



3S LIFT

SAFE | SIMPLE | SPECIALIZED



Fall Arrester Operation and Maintenance Manual

Model: SL-820S

Limited warranty

3S LIFT warrants that commencing from the date of shipment to the customer and continuing for a period of 365 days thereafter, or the period set forth in the standard 3S LIFT warranty – whichever is longer, the product described in this manual will be free from defects in material and workmanship under normal use and service when installed and operated in accordance with the provisions of this manual.

This warranty is made only to the original user of the product. The sole and exclusive remedy and the entire liability of 3S LIFT under this limited warranty, shall be, at the discretion of 3S LIFT:

1. a replacement of the product (including incidental and freight charges paid by the customer) with a similar new or reconditioned product of equivalent value.
2. or a refund of the purchase price if the product is returned to 3S LIFT, with freight and insurance prepaid. The obligations of 3S LIFT are expressly conditioned upon return of the product in strict accordance with the return procedures of 3S LIFT.

This warranty does not apply if the product:

1. has been altered without the authorization of 3S LIFT or its authorized representative.
2. has not been installed, operated, repaired, or maintained in accordance with this Manual or other instructions from 3S LIFT.
3. has been subjected to abuse, neglect, casualty, or negligence.
4. has been furnished by 3S LIFT to Customer without charge.
5. has been sold on an "AS-IS" basis.

Except as specifically set forth in this Limited Warranty,

All express or implied conditions, representations and warranties, including, but not limited to, any implied warranty or condition of merchantability, fitness for a particular purpose, noninfringement, satisfactory quality, course of dealing, law, usage or trade practice are hereby excluded to the maximum extent permitted by applicable law and are expressly disclaimed by 3S LIFT. If, pursuant to any applicable law, to the extent an implied warranty cannot be excluded as provided in this limited warranty, any implied warranty is limited in time to the same duration as the express warranty period set forth above. Because some states do not permit limitations on the duration of implied warranties, this may not apply to a given customer. This limited warranty gives the customer specific legal rights, and the customer may have other legal rights under applicable laws.

- This disclaimer shall apply even if the express warranty fails of its essential purpose.
- This Limited Warranty is subjected to the final interpretation by 3S LIFT.

Conventions

Symbol	Description	Symbol	Description
Bold text	Explanatory text on or adjacent to control buttons and knobs		Moving direction
	An annotation line which indicates the hidden or invisible part of the drawing		Visual inspection
	Forward direction of the product		Explode lines of exploded parts (explode lines indicate assembly paths between parts in an exploded view.)
	View from A		Removed or hidden length of an object which cannot be displayed in full

Table of contents

- Limited warranty..... i
- Conventions.....ii
- 1. Precautions..... 1
- 2. General description.....3
 - 2.1. Fall arrest system components..... 3
 - 2.2. Directions.....4
 - 2.3. Anti-reverse mechanism.....4
 - 2.4. Technical specification.....5
 - 2.5. Markings..... 6
 - 2.6. Annual inspection label..... 7
- 3. Operation.....8
 - 3.1. Installation.....8
 - 3.2. Removal.....8
 - 3.3. Usage..... 9
- 4. Inspection..... 11
 - 4.1. Daily inspection..... 11
 - 4.2. Annual inspection..... 13
 - 4.3. Disposal..... 14
- 5. Storage and transportation..... 16
- 6. Repair and maintenance.....17
- Appendix A. Daily inspection checklist..... 18
- Appendix B. Annual inspection checklist.....19

1. Precautions

This manual is provided in the language of the country where the product is used. If it needs to be translated into another language, the translated manual shall be approved by 3S LIFT. The user shall read, understand and follow the instructions contained in this manual. Failure to comply could result in serious injury or death. Keep this manual for future reference.

