BTS AIRHOOK LITE

SETUP AND OPERATION MANUAL

BTS AIRHOOK LITE (70206EU) (70206)

AS/NZS 5532:3013

EN 795:2012

and complies with the Basic
Health & Safety requirements of
New PPE Regulation (EU) 2016/425
Module D

BEAVER TECHNOLOGY SERVICES
PTY LIMITED

CE 2797

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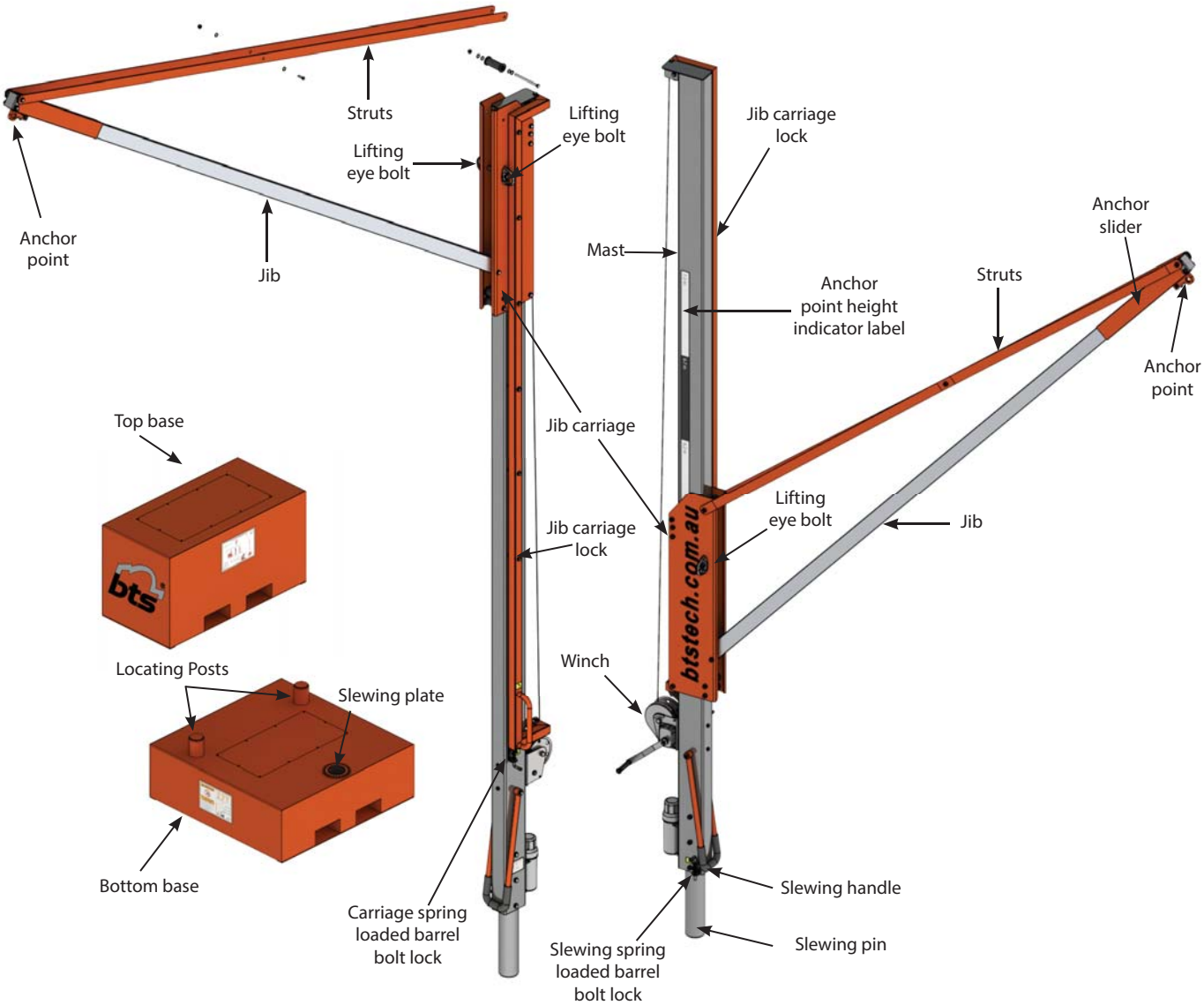
1. PARTS IDENTIFICATION



2. SAFETY INSTRUCTIONS - MUST BE READ PRIOR TO USE

- Prior to using the equipment, ensure all Installation and Operating procedures have been read and understood.
- The system is to be only installed by a competent person who has been trained in safe use of the system and associated equipment.
- Use appropriate Personal Protective Equipment (PPE) during installation, operation and maintenance of the system.
- All non-operational bystanders are to be kept clear of work areas.
- Ask for assistance when lifting/moving heavy components. Before lifting, position body close to the load and keep back straight and knees slightly bent.
- Ensure all workplace OH&S requirements are identified and understood. A risk assessment complete with site specific safe work method procedure must be complete and approved by management prior to commencing work.
- A rescue plan must be devised and be ready to be implemented prior to usage of the system.
- This product requires periodic inspection and maintenance by a competent person “Inspection” & “Maintenance” section of this manual. The system must not be used if any part of it is overdue for service, inspection or is damaged.
- Only approved full body harness, certified to EN361:2002, AS/NZS1891.1-2007 is to be used with this system.

