



The Lifting Operations and Lifting Equipment Regulations 1998 ('LOLER') How they apply to IRATA Members

Introduction

This IRATA Information Sheet gives advice to employers, the self-employed and contractors [38] working in accordance with the *Industrial Rope Access Trade Association (IRATA) 'Guidelines'* [Ref. 1] to help them understand the requirements of the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER). These regulations came into force on 5 December 1998 and apply to employers, the self-employed and people in control of, or managing, lifting equipment or lifting operations. LOLER applies wherever the Health and Safety at Work, etc. Act 1974 applies.

This information sheet does **not** include all of the detail of the Regulations. It aims to provide you with guidance on interpretation and application in relation to industrial rope access methods. Details of the complete Regulations, Approved Code of Practice and Guidance can be found in HSE's '*Safe Use of Lifting Equipment*' [Ref. 2].

NOTE - Paragraph numbers from the LOLER ACoP and Guidance are referred to thus: [99]. A term defined in the LOLER ACoP and Guidance (Reg. 2, Interpretation) is shown thus: **load**.

LOLER is aimed at ensuring that:

- all **lifting operations** are properly planned and managed;
- **lifting equipment** is used in a safe manner; and that
- lifting equipment is thoroughly examined at suitable intervals by a competent person.

Other key legislation

LOLER has links with other health and safety legislation which you need to consider when applying the Regulations:

Management of Health and Safety at Work Regulations 1992 (MHSW) [Ref. 3]

MHSW requires a risk assessment to be carried out to identify the nature and level of the risks associated with a lifting operation. Factors you need to consider include [15]:

- the load being lifted, e.g. weight, centre of gravity, etc.;
- the risk of the load falling and striking a person or object and the consequences;

- the risk of the lifting equipment striking a person or some other object and the consequences; and
- the risk of the lifting equipment failing in use and the consequences.

Where it is reasonably practicable to obtain and use purpose-built equipment for lifting people, particularly for regular and/or routine operations, then you should use such equipment, e.g. suspended platforms, MEWPs, etc. [130].

You should ensure (Regulation 8) that work is properly planned by a competent person, appropriately supervised; and carried out in a safe manner.

You should assess the risks for each type of lifting equipment and the way it is used in your business, and take action to control the risks. Risks from lifting operations identified by the risk assessment should be eliminated, or reduced to an acceptable level, by applying LOLER.

Guidance on risk assessment is given in HSE's '*Five Steps to Risk Assessment*' [Ref. 4]. Where PPE is required you will need to consider the requirements of the '*Personal Protective Equipment at Work Regulations 1992*' [Ref. 5], e.g. the provision of harnesses, life jackets, etc. [17]. **A proportionate response according to the risk is required** [14].

Provision and Use of Work Equipment Regulations 1998 (PUWER 98) [Ref. 6]

PUWER 98 applies to all work equipment including lifting equipment. Under PUWER 98 you are required to select suitable work equipment in terms of:

- its construction and design;
- where it is to be used; and
- the purpose for which it is to be used.

Lifting Operations and Lifting Equipment Regulations (LOLER) 1998

Interpretation (Reg. 2)

What is 'lifting equipment' in rope access work?

Lifting equipment means **work equipment** that lifts or lowers **loads** and includes its attachments used for anchoring, fixing or supporting it [10]. For example:

- strops, chains, slings, eye-bolts [Ref. Annex (1) - Eye bolts], etc.;
- anchorage equipment, e.g. rigging, and associated items used in rope access methods, including ropes, karabiners, harnesses and strops;
- counterbalanced roof rigs, etc..

Application (Reg. 3)

It is important to note that the term 'load' includes a person.

LOLER applies to a wide range of lifting equipment and lifting operations and now includes [29], for example:

- ropes and equipment used for work positioning (personal suspension equipment) during rope access work;
- structural examination of a rock face or external structure of a building, etc.

The regulations apply to 'employers' - a definition which includes the self-employed (in relation to lifting equipment they use themselves) and any other person who has control to any extent of lifting equipment, its use or those who use it. For example, employers have a duty to ensure that lifting equipment provided for their employees - and the self-employed working for them - complies with the regulations [39(a)]. The regulations also apply to employers who allow their employees to provide their own lifting equipment [39(c)].

