

SETUP AND OPERATION MANUAL

AirHook MAX PRO Trailer Anchor System



BTS Safety Systems

AirHook MAX PRO Trailer

Portable Anchor System

Code: 70728



BEAVER TECHNOLOGY SERVICES
PTY LIMITED



Disclaimer

Beaver Technology Services policy is one of continuous improvement and we reserve the right to change specifications without prior notice. Illustrations are for guidance purposes only.

Beaver Technology Services is registered with RMS New South Wales as a manufacturer of trailers. AirHook Max Trailer Anchor systems meet the requirements set forth by ADR's and VSB1 regulations for road use and it complies with Road Vehicle Standards Act 2018 (RVSA). All Systems have a unique V.I.N. (Vehicle Identification Number), that identifies the manufactures name, year of manufacture, length, vehicle/trailer type, axle configuration.

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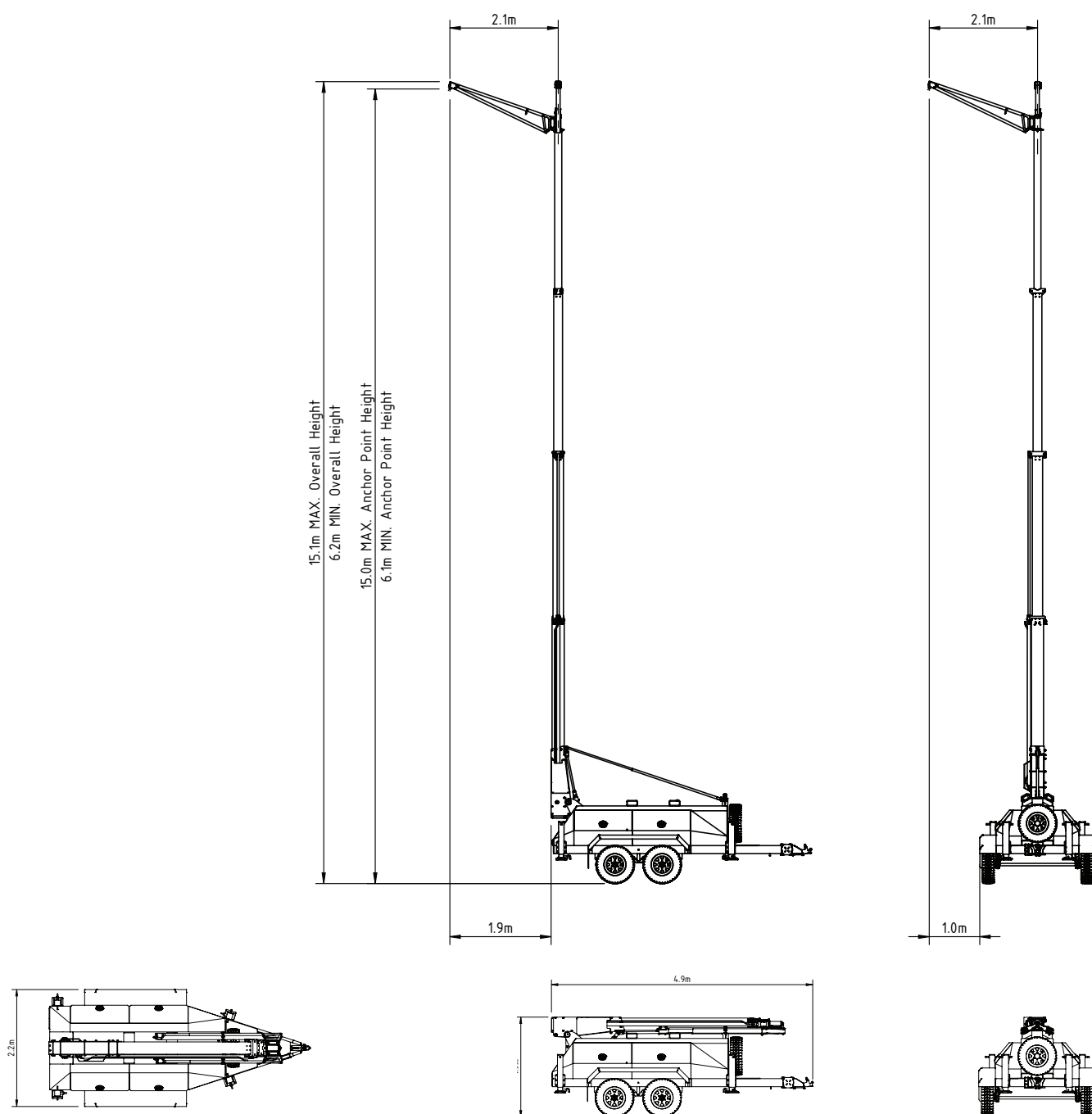
1. INTRODUCTION

Congratulations on your purchase of an AirHook MAX PRO Mobile Fall Arrest Trailer System as part of your safety-at-heights equipment. This system has been specifically designed, manufactured and rated to provide reliable operation in many different safety-at-height applications and is NOT intended to be used for material handling/lifting. Using the system for material handling/lifting may SERIOUSLY damage the system integrity and would VOID all warranties.

The system features steel chassis, combined with steel/aluminium upped body and mast constructed of high quality lightweight aluminium extrusions. The centre of gravity is as low as possible for improved stability during towing, set-up and operation.

1.1 FALL PROTECTION

There are 2 rotating davit arms each equipped with a rated anchor point designed for a worker weighing a total of 136kgs.



2.0 PARTS IDENTIFICATION



The system comes standard with a 50mm Ball Hitch Adapter (Code: 136014) with automatic locking feature. A 75mm Pintle (ring style) Hitch (Code:136015) is available and can be supplied.

3. SPECIFICATIONS

AirHook MAX PRO Trailer has been designed under ADR's and VSB1 regulations for road use and it complies with Road Vehicle Standards Act 2018 (RVSA).

Trailer type is a plant pig trailer, with 1 axle group consisting of two axles and leaf spring suspension.

Trailer category is TB – with GTM 2,550kg.

The trailer has Electric over hydraulic disc brake system installed on all wheels. A breakaway electric brake system and additional 2 chains to connect trailer to the towing vehicle. Electrical connection point to the vehicle is via a 7-pin fl at connector & Anderson Plug. Vehicle must have suitable 12V power outlet and fitted brake controller.

AirHook MAX PRO Trailer is constructed using mild steel and hollow structural steel with combination of powder coated and painted finish. The mast structure is constructed of high grade 6061-T6 aluminium and stainless steel.

Fall arrest mast and anchor points system has been designed to comply with Australian/ New Zealand Standard AS/NZS 5532:2013, European Standards EN 795:2012, Class B/ CEN/TS 16415: 2013, Class B and USA Standards ANSI Z359.18 - 2017, and applicable Work and Height Safety Standards and Regulations, European PPE Regulation (EU) 2016/425, and OSHA compliant.

This product is designed to provide four single anchor points for the attachment of Personal Fall Arrest System (PFAS) for one user (on each anchor point), working on an elevated work surface.

The AirHook MAX PRO Trailer is a Category III (complex design) and requires to be in compliance to PPE Regulation (EU) 2016/425. The harmonised standard used will be CEN/TS 16415:2013 Personal fall protection equipment – Anchor devices – Recommendations for anchor devices for use by more than one person simultaneously, in conjunction with EN795:2012. According to these standards, the AirHook MAX Trailer is a Type B anchor device.

3.1 WHEELS/AXLES

The axles are rated for 2,000kg each.

Standard Wheels are all season 205/85 R16/7, 6 x 5.5 bolt pattern.

Standard Tyres are rated to 1000kg (2205LBS) at 450KPa (65Psi) Cold

Inflate Tyres to 42psi (290 Kpa) for standard road use or adjust according to suit environment condition and road/track surface

Optional wheels are Bridgestone Dueler A/T 697 205 R16LT 112S on 16 x 7" 5 or 6 stud rims.

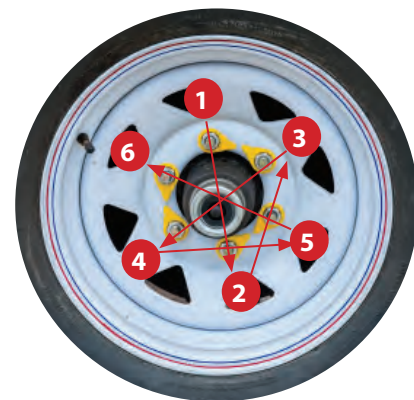
Tyres and Wheel Bearings

Tyres; Tyres have to be checked frequently with a trailer because a flat can go unnoticed on multiple axle trailers while it is being towed. Running with a flat can cause it to catch fire. With multiple axles or tandem wheels, it is hard sometimes to see a flat tyre as the other tyres are supporting the weight of the trailer and the flat spot is less noticeable. A quick check can be made by "thumping" each tyre with a tyre iron or rod to make sure they all sound the same. Each time you fuel up, walk around the trailer and give a quick check by feeling each tyre with your hand. A tyre that is getting low will be hotter than the rest. There is no substitute, however, for actually measuring tyre pressures to make sure they are all within safe limits. This should be done before each trip.

NOTE: The most common causes of tyre failure are overloading and under inflation. Both results in excess flexing of the sidewall which causes heat buildup, excessive uneven wear, and eventual failure. Continuing to run with a flat can cause it to catch fire.

Wheels and wheel Nuts; Trailers have higher wheel loading than passenger cars or trucks. Tandem axles do not steer, and wheels are subjected to high twisting side loads in tight, slow turns. This causes the wheel to flex which tends to loosen wheel nuts over time. Always check wheel nut torque before each trip.

Wheel nut torque is usually much higher than that specified for passenger car wheels. Torque specifications are in the 90-120 ft.-lb. range. On a new trailer, check



6 nut wheel Figure 24
Torquing order for wheel nut pattern.

the torque on all wheels after the first 40 - 80 kilometres of towing. Also recheck any wheel that has been removed and replaced after towing 40 - 80 kilometres. Do not drive a loaded trailer with a missing wheel nut or damaged stud.

Wheel nuts are usually torqued in a "star" pattern. (Figure 24) shows the suggested pattern order for tightening nut, tighten the wheel nuts in order shown.

Wheel Bearing; Axle wheel bearings also occasionally need attention. Feel with your hand at the hub to check for one that may be running hotter than the rest (Be careful. If the bearing is adjusted too tight or is running without grease it can get VERY hot!). A hot bearing needs immediate attention. Most often either more grease or proper adjustment will ease the problem, but replacement may be necessary.

3.2 SHIPPING WEIGHT

Code: 70728 AirHook Max Pro Trailer. 2,460kg (4.9m x 2.2m x 1.9m)

4. SAFE TOWING

Use the following checklist when preparing the system for transport;

- Check for proper ball and coupler sizing.
- Coupler is locked and secured with safety clip.
- Inspect safety chains.
- Inspect brake wiring and harness, clean if necessary.
- Inspect and/or clean lighting plug and receptacle.
- Inspect all hitch components for cracking or broken welds.
- Test breakaway system.
- Check tyre pressures, inspect each tyre for wear.
- Check wheel nuts are tight.
- Check exterior lighting, brake lights and turn signals.
- Lubricate coupler and latch.
- Equipment is secured.

4.1 TRAILER BALL AND SAFETY CHAINS

The ball should be located so the trailer sits level when connected to the tow vehicle. The vehicle should be able to accept this weight without a major change of height. The ball should be lightly greased so the hitch rotates smoothly on it. (Figure 25) shows a proper trailer ball and safety chain arrangement. Safety chains should be long enough for tight turns and be crossed (right to left and left to Breakaway cable right). This will help create a "saddle" if you have a tongue failure and will help maintain control while stopping. Don't allow these chains to drag on the road, they can be ground to an unsafe condition in a very short period of time.

Always inspect the tow ball and tongue when hooking up. Check lights and brakes each time the trailer is hooked up. Try to do things in the same order each time and use a checklist. Don't ever hook a trailer up half way or you may forget to finish the job. Don't start if you can't finish and don't ever leave the receptor pin out.

4.2 TRANSPORT/MOVING

THE SYSTEM CAN BE MOVED AROUND A WORK SITE UNDER THE FOLLOWING CONDITIONS;

1. The Anchor point arm must be lowered to the lowest position.
2. The Jacks are lifted a suitable distance off the ground to avoid hazards.
3. Speed does not exceed 5Km/h.

