fixing kit</p>	<p>30900-## Energy absorber lifeline assembly</p>	<p>30034-00 Ladder mount intermediate cable guide</p>	<p>30041-00 Cable guide fixing kit</p>
				
<p>35600-00 Bottom anchor assembly</p>	<p>35001-00 System label kit</p>	<p>30001-12 Galvanized Extension post</p>	<p>30004-00 Extension post fixing kit</p>	<p>00900-24 5 mm security Allen key</p>

Tools required

- 2 x 19 mm Wrench (Spanner)
- 1 x 5 mm Security head allen key
- 2 x Adjustable Wrench – Adjustable to 1 ¼" (30 mm)
- 1 x 17 mm deep socket
- Cable cutters
- Long nose pliers
- Torque wrench capable of applying 14.75 ft lb (20 Nm)

Compatible devices

Compatible devices	
	
Ladderlatch	
Part number	Conformance
3100L-00T	EN 353-1:2018
3103L-00	CSA – Z259.2.5-12
3104L-00	ANSI – Z359.16-2016

MSA Latchways® Ladder System

Installation instructions for 5/8" (Ø16 mm) to 1" (Ø25 mm) rungs



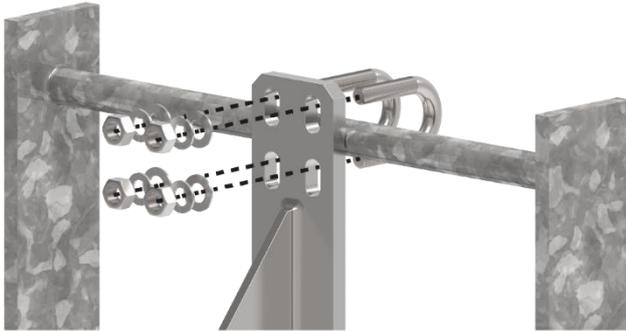
Top anchor installation



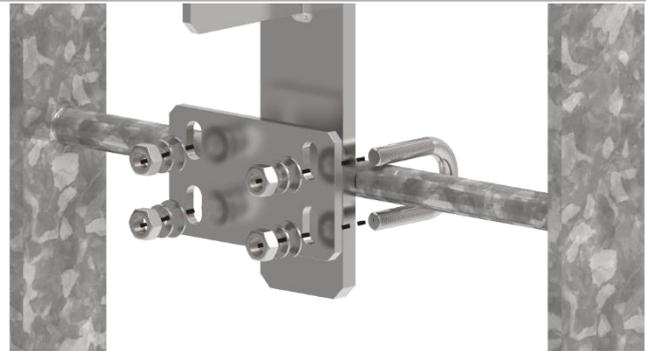
Climb ladder using a recognised safe method of climbing for first man up – i.e. twin lanyard system to give continuous attachment.



Locate the top anchor at the centre of the top two rungs as shown noting the orientation of the anchor fin and the four slots in the backing plate.



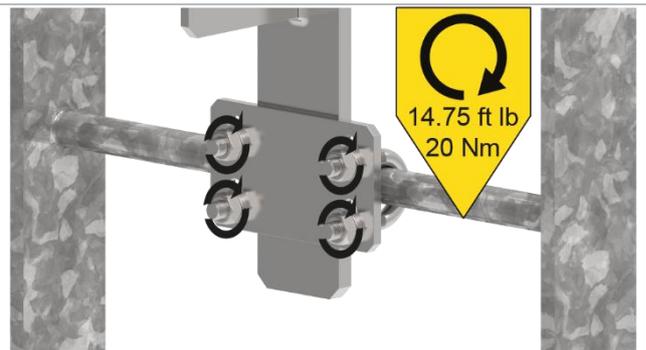
Secure the anchor onto the top ladder rung with the U-bolts and fixings from the top anchor fixing kit. Hand tighten nuts to hold anchor in position.



Attach the clamping plate in front of the anchor and secure into position with U-bolts and fixings from the top anchor fixing kit. Hand tighten nuts to hold anchor in position.



Evenly tighten the nuts using the deep socket to a torque of 14.75 ft lb (20 Nm).



Evenly tighten the nuts with the deep socket to a torque of 14.75 ft lb (20 Nm).

