



Shipping Container Anchor Post & Horizontal Lifeline System

SETUP AND OPERATION MANUAL



Shipping Container Anchor Post & Horizontal Lifeline System

The system has been tested to: AS/NZS5532:2013, AS/NZS1891.2, EN795:2012, TS16415:2013 & OSHA1910.140



BEAVER TECHNOLOGY SERVICES
PTY LIMITED

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NOTE: Please refer to relevant standards and codes of practice for your location.



1) INTRODUCTION TO SYSTEM APPLICATIONS

The **BTS Shipping Container Anchor Post (CBPOST22KN)** either with or without a **Horizontal Lifeline System (LIFELINEKIT-40A OR -20A)** is designed to provide a limited free fall arrest system for working on top of a shipping container.

Anchor Type:

EN795:2012 Type B and Type C Anchor device

EN16415 Type B and Type C Anchor device

The product (CBPOST22KN) has been tested to EN795:2012 & CEN/TS16415:2013, AS/NZS5532:2013, AS/NZS1891.2:2001, OSHA 1910.140, ANSI Z359.6-2016 and ANSI Z359.18-2017.

The system (CBPOST22KN with LIFELINEKIT-40A or -20A) has been tested to EN795:2012 & CEN/TS16415:2013, AS/NZS5532:2013, AS/NZS1891.2:2001, and OSHA 1910.140.

1.1) Specifications

Working Load Limit of CBPOST22KN: Up to two (2) person, weighing a maximum of (141kg/ 310lbs) each, including all clothing, tools and equipment.

Working Load Limit of CBPOST22KN with HLS: Up to two (2) person, weighing a maximum of (141kg/ 310lbs) each, including all clothing, tools and equipment.

1.2) Safety Instructions / warnings – MUST READ PRIOR TO USE

1. This product MUST only be installed by a person who is competent in the installation and use of this safety equipment.
2. Prior to use, ensure all installation and operating procedures have been read and understood.
3. Use appropriate Personal Protective Equipment (PPE) when installing and operating the system. Understand and accept the possibilities and restrictions of the protective equipment as well as the risk associated with its use.
4. Visually inspect the system for damage prior and after use. The system MUST NOT be used if there is any significant structural deterioration or deformation of any components or the structure to which the system is attached to.
5. DO NOT modify any of the system components.
6. This equipment is for personnel use only. Not to be used for materials. System shall not be used for any other purpose other than described in this user manual.
7. In the event of a fall with a resulting strain, the system must be checked by a competent person before use.
8. DO NOT USE the equipment and tag "OUT OF SERVICE" if:
 - Damage or wear to its components is found
 - It has sustained a fall
 - Defects have been detected during regular inspections
 - The product identification is no longer legible

The equipment must be thoroughly inspected and re-certified before the product can be brought back into service.

9. **WARNING!** Be Aware of Designated Work Zones and respective anchorage points within this system. In a work zone where there is a risk of falling off the container, ensure your connection distance to the anchorage attachment point is kept as minimal as possible to prevent a fall. Special care should be taken while working near the corners of the container to avoid the risk of a fall causing a pendulum effect.
10. Ensure that the safe working zones mentioned in this manual are adhered to along with the suggested attachments based on the zone the operator is working in.
11. Ensure all workplace OH&S (OSHA) requirements are identified and understood. A risk assessment with a site specific safe work method procedure must be completed and approved by workplace management prior to commencing work.
12. A rescue plan must be devised and be ready to be implemented prior to usage of the system.
13. This system requires a detailed periodic inspection at intervals of 12 months. Well maintained and regularly serviced equipment has a life expectancy of 10 years. This equipment is designed for temporary installations. If left exposed to corrosive weathering environments for extended periods of time, the equipment should be checked and maintained more frequently to prolong the service life. All structures used for mounting safety equipment must be deemed acceptable by a competent person before using the system.
Be aware of possible corrosion between the anchor devices, it's fixings and the structure to which it is attached.
14. Use only a full body harness designed, tested and approved for fall arrest (refer to EN361:2002, AS/NZS 1891.1-2020, ANSI Z359.11-2021, CSA Z259.1-2019) when connecting a person to this system.
15. Due to the relatively heavy weight of the post, pay close attention to the lifting body posture. Remember to keep your back straight, use your leg muscle to take the weight and avoid twisting your body when lifting or carrying a heavy load.
16. Persons with muscular, skeletal and physical disorders should consult a physician before using Personal Fall Protection
17. Minimum service temperature of -23°C (-10°F)
18. Records should be kept and made available to users for each system informing them of;
 - Identification marks
 - Serial number if supplied
 - Date of purchase
 - Date first put into service
 - Date next inspection / service is due & comments
 - Product compatibility, specifications and limitations
 - Manufacturers name & address