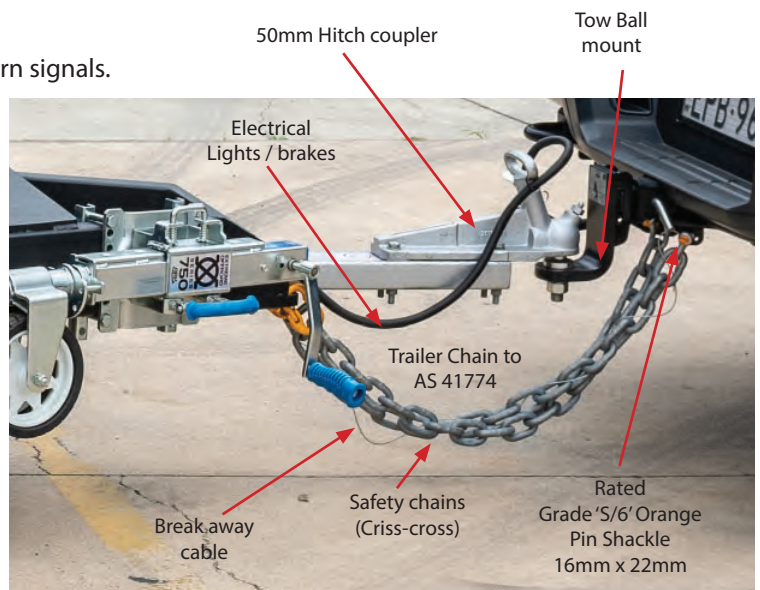


Figure 25 Typical ball coupler hitch attachment

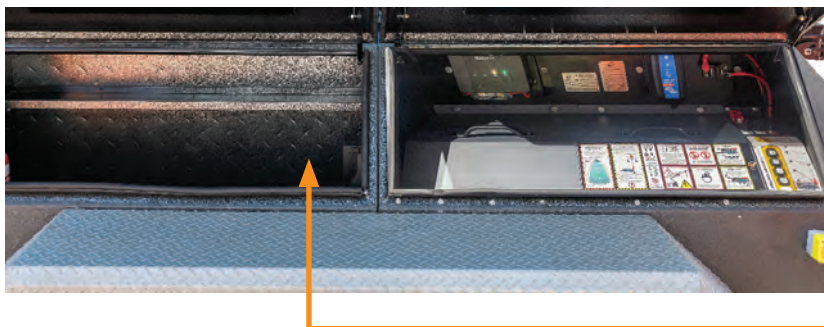


Be aware of any overhead power lines or other hazards, as the aluminium structure is highly conductive of electricity. Failure to follow these procedures could result in serious injury or death!

When the system is to be towed at Highway speeds, maximum permissible speed is 110 km/h or at posted speed limits and/or State and Territory towing speed regulations.

The following **MUST BE FOLLOWED**;

1. The Mast must be in lowered into its Horizontal position (transport position).
2. The Anchor Arms must be retracted and stored properly.
3. The SRL's must be removed and stored properly.
4. The storage compartment doors locked.
5. The Hydraulic control box closed and locked.
6. All four (4) Jacks are raised into the transport position.
7. The system must be connected properly to the towing vehicle.
 - Hitch Adapter
 - Electrical connectors
 - Safety Chains
 - Break away System attached



4.3 BREAKAWAY SYSTEM

The trailer is equipped with a breakaway system; this system applies the trailer brakes for 15 minutes in the event the trailer unexpectedly disconnects from the towing vehicle.

The control/battery is located inside the storage box, see (Figure 9).

The breakaway system is a self contained system and is not connected to the 12v hydraulic system. This system contains a 12v battery that requires testing before each **TOW**. An activation cable is located at the hitch point and is required to be attached to the towing vehicle. If the activation cable is not attached, then the breakaway system will not activate if the trailer disconnects from the tow vehicle.



Figure 9
Break Away system

4.4 ELECTRIC / HYDRAULIC BRAKE SYSTEM

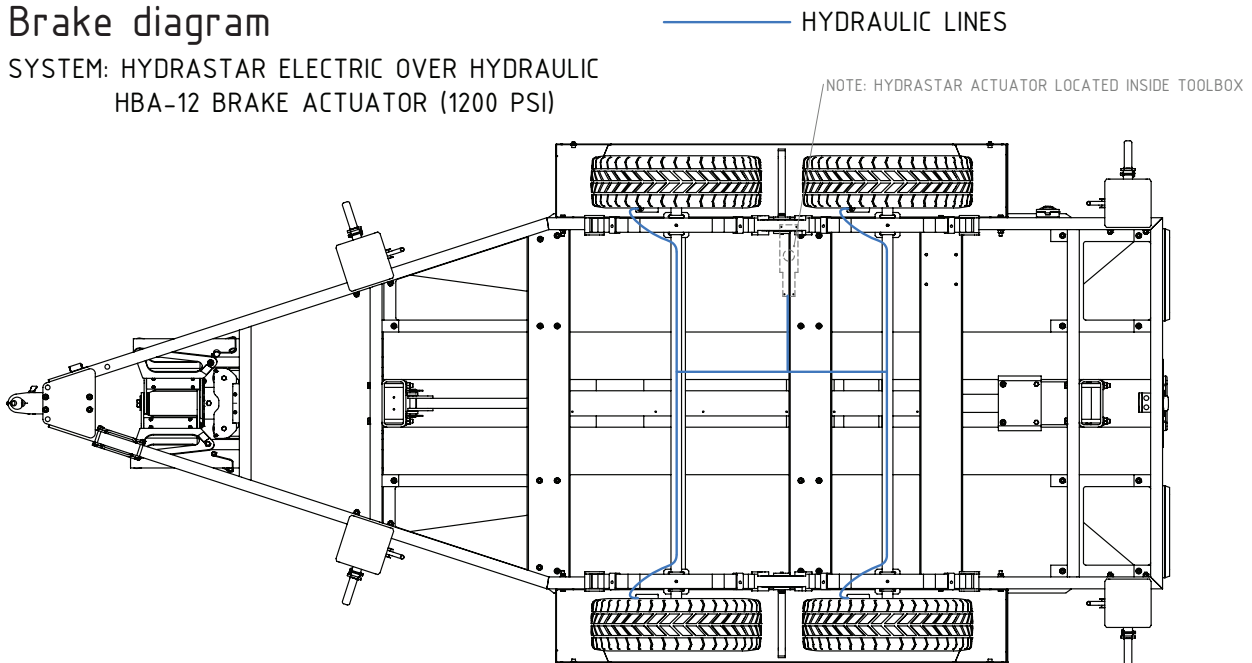
AirHook Max Pro Trailer is fitted with electric over hydraulic brake actuator.

It has fast response time for a shorter stopping distance, it engages trailer brakes when used with an in-cab electric brake controller installed in the tow vehicle. System eliminates brake drag common with mechanical override brakes on downhill grades. In Australia, Trailers and Caravans with a GVM over 2 tonne are required to have all wheels braked and be fitted with a breakaway system.

4.5 HYDRAULIC BRAKES SCHEMATIC

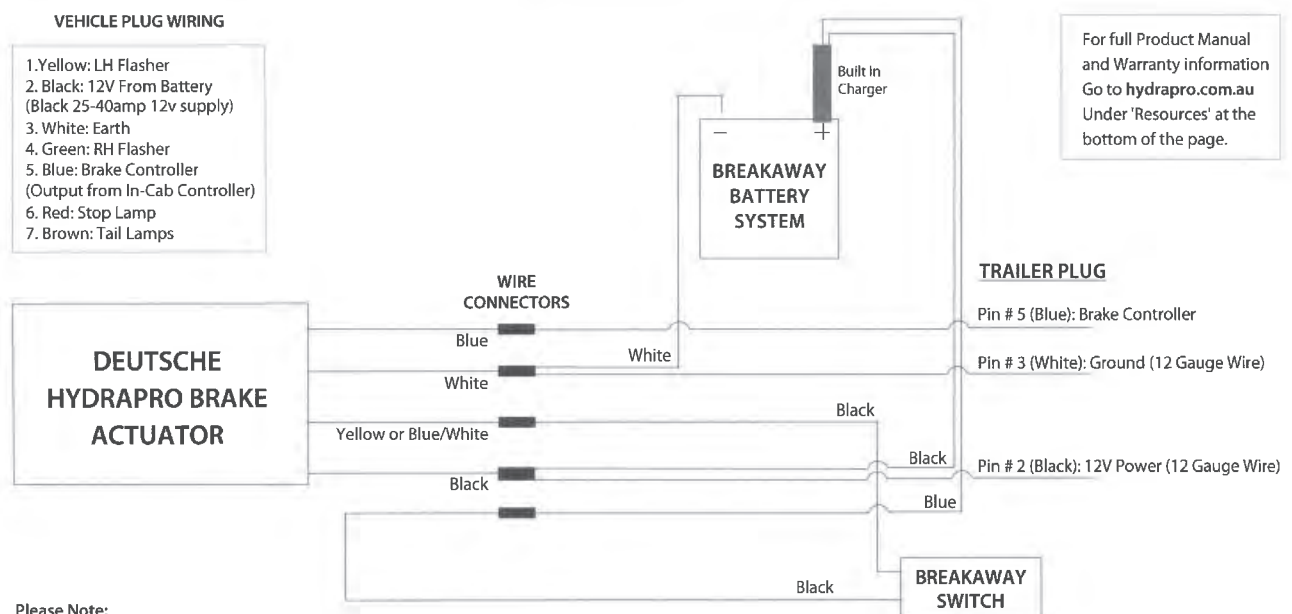
Brake diagram

SYSTEM: HYDRASTAR ELECTRIC OVER HYDRAULIC
HBA-12 BRAKE ACTUATOR (1200 PSI)



4.6 ELECTRICAL / BRAKES SCHEMATIC

WIRING DIAGRAM



Please Note:

1. Vehicle wiring for Black, White, and Blue must be wired as stated for the unit to operate correctly.
2. In cold temperatures the unit requires up to 40amps.
3. This wiring diagram is common to most breakaway systems but please check with the manufacture's specifications.

5. APPLICATION RESTRICTIONS

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

5.1 WORKING LOAD LIMIT

This system is designed and rated to provide fall protection for up to Four (4) workers (one per anchor point) each weighing a maximum of 136kgs including all clothing, tools, and equipment. Self-Retracting Lifelines selected for use with this system must have a Maximum Arrest Force (MAF) rating 4kN or less. This system is not intended for use with shock absorbing lanyards or other energy absorbing devices other than SRL's. Please refer to the appropriate manufacturer's instructions and specifications for all system accessories to ensure compatibility of components.

5.2 FALL CLEARANCE

This system is designed to be used for working surfaces 1.8 metres in height or higher. Ensure that adequate clearance exists in the potential fall path to avoid striking a lower level or other objects. The potential swing fall must be minimized. Refer to the instructions provided with the SRL (Self Retracting Lifeline) for guidelines on calculating required fall clearance.

5.3 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, hot surfaces, electrical hazards including overhead power lines, sharp edges, engulfment hazards, or moving machinery.

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

6. GENERAL SYSTEM REQUIREMENTS

6.1 ANCHORAGE REQUIREMENTS

The system is designed to be set up and used on a supporting surface (anchorage) capable of safely supporting the weight of the system plus all static and dynamic loads that may be applied to the system during use.

Typical anchorages for this type of a system would be a relatively smooth and level surface such as a workshop, car parks, hard stand or compacted surfaces.

Surfaces other than level concrete (for example asphalt, gravel, hard packed soil) with the potential to sink over time under the weight of the trailer must be assessed and approved by a Competent Person.

All installations MUST BE approved by a Competent Person as defined by AS/NZS1891.4 and used under the supervision of a Competent Person.

6.2 COMPATIBILITY OF CONNECTORS

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 will meet all applicable requirements for connectors. Any connectors not supplied by BTS MUST BE selected and approved by a Qualified Person.

6.3 FULL BODY HARNESS

Use only a full body harness designed, tested, and approved for fall arrest when connecting a person to this system. Body belts or straps do not provide adequate support to the body to prevent serious injury or death in the event of a fall and MUST NOT be used (see AS/NZS1891.4 for guidance).

6.4 FALL PROTECTION

Activities involving working at heights require the use of equipment 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, and installed under the supervision of a Competent Person as defined by AS/NZS1891.4 and must be used by a Competent person or under the supervision of a Competent Person.

6.4.1 SWING ANGLE

Care must be taken at all times to minimize the potential for swing fall when working at heights. Figure 3 below shows the allowed Safe Working Zone when using this 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 shown in (Figure 3) require restriction of movement within this area, a Competent Person must identify these limitations and explain them to all users.

6.4.2 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 described in (Figure 3).

6.5 CONFINED SPACE SAFETY

This standard equipped systems is not suitable for use in confined space.

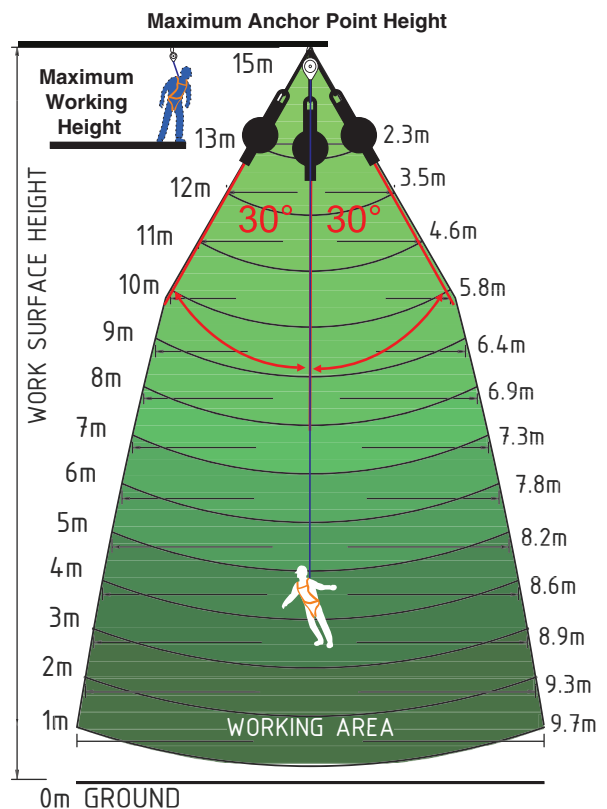


Figure 3 Typical Safe Working Zone for Fall Protection.