Once the top anchor has been installed move to page 8

MSA Latchways® Ladder System

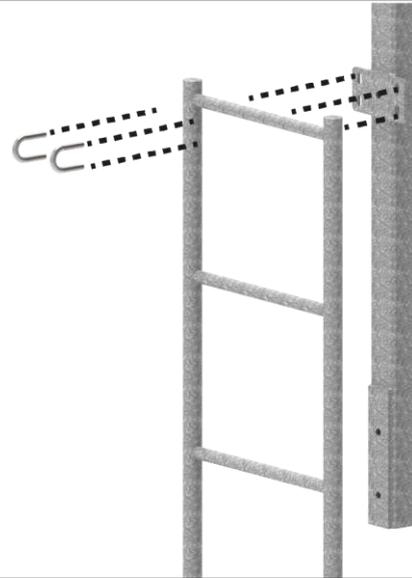
Installation instructions for 5/8" (Ø16 mm) to 1" (Ø25 mm) rungs



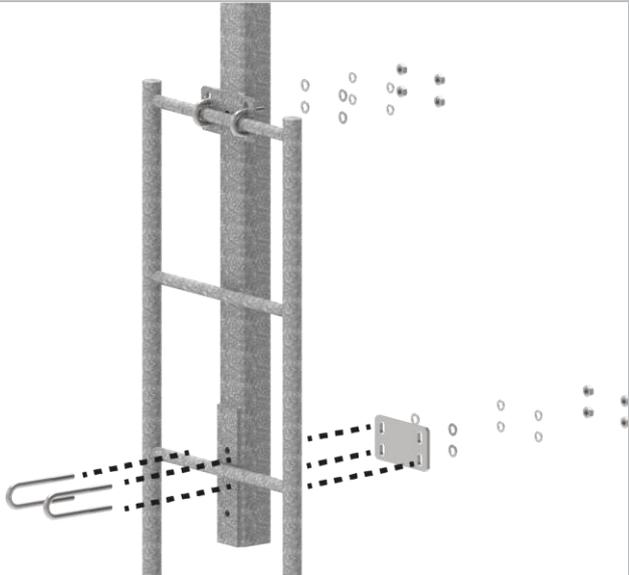
Extension post top anchor installation



Climb ladder using a recognised safe method of climbing for first man up – i.e. twin lanyard system to give continuous attachment.



Locate the extension post top anchor at the centre of the top three rungs as shown. Insert the supplied U-bolts over the top ladder rung and through the slots of the extension post clamping bracket.



Secure the anchor bracket onto the top ladder rung with the shorter U-bolts and fixings from the extension post top anchor fixing kit. Hand tighten nuts to hold extension post in position.

Secure the extension post into position using the longer U-bolts, clamping back plate and fixings onto the third ladder rung as shown.

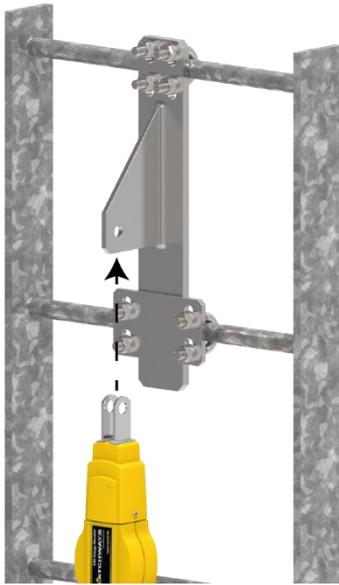


Evenly tighten the nuts to a torque of 14.75 ft lb (20 Nm).

Maintain safe working practices at all times using recognised work positioning techniques.

Once the extension post top anchor has been installed move to page 8.

Absorber assembly installation



Secure the energy absorber and lifeline assembly with a carabiner and approved sling over the head and shoulder. Ascend the ladder using recognised twin hooking techniques ensuring the lifeline is safely managed by a second operative whilst unspooling at the bottom of the ladder.



Secure the absorber onto the top anchor by the bolt and castellated nut provided with the absorber. Use the 19 mm wrench to rotate the nut until the split pin can be inserted through the hole in the bolt.

