2014

Code of practice for use of Tallescopes for working at height in theatres

This publication forms part of the Code of Practice for the Theatre Industry being published by the Association of British Theatre Technicians with the support of the Theatre Safety Committee.

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Association of British Theatre Technicians

Broadcasting Entertainment Cinematograph and Theatre Union (BECTU)

British Actors' Equity Association

Independent Theatre Council

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Model Technical Rider & Guide

Selection and use of temporary access equipment

Various Guidance Notes

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Part of the
Code of Practice
for the Theatre industry

2014

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This *Code*

Access equipment is used regularly in places of entertainment. Although this guidance document is primarily aimed at the stage and workshop areas, the safe use of access equipment in other areas should not be overlooked.

This *Code* does not cover the use of access equipment outdoors nor does it apply to access for building construction or inspection in theatre premises. For guidance on these matters consult the HSE website.

The main purpose of this guide is not to explain the law but to make theatre staff aware of the risks involved in working at height and to offer a guide to the safe use of the equipment.

Conventions and definitions

The recommendations generally use the verb 'should'; where the word 'must' is used this signifies a legal requirement insofar as we have understood the law correctly. Explanations of some terms and general background information are in Appendix 1, publications are in Appendix 2 and useful addresses are in Appendix 3.

Credits

The Association of British Theatre Technicians (ABTT) thanks the many ABTT members and others who contributed to the preparation of this *Code*. Particular thanks are due to Chris Higgs, John Young and the Editor, David Adams.

Caveat

Whilst all due care has been taken in the preparation of this document, the Association of British Theatre Technicians together with its members, officers and employees cannot be held responsible for any omissions or errors contained herein or for any damage or injury arising from any interpretations of its contents.

1. Access equipment

The ABTT reminds employers and employees that they must be able to justify the use of a *Tallescope* instead of safer methods of gaining access to work at height. This may have to be justified in a court of law. The *Code of practice for the selection and use of temporary access equipment for working at height in theatres* provides some assistance with the selection of the right equipment for the job.

Tallescopes remain one of the methods for working at height in theatres. However they should not automatically be regarded as the default or first choice for working at height. The ABTT strongly recommends that employers and employees make themselves familiar with the hierarchy for the selection of work equipment in the *Work at Height Regulations 2005 (WAHR) as amended*.

2. Legislation

- The principal legislation relating specifically to work at height is the *WAHR*. *WAHR* relates to working places and the means of access to them, together with planning, supervision, training of users and use of equipment.
- All access equipment is 'work equipment' and therefore covered by the *Provision and Use of Work Equipment Regulations 1998* (*PUWER*). Additionally, because the equipment lifts people, powered access equipment, rope access and work positioning equipment are covered by the *Lifting Operations and Lifting Equipment Regulations 1998* (*LOLER*).
- Inspection criteria are specified in *PUWER, LOLER* and *WAHR* to ensure systems are in place to detect shortcomings before they become serious hazards.
- Responsibility for health and safety enforcement in most theatres and places of entertainment is delegated to the Local Authority except where the venue owner or producer is the Local Authority when the Health and Safety Executive (HSE) inspect and enforce (*Health and Safety (Enforcing Authority) Regulations 1998*).

3. Work at Height Regulations as amended 2005

WAHR replaces most previous legislation on work at height and includes any temporary means of access to a work platform. (The *Building Regulations* generally regulate permanent access.)

The Regulations are risk based and goal setting linking to the general duties of the *Health and Safety at Work Act 1974* and the *Management of Health and Safety at Work Regulations 1999*.

If work at height cannot reasonably be avoided employers must select the most appropriate method of working at height and the means of access to the work.

- Avoid work at height
- Take positive steps to prevent or reduce risk
- Follow the hierarchy for managing risk
- Carry out a risk assessment and act upon it
- Use the safest equipment to avoid falls
- Ensure that competent people plan, organise and carry out the task

Hierarchy of access taking account of the duration of work

Heavy duty work (large power tools, manual handling involved, long period)

Hours — Existing place of work (bridge, catwalk, etc.)
Purpose-made access*
Powered access equipment
Mobile tower/ *Tallescope*
minutes — Secured leaning ladder
Combination ladder (*Zarges style*)
Stepladder
Leaning ladder
Climbing structure plus Fall Protection Equipment (FPE)
Flexible ladder plus FPE

Light duty work (no tools, very light work at height, short period)

* A specific properly-made structure should be as safe or better than an existing structure

4. Risk Assessment

Employers must assess the risks to their employees and others who may be affected by their work; this process starts with avoiding work at height wherever possible.

The Management of Health and Safety at Work Regulations 1999 impose a duty on all employers to carry out suitable and sufficient assessments of all risks to the health and safety of employees and others. Each theatre should carry out its own risk assessment and review and where found necessary augment individual production requirements.

Risk assessments must be carried out by a competent person (who may be an employee) appointed by the employer in order to identify hazards and record significant findings. Control measures in proportion to the risks presented should then be designed and implemented. To comply with legislation, these assessments must be monitored and reviewed in order to be kept up to date and to maintain their effectiveness.

A suitable and sufficient risk assessment is one that:

- Identifies the hazards and those at risk
- Evaluates and prioritises the risks
- Decides on preventative actions
- Takes action
- Monitors and reviews the situation

4.1 Risk assessment/Method Statement

- The initial risk assessment should consider the work to be done then identify the appropriate access equipment and the safe method of working which should be recorded in a method statement (RAMS: Risk Assessment/Method Statement).
- A risk assessment should be made before deciding which equipment is to be used. The conclusions should be acted upon as necessary. This should be recorded.
- The risk assessment should be reviewed whenever significant changes occur and action taken as necessary. This should be recorded.
- Even if there is no change the risk assessment should be reviewed regularly, the frequency will vary dependent upon the premises and the work but at least once a year would seem appropriate. Again this should be recorded.
- When there is a new production or a change of staff the risk assessment should be reviewed appropriately and recorded.
- There should be a quick risk assessment every working day (and possibly more often). This may need only to be a visual check unless something serious is recognised but it is important that it occurs. This includes checking equipment and premises and ensuring those working are fit and able (health, age and fatigue insofar as this affects safety), and trained. Proof of training is strongly recommended.

Copy and make use of the form overleaf.

Further information can be found in *A brief guide to the Work at Height Regulations 2005:* www.hse.gov.uk/pubns/indg401.pdf and *Five steps to risk assessment*: www.hse.gov.uk/pubns/indg163.pdf

Follow the hierarchy for managing risk Carry out a risk assessment and act upon it		
Control measure	**Possible methods**	**Note decision, why and date**
No work at height	Work at stage level when refocusing to tapes Remote controlled luminaires	
Work from existing structure	Bridge Tensioned wire grid	
Install temporary structure	Gantry Catwalk or crawl truss Access stairs & platform Mobile Elevating Work Platform (MEWP)	
Fall protection	Provide protection whilst climbing to location	
Work positioning	Enclosed access platform Work positioning system	
Fall mitigation	Fall arrest net if practicable Nets (over pits) Fall arrestor if possible	
System of work	Powered access Mobile access tower/*Tallescope* Ladder Stepladder/*Zarges* Flexible ladder/climbing set	
Duty holders/employers should be able, and may be required to explain why it was necessary to work at height at all and why reasonably practicable measures could not be taken rather than increasing risk.		

5. Deciding whether to use a *Tallescope*

The type and duration of the work to be carried out must be considered before deciding to use the *Tallescope*.

A *Tallescope* provides a working place for one person in the cage. A *Tallescope* cannot be used where more than one person is needed. A *Tallescope* has few parts, is quick to assemble and is assembled at stage level. There are no serious risks with the assembly. A *Tallescope* tends to remain assembled. The manufacturer's instructions permit someone to be moved in the cage subject to exact procedures.