7. SYSTEM SET-UP and OPERATION

7.1 INTRODUCTION

This equipment is designed for use in conjunction with various accessories to meet different work site requirements. These include self-retracting lifelines (SRL's) and full-body harnesses.

This system is not intended for use with shock absorbing lanyards or other energy absorbing devices.

All accessories and their installation must be approved by a Competent Person as defined by AS/NZS1891.4 for use with the system.

7.2 SET-UP

The system is shipped pre filled with hydraulic fluid. Before use ensure the battery is fully charged. The initial set up must be done under the supervision of a Competent Person. This equipment MUST BE used by a competent person or under the supervision of a Competent Person.

7.3 SYSTEM TRANSPORT AND POSITIONING



Be aware of any overhead power lines or other hazards, as the aluminium structure is highly conductive of electricity. Failure to follow these procedures could result in serious injury or death!

The AirHook Max Pro Trailer is permitted to be towed at a maximum speed of 110km/hr or at posted speed limits based on safe driving conditions.

Under No Circumstances shall personnel ride on the system; on top of the trailer, on top of the mud guards, or on top of the control box. See Risk Assessment for other warnings.

7.4 BATTERY

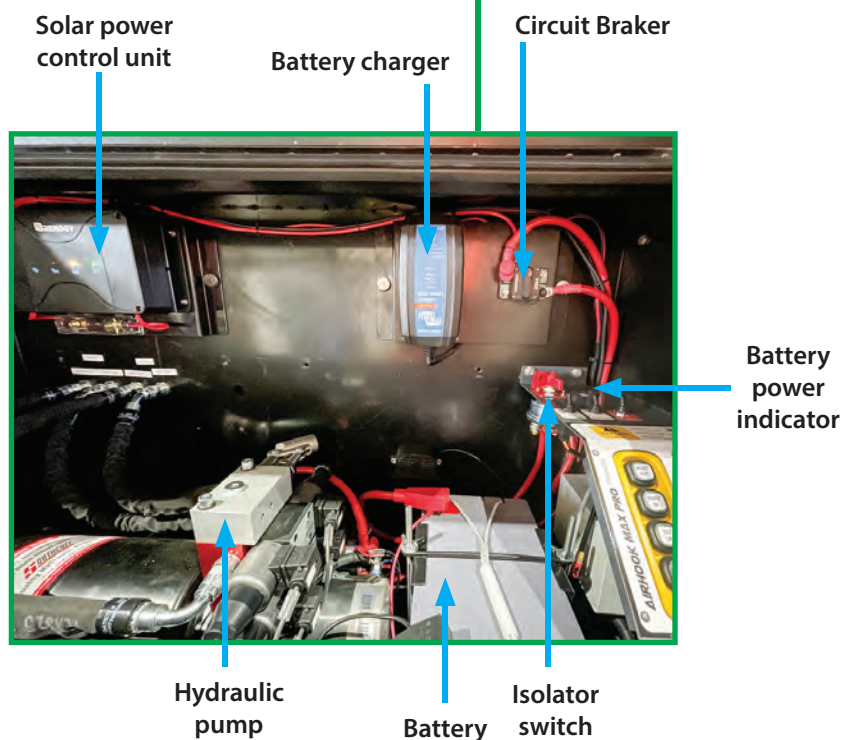
The system comes standard with a 12v (575 cca or higher deep cycle) battery, and a dual cycle battery charger, located in the hydraulic control box. A 240v power supply is required to charge the battery. A fully charged battery will provide approximately twenty (20) cycles depending on conditions. **Warning:** The pump system is not designed to be running continuously up and down. Do not run more than 3 full cycles continuously as the pump may overheat.



Figure 8a
Battery Charger socket
240v

The battery is installed inside a battery box equipped with a condition indicator.

To check the battery press the push button and the battery level is displayed.



7.5 SYSTEM OPERATION

Once the system has been initially set up and is approved ready for use, the operation of the system is as outlined below.

Read all Warning Labels carefully and understand the information contained in them. The following instructions detail the setup and operation to Raise or Lower the VERTICAL height of the Anchor points.

STEP 1:

Read all Warning Labels carefully and understand the information contained in them.



Inside hydraulics & control panel compartment

Pay attention to pinch point & fork lift pocket labels attached to various parts of the unit.

STEP 2:

Position the system in relation to the work structure.



The unit can also be moved using a suitably rated fork lift. Position the fork lift only where marked (FORK LIFT POCKET)

STEP 3:

How to lower and adjust the height of all 4 jacks, to level the unit.

Locate the locking pin at the base of the jack



rotate the locking pin 90° counter clock wise



place foot on jack base plate and push to the ground



With foot placed firmly on the base plate, rotate locking pin 90° clockwise. Slowly lift foot as the base locks into position.



Locate jack handle, rotate counter clockwise to extend jacks and clockwise to retract, until the unit is level and supported by the jacks.



7.6 INSTALLATION OF ANCHOR ARMS IN THE 360° FREE ROTATION POSITION;

The following instructions are based on the Mast being in the transport (horizontal) position.

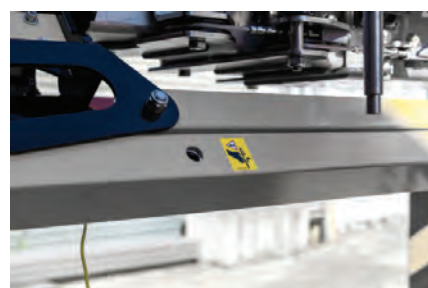
STEP 1:

Attach supplied tag line to the rotation lock on the mast head



STEP 2:

Remove the jib arm extension pin, set aside for future use



STEP 3:

Unlock the transport jib arm holder clamp.



STEP 4:

Lift and remove the jib arm from the transport cradle. While lifting the jib arm to a horizontal level, lock the rotation lock to support the jib arm by pulling on the attached tag line. Once locked, extend the jib arm until perpendicular to the mast.



STEP 5:

Extend the mast until the extension pin holes line up. Replace the extension pin and retaining clip.



STEP 6:

Locate the supplied SRL & Tag line. Using the supplied karabiner, attach the SRL to the anchor point on the end of the jib arm. Now attach the tag line to the SRL hook. The setup of the Jib arm is complete.

Repeat steps with the second jib arm.



Note:

If the AirHook MAX PRO is to be used with only one worker attached, the second SRL & tag line do not have to be installed, but the second jib arm must be setup as per the 1st.



Additional Anchor point on mast

SELF-RETRACTING LIFELINES

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 15) right

Use of a tagline on the SRL cables is required to allow access to the lifeline from the ground.

Note: Attach Taglines to SRL before raising the mast.

For accessories not supplied by BTS, the Competent Person responsible for the selection, set up and use of the system, must provide to all users the applicable manufacturer's instructions related to those accessory installation and operation.

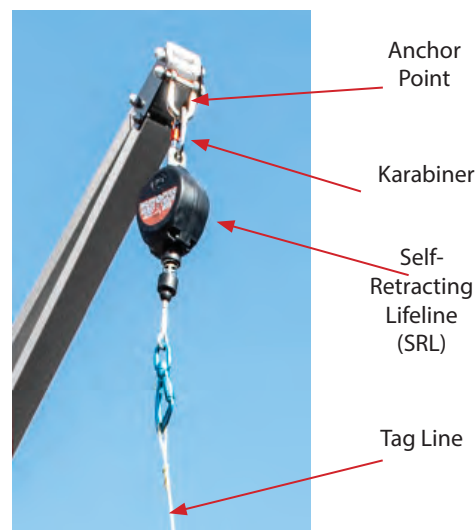


Figure 15

Typical Installation of SRL

7.7 RAISING, LOWERING AND HEIGHT ADJUSTMENT INSTRUCTIONS;

THE FOLLOWING INSTRUCTIONS DETAIL THE OPERATION OF THE 12V HYDRAULIC SYSTEMS IN RAISING THE MAST FROM HORIZONTAL TO VERTICAL AND POSITIONING THE ANCHOR POINT HEIGHT.

READ ALL WARNING LABELS CAREFULLY AND UNDERSTAND THE INFORMATION CONTAINED IN THEM.

Figure 12
Raising Mast

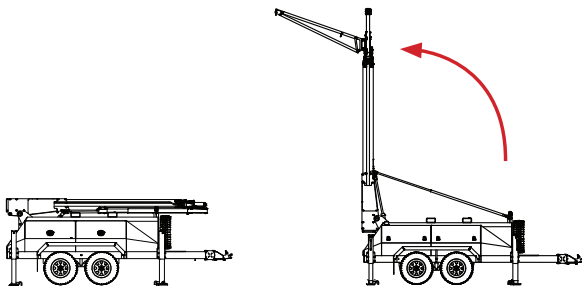
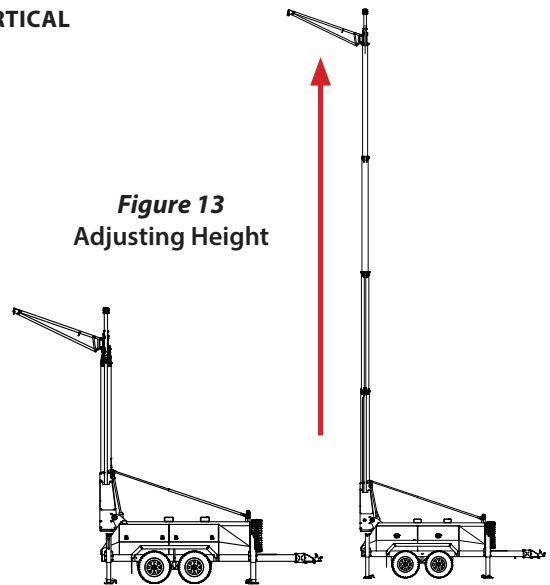


Figure 13
Adjusting Height



Before operating the unit ensure that the Isolation Switch & Emergency Stop are in the "ON" Position



OFF



ON



Pull to ON

To operate the mast, use the pendant and follow the instructions located in the Hydraulic & Control panel compartment

To Raise the height of the anchor point

- Press and hold button, Marked "HOIST OUT"

To Lower the anchor point height

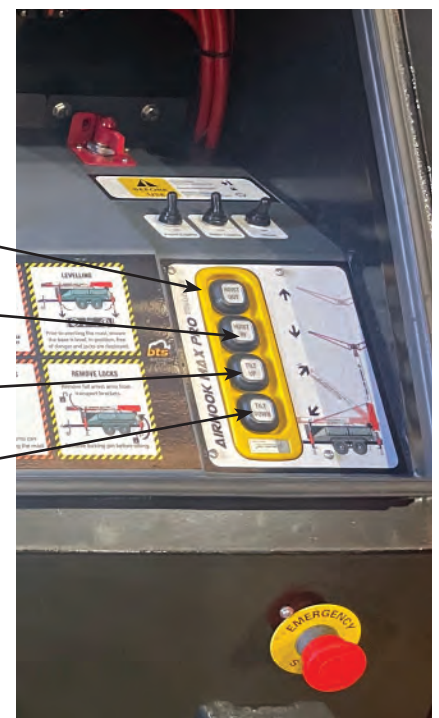
- Press and hold button, Marked "HOIST IN "

To Raise the mast to a vertical position

- Press and hold button, Marked "TILT UP"

To Lower the mast from Vertical to Horizontal

- Press and hold button, Marked "TILT DOWN"



7.8 RAISING THE MAST FROM TRANSPORT (HORIZONTAL) TO VERTICAL.

WARNING: BEFORE ATTEMPTING TO RAISE THE MAST THE SYSTEM MUST BE SECURED. SECURING THE SYSTEM IS ACCOMPLISHED BY ONE OF THE FOLLOWING SET UPS;

1. If the system is to be left **ATTACHED** to the tow vehicle ensure it is securely connected and a lock out placed on the vehicle so that it cannot be moved and only the two (2) rear jacks need to be lowered to the ground.
2. If the system is to be **DETACHED** from the tow vehicle, all four (4) jacks **MUST** be lowered to the ground and the system levelled (see page 13, Step 3).

Failure to follow these instructions can result in property damage, serious injury and/or Death.

CAUTION must be taken when raising the Mast. In an instance where the 360° FREE rotation lock is in open position (Anchor Arms pointing DOWN towards the ground) the Anchor Arms **WILL** move as the Mast is being raised. The operator **MUST** ensure both anchor arms have the rotational lock engaged to locked position which will prevent damage to the system. The rotational lock can be freed after the mast is in vertical position. The Operator **MUST** be **ALERT** and **AWARE** of overhead objects (i.e.; Anchor Arms and SRL blocks) during operation.

Ensure a Safety Zone of 2 metres around system during operation. Only the operator is allowed within this safe zone during operation. The operator is required to wear an approved HARDHAT and approved SAFETY GLASSES during operation.