1.3) Site Hazards

Work sites have associated with them a number of potential hazards related to the site itself. These may include, but are not limited to:

- Poisonous or explosive atmospheric conditions
- Poisonous or corrosive chemical hazards
- Dust and other airborne contaminants
- Hot surfaces
- Electrical hazards including overhead power lines
- Sharp edges
- Engulfment hazards
- Moving machinery
- Work Surfaces unconsolidated fill, rocky uneven ground, corrugated compacted hardstand and soft sandy ground
- Weather conditions such as high wind

All of these factors must be taken into consideration when selecting equipment for any given application.

Failure to follow all safety, installation, usage and maintenance instructions may result in serious injury or death

2) APPLICATION

The CBPOST22KN is designed to provide a limited free fall arrest system for working on top of a 20ft or 40ft shipping container. CBPOST22KN can either be used on its own as a limited free fall arrest anchor or in conjunction with a LIFELINEKIT-40A/-20A depending on the demand of the work being carried out on the container. The anchor post is designed to utilise the corner castings on the container as the installation point for the system.

There are restrictions and limitations that must be carefully considered in the selection, installation and operation of this equipment.

Note: Serious injury or death may result from failure to consider factors outlined in the following sections.

2.1) Limitations

- The system is only suitable for up to two users (Maximum weight including PPE and tools 141kg/ 310lbs each) to be attached at any one time. Check system specification for details.
- CBPOST22KN to be used on its own only if the work being carried out is not farther away than 600mm (2ft) of the installed anchor post. For a larger working zone, CBPOST22KN has to be used in conjunction with LIFELINEKIT-40A / -20A.

3) GENERAL SYSTEM REQUIREMENTS

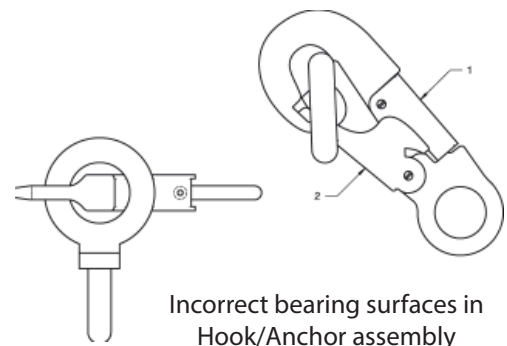
3.1) Connectors

All connectors used in the system must be compatible with each other to ensure sufficient strength and eliminate the risk of accidental disengagement during use. Any connectors not supplied by BTS must be selected and approved by a competent person.

Warning: Compatibility between the anchor and any connector used with it is critical

LEGEND:

1. Locking keeper
2. Gate keeper



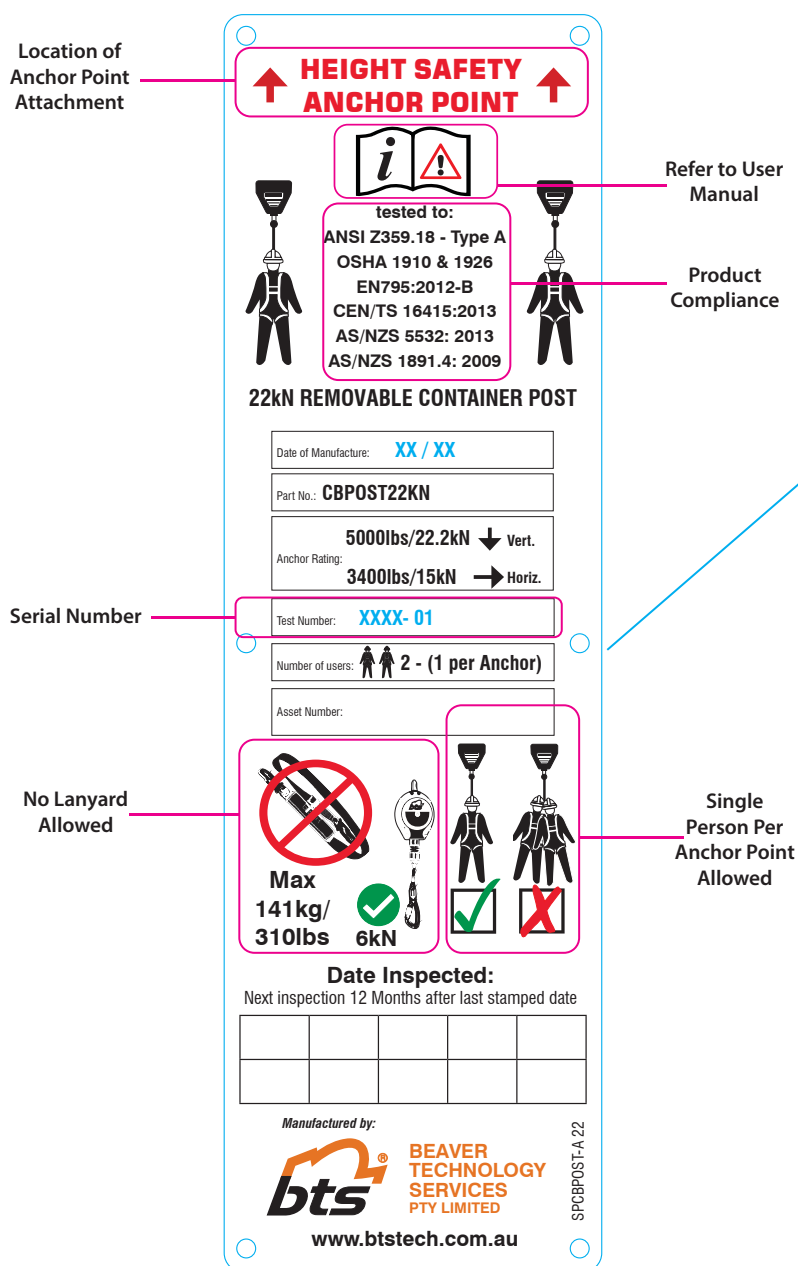
Incorrect bearing surfaces in Hook/Anchor assembly

3.2) Full Body Harness

Use only a full body harness designed tested and approved for fall arrest as per EN361:2002, AS/NZS1891.1:2020, ANSI Z359.11-2021, CSA Z259.10-2018 as applicable to your region.

Warning – Body belts or straps MUST NOT be used, as they do not provide adequate restraint/support to the body and may cause serious injury or death in the event of a fall.

Significance of markings



Component description



4) SYSTEM INSTALLATION and USE

Prior to installation of CBPOST22KN in the ISO corner casting of the shipping container, a site risk assessment and hazard identification programme must be conducted and risk removed/controlled by appropriate measures. Inspection of equipment must be conducted prior to installation.

4.1) BTS Shipping Container Anchor Post (CBPOST22KN)

1. Using an EWP or other suitable site safety access device, take the container post near a corner of the container that is closest to the desired work area. This will ensure shortest distance from the post while working on top of the container, reducing the risk of a fall.
2. Insert the bottom of the post in the corner casting of the shipping container and rotate 90° to drop into position. Using the crank handle on top of the post, turn clockwise to tighten.



Place container post into ISO corner casting



Rotate post 90°



Rotate crank handle until firm



Container post secured / installed



Attach hook on SRL to anchor point on container post



CBPOST22KN
Personnel
attachment point



- Before using the CBPOST22KN, the user needs to be equipped with appropriate PPE and a full body harness compliant to local Standards and Regulatory requirements.
- An approved SRL shall be attached to the CBPOST22KN personnel attachment point which gets attached to the harness of the user. Check the compatibility with the attachment hardware
- When working close to the edge of the container, **the worker shall not be farther than 600mm (2ft) of the installed anchor point (CBPOST22KN)**. This is the safe working zone to prevent a pendulum effect from occurring in case of a fall.