- Visually inspect the product for damage prior to use. The system must not be used if there is any deterioration or deformation of any component or the structure to which the system is attached. If the Davit mast shows signs of overload or fall, immediately tag the system "Out of Service" and do not use until it has been fully inspected and recertified by a competent person.
- Person with muscular, skeletal and physical disorders should consult a physician before using Personal Fall Protection Equipment. Increasing age or lowered physical activity may reduce a person's ability to use this equipment.
- This user manual does not in any way replace the need for completion of a recognized height safety training course.

3. PRODUCT APPLICATION

The system provides a single anchor point for the attachment of Personal Fall Arrest Systems (PFAS) for one user (maximum of 136kg including all clothing, tools and equipment) working on an elevated work surface. The system is designed to be used in Limited Free Fall Arrest and requires that Self Retracing Lifelines (SRL's) be used. System only to be used for Personal Fall Protection and not for materials handling. The product has been tested to AS/NZS5532:2013 & EN795 and complies with the Basic Health & Safety requirements of New PPE Regulation (EU) 2016/425

4. APPLICATION RESTRICTIONS

There are restrictions and limitations that must be carefully considered in the selection, installation, and operation of this type of structure. Serious injury or death may result from failure to consider these factors.

System Capacity

System designed and rated to provide limited free-fall protection for a single worker weighing a maximum of 136kg including all clothing tools and equipment.

SRL maximum arrest force rating of 4kN or less.

Note: This system is not intended for use with shock absorbing lanyards or other energy absorbing devices other than approved SRL's. Please refer to the appropriate manufacturer's instructions and specifications for all system accessories to ensure compatibility of components.

Note: The system shall not be used outside its limitations or for any purpose other than that for which it is intended.

5. SITE CHARACTERISTICS, PHYSICAL and ENVIRONMENTAL FACTORS

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 Surface – 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.

6. GENERAL SYSTEM REQURIEMENTS

The system must be set up keeping in mind the following information:

- Maximum deflection of the anchor device: approximately 300mm

- Maximum displacement of the anchor point: less than 100mm

6.1 Substrate Requirements

The base of the system is designed to be set up and used on a firm level surface (for instance parking area's, smooth flat compacted/concrete yard or maintenance area's), capable of safely supporting a maximum of 42 kN load that may be transmitted to the surface.

Note: All installations MUST BE approved by a Competent Person and used by a competent person (or used under the supervision of a competent person).

6.2 Compatibility of Connectors

All connectors used to connect components in the system must be compatible with each other to ensure sufficient strength and eliminate the risk of accidental disengagement or rollout during use. Connectors supplied with products designed, manufactured and/or approved by BTS meet all applicable requirements for connectors. Any connectors not supplied by BTS must be selected and approved by a Competent Person.

6.3 Full Body Harness

Use only a full body harness designed, tested and approved for fall arrest (refer to EN361:2002, AS/NZS1891.1-2007) when connecting a person to this system.

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

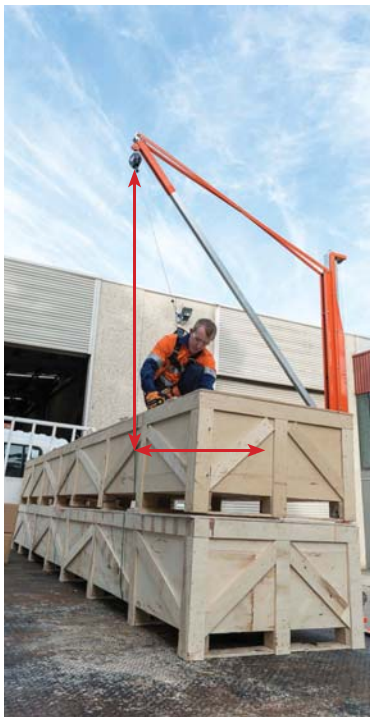
6.4 Fall Protection

Activities involving working at heights require the use of Personal Protective Equipment (PPE) to protect the worker in the event of a fall. Suitable fall protection must be provided as required by applicable local regulations when using this equipment. Fall protection equipment MUST BE selected, installed and used by a competent person or under the supervision of a competent person. .

Note: Persons with muscular, skeletal and physical disorders should consult a physician before using Personal Fall Protection Equipment. Pregnant women and minors must never use this system. Increasing age or lowered physical activity may reduce a person's ability to use this equipment.

6.5 Swing angle

Care must be taken at all times to minimize the potential for pendulum effect/swing fall when working at heights. Figure 2, below shows the allowed safe working zone when using the system for fall protection. Workers MUST stay within the prescribed safe working area at all times while anchored to the system. When site related hazards within the safe working zone require restriction of movement within this area, an appropriate safe work method must be developed by a Competent Person and documented to identify these limitations.



Typical Safe Working Zone for Fall Protection

While working, Attachment point should stay within the green zone.