When selecting suitable lifting equipment you should take account of the:

- ergonomic risks [49]; and
- material of manufacture [58].

When planning and undertaking rope access work you should consider:

- the means of access and egress [62];
- protection against slips, trips and falls [68];
- protection of the operative(s), e.g. weather, contaminants, noise, etc. [83]; and
- the effects of high wind, perhaps ceasing work when necessary [89].

Strength (Reg. 4)

LOLER requires you to make sure your lifting equipment will have adequate strength for its proposed use [98]. Equipment should be selected which meets Standards relevant to the intended use.

Anchorage equipment for rope access work, e.g. strops, slings, ropes, karabiners, etc. are part of lifting equipment. IRATA Level 3s (supervisors) are assessed for competence in the selection of suitable

anchor and belay points and particular attention should be paid to 'mounting or fixing points', i.e. rigging, deviations, etc. [101].

Stability (Reg. 4)

In the same way, LOLER requires you to ensure your lifting equipment has adequate stability and will not collapse or overturn when working, e.g. counterbalanced roof rigs, etc. [104].

Where lifting equipment is anchored to other work equipment or structures [109] you should ensure that the latter can withstand the forces the equipment (and its use) will impose on them.

Lifting equipment used for lifting people (Reg. 5)

As a general principle, you should eliminate the risk of a person falling or, if this isn't possible, reduce it (see paragraph on MHSW, above).

You should assess the risk of a person being crushed, trapped or struck or falling from the 'carrier' (a term that describes the means of holding the person, i.e. for rope access, the harness [136]) [147].

Where rope access techniques are necessary, LOLER requires you to use suitable devices, or other effective measures, to prevent the 'carrier' from falling in the event of failure of the primary means of support [152], e.g.:

- use a safety (back-up) rope with a separate anchorage;
- use rope that meets the requirements of EN 1891 type A or, where appropriate, EN 892;
- daily inspections of the equipment by a competent person [153] and adequate instruction and training for all persons involved (see also Regulation 8).

In the event of an emergency a reliable means of rescue should be available [156]. Risk assessment should consider the options and method(s) for rescue. Those working should be trained in emergency lowering and the use of self-rescue equipment and other relevant rescue procedures [158].

Positioning and installation (Reg. 6)

Rope access equipment is not 'installed' within the meaning of LOLER. Nevertheless, it should be positioned and rigged to reduce to as low as reasonably practicable the risk of the equipment (or a load) striking people, or the risk of the load:

- drifting;
- falling freely;
- being released unintentionally.

You should position lifting equipment to minimise the need to lift loads over people [162] and consider whether:

- unauthorised access below the work area should be prevented;
- you need to cover any passageways below to help protect persons should a load drop unexpectedly [169];
- rope access workers in close vicinity may endanger each other.

Loads should not be allowed to:

- drift, e.g. in a wind;
- snag, e.g. on sharp edges

by the use of deviations or belays. In addition, loads should not be allowed to:

- pendulum, e.g. on long drops; or
- become entangled, e.g. by unnecessarily suspending excess rope beneath the user.

Lifting equipment should be fitted with suitable devices, e.g. back-up devices, etc. to minimise the risk of the load (including persons) falling out of control [174]. Ensure, where practicable, that you do not climb above anchor points when using work-positioning techniques. You should:

- use safety lines with a back-up device or other suitable system;

and ensure that:

- ropes are descended in a controlled manner using a mechanical descender device.

Loads should be prevented from being released unintentionally by, for example:

- adequately training people, e.g. IRATA Level 1, etc.;
- always using connectors with a safety locking action and by ensuring that they are only loaded in their designed direction.

Marking of lifting equipment (Reg. 7)

General

A declaration (or certificate) of conformity, indicating the standard to which any rope access equipment conforms, and information on any strength requirements, should be readily available to the user.

All components of a rope access system should be identifiable in such a way that they can be easily associated with their respective documentation, e.g. declarations of conformity, test certificates and examination reports. This may be by the manufacturer's batch marking or other forms of identification [188]. A coding system could be used to provide the user with a cross-reference to any

appropriate records, e.g. by the 'tagging' of ropes, etc. Marking of metal components should not be by stamping, unless by agreement with the manufacturer.