1. The fall arrester, as a type of personal fall protection equipment, complies with EN 353-1:2014+A1: 2017, ANSI/ASSE Z359.16-2016, and CSA Z259.2.5 standards. The wire rope fall arrest system conforms to EN 353-1:2014+A1: 2017, ANSI/ASSE Z359.16-2016, and CSA Z259.2.5 standards. The fall arrester is designed for use in conjunction with a full-body harness that has a sternal attachment point and complies with EN 361 and ANSI Z359.11 standards.
2. Ladders on which the wire rope fall arrest systems are attached shall comply with EN 131-2, EN 14122-4, and ANSI A14.3 standards and be capable of supporting the specified loads. The support brackets of the ladder shall withstand a min. load of 6 kN applied to the central line of the ladder.
3. The user shall undergo appropriate professional training, be familiar with the product, and possess the skills for proficient installation, disassembly, and usage. When using the fall arrester, the user shall use necessary personal protective equipment (PPE), such as safety helmet, safety shoes, and gloves.
4. A maximum of four users are allowed to use the wire rope fall arrest system at the same time, with a minimum distance of 6 m between adjacent users.
5. The fall arrester shall not be used for work positioning or fixing equipment. If work positioning is required, an independent, specialized and qualified work positioning equipment shall be used.
6. The fall arrester is designed for use by one person only.
7. The effective operating temperature of the fall arrester is -40 °C to +60 °C. Ensure that the entire wire rope fall arrest system is free of grease, oil, and ice.
8. The connection between the fall arrester and the point of attachment to the full-body harness shall not exceed 230 mm (9 in) in length, and this length shall not be adjusted by means of adding or removing connectors (such as a carabiner), according to OSHA 1926.1053.
9. When wearing the full-body harness, adjust it to a snug fit. If the full-body harness becomes loose, stop at a proper position, and adjust it correctly.
10. If you detect any abnormality or have any doubt on the product, remove it from service, and inform the equipment administrator.
11. Unauthorized dismantling or modification of the fall arrester is prohibited. 3S LIFT shall not be held responsible for any injuries or fatalities resulting from the dismantling or modification of the fall arrester.
12. Before using the fall arrester, a safe and effective rescue plan shall be in place which takes into consideration all potential emergencies.

13. The installation, maintenance and inspection of the wire rope fall arrest system shall only be performed by professional technicians who have received trainings or under the instructions by 3S LIFT or its authorized parties.
14. Comply with the work site emergency protocol and do not use the fall arrester as auxiliary rescue device.
15. Ensure that the fall arrester and the environment where it is used present no danger to the user, including hazards such as heat, chemical substances, or falling objects.
16. Ensure that the entire wire rope fall arrest system is free of grease, oil, and ice.
17. Rest platforms shall be provided in the climbing path to prevent users getting exhausted due to long-distance climbing. During temporary rest breaks, use suitable personal protective equipment (PPE). Do not perform tasks in strong wind or adverse weather conditions.
18. If the fall arrester is subjected to a fall, or has any deformation, remove it from service and discard it.
19. The ladder onto which the wire rope fall arrest system is attached can be connected to a building structure according to the instructions provided by the ladder manufacturer. As an example of connecting to a wind turbine generator (WTG) tower, you can attach weld nuts to the tower and secure the ladder to the tower wall using tie bars. It's essential to ensure that the ladder can withstand a minimum static load of 16 kN.
20. If the fall arrester is used on an inclined anchor line, make sure that the sideways leaning angle does not exceed 15° from the vertical. If this requirement is not fulfilled, contact 3S LIFT for solutions.
21. As a PPE product, the fall arrester has passed the verification test and certification of CCQS certification services limited at Block 1 Blanchardstown Corporate Park, Ballycoolin Road, Blanchardstown, Dublin 15, D15 AKK1, Ireland (NB 2834).
22. A copy of the manual shall be handed out to each user and be available for reference at all times.