For working farther out from the above mentioned safe working zone of 600mm (2ft) from the attachment point, CBPOST22KN must be used with a Horizontal Lifeline System (LIFELINEKIT-40A / -20A)

4.2) BTS Shipping Container Anchor Post (CBPOST22KN) with Horizontal Lifeline System (LIFELINEKIT-40A / -20A)

Available KIT sets (for 20ft container and 40ft container):

LIFELINEKIT-20A Parts list:

- 1 x 8mm Stainless Steel 7x7 Wire Rope Set 6m (20ft) complete with double swaged hard eye.
- 2 x Double action karabiners with retaining pin (BNA045DR).
- 2 x Travel restriction stoppers.
- 2 x Stainless steel quick links.
- 1 x Line tensioning screw.
- 1 x Stainless steel in line tension indicator & TEMP-ENDS-10 fall energy absorber.
- 1 x BTECH Carrying Bag.



LIFELINEKIT-40A Parts list:

- 1 x 8mm Stainless Steel 7x7 Wire Rope Set 10m (40ft) complete with double swaged hard eye.
- 2 x Double action karabiners with retaining pin (BNA045DR).
- 2 x Travel restriction stoppers.
- 2 x Stainless steel quick links.
- 1 x Line tensioning screw.
- 1 x Stainless steel in line tension indicator & TEMP-ENDS-10 fall energy absorber.
- 1 x BTECH Carrying Bag.



Additional parts recommended but not included in the LIFELINEKIT-40A/ -20A :

2 x CBPOST22KN – 22kN Removable Shipping Container Anchor Post.

2 x BTECH full body harness compliant to EN361:2002, AS/NZS1891.1.

2 x HWDB-2 – Double fall inertia reel aluminium housing c/w 2 x 2m webbing strap.



2 x CBPOST22KN

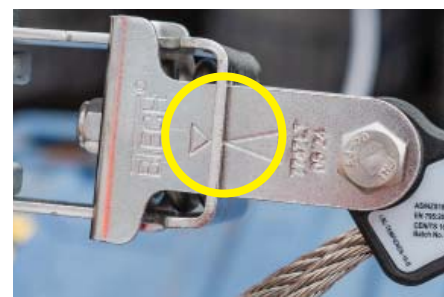
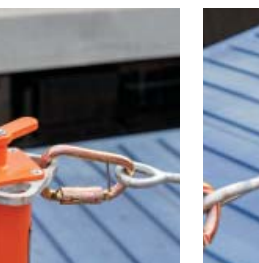
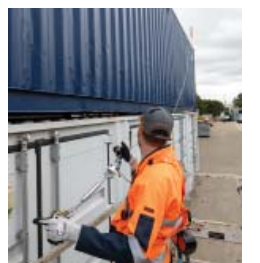


2 x BTH4100 – Full Body Harness



2 x HWDB-2 (SRL complete with swivel hooks)

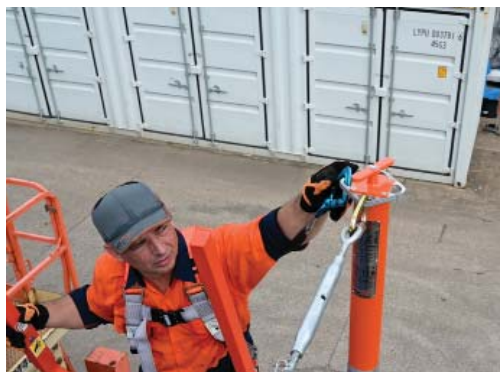
1. Follow the steps (1 and 2 in Section 4.1) for setting up the CBPOST22KN.
2. After installing the first post and still accessing the post from EWP or similar approved device, attach LIFELINEKIT-40A/-20A with Karabiner.
3. Now repeat step 1 on the other side of the container – **system shall not be setup diagonally. Both posts need to be installed along one of the long sides of the container.**
4. From the EWP or similar approved device, attach the tensioning screw to the line tensioning indicator using the supplied pin. Extend the tensioning screw to allow the LIFELINEKIT-40A / -20A assembly to be attached to the CBPOST22KN anchor attachment point via a karabiner.
5. Tighten the line using the line tensioning screw. It may be required to use a hand tool such as screwdriver to ensure adequate tensioning. The line tension indicator shows desired tension. Make sure the 220-230mm (8 2/32" - 9 1/16") diameter cable loop of the end lock does not decrease during tightening. If this occurs, the loop line needs to be reset to 220-230mm (8 2/32" - 9 1/16") diameter, then the secure bolt must be tightened to 125Nm, using a 16 & 17mm socket and torque wrench. **(See Page 13 for details)**