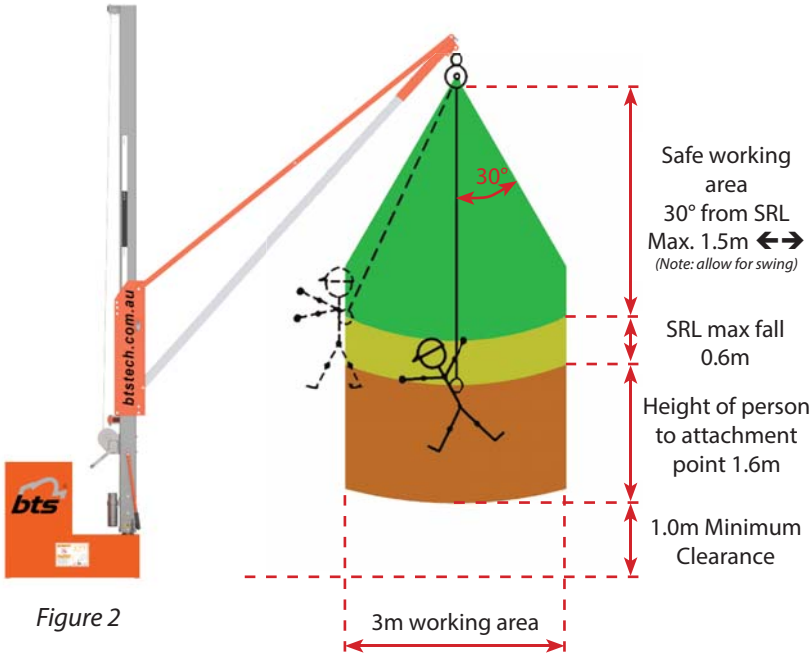


Figure 2

Max Horizontal Distance from attachment point 1.5m

6.6 Free fall distance

Care must be taken at all times to minimize the potential free fall distance when working at heights. No worker shall climb to any point such that their harness D-ring is higher than the system anchor point, or work outside the safe working zone shown in Figure 2.

7. SYSTEM SET-UP AND OPERATION

7.1 Introduction

All accessories and their installation must be approved by a Competent Person for use with the system.

Tools required for set-up*

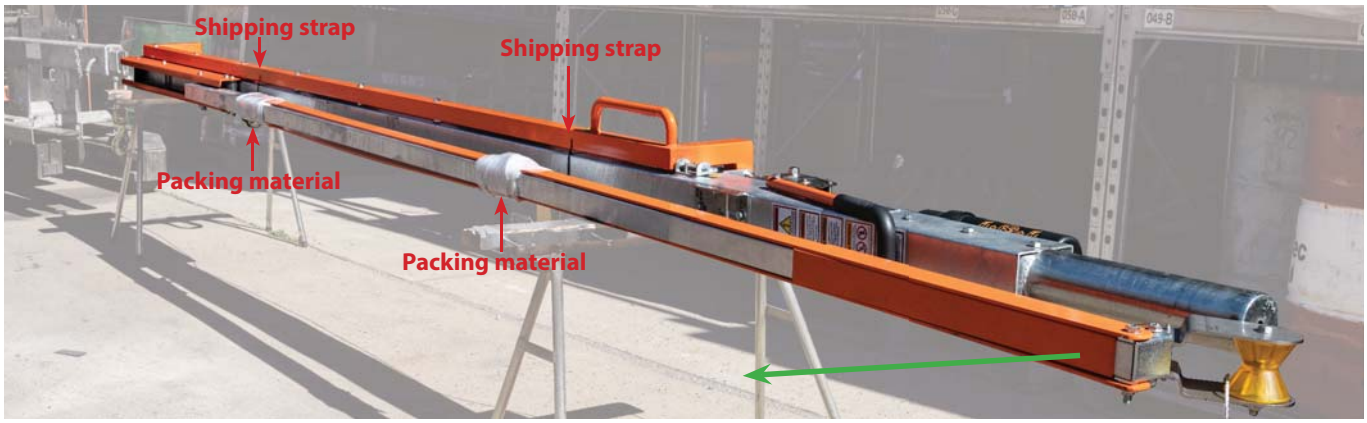
1. Appropriately rated fork lift
2. Lifting equipment to lift the davit assembly into place on the cube
3. 2 x 1.0T x 1m round lifting sling and 2 x 2.0T 13 x 16 Grade S/6 screw pin bow shackle
4. Wrench: 19mm x 2 or ratchet set, 3 x stands (saw horses)

** In many cases the system will already be assembled when delivered to site.*

Please note that installation records need to be maintained by the user for future installations and inspections. The records must include information such as details of the installer, address and location of the installation, product identification and procedures and/or tools and equipment used for the installation. The document must be signed off by the installer. For further details, please refer to Annex A.2 of EN795:2012