The great advantage of a *Tallescope* on stage is that the working height is readily adjusted and the device is highly manoeuvrable. A *Tallescope* can be erected more easily and quickly and much more safely than an access tower. Compared with a powered access machine or a mobile access tower a *Tallescope* is much more manoeuvrable and more easily stored on stage. However accidents have occurred as with other equipment which has not been properly maintained or where untrained personnel have used the equipment or the manufacturer's instructions have been ignored.

A *Tallescope* is especially suited for focusing luminaires where the ease of movement and the ability to easily alter the height of the working platform are important. A *Tallescope* is particularly useful during production periods and during performances (for instance in the interval to replace a lamp or to change a colour filter) as it may be readily stored in the assembled mode.

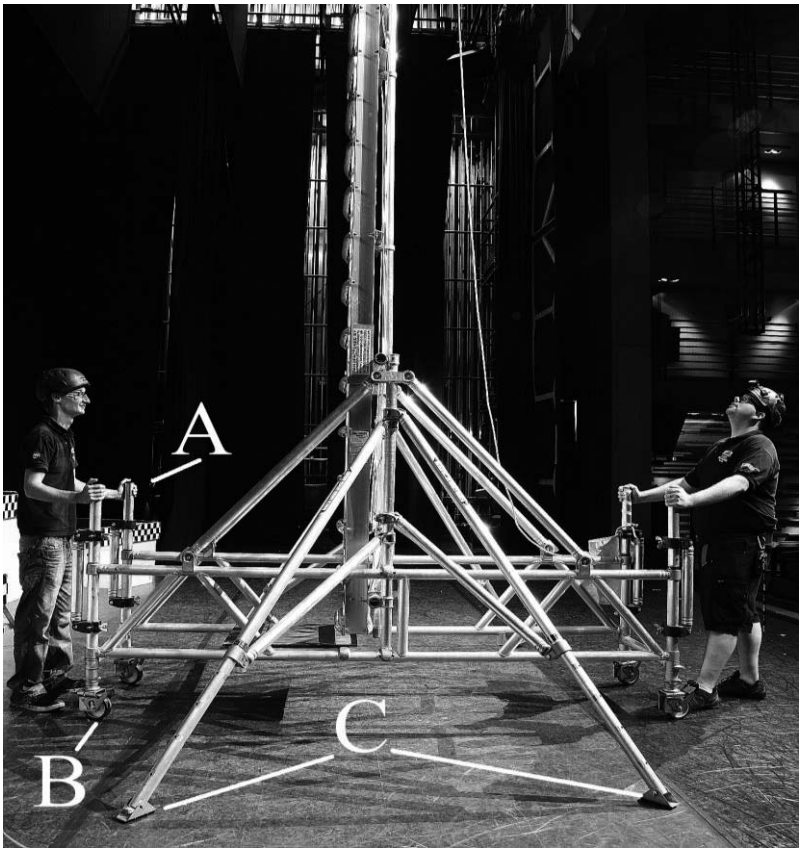
Ascending and descending the vertical ladder can be tiring. Frequent journeys up and down can sometimes be avoided through selecting more appropriate equipment or by moving a *Tallescope* with someone in the cage, subject to stringent precautions – see 12 to 12.3.1.

6. Major Improvements to *Tallescopes*

1) Four outriggers to reduce the possibility of a *Tallescope* falling sideways
   Note: The outriggers are locked off with the feet not more than 10mm above the floor. The outriggers when retracted can usually be folded back when out of use
2) Four push-pull posts (base column extensions) so the operators do not have to bend at the waist and can steer more easily and with better view
3) Four non-lift castors fitted so they do not cause any movements in a *Tallescope* when the brakes are being engaged or disengaged
   Note: The brakes should always be applied when a *Tallescope* is not in motion
4) Rescue plans agreed and tested to enable a rapid recovery of a person in the cage of the Tallescope who has been injured and/or is or may become unconscious

Note: It is likely that in many cases a modified *Tallescope* will be the quickest and safest way of assisting a casualty to a horizontal position where the casualty can receive first aid. See 8.9 and 13.

Major improvements



A) Four push-pull posts so operators do not have to bend at the waist and can steer more easily and with a better view.

B) Four non-lift castors fitted so not to cause any movements in the *Tallescope* when brakes are being engaged or disengaged. The brakes should be applied when the *Tallescope* is not in motion.

C) Four outriggers reduce the possibility of a *Tallescope* falling sideways. The outriggers are locked off with the feet not more than 10mm above the floor.

D) **Rescue plans** agreed and tested.

There are kits available to update existing *Tallescopes*. Older Tallescopes may also require structural modifications.

The ABTT does not consider any *Tallescope* acceptable equipment for working at height in a theatre unless this *Code* is followed. There are specific and additional requirements if a person is to be moved in a *Tallescope*.

7. Training

The *Work at Height Regulations 2005 as amended* (*WAHR*) requires formal training for people who use access equipment. It is essential technicians using Tallescopes be trained in their use. It is also essential that people working at height are confident.

People who use *Tallescopes* should be competent to carry out their duties at the level of their responsibility. People who use, supervise or manage the use of *Tallescopes* should consider training in addition to reading guidance material even though this may seem to be unnecessary.

Documented training for all users and supervisors of access equipment is strongly recommended. Training courses are for specific equipment and should include:

- legislation
- types and models
- pre-use checks and inspection for defects
- carrying and positioning of equipment
- climbing (up and down)
- loading on stages
- low-light concerns
- work on rakes
- hauling loads
- maintenance
- storage

Several training bodies including Aluminium Access Products Ltd and the ABTT offer courses, generally half-day. After completion of formal training participants should understand the requirements of the relevant legislation and have the skills and knowledge to inspect, assemble and use *Tallescopes* safely.

Note: It is far too easy for the untrained to think they understand *Tallescopes*, especially as they look easy to use. Accidents will occur if proper training is not undertaken.

Table 7. *Tallescopes* models		
Model	**Maximum platform height**	**Minimum platform height**
50512 standard	4.4m	3.2m
50518 standard	5.9m	3.9m
50524 standard	7.5m	4.7m
All models	**Maximum load on platform**	115 kg (250 lb) with safety factor of 4
	Width at base	740mm
	Maximum working height	Approx 2m above platform height

8. Planning

Establish a safe system of work appropriate to the task, the premises and the staff available. Confirm that a *Tallescope* is the most appropriate equipment for the task. Ensure that everyone using a *Tallescope* has been properly instructed in its use. Documented training is recommended for all users and supervisors. Employers should confirm that the personnel concerned are fit for working at height. There should be a reliable means of communication available to summon emergency services at all times that people are working at height and people should not work at height when alone.

8.1 Lone working

Working alone at height or with access equipment should not be allowed. A minimum of three people is recommended when using a *Tallescope*.

8.2 Communication

There should be a reliable means of communication available to summon emergency services at all times that people are working at height.

8.3 Illumination levels

It is important to ensure there is sufficient light where work at height is to be carried out. Normal stage working light may not be sufficient. Adequate lighting is necessary for safely erecting and positioning a *Tallescope*. There should be good light to ensure all changes in level are easily seen as well as hazards such as steps or stage edges.

Blackouts or low light levels are potential hazards. A sudden increase in light level can also create sudden difficulty in vision and this should be avoided. Even with warning, changes in light levels can adversely affect sight and balance, so a system of work that allows a level of light appropriate for the work in hand is important. When focusing luminaires, the policy of cross fading between the luminaire to be focused and a working light state is good practice and should be included in induction training for lighting operators.

8.4 Noise levels

Similar precautions are needed concerning sound levels. High sound levels will inhibit clear communication, which is essential when work at height is in progress. Loud noise can cause accidents.

All technicians involved in working at height operations should be able to hear clearly.

8.5 Floors

Check that the floor and the supporting surface are strong enough to support the combined weight of the *Tallescope* and the user. The floor must be sufficiently rigid to assure that flexible surfaces will not affect the stability of the *Tallescope*.