PPE

The regulations require lifting equipment to be marked to indicate its safe working load (SWL). Rope access equipment is specifically designed to support a person (in a rescue scenario there may be two people). Therefore, implicit in the use of the equipment - and the standards relating to its use - is the concept of a 'SWL' (as required by LOLER) in terms of **body weight**, e.g. EN 813 (sit harnesses).

All items of PPE and similar equipment are, therefore, automatically rated for a 'safe working load' of **one person** in normal deployment [187]. However, because of the factor of safety built into the equipment (which varies from four to twenty-two, for single person use), in a rescue scenario the equipment could be used by two persons. This is providing that the rescuers are fully trained and on the strict understanding that there should be no dynamic forces.

Ref. Annex (2) for further background information.

Low-stretch rope

Low-stretch rope should have a SWL indicated on a declaration of conformity. Industry has typically adopted a figure of one-tenth of the minimum breaking load. For specific details refer to the manufacturer's information.

Also, ref. Annex (2) for further background information.

Dynamic rope

For dynamic rope to EN 892, which is tested dynamically only, the concept of a 'SWL' (as required by LOLER) is introduced by considering that it is usually suitable for use by one person only.

Roof rigs, etc.

Counterbalanced roof rigs, etc. (i.e. more 'traditional' lifting equipment) should be designed and used in accordance with the appropriate standard(s), e.g. BS 5974, and be marked, accordingly, with a safe working load.

Organisation of lifting operations (Reg. 8)

Rope access work for industrial purposes is considered a lifting operation and should be properly planned by a competent person, be appropriately supervised and carried out in a safe manner. It is important to note that:

- people planning rope access work should have adequate practical and theoretical knowledge and experience of planning lifting operations [210];

- you organise the work so that, where practicable, loads are not carried or suspended over people [230];
- there is a 'danger zone' (exclusion zone) at anchorage level and, where possible, people should not be present in the area below any rope access work, i.e. ensure access is prevented [232] or a sentry posted.

When planning and organising work you should take account of:

- *visibility* [237], e.g. communication and whether operatives can see and hear each other;
- *attaching, detaching and securing of loads* [244], e.g. have the appropriate pulleys, maillons, karabiners, etc. been used;
- *environment* [253 and 254], e.g. excessive wind speed, heavy rain, icing, nearby chimneys and emissions, etc.;
- *overturning* [258 and 259], e.g. slip of dead weight anchors, or stability of tripods;
- *proximity hazards* [265], e.g. power lines, sharp edges, crane operations, etc..

Lifting equipment in rope access work is exposed to conditions that could cause deterioration and result in dangerous situations. These conditions could (for example) include abrasion, possible exposure to chemicals, or a severe shock load.

Therefore, pre-use checks of rope access equipment are essential before any work is carried out. All operatives should be trained and capable of inspecting the items of PPE that they are using, and the supervisor should be capable of inspecting and monitoring ropes, rigging gear and anchors. All work should be supervised by an IRATA Level 3 (supervisor).

It is essential that people who use the lifting equipment have received appropriate training, information and instruction so that they can carry out pre-use checks and ensure safe rope access work [285]. The user or operator is best placed to identify faults or damage to equipment [286] and operatives should be authorised to withdraw from use any component of their working system that they consider necessary.

In particular:

- there should always be a visual and tactile 'pre-use' check [287] to identify obvious faults due to day-to-day wear and tear and failure or damage of all equipment, i.e. to ensure that the equipment will function correctly and is safe to use. Suspect items should be taken out of service and checked by a competent person to determine the appropriate action to

be taken. Irreparable items should be rendered unusable and then disposed of. Repairs should only be carried out by a competent person or organisation: this is usually the manufacturer.

- ropes should be rigged so as to reflect the way in which they are being used [274], i.e. avoid sharp bends, take account of deviations, consider carefully the sling configurations, take account of the effect of knots and possible contamination of the rope, etc.

Thorough examination and inspection (Reg. 9)

Thorough examination

LOLER requires lifting equipment to be **thoroughly examined**. You should identify all equipment that requires a **thorough examination** [296].