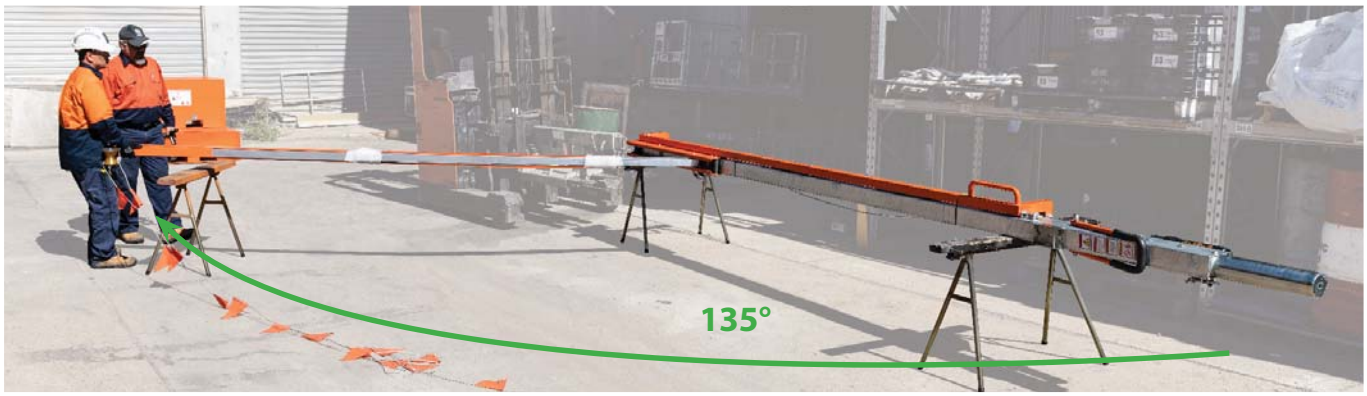
Set-up

The mast assembly is delivered (partly assembled) in one piece. To make the mast ready for operation,it requires setting up by moving the jib to its operating position and fixing it into place with the struts and supplied bolts.



7.2 Jib assembly

With the mast assembly suported by stands, move the jib to its operating position (Aprox 135°) and support with a stand.



Remove packing material on jib and the shipping straps on the mast with a sharp knife, keeping aside the nut, washers & bolt found under the packing material on the centre of the jib.

Remove the bolt from the roller located at the top of the carriage using a 19mm wrench. Keep roller in position.

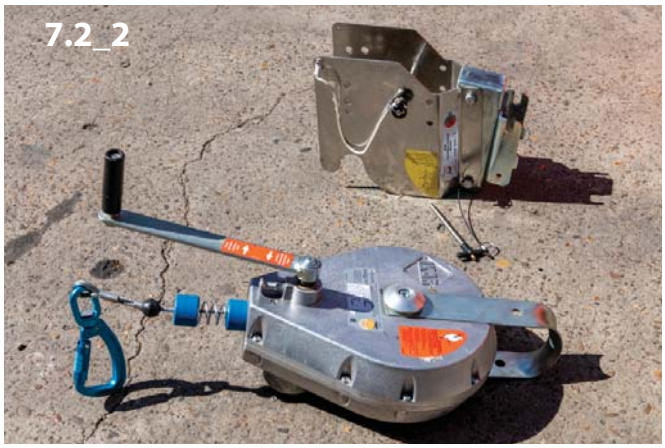
Move the jib strut into position and align the hole in the jib strut with the hole in the carriage. Replace the bolt, ensure that the bolt passes through the roller and the other side of the carriage. Locate the second jib strut onto the bolt, replace the nut and tighten using a 19mm wrench set to 18Nm.

Locate the hole in the middle of the jib strut. Using the nut, washers & bolt found under the jib packing material, push the two struts together while inserting the bolt. Fit the washer, nut and tighten using a 19mm wrench set to 18Nm.

Jib assembly is now complete and should resemble the image below (7.2_1). At this point please check that the appropriate tag line or SRL & tag line is in place.

Rescue Package or SRL

If the unit is fitted with an optional Rescue Package (Ikar 24m Type 3 SRL. image 7.2_2) The tag line must be threaded through the sheave on the end of the jib and the ends of the tagline tied together (7.2_3).



If the unit is fitted with the Ikar 9m SRL. image 7.2_4. The SRL should be first fitted to the anchor point on the end of the jib using the supplied Triple action Karabiner. Then the tag line fitted to the hook on the SRL image (7.2_5).

Base & Mast set-up

Both of the bases are filled with concrete - Bottom base 0.48 cubic meters, Top base 0.43 cubic meters. Using an appropriately rated fork lift, place the smaller base on top of the larger base. Ensure the locating posts on the bottom base engage with the cut outs underneath the top base.

Mast lift & installation

Before lifting the mast into position, a documented lift plan may be required (check with site requirements before commencing work). Locate the 2 Anchor points on the top sides of the jib carriage and attach a round sling (WLL 1000Kg) to each anchor point using a 2.0T 13 x 16 Grade S/6 screw pin bow shackle. Feed both slings towards the top of the mast between the jib struts and connect your lifting device (overhead crane, mobile crane etc.) to the slings. Tie a tag line to the jib.

Slowly lift the mast whilst a second person keeps pressure on the tag line. Once the mast is vertical and is off the ground sufficiently, move it so that the slewing base is centred over the receiver located on the bottom cube base. Slowly lower the mast until there is no load on the lifting device. Ensure that the mast is centred over the receiver at all times so that no damage is sustained to the UPVC tube. Using the spring loaded bolt, lock the mast in place so that it cannot slew.

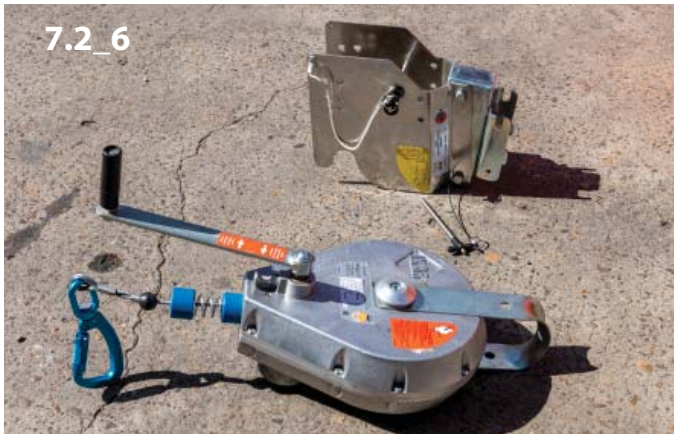
The handle on the mast winch is reversed for shipping to avoid damage. Remove the retaining nut and reverse the handle so that the black handle is facing out. Replace nut and tighten with 19mm wrench set.