8.6 Front edge of stage

Wherever wheeled equipment (powered access, mobile access tower, *Tallescope* and pulpit steps as well as flight cases and trucks) is being moved there is a risk in most theatres that the machine or a person might fall off the edge of the stage. Fixing batten stops on the floor have been tried but may cause a trip. *Edge-Safe*® (see Glossary) should be more effective.

8.7 Electrical hazards

Proximity to electrical hazards must be considered. Ensure that serious electrical hazards such as exposed terminals or damaged plug tops either do not exist or are made safe before the work begins Equipment operating at high voltages such as neon tubes requires extra precautions.

8.8 PPE

All those close-by should wear hard hats (*BS EN 397: Industrial safety helmets* for 'stage work') if there is any risk of falling objects. The technician in the cage should wear a bump cap (*BS EN 812: Industrial bump caps*) or a ventilated helmet with no peak and a chin strap (*BS EN 12492: Helmets for mountaineers safety requirements*) if there are any obstructions overhead.

Consider what other PPE such as safety footwear should be provided if any. However do not wear loose fitting gloves or heavy boots when climbing.

8.9 Rescue

WAHR (Work at Height Regulations 2005 as amended) requires employers to provide appropriate measures to rescue someone from height in cases of accident or emergency. This should include providing full training and equipment for employees. Rescue plans should consider the risks to rescuers as well as to casualties. Rescue drills should be carried out on a regular basis to ensure the planned method(s) is effective. Reliance on the local Fire Brigade is not appropriate and should not be part of the rescue plan.

Planning for work where there is only room for one person in the cage of a *Tallescope* should include rescue plans to rapidly recover the person who has been injured and/or is or may become unconscious. Recovery of someone who is unconscious or has suffered serious injury must be conducted as quickly as possible to prevent the casualty's condition becoming worse.

There should be a reliable means of communication available to summon emergency services at all times that people are working at height and people should not work at height when alone.

In the case where a *Tallescope* is being used there are currently three possible ways:

1) If a *Tallescope Rescue Kit* has been fitted and operatives trained, the kit may be deployed in accordance with the manufacturer's instructions so that the *Tallescope* mast and cage can be lowered from the vertical to the horizontal position utilising the retained winch. This however requires that sufficient space is available so that the incapacitated operative (casualty) in the cage can be brought to just above stage level. The mast extensions are fully lowered, then the mast itself is carefully tilted to the horizontal position where the casualty can receive first aid, be removed from the cage or any other actions taken as deemed necessary. The casualty should be physically restrained during the descent to ensure they remain in the cage.

However a complete rescue drill may not be possible under existing Manufacturer's Instructions as the winch is covered and tagged after each 6-month inspection. If the tag is removed, it is presumed that the winch has been used and the complete assembly needs to be inspected for stress damage.

It is important, therefore, that at least two members of staff have been trained on how to control the use of the Escape Winch. When training someone on use of the winch there should not be a person (mock casualty) in the basket. It is sensible to advise the Aluminium Access Products Ltd (AAP) before training use of the winch so that the winch can be tested and resealed swiftly by AAP. It may be possible to arrange training shortly

before AAP is carrying out the 6-month inspection when they will be covering and tagging the winch.

* Note: All new *Tallescopes* supplied from August 2013 include the necessary changes to make use of the *Tallescope* in cases where rescue is needed. Earlier *Tallescopes* should be modified by means of the *Tallescope Rescue Kit* before being used so that the rescue requirements of *WAHR* should be met.

However if the *Tallescope* mast cannot be lowered horizontally then:

2) The *Tallescope* should be moved so as to be able to pass the casualty on to say a fly floor or a larger platform. This procedure should be planned and practised beforehand to ensure the casualty and their rescuers are not placed at risk during the process. However this is not practicable on other than a level stage and once scenery is fitted it may be impossible to remove enough scenery sufficiently quickly to affect a rescue.

Therefore:

3) A harness or "nappy" and a venue-based rescue at height kit will be required; the casualty is carefully lifted out of the cage of the *Tallescope* and then carefully lowered to stage floor level.

9. Pre-use checks

A pre-use check is a simple visual and functional inspection of the *Tallescope* made by the user before each use. Pre-use checks need not be recorded but should form part of a safe system of work to prevent anyone thinking someone else has made the check.

9.1 Fault

If a fault is found the *Tallescope* should be taken out of service immediately and clearly labelled to show that the *Tallescope* must not be used. The defect should be entered in the logbook and reported as soon as possible to the responsible person to arrange for a formal inspection and act accordingly.

10. Setting up

Follow the manufacturer's instructions in assembling and setting up the *Tallescope*; these should be available to the technician and preferably kept with the *Tallescope*.

Position the *Tallescope* and check level visually, adjusting the legs accordingly.

At least one and preferably more legs should rest with the adjustment fully retracted. Adjustable legs must only be used to level the base, never to gain additional height.

Never attempt to level the *Tallescope* by any other means.

Lock the brakes on each wheel.

Tallescopes

Table 9 & 10: Pre-Use Checks and Setting Up for *Tallescopes*		
Component	**Check**	**Take out of service if**
Tallescope is in good overall condition	Frame not twisted or distorted Free from materials that might obscure defects Ensure all components are included and fitted	*Tallescope* not stable when locked or set in position on a level surface Damage to frame tubes exceeds 10% of original dimension
Stiles, rungs, framework	Ladder stiles straight and true Rungs clean and dry	Cracks in alloy or severe corrosion present. Bent, damaged, significantly dirty or greasy
Cage	Platform, guardrails and toe-boards present in good order	Platform, guardrails or toe-boards bent, damaged or loose
Instructions for safe use	Present with the *Tallescope* and legible. Identification number and 'OK to use' label legible	Missing or illegible
Wheels	Free running, brackets (legs) not bent. Tyres intact, clean and free from paint or tape	Wheels or tyres missing or broken
Brakes	All 4 brakes fitted with non-lift castors that do not cause any movement when brakes are being engaged or disengaged	Brakes not functioning
Bull's eye spirit level	Intact and working (where installed)	(Replace if missing or broken ASAP)
Mast hooks	Fully functioning	Missing or broken
Mast braces	Fully functioning	Missing or broken
Ladder hooks	Fully functioning	Missing or broken
Adjustable extending legs	Undamaged, straight, free from paint and anything that might prevent secure engagement Ensure locking collars and pins are effective	Bent, missing or damaged Not working properly
Outriggers	All 4 present, working and fitted with rubber feet	Missing, missing parts or not working properly
Ladder rope	Functioning, not stretched, frayed or damaged	Frayed or stretched. Repair or replace before using *Tallescope*
Rescue kit	Check all item(s) present and tag(s) in place	Missing or damaged rescue kit refer to AAP

Check for overhead obstructions and ensure there is clearance needed to swing the mast vertical and avoid proximity of electrical hazards and moving equipment.

Raise the mast by first pulling down on the bottom rung and then pushing down until the mast hooks engage.

Engage the mast braces on the bottom brace tube; check the mast braces are locked securely.

Visually check that the ladder is vertical (and confirm with the bull's eye spirit level where installed).