6. Safely access the roof of the shipping container and secure yourself to the post using an SRL.
7. Safe working conditions:
 - i) When working within 600mm (2ft) of the CBPOST22KN, connect with SRL to the CBPOST22KN anchor point directly.
 - ii) When accessing the rest of the area on the container, worker shall be attached via an SRL to the wire rope connecting points, between the Travel restriction stoppers. Note: Connect SRL directly to the harness D-ring attachment point. **(See Diagram Page 12)**

WARNING – Ensure that the user is connected properly within each work zone. Failure to do so may result in a pendulum effect, increasing fall distance and hence risks of severe injury or even death.



Ascend the ladder using 3 points of contact to a point where you can connect one leg of the SRL to the connection point on the container post. Once connected step onto the container.



Check the ID plate & check that the Lifeline is tensioned correctly. Connect the second leg of the SRL to the quick link past the termination limiting block.

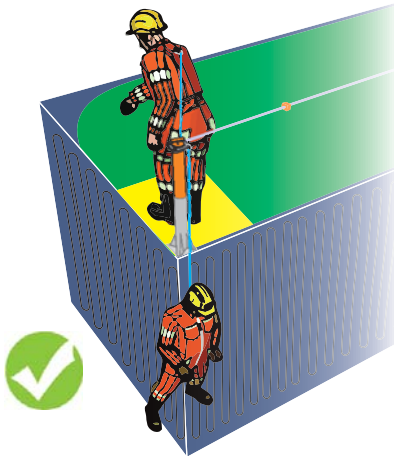


You can now Disconnect from the container post and carry out work .When moving on the top of the container, be sure to stay within the safe working zones shown on page 12.