Now open the carrage lock then lower the jib carriage using the winch while lowering the lifting device at the same time. When the carriage is at the lowest point, disconnect the lifting device from the mast, remove the sling and shackles and untie the tag line. Reposition the carrage lock to the lock poition and fasten with the spring bolt.

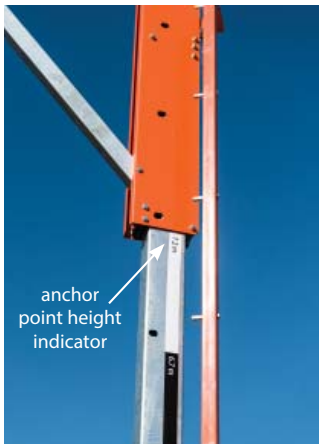
Never use any lifting equipment without first inspecting it. On most sites lifting equipment needs to be tagged to show that it is within service date.

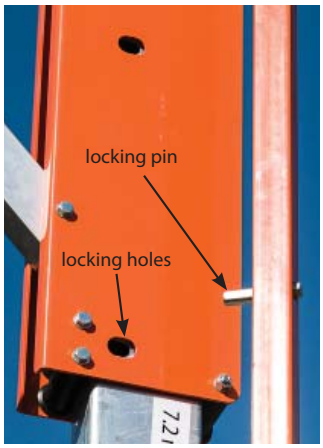
For units fitted with the optional Rescue Package (Ikar 24m Type 3 SRL. image 7.2_6)
Attach the IKAR winch bracket to the mast using the universal winch mount fixed to the mast and insert the retaining pin. Now place the IKAR Type 3 SRL in the Ikar bracket and insert the pin. locate the 2 ends of the tag line, untie and form a loop on one end of the tag line, then attach the loop end to the hook on the SRL.
The setup is now complete.

When using AIRHOOK LITE, pull the tag line untill the SRL hook travels up through the sheave on the anchor point and down to be attached to your harness.



To rotate the mast, unlock the spring loaded barrel bolt at the bottom of the mast then using the slewing handle rotate the mast to the desired position, reset barrel bolt to lock position. To raise the jib, unlock the spring loaded barrel bolt located below the jib carriage lock handle then move the jib carriage lock away from the mast and jib carriage ensuring that the locking pins are clear of the locating holes. Using the Winch, raise the jib to the desired working height (anchor point height is shown on the mast in metre's). When the jib is at the desired height, ensure that the holes on the jib carriage line up with the holes on the mast, close the jib carriage lock and reset the spring loaded barrel bolt to the locked position.





SRL Installation

Self-Retracting Lifelines (SRL's) selected for use with this system must have a Maximum Arrest Force (MAF) rating of 4kN or less and must be installed, inspected and used as per the manufacturer's instructions.

A typical SRL Installation is shown in *figure 1* with the Eye of the SRL firmly locked into position using the fixed karabiner on the Jib arm.

For accessories not supplied by BTS the Competent Person responsible for the selection and use of the system must provide to all users, the applicable manufacturer's instructions related to accessory installation and operation. Use of a tagline on the SRL cable is required to allow access to the lifeline from the ground.

NOTE: DO NOT use lanyards or other energy absorbing devices.

figure 1

7.3 System Transport and Positioning

The BTS AIRHOOK Lite is intended to be moved (using appropriately rated fork lift) distances of less than 1.6km at a speed not exceeding 5 km/h. It can also be moved locally within a warehouse or work station using a suitable BTS supplied pallet jack. The road surface needs to be either concrete, asphalt or a suitably compacted surface free from undulations, large changes in surface heights and corrugations. Speed needs to be reduced if road surface is not smooth. (When moving the unit, ensure that the SRL is secured using a tag line)

The system MUST be fully lowered for transport and MUST be locked in position when in use, being transported or for storage. Please ensure there are no overhead obstructions prior to moving and be aware of the location of all overhead power lines, pipes and cables. For long distance or high speed transport the system must be disassembled and moved by truck or other means.

If system is exposed to winds of 80km/h or more, the structure MUST be removed from service and fully lowered.

Refer to labels on base for more instructions on moving.

7.4 System Operation

NOTE: DO NOT use system whilst connected to a forklift.

Bases MUST be on a solid level surface such as concrete floor or truck staging area.

Wear appropriate PPE.

System must be inspected before each use as per section 9.1 Daily Inspection of this Manual.

Step 1: Read all warning labels carefully and understand the information provided.

Step 2: Position the system, with the SRL centred as closely as possible over the work area to be accessed.

WARNING: Be aware of any overhead powerlines, or other hazards, as the structure is highly conductive to electricity

Step 3: If the system is to be used in the raised position, crank the winch handle clockwise to raise the structure, or counter clockwise to lower the structure.

Note: The winch will become too hard to crank when it hits the stop at the end of the mast – DO NOT attempt to crank the winch past this point.

Stay clear of moving parts during raising and lowering the mast.

Note: Before using the system ensure that the mast is locked in place with the locking bar.