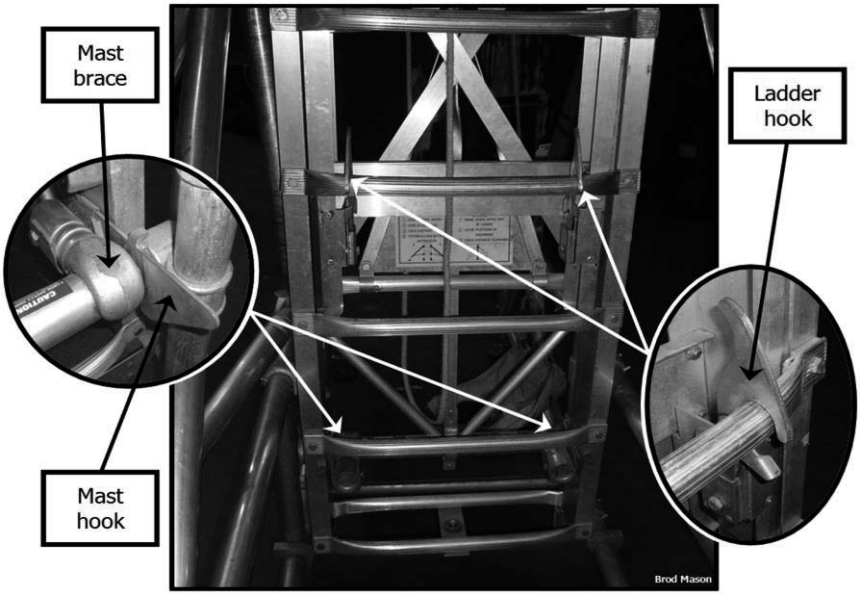
Where possible, position and deploy the outriggers prior to extending the ladder.

Pull the ladder rope to extend the ladder until the cage is at the required height, and then gently raise the ladder until both ladder hooks engage, and then gently release the rope.

Position the *Tallescope* as close to the task in hand as possible.

Where there is an obstruction at height or on the floor or a possible drop (for instance off the edge of the stage) the supervisor or an independent person should act as 'look out' to guide movement and to ensure that the *Tallescope* is kept well clear. *Edge-Safe*® should assist.

Figure: 10. Location of mast brace, mast hook and ladder hook



10.1 Raked stages, steps, uneven surfaces

When using a *Tallescope* on a raked stage, move and position the *Tallescope* with the long axis up and down the rake.

The two downstage legs should be extended to level the base with the upstage end. At least one, and preferably two, legs should be fully retracted. Adjustable leg sections 'threads' should be kept clean, but still require care in use. After adjustment the level should be checked visually.

The levelling should be done before setting up the mast and the pairs of the four outriggers set at 60 degree angles to the long axis.

Another solution that can be used in conjunction with a system of work is to use an anti-rake (levelling rostrum) of sufficient size and strength with an edge so as to prevent wheels rolling off. *Edge-Safe*® may suffice properly secured.

On steps and similar situations, the base should be held level by at least two people whilst the other leg(s) are extended and locked into position by a third or more person(s).

Engage all four brakes. Depending upon the floor surface it may be necessary to fix battens around the wheels if there is a risk of slipping.

A lookout should ensure the *Tallescope* is kept well clear wherever there is an obstruction, change in level or possible drop (for instance off the edge of the stage). Sometimes a 'near-edge' such as a timber rail fixed to the floor can act as a warning. *Edge-Safe*® may assist.

10.2 Outriggers

Two outriggers placed at 90 degrees to the mast with both feet firmly on the floor will provide a safe and steady platform for stationary work at height (provided a *Tallescope* rescue method is agreed - see 13 to 13.3). However it is recommended to deploy four outriggers, two on each long side, as near as possible to 60 degrees to the long axis of the *Tallescope* to gain maximum stability. The distance between the outrigger feet when set should be at least one third of the chosen cage height.

If scenic or other constraints prevent the outriggers being fully installed then additional safety measures will be needed – these might be providing independent fall restraint for the user; bracing the *Tallescope* to a rigid wall: scenery would not be adequate; additional technicians with specific training to stabilise both base and mast.

Tallescopes are only stable when fitted with the outriggers and the outrigger feet must be on the floor before heavy work begins.

However, **except when working on rakes,** it is reasonable with light work such as focusing (rather than hanging or repairing luminaires) to set the outriggers' feet no more than 10mm above the surface. **A piece of 9mm plywood can act as a gauge.**

Outriggers once retracted can usually be folded back and should not be removed unless absolutely necessary.

With rakes the feet of the 4 outriggers must be set firmly on the floor.

10.3 Brakes

All 4 brakes should always be applied when a *Tallescope* is not in motion. The four non-lift castors are fitted so as not to cause any movements in the *Tallescope* when brakes are being engaged or disengaged.

11. Use

Never adjust level, set brakes or move outriggers whilst someone is on the ladder or in the cage.

Never attempt to lift or level the base, raise the cage or remove the outriggers unless the Tallescope is unoccupied.

Do the work only from the cage (not from the ladder) and ensure the swing guardrail is securely closed if one is provided.

Do not gain extra height by standing on guardrails, toe-boards or by putting ladders or boxes on the cage floor.

Consider the available headroom when extending the ladder. Users should be able to stand comfortably on the cage floor.

Do not put loose tools where they could fall and cause an injury. Use the storage bag (if fitted) for materials and secure tools with lanyards.

Do not lean out sideways from the cage to lift even small, light items such as colour frames.

A hoist "chain bag" on a hand rope is an excellent method of transferring materials up and down a *Tallescope*.

Use a separate rope-and-pulley operated from the floor to lift heavy equipment where necessary. Do not rig a pulley to the *Tallescope*.

Maximum platform load 115kg (1 person).

Fatigue is a hazard which may be partly controlled by using more than one technician to work at height and by planning the route for the *Tallescope* to require as few climbs and descents wherever possible. Rotating technicians is usually only practical if their competence is consistent.

11.1 Climbing up and down the ladder

It is essential to carry out a pre-use check before you climb the *Tallescope* ladder.

Ensure:

- floor structure supporting the *Tallescope* and outriggers is strong and stable
- *Tallescope* is visually sighted vertical (and confirmed with the bull's eye spirit level where installed)
- *Tallescope* is not too close to a change in floor level
- *Tallescope* is positioned close enough to reach the work
- diagonal braces on trunnion frame are located and snapped on
- all four leg extension locking mechanisms are secure
- all four push-pull posts are fixed in place on corners of the trunnion frames
- all four outriggers are fully extended, two on each long side, and clips set securely
- both mast hooks are fully engaged
- both mast braces are locked
- both ladder hooks are fully engaged
- all four brakes are locked

Use the power in your legs as much as possible when climbing up or down the ladder, avoid pulling yourself up.

Do not 'hug' the ladder; stand out so you can see where you are putting your feet.

Use a slow, steady pace when climbing up or down, one rung at a time.

Grasp the rungs and look out for any sharp edges that might cut your hands. Sailing style gloves, where index finger and thumb are removed, may be useful.

11.2 Stability

A *Tallescope* could be de-stabilised if horizontal forces are applied at the upper end of the ladder or at cage level. This can be caused by pulling or pushing an object at height or over-reaching from the cage, or by movement from a lighting bar or a swinging piece of scenery.

Tasks such as drilling should not generally be carried out from a *Tallescope* — other, more stable, equipment should be used. An access tower may be ideal.

Where there are four outriggers these must be used when there is someone using the cage of the *Tallescope*.

Do not attempt to climb out of or into a *Tallescope* from another structure.

Do not use a *Tallescope* to support any loads (other than the user and lightweight tools or equipment.)

11.3 Moving *Tallescope* on a rake

Using a *Tallescope* on raked stages requires careful preparation so that at least one and preferably two adjustable legs are not extended. Other methods may be used including using compensating anti-rakes provided these cannot move or slip.

- The *Tallescope* must not be moved if the cage is occupied
- The *Tallescope* should be visually sighted vertical (and confirmed with the bull's eye spirit level where installed) before it is moved on the rake
- The *Tallescope* should only be moved on a uniform gradient, with the long axis running parallel to the slope ('up and down the hill') and not sideways across the rake
- Lighting should be sufficient to allow users to see all obstructions and be able to maintain control of the operation
- The distance covered at each move should be as short as possible
- The four outriggers must be deployed on either side of the *Tallescope* each as close to 60 degrees to the long axis as possible
- At least two technicians are needed to effect movement
- The *Tallescope* should be pulled using the push-pull posts attached to the vertical component of the trunnion frames (not the diagonals) and steered from the trailing side
- Where there is an obstruction at height or on the floor or a possible drop (for instance off the edge of the stage) the supervisor or an independent person should act as 'look out' to guide movement and to ensure that the *Tallescope* is kept clear. *Edge-Safe*® should assist.