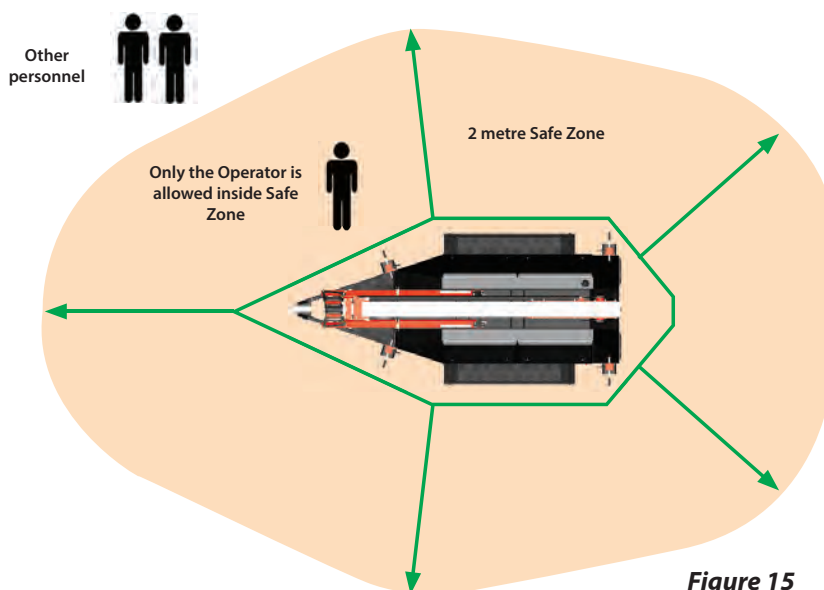
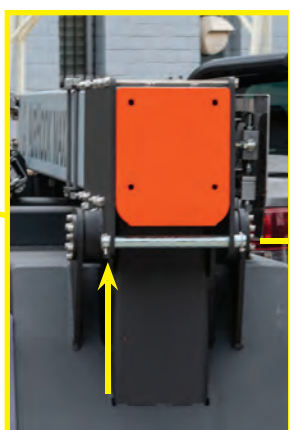
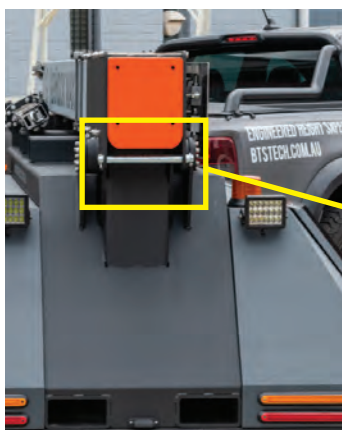


Figure 15
Ensure a 2 metre safe zone around system.

STEP 1:

Ensure mast locking pin is not already installed, if so remove it.

Pin should be kept in canister in toolbox.



Release clip and remove mast locking pin.

CAUTION must be taken around the bottom of the mast during raising and lowering as the Mast Base is pivoting down.

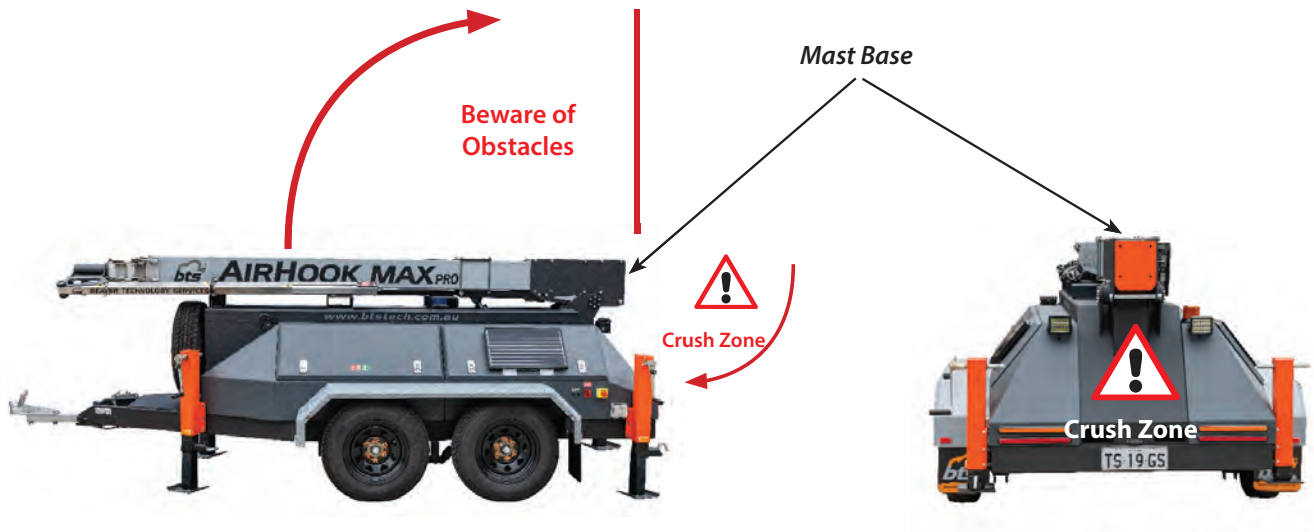


Figure 17
Caution must be taken around Mast Base as the mast is being raised

The mast locking pin bracket acts as both a guide and a horizontal stabiliser for the mast.

If the Mast Guide locking plates located on the mast do not line up with the bracket system (located on the unit frame) as shown in (figure 17d) (1, 2 & 3), the unit must be taken out of service, inspected and/or repaired by a competent person.

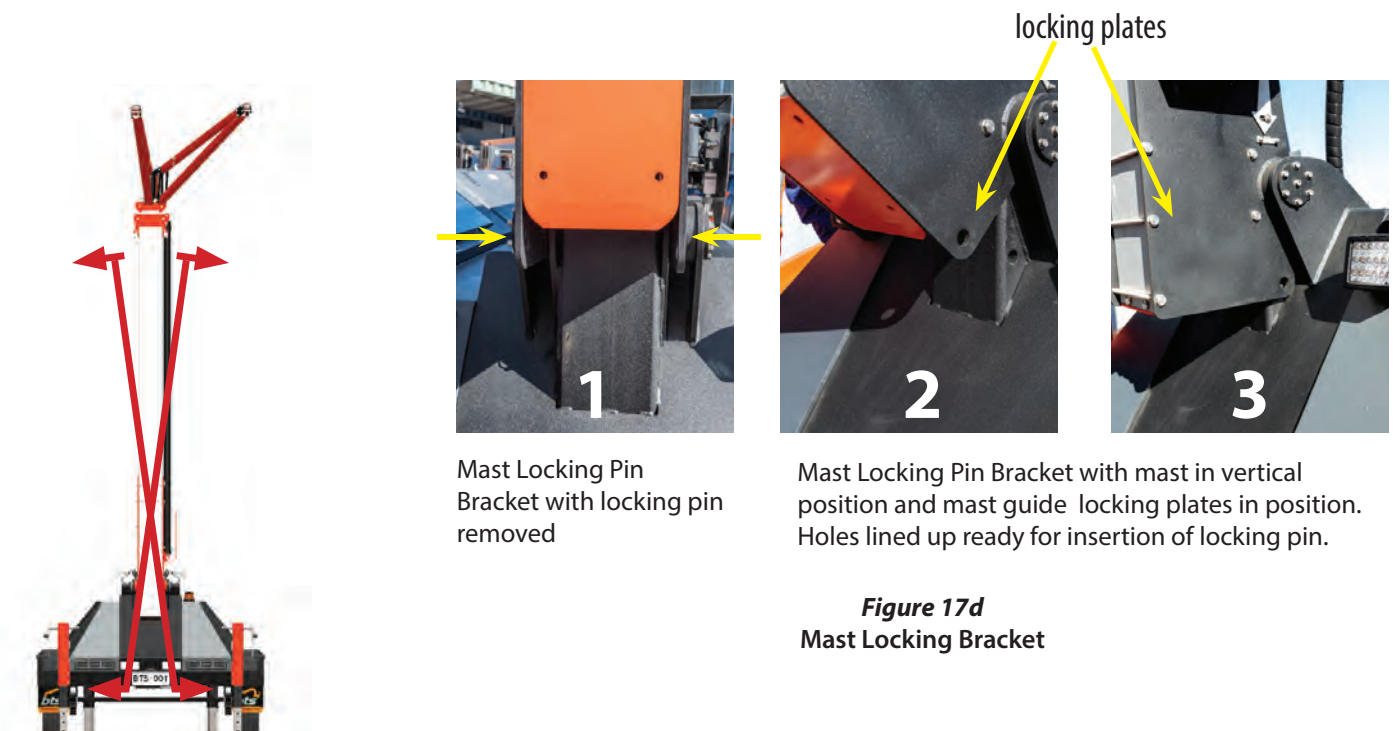


Figure 17d
Mast Locking Bracket

To Raise the Mast from Transport (horizontal) to vertical, follow the instruction in this manual or in the control panel compartment.



STEP 2:

CHECK AGAIN, that the mast locking pin is removed, Pull Emergency Stop button to the on / out position, switch battery isolator to on position.



Isolation switch in
OFF position



Turn Isolation switch to
ON position



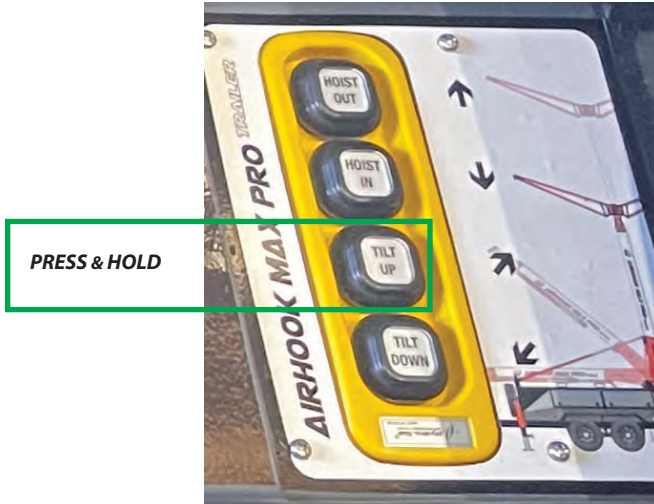
Pull to ON



Whilst the Emergency Stop is in the on position the Warning Beacon will flash. When operating the hydraulics, a warning buzzer will sound.

STEP 3:

To Raise the mast to a vertical position Press and hold button, Marked "Tilt Up". Press until the holes on the locking bracket & locking plates line up Re: fig.17e



CAUTION:

With Arms and SRLs attached, caution must be taken when raising to prevent contact with surrounding equipment.

Ensure Anchor Arms are in Rotational Lock position.

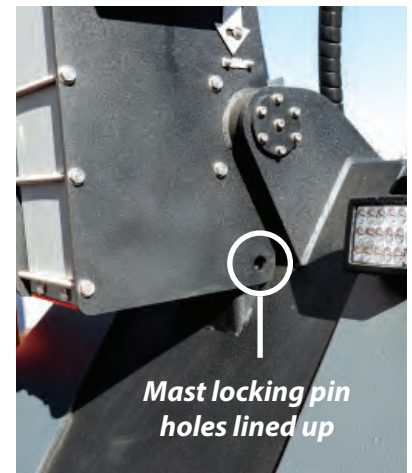
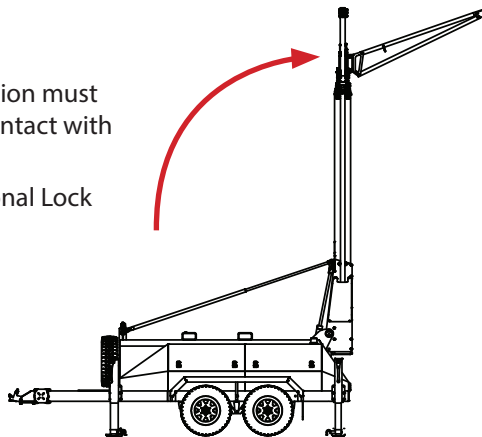
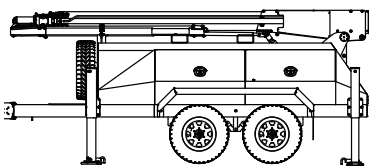


Figure 17e
Mast Locking Pin hole

STEP 4:

Now that the mast is in the vertical position, Insert the locking pin into the hole (mast guide locking plates & mast locking pin bracket) and replace the retaining clip.





Be aware of any overhead power lines or other hazards, as the aluminium structure is highly conductive of electricity. Failure to follow these procedures could result in serious injury or death!

STEP 5:

With the mast now locked in the vertical position, it is now time to ensure the mast is level.