Thorough examination should be undertaken by a **competent person** who has appropriate practical and theoretical knowledge and experience of rope access equipment to enable them to detect defects or weaknesses and assess their importance in relation to the safety and continued use of the lifting equipment [294]. The competent person should decide upon the nature and extent of the examination and carry out tests when necessary [301]. Any thorough examination of personal protective equipment should not include proof loading but would normally rely on 'pre-use checks' (see Reg. 8) and 'inspection' by competent persons.

It is essential that the person carrying out a thorough examination is sufficiently independent and impartial to allow objective decisions to be made, i.e. have appropriate and genuine authority to discard equipment. This does not mean that competent persons must necessarily be employed from an external company [295].

IRATA full member companies should be competent to conduct their own examinations. Your insurer should accept this, but you should check that this is the case. If required, your supplier or the manufacturer may also be able to suggest suitable people or organisations.

Lifting equipment should be thoroughly examined before use for the first time and the manufacturer's declaration of conformity normally serves this purpose. Thereafter, where it is being used for rope access work, it should be thoroughly examined either:

- every six months; or
- in accordance with time intervals specified in an **examination scheme** drawn up by a competent person.

In drawing up an examination scheme a competent person should take into account the recommendations of the manufacturer/supplier [336]. Lifting equipment should also be thoroughly examined each time exceptional circumstances occur [397] which may jeopardise the safety of the equipment.

Lifting equipment should be thoroughly examined after installation, but 'installation' does not apply to the positioning or repositioning of rope access equipment [308]. 'Installation' is taken to apply to longer-term, normally fixed, equipment items, e.g. site cranes, hoists, etc. [307].

If you take your lifting equipment (or kit) with you for use in another person's business, then a copy of the equipment's current thorough examination report should be made available [343] to that employer.

Inspection

'Inspections' of lifting equipment should be carried out over and above the pre-use check, at suitable intervals between 'thorough examinations', where your risk assessment made under the MHSW Regulations has identified risks which could be addressed by inspection [335], e.g. in the case of items subject to high levels of wear and tear, such as textiles.

Reports and defects (Reg. 10)

Thorough examination

The competent person should make a report of the state of the equipment at the time of the 'thorough examination' [348] and any identified defect(s) should be included (Refer to LOLER, Schedule 1 for a list of the information required).

The competent person should notify the employer immediately of any defect [345], which in their opinion is or could become a danger to people. They should also send a copy of the report to HSE within 28 days of the 'thorough examination' if they consider there is an imminent risk of *serious* personal injury [351] arising from failure of the equipment should anyone attempt to use it. (NOTE - with a regime of regular inspection and pre-use checks it is not anticipated that 'thorough examination' will normally identify equipment that is, or could become, a danger to people).

If you are notified of a defect you should ensure the lifting equipment is not used before the defect is rectified or it is rectified within the time specified in the report [350].

Inspection

A person making an 'inspection' should make a record of the inspection, in writing. If, during an 'inspection', a defect is discovered which could become a danger to people, the employer should be

informed and the lifting equipment not used before the defect is rectified.

Records (Reg. 11)

Copies of any EC **Declarations of Conformity** for any lifting equipment should be kept for as long as the equipment remains in use [356].

Information contained in any thorough examination report for the previous two years should be readily available to inspectors from the relevant enforcing authority should they request to see them [356].

Inspection records should be kept until the subsequent inspection.

References

1. *Guidelines on the use of rope access methods for industrial purposes*, IRATA. Edition 2 September 1997, ISBN 0 9523227 1 4 (being revised).
2. *Safe Use of Lifting Equipment. Lifting Operations and Lifting Equipment Regulations 1988, Approved Code of Practice and Guidance*. L113 HSE Books 1998, ISBN 0 7176 1628 2 (LOLER).
3. *Management of Health and Safety at Work, Management of Health and Safety at Work Regulations 1992. Approved Code of Practice*, L21 HSE Books 1992, ISBN 07176 0412 8 (MHSW) (being reviewed).
4. *Five Steps to Risk Assessment*, INDG163 (Rev.1), HSE Books.
5. *Personal Protective Equipment at Work, Guidance on the Regulations (includes a copy of the PPE Regulations 1992)*, L25 HSE Books 1992, ISBN 0-11-886334-7 (PPE).
6. *Safe Use of Work Equipment, Provision and Use of Work Equipment Regulations 1998. Approved Code of Practice and Guidance*, L22 HSE Books 1998, ISBN 0 7176 1626 6 (PUWER 98).
7. *Workplace (Health, Safety and Welfare) Regulations 1992* (as amended by the *Quarries Miscellaneous Health and Safety Provisions Regulations 1995*), L24 HSE Books 1992, ISBN 0-7176-0413-6.