Step 4: Pull the spring barrel bolt lock at the bottom of the mast to unlock and rotate the mast assembly over the intended work area. Then release the bolt to lock in position.

Step 5: Use the tag line to pull the SRL line down to connect to the worker's harness rear D-ring.

The tagline attached to the karabiner hook MUST be removed during use and re-attached for storage.

NOTE: The cable MUST NEVER be allowed to retract unrestrained as this may damage the SRL

Step 6: When climbing the work surface or working at heights ensure that you follow all applicable working at height regulations. Where possible try to keep 3 points of contact.

NOTE: DO NOT work outside the safe working zone as shown in figure 2. At no time shall any worker climb to any point that their harness rear D-ring is higher than the system anchor point.

No person shall use this equipment without receiving proper documented training as outlined in next section.

All users must fully read and understand this manual and any other instructions manual(s) relating to the system being used, or have the instructions explained to them, before using this equipment.

8. TRAINING

Any worker using this equipment must receive appropriate training from their employer on all equipment involved prior to operating. All users must read and fully understand this manual and any other instruction manual(s) relating to the system being used, or have the instructions fully explained to them before using this equipment.

In addition to training specific to this equipment, all users must be properly trained in the use of any accessories used with the system, as well as fall protection, confined space safety and any other applicable training related to the work being performed, in compliance with local regulations.

Document training records should be kept for all users of this equipment.

9. INSPECTION

The System must be inspected by a Competent Person before each use and periodically on a scheduled basis. Any problems must be reported immediately to site supervisor and the equipment tagged **"Out of Service"** to prevent further use until it has been repaired.

NOTE: Any time the involvement of a factory authorized service centre is required for repairs; please provide photocopies of all previous Inspection Log sheets for that system to assist with diagnosis, completion of service activities and processing of any applicable warranty claims. Please obtain a Returned Goods Authorization number from the service centre before returning any equipment for service.

9.1 Daily Inspection

The System must be inspected by a Competent Person before each use as described in inspection procedure section below. Report any problems or concerns to your supervisor and do not use the equipment until they have approved doing so.

9.2 Detailed or Annual Inspection

The system MUST BE given a Detailed Inspection by a competent person, as described in inspection procedure section below, at least annually and more frequently if subjected to harsh conditions or excessive use. Additional inspections would be required if the unit is used in Spray Booths, wash bays, abrasive, corrosive or dusty environments.

Record the results and maintain an Inspection Log for each unit using the sample Inspection Log sheet provided page 13.

9.3 Inspection Procedure

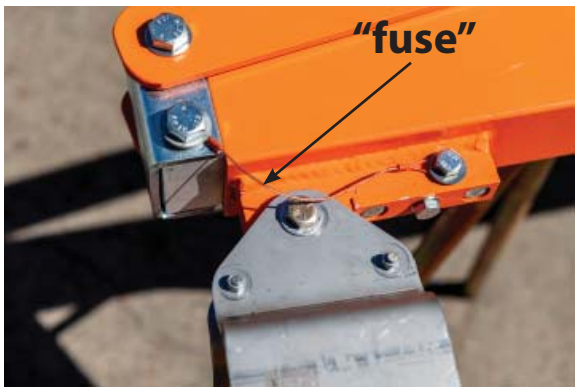
9.3.1 Cleaning and lubrication

If required, clean and lubricate the system components, as outlined in next section, prior to performing the inspection.

9.3.2 Physical damage / post fall arrest inspection

Inspect the system and all accessories for physical damage; bent parts, loose or missing hardware, missing or illegible labels. Replacement labels and accessories for all BTS Products are available from your dealer by ordering the part number shown on each label.

The Jib Assembly contains a mechanical "fuse" that indicates that there has been movement of the Anchor Cable Slider under normal service loads. This consists of a short length of small diameter stainless steel cable connected loosely between the Slider and the end of the Jib Assembly. In the event of a fall, the fuse will break allowing the slider to move slightly along the jib to help minimise the impact on the worker. Verify that no activation of the "Fuse" has occurred during previous use or transport. Remove system from service if the "Fuse" has been activated. Never use the unit if the fuse has been deployed.



Note: As this unit is designed for limited free-fall, the use of this unit for lifting or moving loads will cause the Fuse to be activated. This will then require a full inspection by a BTS Authorised Inspection body before use, to ensure no other damage has been done to the unit.

While minor cosmetic damage will not affect the structural integrity of the system, a seriously damaged unit MUST BE removed from service and repaired by an authorized service centre prior to further use.

All system accessories not manufactured by BTS must be installed, inspected, maintained and operated as instructed in the Operators Manual provided by the respective manufacturer.

10. MAINTENANCE

This equipment has been designed to provide many years of trouble free service and requires little in the way of routine maintenance.

Any loose fasteners should be tightened and damaged components replaced. Contact a factory authorised service centre for replacement parts or structural repair if necessary.

Basic cleaning should be performed at least annually (as outlined in Section below) as part of the annual inspection, or more frequently as required when used under harsh conditions.

10.1 Cleaning

Use a solution of warm water and a mild detergent to clean the System.

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

Do not use high pressure water cleaners as this may dislodge the warning labels and may also affect the braking system on the Stainless Steel winch.

10.2 Lubrication

Lubricate moving parts (rollers etc.) as required with graphite, or TFE based dry film lubricant. System should always be stored in the fully lowered position. Always inspect before using equipment that has been stored for any extended period of time. The stainless steel winch is pre-lubricated and should not require any additional lubrication.