2. General description

2.1. Fall arrest system components

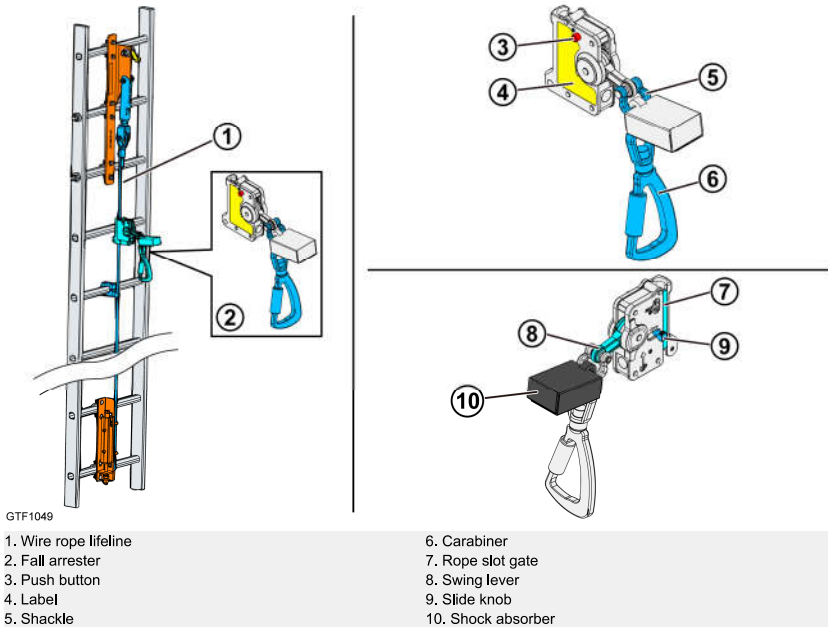


Fig 1. Wire rope fall arrest system components

The fall arrester [2] is used in conjunction with the wire rope lifeline [1]. When a fall occurs, the fall arrester will lock on the wire rope automatically to prevent the user from falling.

Push button [3]

The push button [3] is the rope slot gate release mechanism. When it is depressed, the user can pull the slide knob [9] to open the rope slot gate. Once released, the push button returns to its initial position, preventing the slide knob [9] from movement and maintaining the rope slot gate in the locked position.

Slide knob [9]

The slide knob [9] is connected to the rope slot gate [7]. When pulling the slide knob in the arrow direction, the rope slot gate opens. Once released, the slide knob returns to its initial position, and the rope slot gate closes.

Shock absorber [10]

When a fall occurs, the shock absorber will deploy and absorb the impact energy.

Carabiner [6]

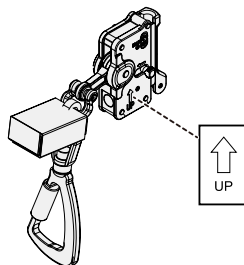
The carabiner forms the link between the fall arrester and the sternal attachment point of the user's full body harness. It incorporates an fall indicator which becomes visible after a fall.

2.2. Directions

The fall arrester functions only when it is correctly oriented.

For this purpose, it features an anti-reverse mechanism.

- 2.3. Anti-reverse mechanism (p4)
- 3.1. Installation (p8)



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Fig 2. Directions

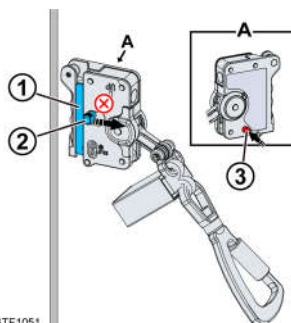
2.3. Anti-reverse mechanism

The fall arrester incorporates an anti-reverse mechanism, preventing attachment to the wire rope lifeline when it is incorrectly oriented.

Incorrect attachment scenario 1:

1. Position the fall arrester upside down.
2. Press the push button [3] and attempt to pull the slide knob [2]. In this situation, the slide knob [2] will not move in the arrow direction and the rope slot gate [1] will not open, preventing attachment of the fall arrester onto the wire rope.

1. Rope slot gate
2. Slide knob
3. Push button



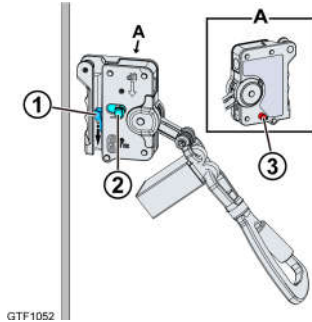
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Fig 3. Rope slot gate will not open

Incorrect attachment scenario 2:

1. With the fall arrester in upright position, press and hold the push button [3], and pull the slide knob [2] to open the rope slot gate.
2. Reverse the fall arrester upside down.
3. Attempt to attach the fall arrester to the lifeline wire rope. In this situation, the locking lever [1] will pop up and block the rope slot, preventing attachment of the fall arrester onto the wire rope.