Using the level indicator on the mast (Fig. 17f) adjust the jacks on the unit until the arrow is in the centre as shown in (fig.17g)

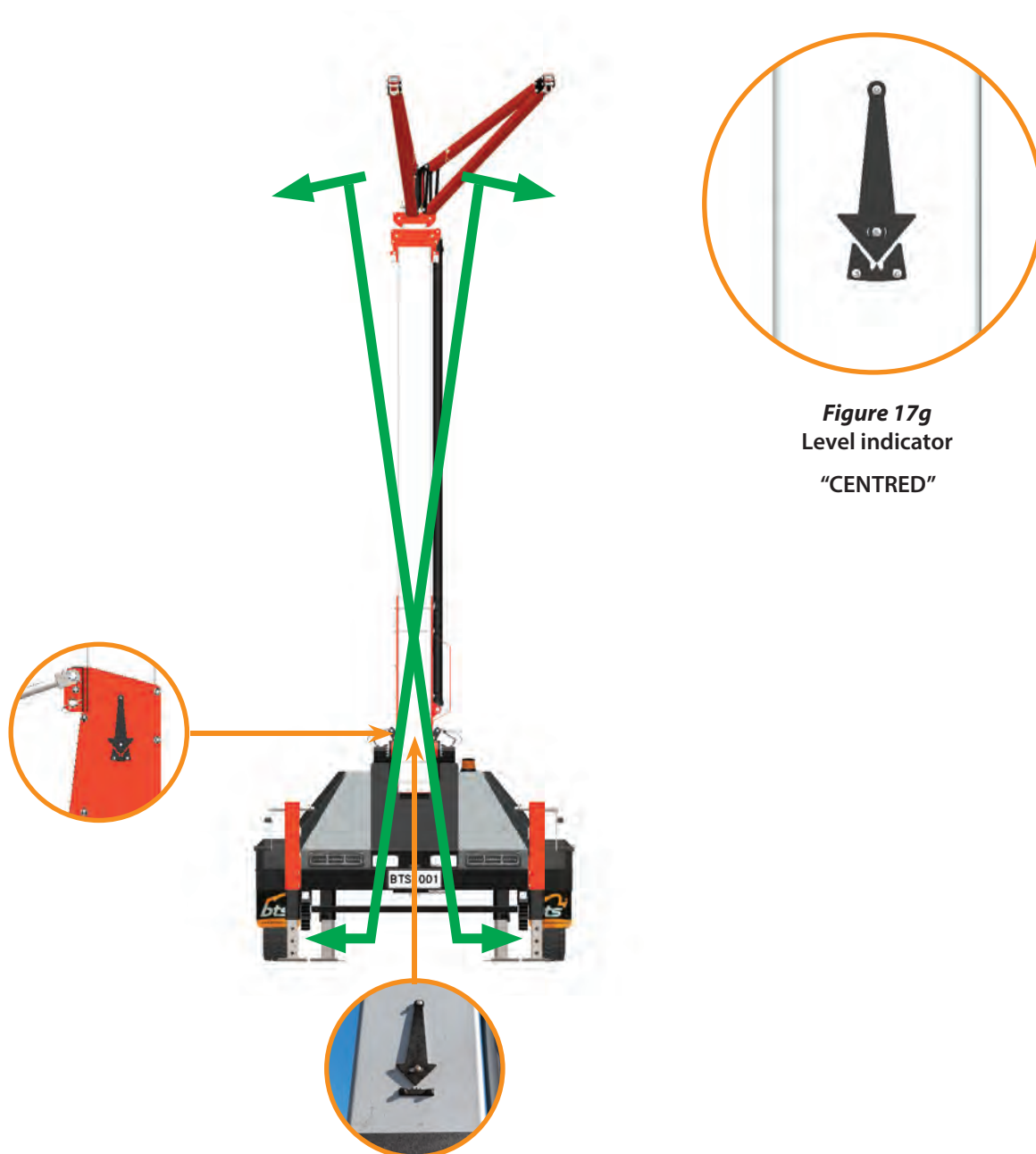


Figure 17g
Level indicator
"CENTRED"

Figure 17f
Level indicator

7.9 RAISING THE MAST (ANCHOR POINT) HEIGHT.

Failure to follow these instructions can result in property damage, serious injury and/or Death.



Be aware of any overhead power lines or other hazards, as the aluminium structure is highly conductive of electricity. Failure to follow these procedures could result in serious injury or death!

Ensure a Safety Zone of 2 metres around system during operation. Only the operator is allowed within this safe zone during operation. The operator is required to wear an approved HARD HAT and approved SAFETY GLASSES during operation.

To Raise the Mast (ANCHOR POINT) height, follow the instruction in this manual or in the control panel compartment.



STEP 1:

CHECK AGAIN, that the mast locking pin is installed, Pull Emergency Stop button to the on / out position, switch battery isolator to on position.



Isolation switch in
OFF position



Turn Isolation switch to
ON position



Pull to **ON**



Whilst the Emergency Stop is in the on position the Warning Beacon will flash. When operating the hydraulics, a warning buzzer will sound.

STEP 2:

To Raise the mast (ANCHOR) height, Press and hold button, Marked "HOIST OUT". Press until the Mast (ANCHOR) is at the desired height Re. (fig. 17h)

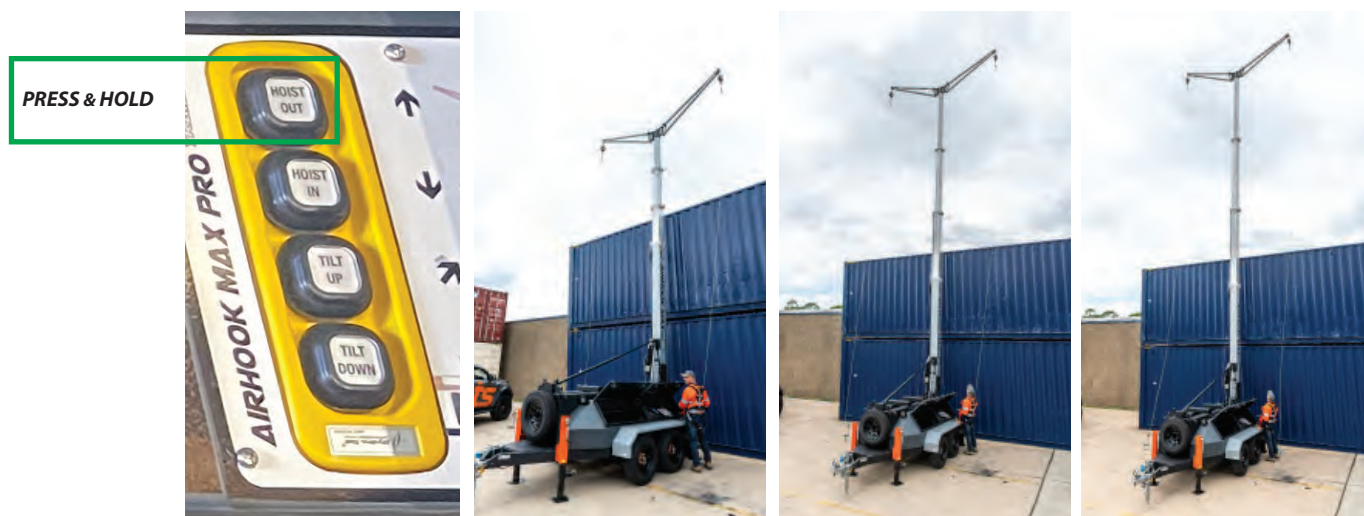


Figure 17h
Extend button

CAUTION:

With Arms and SRLs attached, caution must be taken when raising to prevent contact with surrounding equipment.

STEP 3:

Adjust the anchor arm position over the working area as shown (Re: 5.5-2 Anchor Arm Rotation Setup Instruction page 11)

STEP 4:

Use the tag line to pull the SRL snap hook down to connect into each workers harness D-Ring.

STEP 5:

Following all applicable work at heights regulations, safely access the elevated work surface and proceed with the work at hand following all approved established procedures.

DO NOT go outside the Safe Working Zone as shown on Page 10



At no time shall any worker climb to any point such that their harness D-ring is higher than the system anchor point.

No person shall use this equipment without receiving proper training as outlined in this manual. All users must fully read and understand this manual and any other instruction manual(s) related to the system being used.

7.10 ANCHOR ARM ROTATION SETUP INSTRUCTION;

The Anchor Arms are able to rotate 360° each

The Mast Head Assembly has multiple rotation position setups, the position can be adjusted by using the "Rotation Lock".

OUTDOOR USE: for outdoor use it is **HIGHLY RECOMMENDED** that the Mast Head Assembly be set up for the 30° FIXED rotation position.

This is recommended to prevent the Anchor Arms from turning in high winds and coming into contact with overhead equipment and twisting the SRL taglines.

INDOOR USE: for indoor use it is recommended that the Mast Head Assembly be set up for the 360°FREE rotation position.

Please refer to page 14 for instructions on installation of the Anchor Arms.

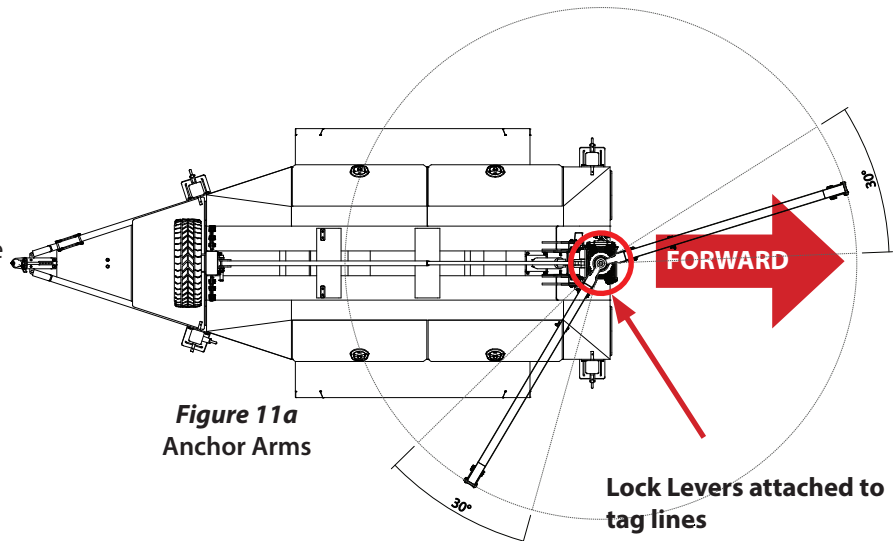
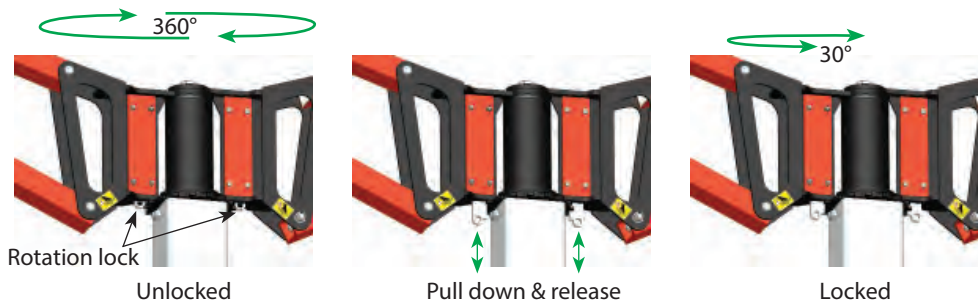


Figure 11a
Anchor Arms

To lock jib in to position

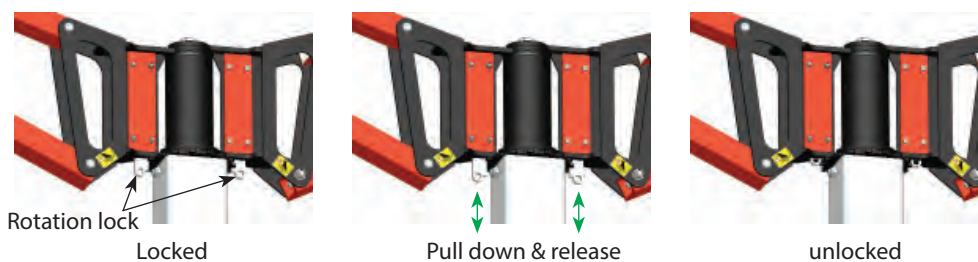
Pull down on the tag line attached to the rotation lock, move the jib to the desired position using the tag line attached to the SRL, then release the rotation lock and it will stay in the locked position



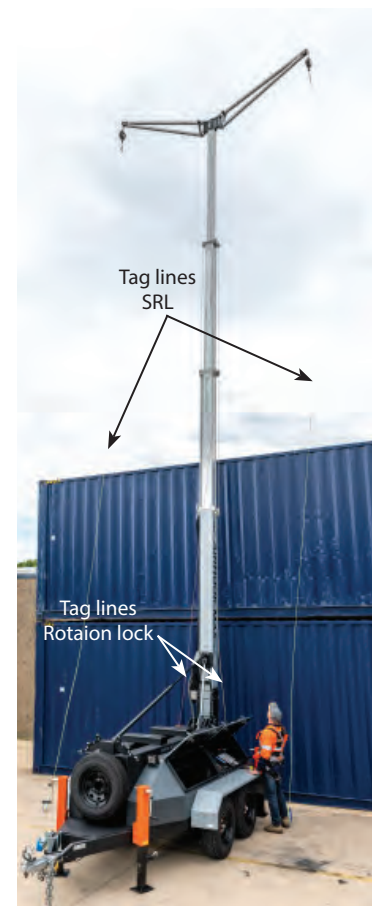
Tag Lines not shown for clarity

To unlock the jib

Pull down on the tag line attached to the "LOCKED" rotation lock, then release the rotation lock and it will return to the unlocked position