Parts considered normal wear and tear for warranty purposes

Rollers, pulleys, cables, and system labels, are considered subject to normal wear and tear during use and are not covered under warranty except in cases of material or manufacturing defects.

11. SPECIFICATIONS

The base assembly is constructed of steel and is treated for superior corrosion resistance. The mast and arm assembly is principally constructed of plated steel and powder coated or anodized aluminium.

Hardware – Zinc plated steel, minimum grade 10.9

Winch – Stainless steel

Anchor and support cables – Galvanised steel

WEIGHTS:

Mast & Arm – 185kg

Base top - Filled with concrete – 1182kg

Base bottom - Filled with concrete – 1348kg

12. BTS AIRHOOK Lite INSPECTION LOG

System Model Number: _____

System Serial Number: _____

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

Purchase Date (dd/mm/yy): _____

INSPECTION ITEM	PASS	FAIL	DETAILS / LOCATION of DAMAGE	DISPOSITION (REPAIRED / SCRAPPED)	APPROVED FOR USE BY:
Physical Damage to Base, Supporting Tube					
Damaged Cable or fittings on Raising / Lowering Winch or Damaged hardware					
Damaged, loose, corroded or Missing Hardware or Connectors					
Missing or Illegible Labels					
Loose or damaged Anchor Points or Hardware					
Check “Fuse” cable in Anchor Cable Slider for breakage which would indicate unintended overloading of the system					

Date of Inspection:_____

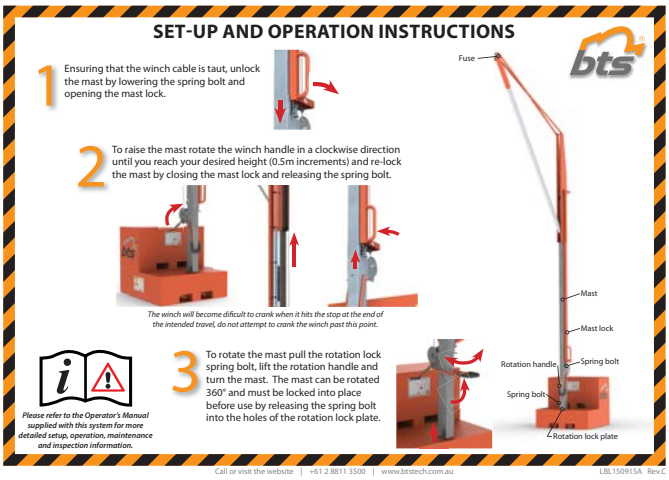
Inspected By:_____

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.

Please make photocopies of this sample to record all inspection results. The log must include details of any repairs, damage or change of parts.

Note: After each detailed inspection, the Inspection plate on the mast needs to be marked with the date of inspection and date of next inspection.

13. MARKINGS & LABELS



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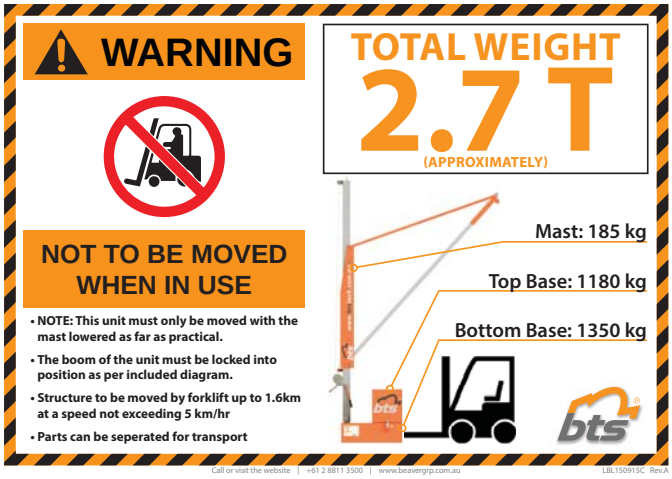