1. Locking lever
2. Slide knob
3. Push button

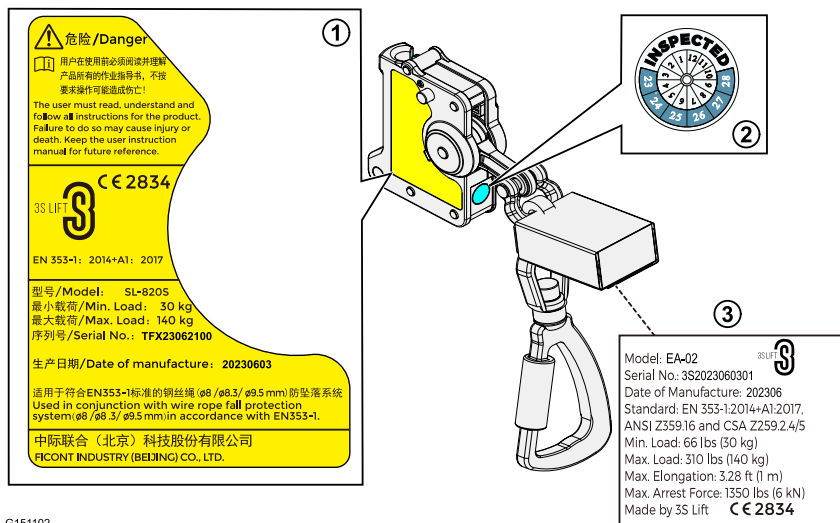
**Fig 4. Locking lever blocking the rope slot**

2.4. Technical specification

Table 1. Technical specification

Item	Specification
Model	SL-820S
Maximum static load	16 kN (3 600 lbs)
Dimensions	280 mm × 160 mm × 60 mm
Dead weight	1.35 kg (2.97 lbs)
Operating temperature	-40°C to 60°C
Load range	30 kg to 140 kg (66 lbs to 310 lbs)
Compatible wire ropes	Φ8.0 mm, Φ8.3 mm, Φ9.5 mm
Min. pre-tensioning force of wire rope	250 N

2.5. Markings



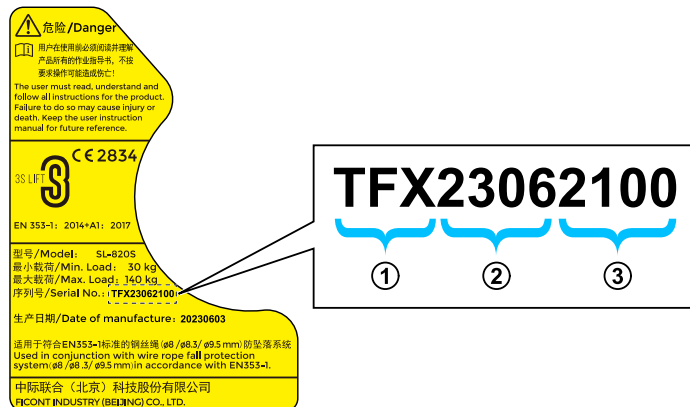
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1. Fall arrester label

2. Annual inspection label

3. Shock absorber label

Fig 5. Position of the labels



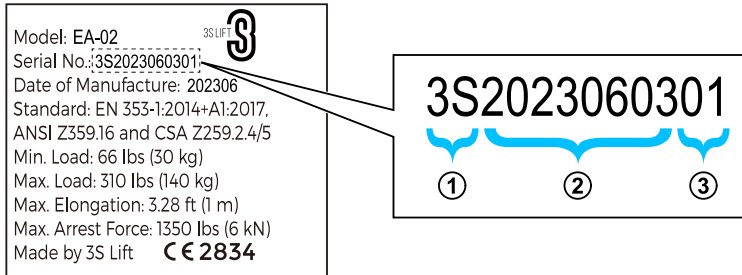
G151103

1. Product code

2. Date of manufacture (last two digits of the year + month)

3. Serial number

Fig 6. Serial number of the fall arrester label



G151104

1. Manufacturer

2. Date of manufacture (year + month + date)

3. Batch

Fig 7. Serial number of the shock absorber label

2.6. Annual inspection label

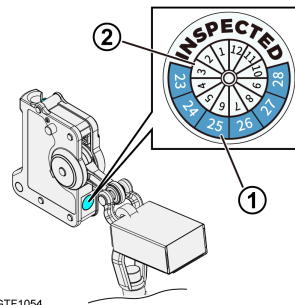
Each fall arrester device is affixed with an annual inspection label. The label contains two groups of numbers:

- Year [1]: The two digits with blue background color represent the year. For example, "23" represents the year 2023, and "28" represents the year 2028.
- Month [2]: Numbers in the inner circle represent the month.

Each new fall arrester has an initial mark on the year digits and month digits respectively, indicating the device manufacture year and month. For example, if number "23" and "6" are marked, it indicates the device is manufactured in month June of year 2023.