Note: The reason that a *Tallescope* must not be moved on a rake with someone in the cage is because it is not possible to move a *Tallescope* absolutely parallel to the rake (stage edge) unless it is running in a fixed metallic track guide. A batten would not be enough. Engineering studies have shown that a very slight off-axis deviation can easily pivot the *Tallescope* on one leg and turn it over.

11.4 Using *Tallescopes* in auditoria

Alternative methods must always be considered before planning to use a standard *Tallescope* in most front-of-house situations. Carpeted floors, cambers and poor light levels are potentially hazardous. Using a *Tallescope* on steps and similar situations requires careful planning to ensure when

adjusting the legs that at least one and preferably two legs are not extended.

Before the *Tallescope* is used it should be checked as vertical visually (and with the bull's eye spirit level where installed).

Lighting should be sufficient to allow users to see all obstructions and be able to maintain control of the operation.

The distance covered at any move should be as short as possible.

Four outriggers must be deployed two on each side of the mast as close to 60 degrees to the long axis as possible.

At least four people are needed to effect movement.

The *Tallescope* should be pulled from the pull-posts on the trunnion frames and steered from the trailing side. Where necessary, the supervisor or an independent person should act as 'look out' to guide movement.

Other methods of levelling the *Tallescope* may be more appropriate.

There are specially produced mobile alloy towers for difficult areas. *Tallescopes* must not be raised to span over auditorium seating by adjusting the usual legs. An auditorium kit is available from the manufacturer which will be made to measure; alternatively a mobile access tower may suffice.

12. Moving a *Tallescope*

It has been common to move a technician in the cage of a *Tallescope* to avoid repetitive climbing up and down the mast ladder. The most common repetition is focusing where there could be many luminaires even in a small production, and where it is only possible to focus a few at a time from any means of temporary access. There are other occasions where it would be sensible for the technician to remain in the cage whilst the *Tallescope* is moved.

It is important to consider human error and fatigue as hazards to the person climbing up and down. The likelihood of a technician missing a footing or a handhold when repeatedly climbing up to 7.5 metres is a significant risk during the working day. Climbing that distance once or twice an hour reduces that risk greatly. Fatigue might be significantly reduced by selecting access equipment with a longer platform, by using motorised equipment or by swapping crews where this is practicable. However there are many situations where the *Tallescope* is the safest practicable equipment.

Moving a *Tallescope* whilst occupied reduces the risk of falling from the ladder but introduces a hazard in that the *Tallescope* might topple over unless precise care is taken. However whilst there have been accidents, no case is known where a *Tallescope* has become unstable when the procedures outlined in this Code of Practice have been properly followed.

However, if it is intended to move a *Tallescope* with a technician in the cage, in addition to meeting the previous clauses where appropriate, clauses 12 and 13 must be met in full together with the manufacturer's instructions as set out in the *Code* (page 24). Until all requirements including the manufacturer's instructions are brought into effect, people should not be moved in a *Tallescope*. The ABTT understands that, if any HSE or local authority officer were to find such an error, formal enforcement action would be taken.

12.1 Risk assessment

Where there is repetitious work which involves moving the *Tallescope* frequently a risk assessment may show that it would be more sensible for the technician to remain in the cage whilst the *Tallescope* is moved to its next position. Moving a *Tallescope* with a technician in the cage is only justifiable where the risk assessment deems it less hazardous to remain in the cage than risk fatigue and the associated likelihood of a technician missing a footing or a handhold and suffering an injury or fall. An example risk assessment for moving an occupied *Tallescope* when focusing is Table 12.1 below. This sample risk assessment is based upon independent research, industry surveys and after implementation of controls.

A previous risk assessment showed a high likelihood of injury caused by fatigue from repeatedly climbing up and down the mast ladder and getting in or out of the cage which could very easily cause a slip or fall. The controls imposed in Table 12.1 show that by moving an occupied *Tallescope*, which is in itself safe if properly managed, the risk of injury is reduced to a low level.

However **each theatre** must carry out its own detailed risk assessment and review, and where necessary augment, individual production requirements.

12.2 Method statement

A method statement should also be adopted. This must meet all of the instructions of the manufacturer as stated below. For example: the method statement is for the movement of an 'occupied' *Tallescope* to allow focusing luminaires without requiring the technician having to climb down each time the *Tallescope* needs to be moved for a very short distance — less than 750mm in any one movement (750mm centres are the norm when rigging luminaires on bars).

Such a method statement might be based upon the text here or the manufacturer's instructions adjusted to suit the specific theatre and production.

Similar light work which involves insignificant energy, such as shuffling a light-weight cloth along a bar by a few centimetres or spraying some wrinkles out of a cloth, may reasonably be treated in the same way as focussing when moving an occupied *Tallescope*.

The method statement should be agreed and recorded.

Table 12.1: Example risk assessment after controls were implemented						
Hazard/ Risk	**Controls already in place**	**S**	**L**	**P**	**R**	**Controls for remaining risk**
Fall because of *Tallescope* overturning	Documented formal safe system of work used, pre-use checks, training	5	1	1	Low (5)	Supervision, assess and monitor floor surfaces and working conditions (especially good light and low noise levels)
Collapse of *Tallescope*	Maintenance Training	5	1	2	Low (10)	Pre-use checks and periodic inspection
Head injury (at height)	Hard hat (with chin strap) rule	2	2	1	OK (4)	Supervision
Head injury (floor level)	Hard hat rule	2	2	1	OK (4)	Supervision
Fatigue: climbing and in/out of cage	Safe system with training Rotate technicians if possible Occupied *Tallescope* moved slowly, short moves, outriggers on	4	2	1	Low (8)	Supervision required at all times
Falling objects	Eliminate, secure or contain objects used at height	3	2	1	Low (6)	Exclusion zone, hard hat rule, lanyards on tools
S = severity of harm; **L** = likelihood; **P** = people affected. **S x L x P = R** **R** = risk factor. The Risk Assessment Grading System used is Table 1.5.1 in ABTT *Code of practice for the selection and use of temporary access equipment for working at height in theatres*						
For rescue kit fitted and other control measures see 13.						

12.3. Requirements for moving an occupied *Tallescope*

Moving an occupied *Tallescope* is only acceptable if:

a) the stage is horizontal and level;

b) i) the *Tallescope* is the 2011 (or later) year of manufacture model; or

ii) the *Tallescope* has been fitted with a manufacturer's upgrade kit comprising two additional outriggers (four in total), four 450mm push-pull posts and four non-lift brake castors; additional strengthening may also be required;

c) the *Tallescope* has been inspected at least annually by a competent and qualified engineer who shall state whether the *Tallescope* is fit for use or otherwise.

The engineer shall also confirm that either b) i) or b) ii) is in place;

Note 1: The ABTT recommends that Aluminium Access Products Ltd (AAP) or its agent carry out the inspection, repair if necessary, and certify it as being in good order.

Note 2: If requested, AAP will endeavour to inspect *Tallescopes* manufactured by the previous manufacturers and repair if reasonably practicable.

d) the T*allescope* shall not be used until the engineer's certificate that it is in good order has been passed to the owner or employer;

e) a full risk assessment has been undertaken and all control measures required are in place;

f) the manufacturer's rules (set out in page 24 below) are followed precisely.