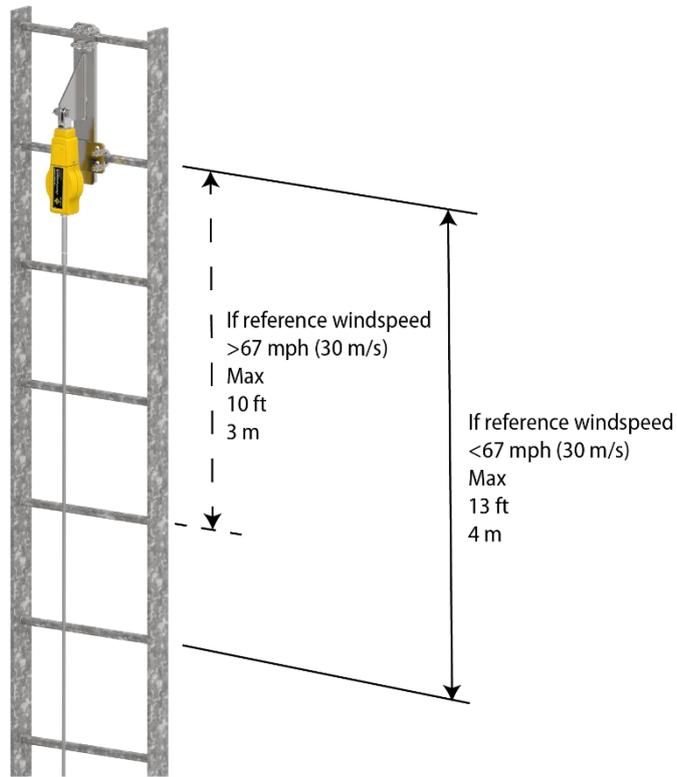


Insert the split pin through the castellated nut and bolt. Split the ends of the pin to ensure the nut is captivated on the bolt.

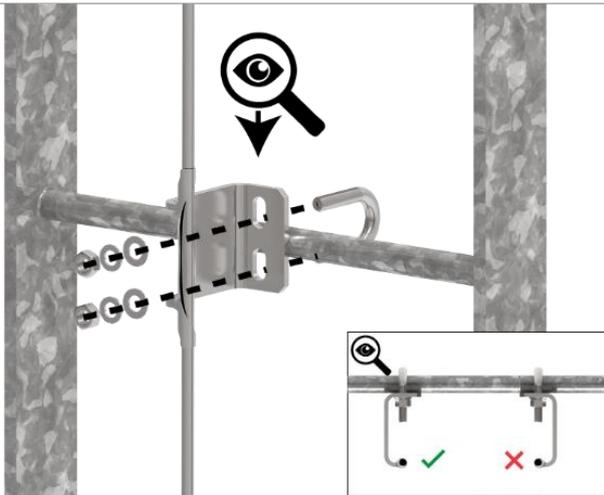


Safely attach the appropriate GTFA to the lifeline and detach work positioning equipment from the ladder.

Intermediate cable guide installation



Descend the ladder to the position of the first helix cable guide, dependent upon site reference wind speed for external installations. Depending upon the location of the ladder and local weather patterns, irregular spacing of the cable guides will reduce cable deflection resulting from wind buffeting.



Ensure that the orientation of the cable guides suit the operation of the GTFA device and that the bracket is perpendicular to the rung. Loacte the cable into the helix slot of the cable guide.



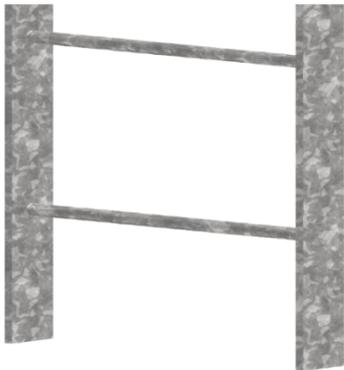
Evenly tighten the nuts using the deep socket to a torque of 14.75 ft lb (20 Nm).

MSA Latchways® Ladder System

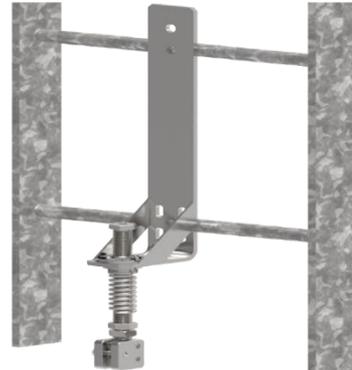
Installation instructions for 5/8" (Ø16 mm) to 1" (Ø25 mm) rungs



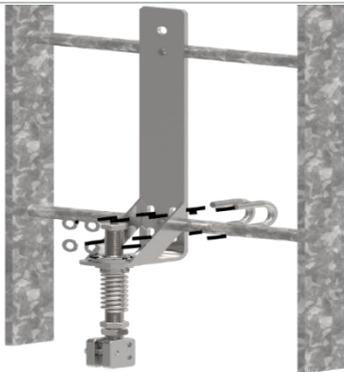
Bottom anchor installation



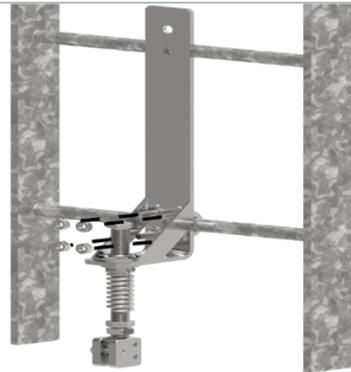
Descend to the bottom of the ladder.



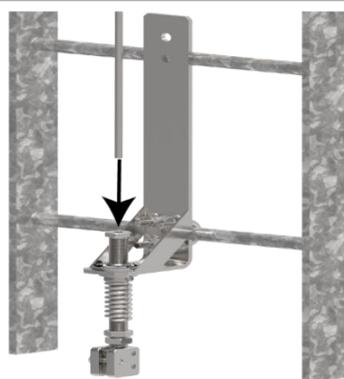
Locate the bottom anchor at the centre of the ladder rungs as shown taking into consideration the physical ergonomics of the assembly. It can be positioned 2-3 rungs up from the bottom of the ladder.