SAFE WORKING ZONES

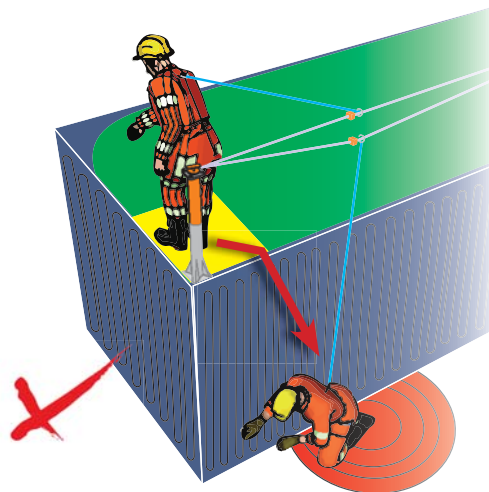


- SRL- Horizontal Life Line Safe Zone
- SRL connected to CBPOST22KN



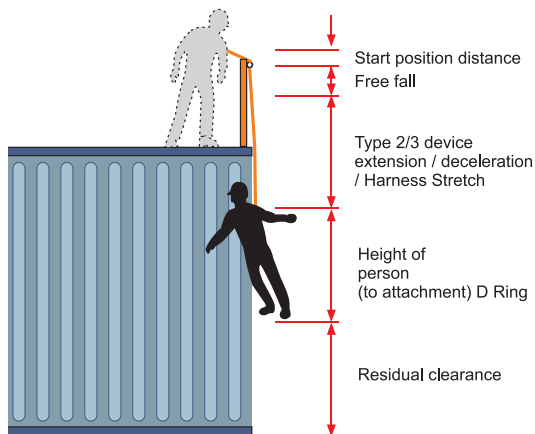
REDUCED PENDULUM EFFECT

SRL connected to anchor post



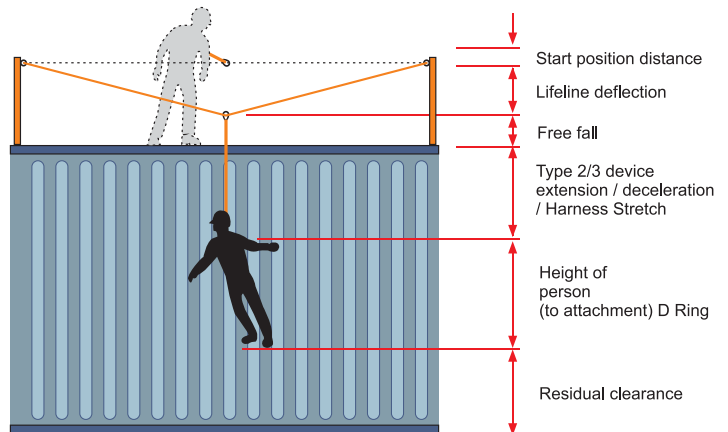
INCREASED PENDULUM EFFECT

SRL connected to Lifeline at the terminal block



Fall clearance

Fall clearance calculation is an essential part of fall protection. Prior to beginning work it must be determined that there is sufficient fall clearance so that, in the event of a fall, the fall protection system will not allow a worker to impact the ground or any other obstruction.



Maximum line deflection

THE BTS 22kN Shipping Container Anchor Post & Horizontal Lifeline System with energy absorber has a maximum line deflection of 1.1 m (3.6 ft) for a 6m (20 ft) lifeline and 1.65m (5.4ft) for a 12m (40 ft) lifeline.

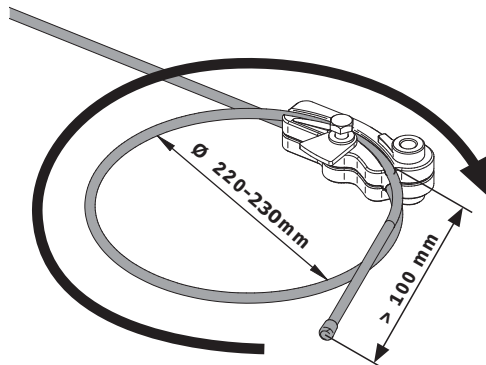
ASSEMBLY OF WIRE ROPE END LOCK AND RATCHET



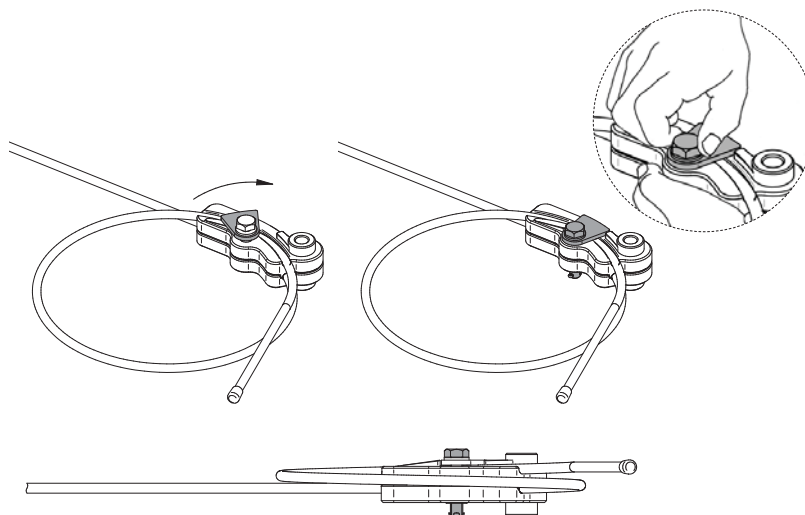
1. Form a $\varnothing$ 220-230mm ($8 \frac{21}{32}'' - 9 \frac{1}{16}''$) cable loop and press it into the guide on the exterior.



The stainless steel cable must not be squeezed out of the guides!



2. Screw the locking mechanism in place following the illustration.



3. Using suitable tools, fasteners need to be set to 125Nm.

5) TRAINING

All personnel using this equipment must receive appropriate training from their employer on all equipment involved prior to operating. User must also read and fully understand this manual and any other instruction manual(s) relating to the system being used.

Additionally, user must be properly trained in the use of any accessories that are to be used with the system, as well as fall protection and any other procedures applicable to the work being performed; in compliance with local regulations.