Tag Lines not shown for clarity



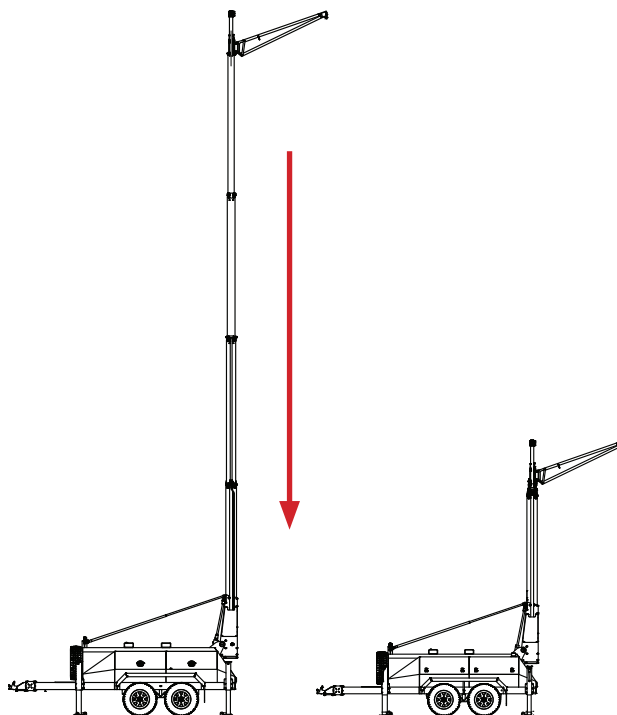
7.11 LOWERING THE ANCHOR POINT HEIGHT

STEP 1:

To lower the anchor point height, follow the instructions in the control panel. Press and hold button, Marked "HOIST IN". Press until the Mast (ANCHOR) is at the lowest point Re: (fig. 17h)



Figure 17i Retract button



The system can be moved around a job site without having to lower the Mast into Transport position. If the system is being taken onto the public roadways or at speeds above of 5 km/h the mast **MUST** be lowered to the transport position and all equipment secured.

If the system is to be left attached to the towing vehicle, only the two (2) rear jacks need to be lowered to the ground.

If the system is to be left attached to the towing vehicle an approved vehicle lockout procedure to immobilize the towing vehicle **MUST** be used.



(Item not supplied)



If the system is to be detached from the towing vehicle, **ALL** four (4) Jacks must be lowered to the ground

7.12 LOWERING MAST to Transport (horizontal) Position

Note: The anchor point height must be lowered to the lowest position first.

When lowering the mast from vertical to transport (horizontal) position ensure the 360° Free rotation lock is in LOCKED mode..

NOTE: Before lowering the mast to the transport position, rotate the anchor arms so they are both locked and pointing 90° to the unit base sides (As per Fig. 17j) This will prevent the arms from swinging downwards due to gravity while lowering.

WARNING! Caution must be taken while lowering the mast . Should the anchor arms be in the 360° FREE rotation position during lowering of the mast, the operator shall raise the mast to vertical position again and lock the rotational locks as per instruction. Serious injury may occur with contact to the anchor arms and/or SRL's while lowering the system if left in a free rotational mode.



Figure: 17j

STEP1:

Before moving the mast to the horizontal position, remove the mast locking pin from the Locking Position.



DANGER!

Be aware of any overhead power lines or other hazards, as the aluminium structure is highly conductive of electricity. Failure to follow these procedures could result in serious injury or death!

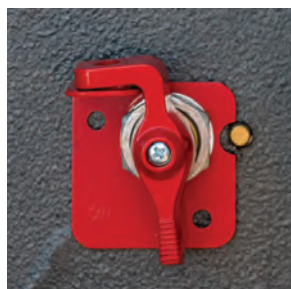
Ensure a Safety Zone of 2 metres around system during operation. Only the operator is allowed within this safe zone during operation. The operator is required to wear an approved HARD HAT and approved SAFETY GLASSES during operation.

To lower the Mast from vertical to Transport (horizontal), follow the instruction in this manual or in the control panel compartment.



STEP 2:

CHECK AGAIN, that the mast locking pin is removed, Pull Emergency Stop button to the on / out position, switch battery isolator to on position.



Isolation switch in
OFF position



Turn Isolation switch to
ON position



Pull to **ON**



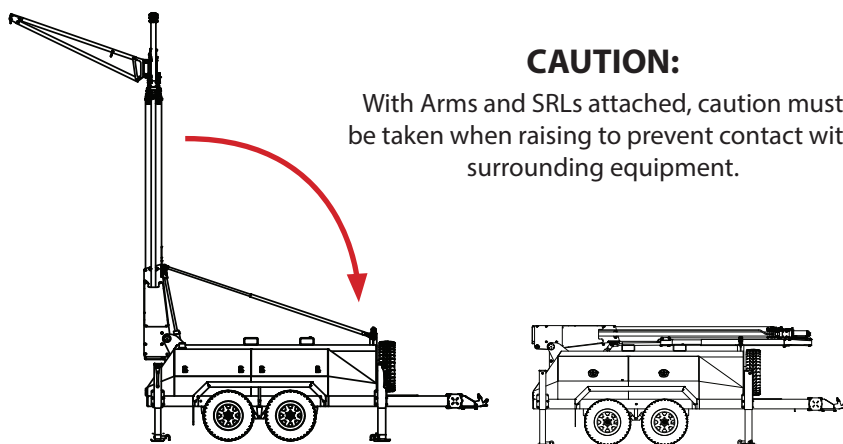
Whilst the Emergency Stop is in the on position the Warning Beacon will flash. When operating the hydraulics, a warning buzzer will sound.

STEP 3:

To Lower the mast to a horizontal position Press and hold button, Marked "Tilt Down". Press until the mast is horizontal and sitting on the mast rest. Re. fig 17k



PRESS & HOLD



CAUTION:

With Arms and SRLs attached, caution must be taken when raising to prevent contact with surrounding equipment.

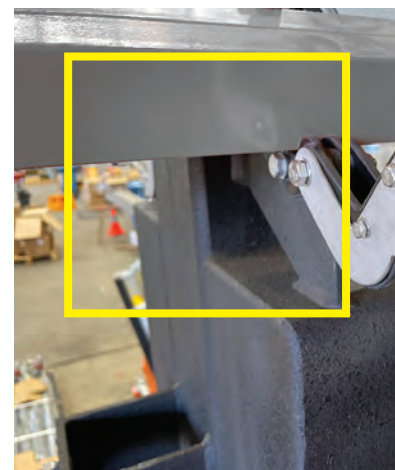


Figure: 17k
Mast Rest

7.13 STOWING THE ANCHOR ARMS and returning them to storage position

STEP 1:

Remove the Tag line from the SRL , then remove the SRL from the anchor. Remove rotation lock tag line. Roll up tag lines their reels and stow with SRL in storage area of the unit *(Repeat steps with the second jib arm, if second SRL is installed).*



STEP 2:

Remove the jib arm extension pin, set aside for future use



STEP 3:

Collapse the jib arm towards the body of the unit, then lift and replace arm into transport cradle .



STEP 4:

Reinstall the jib arm holders clamps .



STEP 5:

Install the jib arm extension pin and retaining clip. **Repeat steps 2 to 5 for 2nd arm**



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.

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 your supervisor, and the equipment tagged "Out of Service" to prevent further use until it has been repaired and cleared for use.

9.1 DAILY INSPECTION

Prior to use (towing or fall protection) perform a walk around, check tyre pressure, tyre wear, check wheel nuts, ensure equipment is secure, battery is fully charged, check breakaway power, and check hydraulic oil level, this is done when the mast is in the transport position, add oil if needed. Use an AW-32 grade Hydraulic oil if required.

Take time and perform a walk around the system prior to towing or using the fall arrest system:

- check tyre pressure and tyre wear.
- check wheel nuts indicators.
- check tow connecting components.
- check trailer electrical connection points to vehicle.
- check all lights are functioning correctly.
- check the breakaway battery power status, charge is supplied via Anderson Plug & Solar Panel System.
- check the breakaway switch and wire rope.
- check the brake oil level in the hydraulic brake actuator.
- check for any obvious damage to the trailer chassis and toolboxes.
- check mast hydraulic system for any obvious signs of oil leakage.
- check hydraulic oil level in the pump reservoir, this is done when the mast is in the transport position, add oil if needed. Use a AW-32 grade hydraulic oil if required.
- check the mast connecting side plates are firmly secured and tensioned to 30Nm and thread locker is evident.
- check mast cylinder connecting pins.
- check Hydraulic connection points for any obvious signs of leakage.

9.2 DETAILED or ANNUAL INSPECTION

At least annually, and more frequently if subjected to harsh conditions or extensive use, the system MUST BE given a detailed Inspection by a competent person.

Record the results and maintain an Inspection Log for each unit using the sample Inspection Log sheet provided at the back of this manual. Please make photocopies of this sample to record all inspection results.

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 the system to assist with diagnosis and processing of any warranty claims.

Please obtain a Returned Goods Authorization number from the service centre before returning any equipment for service.

In addition to the daily inspection points in section 9.1 the system shall check and inspect the following towing & fall arrest components/system:

- check condition of tow chains
- check tow coupling components
- check hydraulic brake system
- check for any brake fluid leaks around the wheels and brake calipers
- check condition of the brake pads and calipers
- check condition of wheel bearings

- check hydraulic valve connection points
- check and inspect critical bolts and pins used to connect mast, chassis & hydraulic linear actuators, ensuring correct tension, correct thread protrusion and no signs of material deterioration
- check and inspect wire rope swaging and mast connecting points
- check and inspect wire rope pulleys
- check connection points/welds of the chassis and mast
- check condition of the mast swivel pin

9.3 CLEANING AND LUBRICATION

If required, clean and lubricate the system components as required.

9.4 PHYSICAL DAMAGE

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

The Anchor Arm assembly contains an Overload Indicator that identifies misuse of the system that exceeds normal service loads. This feature confines any system damage resulting from overloading to a specific area. System overloading will be indicated by deformation of the boom tube in the area shown in Figure 21a. In the event of a fall the overload indicator will break, the bottom of the Anchor arm start to "TEAR" as shown. The resistance of the "TEARING" slows down the descend of the worker, at the same time it minimizes the impact the worker is exposed to.

Verify that no activation of the Overload Indicator has occurred during previous use or transport. Remove system from service if there is any deformation of the Overload Indicator. 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.

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

9.5 POST FALL ARREST INSPECTION PROCEDURE.

In the event of a fall the system must be removed from service and thoroughly inspected by a competent person. Use the Inspection log located at the back of this manual. Items to look for are Bent and/or Broken parts and Hydraulic system leaks. Before returning to service the system must be authorized for use by a qualified person.

Overloading of the Davit will result in elongation of the jib arm Extension Tube in this area.



Figure 21a
Overload Indication.

10. MAINTENANCE, LUBRICATION & STORAGE

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, contact a BTS authorized service centre for replacement parts or structural repair if necessary.

10.1 CLEANING THE SYSTEM

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

Use a solution of warm water and a mild detergent to clean the System. Do not use solvents or other cleaners to clean the base, as this may result in damage to the powder coat finish.

10.2 LUBRICATION

Wheel bearings are automotive type trailer wheel bearings, and should require little maintenance over the life of the equipment if used as intended. If necessary, disassemble, clean and re-pack as usual for trailer wheel bearings. The ends of the cylinder should be lubricated with a standard bearing grease. Jacks are lubricated when assembled at the factory, and should require little maintenance over the life of the equipment if used as intended. Lubricate sliding parts as required with graphite, or TFE based dry film lubricant.

If necessary, disassemble, clean and lubricate moving parts with a good quality automotive wheel bearing grease.

Replacement parts are available if required from BTS or your local dealer.



Figure 22

10.3 STORAGE

The unit must be stored in the transport position. If stored in an area exposed to the winds of 80km/hr or higher. Lower the jacks and have the wheels blocked. Always inspect before using equipment that has been stored for any extended period of time. Whenever the system is detached from the tow vehicle, block the wheels so it is not possible for the trailer to roll off on its own. If it is possible it is recommended NOT to detach the system on any grade.



Figure 23

10.4 PARTS CONSIDERED NORMAL WEAR AND TEAR FOR WARRANTY PURPOSES

Wheels, tyres, jacks, cables, battery 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. RESCUE RECOVERY

The following instructions layout procedure for RESCUE of a worker.

Under no circumstances shall workers be lifted into position using the Hydraulic system. Workers are to "attached" to an approved SRL that is connected to the anchor point, then following safe work procedure climb/ascend to the upper work structure/surface.

There are seven (7) options for rescuing a fallen/injured worker;

1. If the system is operational use the Hydraulic Control to SAFELY lower the worker to the ground.
2. Ladder (if reasonable).
3. Scissor Lift (if available).
4. Self Descending SRL
5. If the system is NOT operational, following the instructions on the next page to facilitate rescue:

Worker has fallen and system is NOT operational.

In the event a worker falls and the system is not operational (whether it be from lockout procedure, existing safe working procedure or mechanical failure), the following instruction will allow support workers on the ground to safely lower the injured worker to the ground or to a height that they can be safely reached.