12.3.1 Precautions

Moving a *Tallescope* with someone in the cage should only take place where:

- there is a documented safe system of work based on the risk assessment
- stage surface is sound, level and not heavily textured; check flexible surfaces will not affect the stability of the *Tallescope*
- stage floor is clear of all obstructions including bolts, tools and cables before movement starts
- there is a clear agreed route avoiding over-head obstructions
- moves are planned to avoid repeated visits as far as possible
- there is a supervisor with at least two crew to move the base; the supervisor is not one of those moving the *Tallescope*; crew numbers are sufficient to avoid obstructions and to maintain control over the *Tallescope* including the wheels and base frame. Two people are often sufficient but the number necessary is determined by the type of floor surface. The usual method is:

a) the technician pushing is responsible for confirming no hazards in path of movement

b) the technician pulling is responsible for confirming no overhead hazards and checking the cage

c) the technician in the cage should ensure no tools or materials accumulate in the cage or in the bag

d) the technician in the cage gives the instructions which are acknowledged by the crew before the *Tallescope* is moved

e) the technician in the cage wears a helmet (meeting *BS EN 397* with a chinstrap) or bump cap (meeting *BS EN 812*)

- the Tallescope is the 2011 (or later) year of manufacture model or the Tallescope has been fitted with a manufacturer's upgrade kit comprising two additional outriggers (four in total), four 450mm push-pull posts and four non-lift braked castors; additional strengthening may be required
- all technicians should be able to hear clearly
- light levels are sufficient and may be increased during movement to ensure good visibility. Avoid sudden changes of light levels — use dimmers rather than switches
- outrigger feet are kept just clear of the floor during movement and never more than 10mm above the floor — a piece of 9mm plywood is a good gauge
- wheels remain in constant contact with the supporting surface (no lifting over cables). Do not lift the *Tallescope* over any obstructions; any gaps between adjacent rostra or flooring material 'bumps' should be negotiated only on the long axis of the *Tallescope*
- the *Tallescope* is only moved a maximum of 750mm on each move (750mm centres are the norm when hanging luminaires)
- the long axis aligned with the direction of travel
- the technician must descend before the *Tallescope* is moved on the short axis, for instance when moving between bars; moving the *Tallescope* on the short axis is forbidden with anyone in the cage
- the *Tallescope* moved very slowly (no more than 0.5m/second)
- no attempt is made to lift or level the base, raise the platform or remove the outriggers of the *Tallescope* unless the cage is unoccupied

Tallescopes

These manufacturer's instructions are specifically applicable to *Tallescopes* used in indoor theatres and similar premises with horizontal (level) stages

1. A logbook shall be kept for each *Tallescope.*

2. At least one technician working on the job shall have been fully trained by a competent training provider and carry proof of this training.

3. A visual inspection shall be made before each use of the *Tallescope*. If there be any fault the *Tallescope* shall be taken out of service immediately, labelled as ***Not to be used***, and the defect noted in the logbook.

4. The *Tallescope* shall be erected in accordance with the manufacturer's instructions. If only two outriggers are deployed, the *Tallescope* must not be moved with a person in the cage.

5. If it is intended to move the *Tallescope* with a person in the cage:
   a) the *Tallescope* shall only be used on a horizontal (flat and level) stage
   b) at least one technician shall have proven training (this may be the technician in the cage)
   c) the *Tallescope* is a 2011 (or later) year of manufacture model OR the *Tallescope* has been fitted with a manufacturer's upgrade kit comprising two additional outriggers (four in total), four 450mm push-pull posts and four non-lift braked castors, and *Tallescope* strengthened if necessary
   d) there shall be a supervisor who is not moving the *Tallescope*
   e) there shall be no obstructions along the route of the movement at stage level or overhead
   f) the outriggers shall be locked off just above the floor (with the feet not more than 10mm above the floor)
   g) the *Tallescope* shall only be moved along its long axis
   h) movement shall be by pushing or pulling the push-pull posts on the base frames (trunnions) and not the diagonals
   i) the *Tallescope* shall only be moved slowly and smoothly (not more than 0.5m per second/1 mph)
   j) the *Tallescope* shall be moved by at least two people, the technician pushing the *Tallescope* shall confirm there are no hazards at stage level and the technician pulling the *Tallescope* shall confirm there are no overhead hazards
   k) the technician in the cage shall hold on with both hands if the *Tallescope* is moving
   l) the technician in the cage shall instruct the technicians
   moving the *Tallescope* and the instructions acknowledged before movement occurs
   m) the brakes shall always be applied when the *Tallescope* is not in motion
   n) the details of each job and the personnel must be recorded in the logbook and be signed off by the trained person present.

6. The user should consult section 5 of the *Code of Practice for the Theatre Industry for the Selection and use of temporary access equipment for working at height in theatres* (published by ABTT) for further information on working at heights using *Tallescopes*.

7. For rescue system in place and personnel trained see 13.

Occupied *Tallescopes* should not be moved when attempting such jobs as touching up paintwork or hanging gauzes or tabs. (There have been several accidents in the past where the mast has toppled over from the drag weight of the cloth.) Generally an access tower is more suitable for such work although the tower should not be moved with someone on it — see *Code of practice for the selection and use of temporary equipment for working at height in theatres*.

A *Tallescope* should never be moved with anyone in the cage on a raked surface.

13. *Tallescope* rescue

People should not work at height when alone. Persons with known health problems, such as heart conditions, diabetes, asthma or epilepsy should be checked regularly before working in the cage/ladder.

There should always be at least one person trained in *Emergency First Aid at Work*. If that person is working in the cage there should be a second person trained in First Aid.

The person should always be in the cage of the *Tallescope* except when climbing up or down the ladder.

Any problem with the person (casualty) when working in the cage of the *Tallescope* needs to be resolved and may be urgent. Planning for work where there is only room for one person in the cage of the *Tallescope* should include rescue plans to rapidly recover the person if injured and/or is or may become unconscious. Recovery after someone who is unconscious or has suffered serious injury must be conducted as quickly as possible to prevent the casualty's condition becoming worse.

a) If the casualty can climb down unaided, supervise the descent and the first aider assesses once descent complete.

b) If not, then full evacuation needed, especially if casualty is unconscious and/or severely injured.

Where a *Tallescope* is being used there are currently three possible methods if someone requires rescue:

13.1 Casualty in cage of *Tallescope*: Rescue Winch

Tallescope PLUS training is needed. To simulate the 'Casualty' a dummy weighing around 70 kg is used to demonstrate the effect of the 'Casualty' weight on the operation of the winch.

If the *Tallescope Rescue Kit* has been fitted and the operatives have been trained, the *Kit* may be deployed in accordance with the manufacturer's instructions. The mast extensions should be fully lowered, then the mast itself is carefully tilted to the horizontal position.

The casualty should be physically restrained during the descent to ensure the casualty remains in the cage.

Once the cage is in the almost horizontal position the casualty can receive first aid, be removed from the cage or any other actions taken as deemed necessary.

TALLESCOPE RESCUE KIT

Check for and remove danger such as isolate power -- OK
Can casualty climb down unaided – Yes: supervise descent and further assess once descent complete

No: Call for help

Crew 1: **Apply brakes and reposition 2 outriggers**
Move rescue winch cover and attach winch
Fully lower mast extension
Re-attach winch
Uncouple dual hooks
Lower mast to horizontal

Crew 2: **Fit extension frame**
Assist with outriggers
Monitor descent and prepares to assess casualty
Check for A-B-C (Airway, Breathing and Circulation)

Put casualty in recovery position in situ – wait for paramedics

Person 3: **Calls for an ambulance**

If the *Tallescope Rescue Kit* has not been fitted or if the *Tallescope* mast cannot be lowered horizontally then see 13.2 or 13.3.

13.2 Casualty in basket of *Tallescope*: when the *Tallescope* mast cannot be lowered but it may be possible to move to a level nearby

The *Tallescope* might be moved so as to be able to pass the casualty on to say a fly floor or a larger platform. This procedure should be planned and practised beforehand to ensure the casualty and their rescuers are not placed at risk during the process. However this is not practicable on other than a level stage. Once scenery is fitted it may be impossible to remove enough scenery sufficiently quickly to effect a rescue.

If neither 13.1 nor 13.2 are suitable then see 13.3.