6) INSPECTION

The system must be inspected by a competent person before each use and periodically on a 12 month interval.

Any problems must be reported immediately to your supervisor and the system tagged "Out of Service" to prevent further use until it has been repaired.

6.1) Daily (or prior every use) Inspection Procedure

Before use check all equipment is inspected, referring to previous inspection notes. All hardware is compatible and anchor ratings are suitable for the works carried out.

1. Visually inspect the Wire rope and the Post to ensure there is no prominent wear and tear.
2. Diameter of the wire loop at the tensioner must be 220-230mm (8 $\frac{21}{32}$ " - 9 $\frac{1}{16}$ "). If not, follow steps on page 12 to fix.
3. Ensure the wire rope is tensioned and the line tensioner is set to correct position.
4. Check to ensure that the fall arrest indicator on the hook of the SRL is not deployed.
5. Inspect the harness as per manufacturer's instructions.

7) MAINTENANCE AND CLEANING

The system must be clean and free of surface contaminants to work correctly.

Depending on the site conditions, the Container post system may need to be periodically cleaned to remove any built up dirt and debris that may have accumulated. Use a solution of warm water and mild detergent to clean the system.

Do not use solvents or other cleaners to clean the unit, as this may result in damage the surface finish.

If the equipment becomes wet, either from being in use or due to cleaning, it shall be allowed to dry naturally, and shall be kept away from direct heat.

7.1) Lubrication

Apply lubrication oil, such as dry silicone spray or similar product to keep the moving parts of the crank handle and tensioning assembly working.

8. REPAIRS

Repairs must be performed by BTS or an authorised representative.

9. TRANSPORTATION/ STORAGE

For transportation and storage, ensure the system is disassembled and stored in the Heavy Duty Storage Bag or stillage provided with the kit by BTS.

The Posts shall be secured during transportation with ratchet straps or equivalent. Product should be stored dry, away from weather elements.

NOTE: This anchor device should only be used for personal fall protection equipment and not for lifting.



Shipping Container Anchor Post & Horizontal Lifeline System

INSPECTION LOG

System Model Number: _____

System Serial Number: _____

Date of Manufacture (dd/mm/yy): _____

Purchase Date (dd/mm/yy): _____

LIFELINEKIT- xxA	PASS	FAIL	DETAILS / LOCATION of DAMAGE	DISPOSITION (REPAIRED / SCRAPPED)	APPROVED FOR USE BY:
Check markings					
Check connecting Karabiners. Gates shall be fully functional and self locking. No signs of deformation, material gauging, cracks or severe wear. Gates shall be fully functional and self locking. No signs of deformation, material gauging, cracks or severe wear.					
Check and ensure wire rope is free from: kinking, birdcaging, doglegs, broken wires, rotational damage & damaged fittings.					
Check Travel restriction stoppers are in place and tight.					
Check condition of Quick Links.					
Check Fall energy absorber. Wire rope shall have 220mm-230mm loop, with at least 100mm (4inch) of wire end. There shall be no signs of gauging on the device.					
Line tensioner shall be present & attached to the energy absorber. Check condition of spring and connecting hardware.					
Check Line Tensioning Screw Ensure connectors are in good condition free from corrosion, not deformed and fully functional.					

CBPOST22KN, SRL & HARNESS	PASS	FAIL	DETAILS / LOCATION of DAMAGE	DISPOSITION (REPAIRED / SCRAPPED)	APPROVED FOR USE BY:
Ensure ID plate is present and legible.					
Check function of crank handle and locking nut.					
Check condition of Anchor points.					
Check condition of welded structure.					
Inspect locking nut, ensure it is in good working order.					
Check SRL operates correctly, labels are legible and is within the service date.					
Check SRL hook's fall arrest indicator is not deployed.					
Inspect the harness.					

Date of Inspection: _____ Inspected By: _____

The information set out in this manual has been compiled from supplier reference data including third party sources. BTS believes that the information is accurate and reliable, though we do not make or give any warranty (other than implied by statute which may not be excluded) with respect to the information. By using this information, the user undertakes not to hold BTS liable or responsible in any way whatsoever in relation or consequential to such use.



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Read Instruction Manual before using.



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