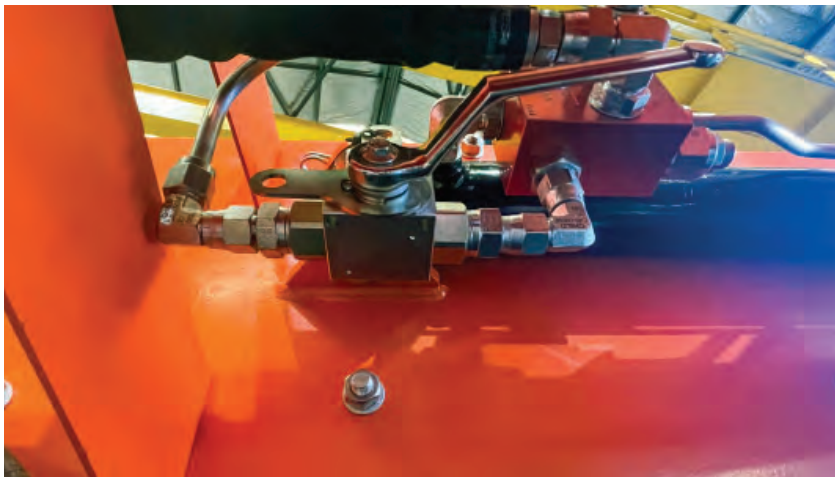
Release, relief valve.

Extreme caution must be taken in doing this to ensure the injured worker does not impact the ground or surrounding equipment.

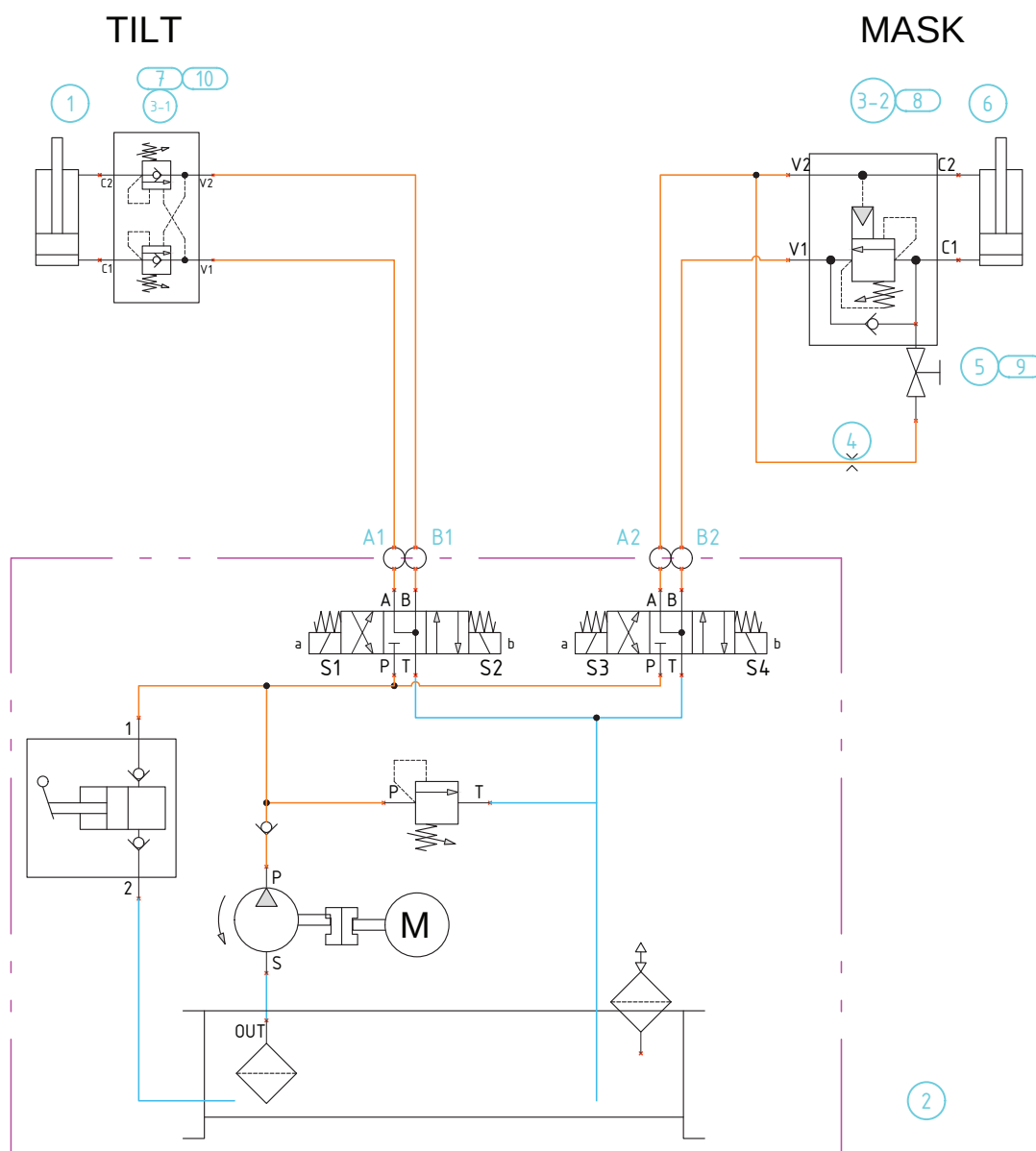
Operating the relief valve

This valve is located behind steel panel on the right hand side of the mast, bottom of the hydraulic ram. It is used to manually release the telescopic mast if it is stuck up and the unit has lost power. To retract the mast manually, slowly turn the handle until the mast starts to slowly retract.

When the mast has fully retracted turn the handle back up to the previous setting.

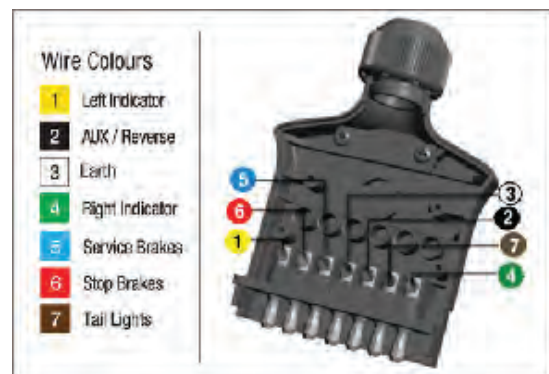
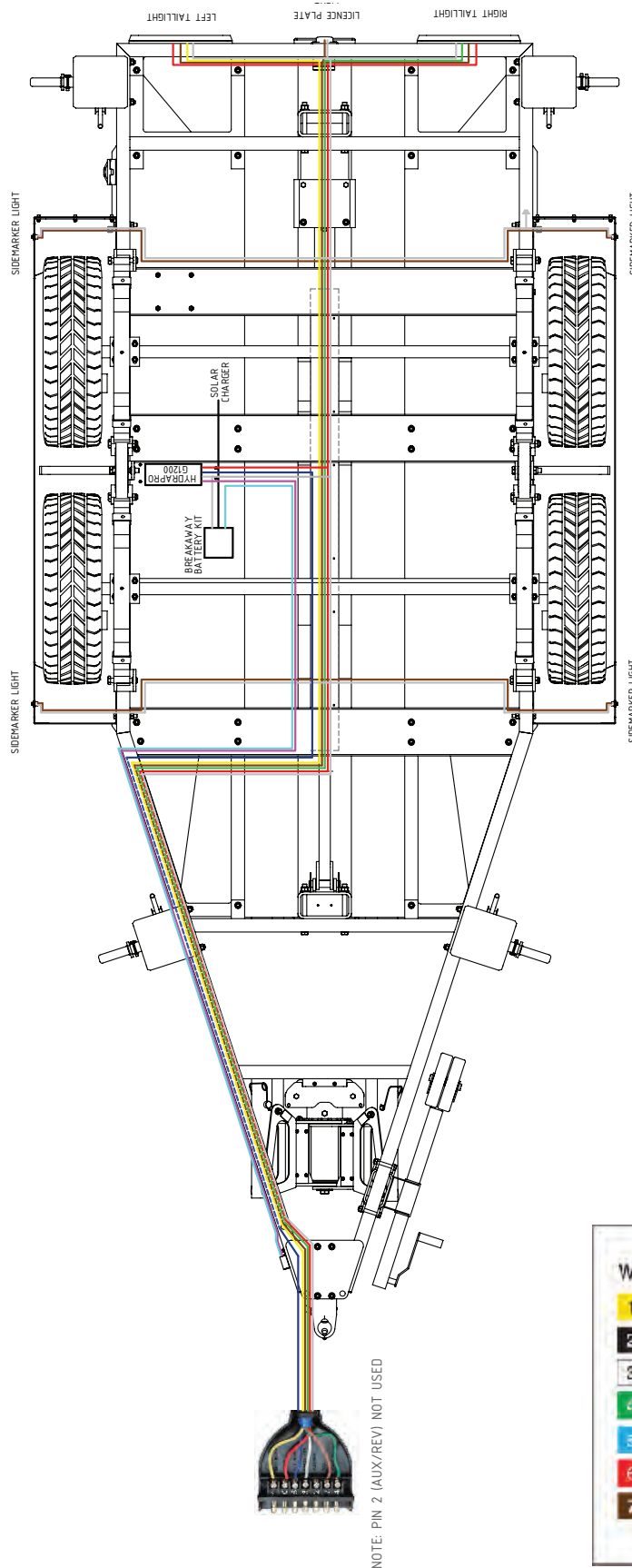


12. HYDRAULIC ACTUATORS

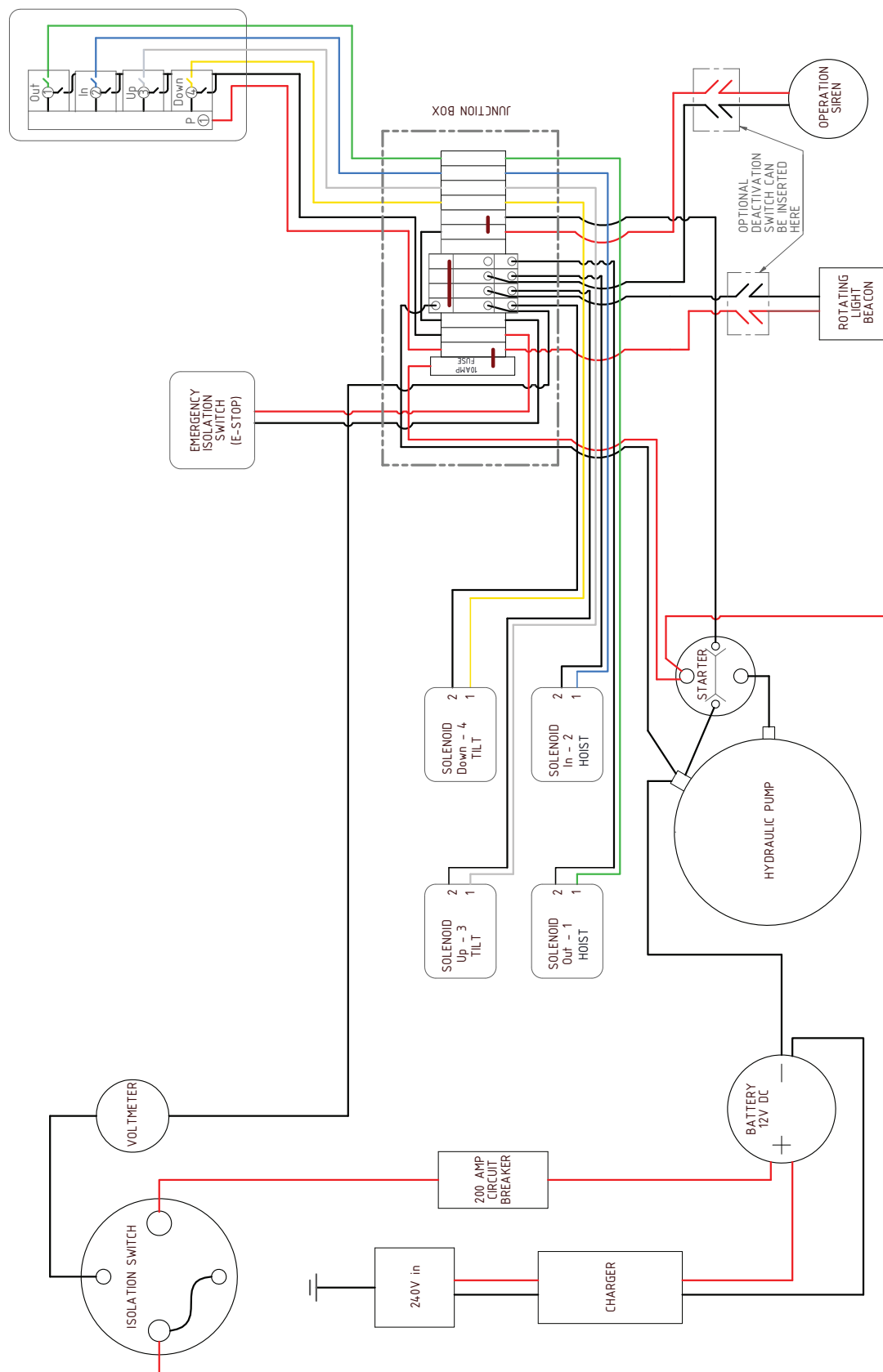


ITEM ID	QUANTITY	PART NUMBER	DESCRIPTION	MANUFACTURER
1	1	SAG-3030	3" X 30" X 1.5"	SOUTHCOTT
2	1	H12-16-16-E2I-H-11SH4	12V POWER UNIT	SOUTHCOTT
3	2	CBPA-10-N-S-0-30	COUNTERBALANCE VALVE - LINE MOUNTED	SOUTHCOTT
4	1	C22-0909	ORIFICE PLUG	SOUTHCOTT
5	1	GE-2-1/4	BALL VALVE	SOUTHCOTT
6	1	SAG-20121-150	CYLINDER HYDRAULIC	SOUTHCOTT
7	1	B1025-12U-D3-AL	BODY D3 C1025 3/4"UN	SOUTHCOTT
8	1	B1025-12U-S3-AL	BODY S3 C1025 3/4"UN	SOUTHCOTT
9	1	LK6-F	LOCKING PLATE	SOUTHCOTT
10	1	CBPA-10-N-S-0-30	COUNTERBALANCE VALVE - LINE MOUNTED	SOUTHCOTT