***13.3 Casualty* in basket of *Tallescope*: *Tallescope* cannot be lowered to the ground**

A harness or "rescue nappy" and a venue-based rescue at height kit will be required; the casualty is carefully lifted out of the basket of the *Tallescope* and then carefully lowered to stage floor level. An example of a suitable well-known method is shown below.

ScaffPack & X-it Harness

Heightec ScaffPack Rescue Training – at least one person must be trained if it is to be used. And consider further WAH Training.

Required: *X-it Casualty Harness*
Scaff Pack OR Rescue at Height Kit

First Aider Check for A-B-C (Airway, Breathing and Circulation)

Establishes A-B-C and applies X-it harness under arms

Adjust X-it Harness as Casualty is extracted through the top or gate/basket of the cage

Lower casualty - First Aider guides descent if the *Tallescope* cannot be moved.

Once at floor level – continue with first aid as appropriate until emergency services arrive

CASUALTY IN BASKET OF TALLESCOPE

***Check for and remove danger such as isolate power --* OK**

Can casualty climb down unaided – Yes: supervise descent and further assess once descent complete

No: Call for help

First Aider 1: Put on work positioning harness
Applies X-it Harness to Casualty under arms

BY DEGREES Casualty is extracted from the basket --
through the top or through the gate

Fully deploys X-it Harness attaching 3rd point

Descends, move Tallescope and reassess when Casualty on floor

ScaffPacker: Goes to Grid, lowers Scaffhook and X-it

3rd Party: Calls for an ambulance

14. Lowering a *Tallescope*

This should be the reverse of setting up.

Prepare the area and ensure that trip hazards are cleared, check overhead clearance and plan the action.

Ensure all materials are removed from the cage.

Leave all 4 outriggers extended. Lock the brakes on each wheel.

Ensure the upper ladder is retracted completely: use the rope to lift the upper ladder enough to unlock the ladder hooks, then lower the upper ladder to its lowest position within the mast using the rope.

Remove the base platform if necessary, disengage the mast braces.

Keep fingers clear of trapping points.

Prepare to lower and warn assistants before disengaging the mast hooks and lifting the bottom of the mast.

Anticipate the upwards force as the mast tips over; try to control the speed and allow the mast to come to rest gently.

Two people may be needed to lower the mast to the horizontal plane.

15. Inspection

- A formal regular and thorough annual inspection of *Tallescopes* is recommended; the manufacturer's instructions are regarded as a minimum standard. If a rescue kit has been fitted, the inspection interval is reduced to 6 months (*Lifting Operations and Lifting Equipment Regulations 1998* (*LOLER*).

Visual checks against a checklist should be made at regular intervals.

Written records should show:

- Identification number — equipment should be identifiable by number or other unique marking. Identification must be legible and be somewhere not easily obscured or defaced
- Maximum permitted load bearing
- Manufacturer's name
- Description
- Location
- Date of inspection
- Date next inspection due (expiry date)
- Name of inspector
- Conclusion — OK/repair/replace/destroy

A damaged *Tallescope* should be taken out of service, labelled as faulty and locked out of use (for example, with padlock and chain) until repaired by a competent person or destroyed. Modifications or repairs should only be made by a competent person. Any *Tallescope* that cannot be repaired should be destroyed.

Note: Lack of proper inspection or, when necessary, follow through to maintenance (or disposal) of equipment for work at height are significant causes of accidents, sometimes fatal.

16. Maintenance

Maintenance should be carried out at intervals determined by frequency and type of use by a competent person such as the authorised manufacturer's agent. The manufacturer's instructions should always be followed.

Keep the *Tallescope* clean, especially the cage, base platform, rungs and moving parts such as hooks, braces and wheels.

Ensure the threads on the adjustable legs are free of foreign matter and where necessary cleaned with a wire brush.

Check all fixing nuts and bolts are tight.

Lubricate mechanisms, such as adjustable leg locking collars, hooks and brake pivots, following the manufacturer's recommendation.

Check hooks and pivots, and that the swing guardrail is not deformed and works correctly.

If damage is found the *Tallescope* should be taken out of service, labelled as faulty and locked out of use (for example with padlock and chain) until repaired. Modifications or repairs should only be made by a competent person. Any replacement components should be obtained from the manufacturer. Any *Tallescope* that cannot be repaired should be destroyed**.**

17. Storage

Avoid storing *Tallescopes* outdoors.

Corrosion can be caused by some acids and salts, particularly in severe urban and marine environments.

Rinsing with plain water may be necessary if the *Tallescope* is left outdoors for long periods.

Store in an accessible place — difficult access may encourage use of other less safe methods. Keep all components together to avoid incompatibility and misuse. Secure *Tallescopes* so they cannot roll or fall whilst stored.

Consider locking *Tallescopes* when in store to prevent access by unauthorised personnel.

17.1 Hanging (flying) *Tallescopes* for storage

Tallescopes are usually flown with the mast horizontal; *Tallescopes* may also be flown with the mast vertical provided all parts are properly secured before lifting.

Ensure that the lifting equipment used is fit for the purpose and the sling(s) are attached at strong point(s) on the *Tallescope*. Ensure that the ladder cannot slide open by using the spring latch provided.

Wheels, adjustable legs, base platform and other loose parts should be removed prior to lifting. Ensure the cage and tool bag are empty. Develop and record the best method for the particular circumstances encountered.

18. Glossary

AAP	Aluminium Access Products Ltd
Adjustable legs	threaded extension tubes with collars allowing the base to be levelled
Anti-rake	sloped rostrum or rostra designed to counter a specific rake
Axis	an imaginary line about which a symmetrical object could rotate
Base frame	access tower end frame designed to accept feet/wheels
Brace	diagonal tube with hook each end
Brace hooks	automatic 'scaffold hooks' that secure the *Tallescope* mast upright
Bull's eye	single 'bubble' level on base; spirit level indicating level over 360°
Cage	enclosed elevated work platform (also with *Tallescope* called a basket or bucket)
Climber	person going up or down a ladder
Competent person	someone having such practical and theoretical knowledge such experience as is necessary to carry out the work. Needs to be aware of the limits of his/her expertise and knowledge and sufficiently independent and impartial to allow him/her to make objective decisions. Does not necessarily need to be employed by an independent company, but in-house personnel must have enough authority and independence to be able to make necessary decisions and recommendations

Edge-Safe®	proprietary safety product aiming to reduce hazard of the exposed front edge of the stage; provides ribbed rubber strips laid flat intended to delay or stop the wheels of moving equipment and alert people together with raised visible reflective/photo-luminescent strips to alert both crew and actors to the edge of the stage
EN	European Standard — all European Standards also become British Standards under heading *BS EN*
End frame	vertical frame of an access component providing support for platforms
Feet	end of the stiles that contact the supporting surface below
Footing	person with one foot on the bottom rung whilst gripping the stiles with both hands, or putting a foot against a rung whilst a ladder is raised
FPE	fall protection equipment
Gradient	see Rake
Hauling rope	used to raise and lower materials or equipment
Hazard	anything that may cause harm such as working from ladders, electricity, slippery floors
HSE	the Health and Safety Executive
HSL	the Health and Safety Laboratories
Interlock clips	captive pins to lock mobile scaffold tower end-frame spigots to prevent separation in use
IWP	Individual Elevating Work Platform (one person occupancy)
Ladder frame	on a tower: end-frame incorporating tubes designed as rungs
Ladder hook	device which locks the top section of a ladder on to the lower section as used with *Tallescopes* (Figure 10, page14) and on extension ladders
Mast	vertical ladder of *Tallescope* and the direct supporting assembly
Mast brace	two tubular braces that secure a *Tallescope* ladder vertical: (Figure 10, page14)
Mast hook	two flat hooks that temporarily hold a *Tallescope* ladder vertical mast brace locked in place: (Figure 10, page14)

Mobile access tower for the purpose of this Code a lightweight structure constructed from interchangeable prefabricated alloy (sometimes firbeglass) end-frames connected by spigot joints and braced apart by single tubes or frames without needing