Annual inspection label:

The annual inspection label contains a total of six groups of digits that represent the year. After each annual inspection, a mark shall be drawn on the corresponding year on the label.



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Fig 8. Annual inspection label (device manufactured in 2023)

1. Year
2. Month

3. Operation

3.1. Installation

⚠ WARNING



Fall hazard!

- When attaching the fall arrester, make sure that you are at a safe position, and use proper personal protection equipment.

⚠ WARNING



Warning!

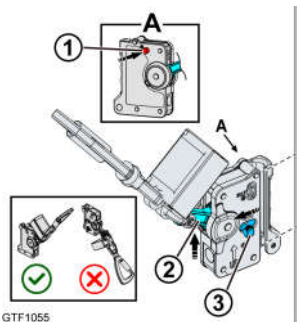
- Use the fall arrester only with compatible 3S LIFT wire rope lifeline. Using the fall arrester with a non-approved lifeline could compromise its safety and performance. 3S LIFT should not be held liable for any consequences resulting from violation of this rule.

1. Lift the swing lever [2] and hold it at its highest position, then press and hold the push button [1].
2. Pull the slide knob [3] in the arrow direction to open the rope slot gate. Put the lifeline wire rope into the rope slot.
3. Release the push button and slide knob to allow them to return to their initial positions.



The fall arrester is equipped with anti-reverse mechanism. It cannot be attached onto the wire rope if it is placed upside down. Refer to 2.3. Anti-reverse mechanism (p4).

1. Push button
2. Swing lever
3. Slide knob



GTF1055

Fig 9. Installing the fall arrester

3.2. Removal

⚠ WARNING

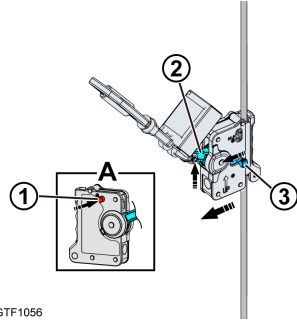


Fall hazard!

- When attaching the fall arrester, make sure that you are at a safe position, and use proper personal protection equipment.

1. Press down the push button [1] and pull the slide knob [3] in the arrow direction to open the rope slot gate.
2. Pull the swing lever [2] up to its highest limit, then remove the fall arrester from the wire rope.

1. Push button
2. Swing lever
3. Slide knob



GTF1056

Fig 10. Removing the fall arrester

3.3. Usage

DANGER

Fall hazard!



- Make sure that your total weight (including your body weight, carried tools and materials) does not exceed 140 kg (310 lbs).
- Do not use the fall arrester if your body weight alone (not including carried tools and materials) is smaller than 30 kg (66 lbs).

DANGER

Fall hazard!



- Before each use, make sure that the carabiner is fully closed and locked.

DANGER

Fall hazard!



- Make sure that you are in good physical and mental condition. Do not use this system if you have acrophobia, hypertension, heart disease, or if you are under the influence of alcohol or drugs.

WARNING

Falling object!



- Do not climb up or down the ladder while carrying tools or materials with your hands. Tools or materials can fall and cause injury to personnel or damage to equipment below.

⚠ CAUTION



Collision hazard!

- When climbing up and down within the initial 2 m, be careful not to hit the ground or the starting platform.



Before each use of the fall arrester, complete [4.1. Daily inspection \(p11\)](#).

1. Attach the fall arrester to the wire rope. Refer to [3.1. Installation \(p8\)](#).
2. Connect the carabiner onto the sternal attachment point of your full body harness. Make sure that the carabiner gate is closed and locked.
3. Climb up or down the ladder. The fall arrester should follow your body movement without requiring manual intervention.

⚠ WARNING



Fall hazard!

- While climbing up and down, always maintain three points of contact (hands and feet) with the ladder.



To achieve optimal performance and safety, keep a minimum distance of 100 mm between your body and the ladder during normal climbing, and keep a correct climbing posture.

4. When a mis-locking of the fall arrester occurs, climb upward slightly to allow the fall arrester to unlock.

⚠ DANGER



Fall hazard!

- If the fall arrester locks on the wire rope, do not attempt to unlock it by detaching it from the wire rope.

5. After use, remove the fall arrester. Refer to [3.2. Removal \(p8\)](#).

4. Inspection

The fall arrester shall not be used if any fault or defect of the product is found before use or during annual inspection. It is necessary to report the fault or defect to the equipment administrator, and ask professional technicians to inspect the fall arrester and fall arrest system, record the abnormal conditions and decide on repair or scrapping.