13. TRAILER ELECTRICS SCHEMATIC

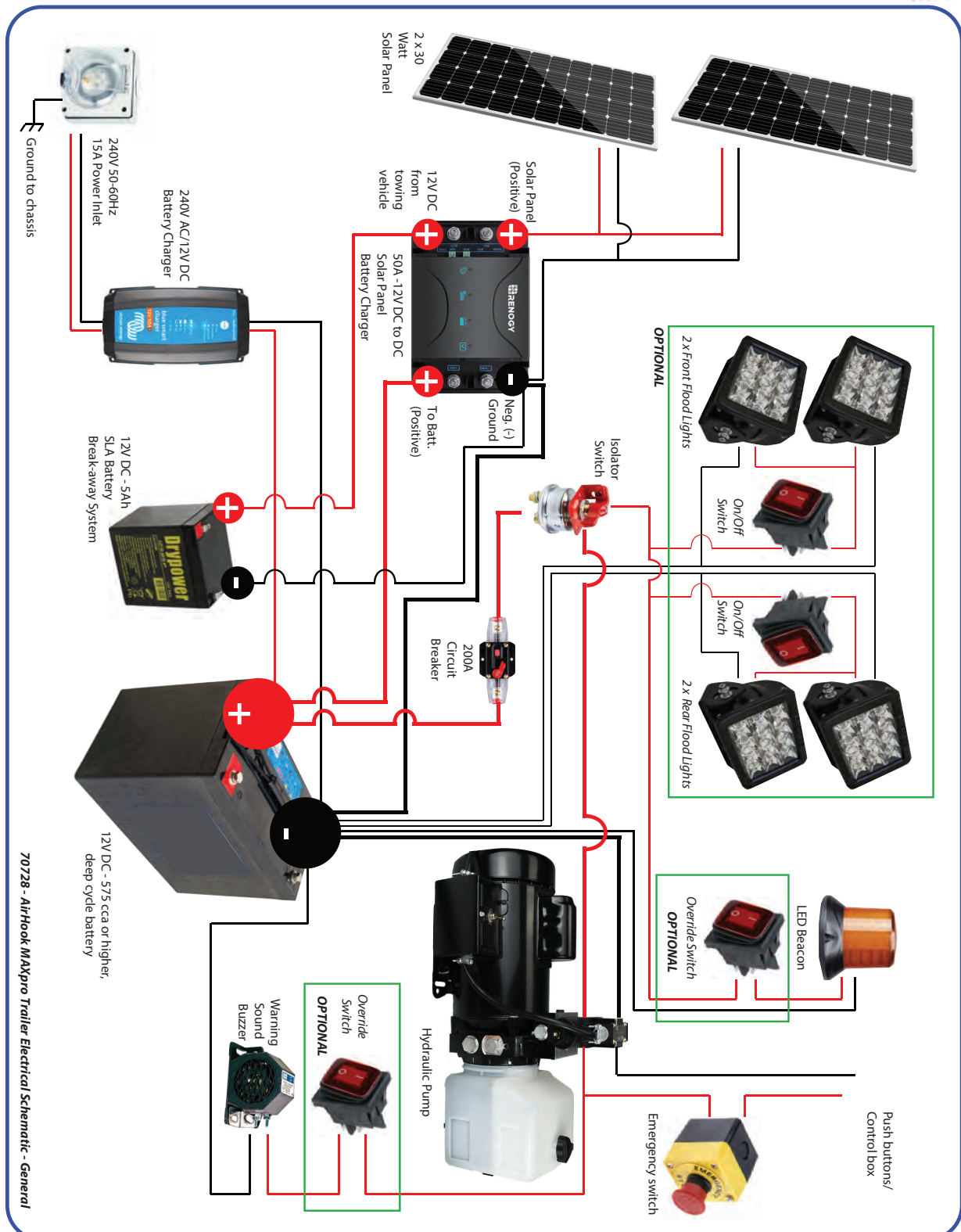


14. MAST ELECTRICS SCHEMATIC



15. ELECTRICAL SCHEMATIC MAST AND AUXILIARY EQUIPMENT

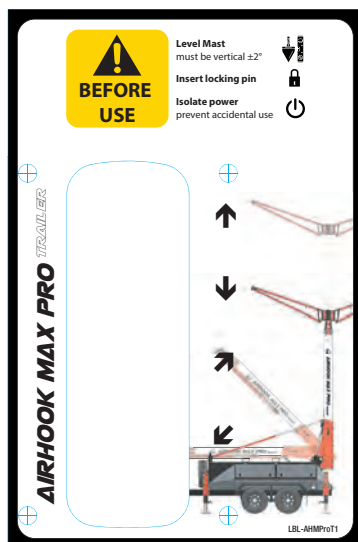
The electrical system is a 12V DC, equipped with an in built 240V AC to 12V DC battery charger, a 60W- 12V 50amp solar panel charging system with direct connection via Anderson Plugs to allow direct charging from vehicle (pending towing vehicle equipment). The system is conveniently set-up to charge both batteries within the trailer. Main battery operating electrical system and second designated battery for emergency break-away system. All charging options are equipped with self regulators, which will turn the charge power off when the batteries are fully charged, it will turn itself on when batteries level drops below 95%. Solar system will initiate charge/ trickle charge as required. Pending weather conditions, a 60W solar panels will take approx. 20hrs to charge 50% depleted 100amp battery. The 240V-12V10A charger is the most efficient unit to charge this system.



16. LABELS



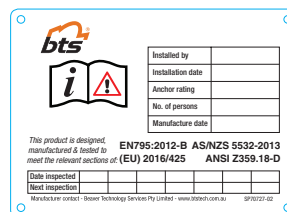
LBL-AHMProT2



LBL-AHMProT1



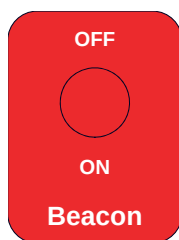
SP70727-01



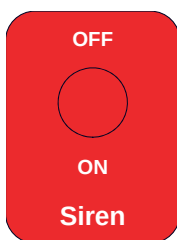
SP70727-02



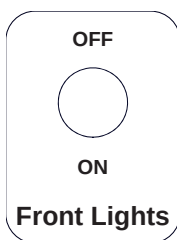
LBL-FORKLIFT



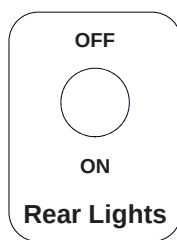
LBL-TS04



LBL-TS03



LBL-TS01



LBL-TS02



LBL-PINCHPOINTEU

7. 7.

8. 8.

9. 9.

10. 10.

11. 11.

12. 12.

13. 13.

14. 14.

15. 15.

LBL-70728MM

17. RISK ASSESSMENT

RISK SCORE: 1 Low - 5 High		
Description	Risk	Level
1. Electrical		
Battery / Wires	Risk of Shock	1
2. Operation		
Tipping Hazard Due to Uneven ground or improper use of levelling jacks.	Risk of Injury /Damage	4
Hydraulic line failure.	Risk of Failure	2
SRL Tag lines becoming tangled/snagged while lifting to operating position.	Risk of Injury /Damage	1
3. Pinch Areas		
Mast Pivot Point.	Risk of Injury	3
Mast Bottom Guide.	Risk of Injury	3
Mast Extrusions	Risk of Injury	1
Rear Bumper (Moving to Upright Position).	Risk of Injury	3
4. Crush Areas		
Mast Resting Point.	Risk of Injury	3
Hydraulic Control Box.	Risk of Injury	2
Tool boxes.	Risk of Injury	1
5. Over Head Areas		
Arms rotating while lifting.	Risk of Injury	2
Mast Vertical Guide.	Risk of Injury	2
Over head Power lines.	Risk of Injury / Shock	4
Overhead structures / equipment.	Risk of Damage	3
6. Towing		
Equipment; Mast is not in the stored position.	Risk of Damage	4
Personnel; Personnel/workers are connected to equipment via SRL.	Risk of Injury	5
Jacks; Not secured properly	Risk of Damage	3
Tow hitch (If not properly Connected to towing vehicle).	Risk of Damage	5

Recommendations;

- 1. UNDER NO CIRCUMSTANCES ARE PERSONNEL PERMITTED TO "RIDE" ON SYSTEM WHILE IN MOTION.**
- Follow manufacture's instructions on proper use and operation.
- System CAN ONLY be used with manufactures authorized accessories and/or equipment.
- Have a Qualified Person replace battery and inspect wiring.
- Ensure that ALL jacks are inspected prior to use. When using jack check level indicators to ensure system is levelled.
- Ensure a Safety Zone of 2 metres around unit during operation. Only operator is allowed within this zone during operation.
- Be aware of your surrounding, over head power lines, other structures and/or equipment.
- Ensure the rear bumper is stowed correctly so no damage can occur to the lights if it falls during transportation.

18. DEFINITIONS

The following terms used in this manual.

ANCHORAGE: “A terminating component of a fall protection system or rescue system that is intended to support any forces applied to the system.”

AUTHORIZED PERSON: “A person assigned by the employer to perform duties at a location where the person will be exposed to a fall hazard.”

COMPETENT PERSON: “An individual designated by the employer to be responsible for the immediate supervision, implementation, and monitoring of the employer’s managed fall protection program who, through training and knowledge is capable of identifying, evaluating, and addressing existing and potential fall hazards, and who has the employer’s authority to take prompt corrective action with regard to such hazards.”

QUALIFIED PERSON: “A person with a recognized degree or professional certificate and with extensive knowledge, training, and experience in the fall protection and rescue field who is capable of designing, analysing, evaluating, and specifying fall protection and rescue systems to the extent required by this standard*.”

FALL ARREST: “The action or event of stopping a free fall or the instant where the downward free fall has been stopped.

FALL EXPOSURE ZONE: “An area of fall exposure on a roof or slope.”

FALL PROTECTION: “Any equipment, device, or system that prevents an accidental fall from elevation or that mitigates the effect of such a fall.”

FALL RESTRAINT: “The technique of securing an authorized person to an anchorage using a lanyard short enough to prevent the person’s centre of gravity from reaching the fall hazard.”

HARNESS, FULL BODY: “A body support designed to contain the torso and distribute the fall arrest forces over at least the upper thighs, pelvis, chest, and shoulders.

MAXIMUM ARREST FORCE (MAF): “The peak force measured by the test instrumentation during arrest of the test weight in the dynamic tests set forth in this standard.”

PERSONAL FALL ARREST SYSTEM (PFAS): “An assembly of components and subsystems used to arrest a person in a free fall.”

POSITIONING: “The act of supporting the body with a positioning system for the purpose of working with hands free.”

RESCUE: “The process of removing a person from danger, harm, or confinement to a safe location.”

SELF RETRACTING LIFELINE (SRL): “A device containing a drum wound line that automatically locks at the onset of a fall to arrest the user, but that automatically pays out from and retracts onto the drum during normal movement of the person to whom the line is attached. After onset of a fall, the device automatically locks the drum and arrests the fall.”

WORKING LOAD LIMIT (CAPACITY): “The maximum weight that a component, system, or subsystem is designed to hold.”



NOTES.

19. 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 Tubes					
Damaged, loose, corroded or Missing Hardware or Connectors					
Missing or Illegible Labels					
Loose or damaged Anchor Points or Hardware					
Check Overload Indicator for evidence of unintended overloading of the system (See Section 7.4)					
Check Tyres for uneven wear, Tyre pressure					
Check Tyres for cuts, puncture, wear, cracking, or other Damage. Check for loose or missing wheel nuts.					
Check Hydraulic hoses for "nicks", "cuts" and /or leaks					
Check Hydraulic Oil Reservoir; ensure that Oil Level is at the Maximum level when the system is down.					
Battery electrolyte					
Electrical system / Hydraulic system					
Break away unit					
Electrical system - Lights					
Emergency button (ISOLATOR)					
Solar power system					

Date of Inspection: _____

Inspected By: _____

Please make copies of the form and maintain an inspection log file/binder.

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AirHook MAX PRO Trailer Setup and Operation Manual



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Read Instruction Manual before using.



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