Secure the anchor onto the lower ladder rung with the U-bolts and fixings from the bottom anchor fixing kit. Hand tighten nuts to hold anchor in position.



Evenly tighten the nuts to a torque of 14.75 ft lb (20 Nm).



Slide the life line cable through the tensioning device on the bottom anchor bracket. Pull through the slack and slide the clamp blocks and threaded shaft up against the bottom anchor. Clamp the cable in place by tightening to a torque of 77 in lb (8.7 Nm) 2 x M6 socket head cap screws and 1 x security head.



Use adjustable wrenches to hold the integral nut on the top of the threaded shaft whilst tightening the upper M20 nut on the threaded shaft. The upper M20 nut pull against the bottom anchor bracket and start to introduce tension into the cable. Once the system pre-tension has been completed cut off the surplus cable leaving 1-2" and affix the vinyl protective cap.

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System warning label



Latchways® Vertical fall arrest system

Maximum number of Users: 1 2 3 4 Do not exceed.

Always maintain a clear minimum space of 3 m between Users

EN 353-1:2018 / ANSI Z359.16-2016 / AS/NZ 1891.3-1997



CE 0194

System identification

Warning

- Always use full body harness
- Use front connection point to device
- Do not use as work positioning system
- Check system before use as advised in User instructions
- Use only with Latchways 3100L/ 3102L/ 3103L/ 3104L 35429/ 85191 GTFA devices
- Not compatible with other systems

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Installation date



Inspection dates

Ø 8 mm (Ø 5/16 in.)



Lifeline



35001-10LJUK-10

Record information on system warning label and fit to the system.

Systems using 1 Vertical Energy absorber. This system can be used by up to a maximum of 880 lb (400 kg).

This is typically 3 Users e.g. 2 Users @ 310lb (140 kg) and 1 User @ 260lb (120 kg) (Rescue User)

The total maximum rated load for this system shall not exceed 880 lb (400kg) total User weight including tools and equipment carried.

Record of installation

Following installation, details of the installation should be recorded and kept in the site file.

System installation record				
Product :				
Site location :	Installer name :		System reference :	
Manufacturer: MSA Latchways	Address : 1000 Cranberry Woods Drive, Cranberry Township, PA 16066, USA		Tel: +1 412-967-3000	
Installation date :	Date First Put into Service :		Date First Periodic examination due :	
Periodic Examination and Repair History				
Date	Reason for entry (periodic examination or repair)	Defects noted, repairs carried out and other relevant information	Name & Signature of Competent Person	Periodic Examination Next Due Date

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Safe to Climb Certificate

Customer:		System Installation Company:	
System ID and Location:			
<i>Insert '✓' or value in appropriate box. If unsatisfactory mark 'x' for fail</i>			
1	Bottom anchor fixings torque checked to:	14.75 ft lb (20 Nm)	
2	On bottom anchor check locknut is tightened against tension nut		
3	Check system pre-tension at bottom anchor ensuring the disc is free to turn.		
4	Check system warning notice is fixed at the entry/exit position, stating criteria for use and next inspection date		
5	Check cable is clear of any protruding steelwork		
6	The system has been installed with a maximum wire guide spacing of:	10 ft (3m) <input type="checkbox"/>	or 13 ft (4m) <input type="checkbox"/>
7	Check intermediate cable guide legs are on the left hand side of the helix tube		
8	Check cable is located in each intermediate wire guide		
9	Check free passage of LadderLatch unit through intermediate cable guides		
10	Intermediate guide fixings torque checked to:	14.75 ft lb (20 Nm)	
11	Top anchor fixings torque checked to:	14.75 ft lb (20 Nm)	
12	Check the energy absorber or swage to clevis is secured to the top anchor with the castellated nut and split pin, or clevis pin and split pin.		
13	Check the energy absorber has not been deployed (if applicable)		
14	Check 'L' or 'I' is stamped on swage of the energy absorber If no 'L' or 'I' then provide a "certificate of conformity" to ANSI Z359.1 (EN353:1) for the swage connection		
15	Check the swage slip indicator meets the swage termination		
16	Maximum number of users indicated on warning notice	<input type="checkbox"/> 2	<input type="checkbox"/> 3

17	The system has failed the Latchways Safe Climb Check - therefore should not be used	
Reason:		
Action:		
Installer Company:		
Signed:		
Print Name:		
Date:		

18	System passed	
Installer Company:		
Signed:		
Print Name:		
Date:		

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