Occupied *Tallescope* technician in the cage

Outriggers separate extending tubular braces with articulating rubber feet, stabilisers

Platform area provided for standing on when working

Point load a load, which is measured over a square with 300mm sides (as distinct from a distributed loading)

PPE Personal Protective Equipment

Pre-use check a simple visual and functional inspection of the equipment before use

PUWER *Provision and Use of Work Equipment Regulations 1998*

Rake *Approved Document M* states the floor is to be regarded as level if the slope is 1:60 or less. Steep gradients are regarded as a slope of 1:20 or greater. However cross gradients must not exceed 1:40. Many, generally older, stages have gradients of between 1:24 to 1:20. However at these gradients towers and similar equipment must counter the rake so that the equipment remains vertical; this is usually achieved by adjusting the legs of the equipment although some venues use anti-rakes

For the purpose of work at height any floor slope greater than 1:48 should be treated as a rake. All necessary precautions should be taken unless the manufacturer of the equipment has stated otherwise

Raked floor a raked floor especially a raked stage floor or raked rostrum or false floor; a sloping floor; known in theatres as a rake

RAMS risk assessment/method statement

Restraint PPE restraining technician under tension to prevent technician falling

Restraint anchorage fixing provided for anchoring work restraint lanyard

Risk chance somebody could be harmed from a hazard together with how serious the harm, high or low

Rungs parts of ladder to stand on, usually round or half round

Safe system of work method of working designed to eliminate, if possible, or otherwise reduce risks to health and safety

Safety factor minimum breaking load of a component divided by the maximum designed static load

Securing devices interlocking hooks, catches or guides between ladder sections

Stable self-righting when the disturbing action ('force') is removed

Staff includes casuals, self-employed people, volunteers and amateurs where relevant

Stiles vertical supports for rungs or treads

Swing rail swing over guardrail at knee height in a *Tallescope* cage

SWL Safe Working Load; maximum mass that is permitted to be raised, lowered or suspended

Tallescope® proprietary extending mobile ladder with an enclosed work platform

Toe-board edge protection device to stop objects or someone slipping from a work platform

Training includes induction

Trunnion tubular side frame with adjustable legs on wheels on which the *Tallescope* mast is pivoted

WAHR the *Work at Height Regulations 2005 as amended*

WLL Working Load Limit; maximum permitted mass that equipment is designed to lift, as specified by the equipment manufacturer

Work at height *Work in any place including at or below ground level from which a person could fall. Obtaining access to or egress from any place while at work involving a risk of a person falling a distance liable to cause personal injury, not including access by means of a permanent stairway*

19. Publications

British Standards Institution (BSI) www.shop.bsigroup.com

BS EN 397: Industrial safety helmets

BS EN 812: Industrial bump caps

BS EN 12492: Helmets for mountaineers safety requirements

Building Regulations Approved Document M Access & use of buildings
www.planningportal.gov.uk/buildingregulations/approveddocument/partm

Code of practice for the selection and use of temporary access equipment for working at height in theatres. ABTT www.abtt.org.uk

Five steps to risk assessment: Guidance Note HSG
www.hse.gov.uk/pubns/indg163.pdf

Health and Safety at Work etc. Act 1974
www.hse.gov.uk/legislation/hswa.htm

Lifting Operations and Lifting Equipment Regulations 1998
SI No.2307
www.legislation.gov.uk

Management of Health & Safety at Work Regulations 1999
SI No. 3242
www.legislation.gov.uk

Provision and Use of Working Equipment Regulations 1998
SI No.2306
www.legislation.gov.uk

The Work at Height Regulations as amended 2005
SI No.0735
www.legislation.gov.uk

The Work at Height Regulations 2005. A brief guide. Guidance 401
www.hse.gov.uk/pubns/indg401.pdf

Workplace and Safety (Enforcing Authority) Regulations 1998
SI No.494.
www.legislation.gov.uk

Workplace (Health, Safety and Welfare) Regulations 1992
SI No.3004. www.legislation.gov.uk

Tallescopes

Risk Assessment
What work to be done?
Is *Tallescope* most appropriate equipment?
How to prevent the technician over-reaching?
Are actions repetitive needing *Tallescope* to be moved frequently?
e.g. Are there many luminaires to focus?
e.g. How many skilled focusers are available?
How to prevent fatigue and associated risk of slipping or falling whilst climbing the ladder or getting in or out of the cage?
Is it reasonably safe to move the *Tallescope* with the technician in the cage?
What PPE is required e.g. hard hats, safety boots, head torches?
Record decisions
Prepare a Method Statement
Consider rescue system method

Brakes
Brakes should be fully functioning
Brakes shall always be applied when the *Tallescope* is not in motion
Must be locked when heavy work in progress
All 4 brakes **must be locked on** rakes

Setting up
Inspect *Tallescope* for damage
Ensure all locking collars and pins effective
Ensure floor is strong enough for total load
Ensure foot platform and tie bar are located
Ensure mast hooks engaged
Ensure mast braces engaged on bottom brace tube
Ensure ladder hooks fully engaged
Rescue system in place

Raked stage
Mast **must** be plumb: use leg adjusters make sure at least one and preferably two legs are not extended
Locate *Tallescope* so long axis is up and down the rake
Ensure the outriggers feet firmly on floor
Ensure the brakes are on before climbing the ladder
Check tower is vertical before use

Before use
Are staff sufficient, trained and authorised to use *Tallescopes*?
Are at least two technicians present?
Has the *Tallescope* been inspected and is the inspection record available?
Is the *Tallescope* in good order?
Is a satisfactory Method Statement agreed?

Outriggers
All 4 outriggers should be fully functioning
Tallescope is unstable if outrigger is omitted to stabilise unless other safety measures taken instead — these might be providing independent fall restraint for the user or bracing to a rigid wall
Deploy all 4 outriggers (2 each side) as near as possible to 60 degrees to the long axis of the *Tallescope* to gain maximum stability
The distance between the outrigger feet when set should be at least one third of the chosen cage height
On raked stages essential they remain in direct contact with the floor
If *Tallescope* to be moved see below

When in use
At least two people to move *Tallescope*
Force should be applied **via the push-pull posts**
Technician pushing responsible for confirming no hazards in path of movement
Technician pulling responsible for confirming no overhead hazards and checking clear of objects
Keep all tools in container or on lanyard
Always work within cage **Do not overreach**
Feet must remain on the platform floor
If in doubt **STOP!**

If *Tallescope* is to be moved with technician in cage must comply with the manufacturer's instructions: see 12.3

Important rescue system(s) in place, understood and regularly maintained before there is a problem: see 13.

Useful addresses

Association of British Theatre Technicians (ABTT)
55 Farringdon Road, London EC1M 3JB
Tel: 020 7242 9200; email: office@abtt.org.uk; web: www.abtt.org.uk

Aluminium Access Products Ltd
Unit 8, Acorn Business Centre, Acorn Court, Butts Street, Leigh WN7 3DD
Tel: 01942 514 318; email: info@tallescope.co.uk; web: www.tallescope.co.uk

British Standards Institution (BSI)
389 Chiswick High Road, London W4 4AL
Tel: 0845 086 9001; email: cservices@bsi-group.com;
web: www.shop.bsigroup.com

Edge-Safe®
Technical Stage Services Ltd
Unit 19 Seafox Court, Sherburn in Elmet, Leeds LS25 6PL
Tel: 08450 941 385; email: enquiries@technicalstageservices.co.uk;
web: www.technicalstageservices.co.uk

HSE Books
PO Box 1999, Sudbury, Suffolk CO10 2WA
Tel: 01787 881 165; email: hsebooks@prolog.uk.com;
web: www.books.hse.gov.uk

HSE Information Service
web: www.hse.gov.uk

The Stationery Office (TSO)
PO Box 29, Norwich NR3 1GN
Tel: 0870 600 5522; email:customer.services@tso.co.uk; web: www.tso.co.uk