4.1. Daily inspection

Checking the physical condition:

1. Checking the wire rope

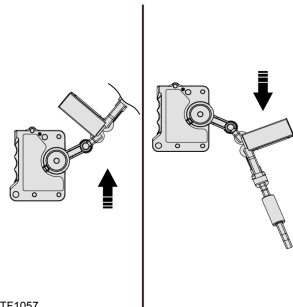
During upward climbing, visually check the wire rope, ladder, and its joints for any damage or deformation.

2. Checking the fall arrester

- Check the swing lever. There should be no damage or deformation.
- Check the the fall arrester. There should be no oil, dirt, or crack.
- Check all fasteners on the fall arrester. They should be firmly riveted with no obvious wear or deformation.

Checking the swing lever and locking lever:

1. Lift the carabiner. The swing lever and locking lever should follow the carabiner movement and rotate freely.
2. Release the carabiner. The swing lever and locking lever should return to their initial positions respectively.



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Fig 11. Checking the swing lever and locking lever

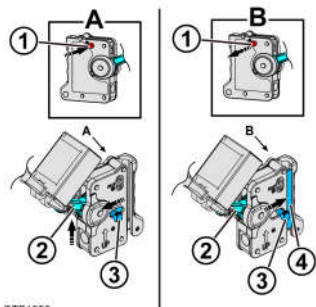
Checking the push button, slide knob, and rope slot gate:

1. Open the rope slot gate following the operating steps.
The push button, slide knob, and the rope slot gate should all function properly.
2. When the swing lever, push button, and the slide knob are released, the push button, slide knob, and rope slot gate should return to their initial positions.

1. Push button
2. Swing lever
3. Slide knob
4. Rope slot gate

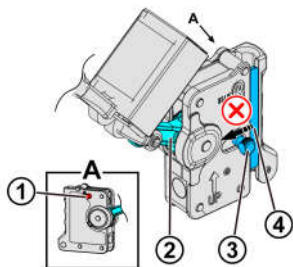
3. After releasing the push button, try to pull the slide knob. The rope slot gate should not open.

1. Push button
2. Swing lever
3. Slide knob
4. Rope slot gate



GTF1058

Fig 12. Checking the push button, slide knob, and rope slot gate

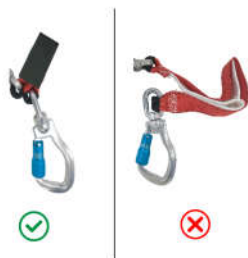


GTF1059

Fig 13. Checking the push button, slide knob, and rope slot gate

Checking the shock absorber:

The shock absorber should be intact and folded tightly with no damage.



GTF1060

Fig 14. Checking the shock absorber

Checking the carabiner:

1. The carabiner should have no corrosion, deformation, or crack.
2. The red fall indicator should not be exposed.



GTF1063
Fig 15. Red fall indicator

3. Rotate the screw lock and open the carabiner gate.
The gate should open freely.
4. When releasing the gate, it should return to the closed position.



GTF1022
Fig 16. Checking the carabiner gate

Fall test:

1. Attach the fall arrester to the wire rope lifeline. Refer to 3.1. [Installation \(p8\)](#).
2. Pull the fall arrester by the carabiner up and down the wire rope. Always maintain the swing lever pointing upwards. The fall arrester movement should be smooth and free from jamming.
3. Release the carabiner to simulate a fall. The fall arrester should lock on the wire rope immediately.

4.2. Annual inspection

The wire rope fall arrest system shall be inspected at least once a year. Any abnormal conditions should be recorded and troubleshooted. Do not use the fall arrester if it fails the inspection by professional technicians. If a fall occurs, the wire rope fall arrest system (including fall arrester, wire rope, and ladder) shall be inspected and maintained by professional technicians other than the user.

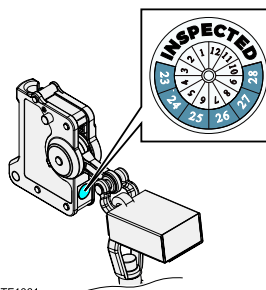


Another set of personal fall protection equipment shall be used while inspecting the wire rope fall arrest system.