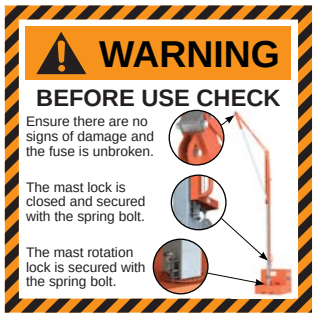
LBL-150915C Rev.B

btstech.com.au

LBL-BTSMINI2000

LBL-ELECT

LBL-PINCH POINT EU

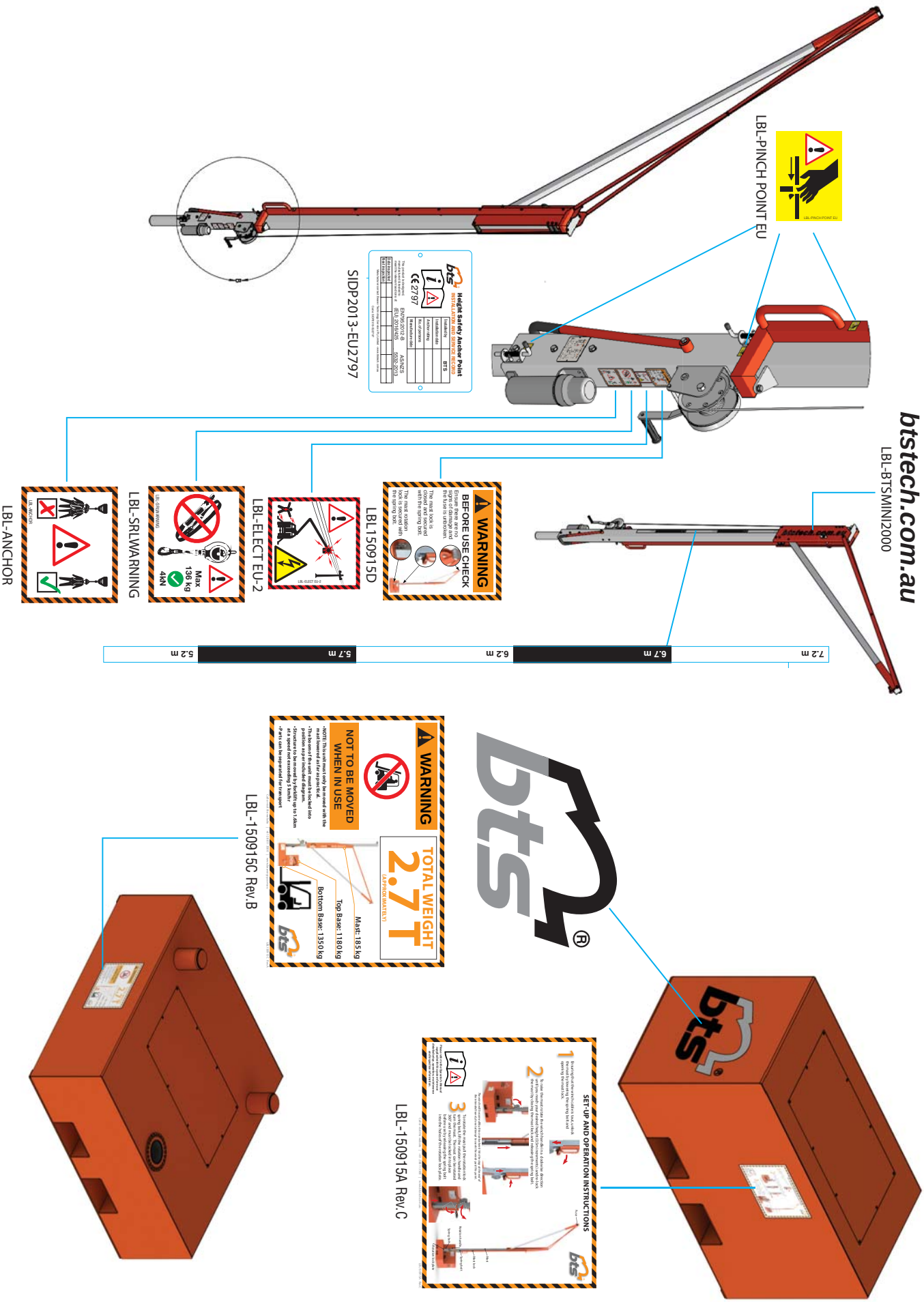


LBL150915D Before use Rev.B

LBL-ANCHOR

LBL-SRL WARNING

LBL-HEIGHT 7M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SIDP2013-EU2797
btstech.com.au
LBL-BTSMINI2000
LBL-ANCHOR
LBL-SRLWARNING
LBL-ELECT EU-2
LBL150915D
WARNING
BEFORE USE CHECK
5.2 m
5.7 m
6.2 m
6.7 m
7.2 m
LBL-150915C Rev.B
WARNING
NOT TO BE MOVED WHEN IN USE
TOTAL WEIGHT
2.7 T
Mast: 185 kg
Top Base: 1180 kg
Bottom Base: 1350 kg
LBL-150915A Rev.C
SET-UP AND OPERATION INSTRUCTIONS

14. EC DECLARATION OF CONFORMITY

BTS AIRHOOK Lite (70206) (70206EU Formally named Mini Restricted Space Cube.

EC DECLARATION OF CONFORMITY

Beaver Technology Services Pty Ltd
142-146 Magowar Road
Girraween NSW 2145
Australia

Declares that the new PPE,

70206EU AirHook *LITE* (Mini Restricted Space Cube)

is in conformity with the provisions of New PPE Regulation (EU) 2016/425 and, where
such is the case, with the national standard transposing harmonized standards

EN795:2012 Type B Anchor device

And is identical to the PPE which is the subject of ***EC certificate of conformity No CE 706768*** issued by **BSI 2797**

BSI Group
Say Building
John M. Keynesplein 9
1066 EP Amsterdam
Netherlands

and is subject to the procedure set out in Module D (Annex VIII)
New PPE Regulation (EU) 2016/425 under the supervision of the approved body
British Standards Institution

Done at ***Beaver Technology Services, 142-146 Magowar Road, Girraween 2145***

On ***7th November 2019***

NOTE:

1. **A record of this product must be maintained by the user organization or individual as per section 4.6 of EN365:2004.**
2. **If system is re-sold in another country, this Operation and Safety instruction manual must be translated to an official language of the destination country.**

BEAVER TECHNOLOGY SERVICES
PTY LIMITED

CAUTION

Read Instruction Manual before using.

NATA
WORLD RECOGNISED ACCREDITATION
No. 18940

ISO 9001 Quality Management
FS603922

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