1. Perform all inspection items contain in 4.1. [Daily inspection \(p11\)](#).

2. Check the annual inspection label.
 - a. Ensure that the annual inspection label is in place.
 - b. Check the expiration date on the annual inspection label and ensure that the product service life is not exceeded.
 - c. After this annual inspection, mark the corresponding year on the label. Refer to 2.6. Annual inspection label (p7).

 If the annual inspection label is missing, contact 3S LIFT to purchase a new one.



GTF1061

Fig 17. Annual inspection label

3. Check all metal parts of the fall arrester. Make sure that they show no signs of corrosion or oxidation. If any, consult 3S LIFT technicians who will decide on replacement or scrapping.
4. Check the connection between the ladder and the wire rope fall arrest system. The ladder should be in good working condition.
5. Check the wire rope for surface contamination, excessive wear, or other deficiencies. Ensure that the wire rope has no more than 2 broken wires per 50 mm length.
6. Check all labels on the wire rope fall arrest system. They should be in place and not damaged.

4.3. Disposal

 **DANGER**



Fall hazard!

- Do not use the fall arrester if it exceeds the service life!

1. The fall arrester is designed with service life of 5 years.
2. If any malfunction or defect is found during use, daily inspection, or annual inspection, or if the fall arrester fails the inspections, remove the fall arrester from service, and contact 3S LIFT for repair. If it becomes unrepairable, scrap it.
3. If any of the following occurs, scrap the fall arrester.
 - The shock absorber is unfolded.
 - The red fall indicator on the carabiner is exposed.

 Parts not supplied or approved in writing by 3S LIFT shall not be used for replacement.



GTF1062

Fig 18. Shock absorber unfolded



GTF1040

Fig 19. Red fall indicator exposed

5. Storage and transportation

1. Store the fall arrester in a cool, dry, clean environment, and out of direct sunlight.
2. Do not expose the fall arrester to corrosive substances such as oil, grease, paint or other chemicals. These substances can impair the fall arrester performance and safety.
3. Place the fall arrester in its packaging box or in a tool bag.
4. Take protective measures to prevent fall arrester from dropping or being impacted by other objects.

6. Repair and maintenance

1. Repair and maintenance shall be carried out by professional technicians who are familiar with and fully understand the instructions.
2. Service life: The service life of fall arrester depends on the working environment and usage conditions. If the fall arrester is used strictly following the instructions and stored properly, the service life can be up to 5 years.



The service life depends on the operating environment, climate, storage condition and use intensity. Extreme temperature, fall, exposure to harmful substances or other special situations will adversely affect the service life.

3. Cleaning:
 - a. If the fall arrester is contaminated by corrosive substances, such as oil, grease, paint or other substances, clean it with warm water and mild detergent. Do not use strong cleaning agents.
 - b. If the fall arrester has dirt, dust, or other contaminants, clean it with a brush or steel wires if necessary. Be careful not to damage any components during cleaning.
 - c. If the fall arrester does not function correctly due to oil or dirt, return it to 3S LIFT for repair.
4. Protection against moisture: Dry the damp and wet fall arrester before storage. Wipe it off with a clean cloth and then dry it in air. Do not dry with an artificial heat source.

Appendix A. Daily inspection checklist



This table can be filled in by professional technicians, and can be duplicated for further use. Daily inspection of the fall arrester shall be carried out before each use, but there is no need for daily inspection if it is not used.

Inspection record	
Inspection date:	Model/standard:
Inspected by:	Serial No.:
Date of initial use:	

Inspection item	Pass	Fail
Appearance	☐	☐
Swing lever and locking lever	☐	☐
Push button, slide knob, and rope slot gate	☐	☐
Shock absorber	☐	☐
Carabiner	☐	☐
Overspeed test	☐	☐

Appendix B. Annual inspection checklist



This table can be filled in by professional technicians, and can be duplicated for further use.

Inspection record	
Annual inspection date:	Model/standard:
Inspected by:	Serial No.:
Date of initial use:	

Inspection item	Pass	Fail
Appearance	☐	☐
Swing lever and locking lever	☐	☐
Push button, slide knob, and rope slot gate	☐	☐
Shock absorber	☐	☐
Carabiner	☐	☐
Falling test	☐	☐
Annual inspection label	☐	☐
Metal parts of the fall arrester	☐	☐
Fasteners (wire rope fall arrest system)	☐	☐
Ladder (wire rope fall arrest system)	☐	☐
Wire rope	☐	☐
Label (wire rope fall arrest system)	☐	☐

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