The future availability and accuracy of the references listed in this information sheet cannot be guaranteed.

Standards

EN 1891, Personal protective equipment for the prevention of falls from a height - Low stretch kernmantel ropes.

EN 892, Mountaineering equipment - Dynamic mountaineering ropes. Safety requirements and test methods.

BS EN 795, Protection against falls from a height - Anchor devices - Requirements and testing.

BS 5974, Code of practice for temporarily installed suspended scaffolds and access equipment.

EN 362, Personal protective equipment against falls from a height - Connectors.

EN 813, Personal protective equipment for the prevention of falls from a height - Sit harnesses.

Further information

Simple Guide to the Lifting Operations and Lifting Equipment Regulations 1998, HSE, INDG290, 06/99, C500.

'Simple Guide to the Provision and Use of Work Equipment Regulations 1998', HSE, INDG291, 06/99, C500.

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British Standards can be purchased from BSI, Customer Services, Milton Keynes, Tel: 01908 221 166, Fax: 01908 322 484.

IRATA's home page is <http://www.irata.org>

<p>This information sheet contains notes on good practice which, in law, are not compulsory but which you may find helpful in considering what you need to do.</p>
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Acknowledgement

Health and Safety Executive (HSE), Technology Division - Civil, Structural, Plant and Machinery Unit (TD2).

ANNEX

(1) Eye bolts

There is some confusion over the application of LOLER to safety equipment anchorage eye bolts. In earlier sector-specific lifting legislation (such as the Construction (Lifting Operations) Regulations), which LOLER has replaced, eye bolts were classed as 'lifting gear' and were required to be thoroughly examined every 6 months. British Standards have recommended different periods for anchorage eye bolts, but only in Standards which refer to eye bolts used as anchor devices for protection against falls from a height. In such circumstances, they are not being used for lifting or lowering and do not, therefore, come within the scope of LOLER. However, where the same eye bolts are being used for lifting or lowering, e.g. as an anchor point for rope access work, then they will be covered by the requirements of LOLER - which take precedence, as Standards are for guidance only and not a legal requirement.

Eye bolts for lifting

A removable threaded eye bolt, screwed into a load as an attachment for lifting slings, etc., is an 'accessory for lifting' and needs to be thoroughly examined (Reg. 9).

A 'pad eye' or 'link' permanently fastened to a load to connect lifting slings is deemed to be part of the load. They must be maintained (PUWER, Reg. 5), must be of adequate strength (LOLER, Reg. 4) and will require a pre-use check (LOLER, Reg. 8).

An eye bolt or pad eye used as an anchorage for supporting lifting equipment, such as a winch or rope access equipment, is 'lifting equipment' and subject to LOLER.

In all these cases (above) there is an absolute duty under PUWER to maintain them in a safe condition.

Under LOLER such eye bolts are required to be thoroughly examined by a competent person every 6 months (or at frequencies in a written examination scheme drawn up by a competent person). The competent person determines whether the thorough examination should include testing. In addition, eye bolts should be inspected before use and not used if there is any doubt about their safe condition.

Eye bolts for fall Arrest

An eye bolt which acts as an anchorage for a fall arrest lanyard is NOT a lifting accessory and does not require examination under LOLER. Instead, it is considered part of the fabric of the building, structure, etc. and comes under the provisions of the Workplace (Health, Safety and Welfare) Regulations 1992 [Ref. 7].

BS EN 795 recommends examination at least every 12 months by a competent person. Examination after installation and at subsequent periodic intervals is also likely to be necessary to comply with the general requirements of the Health and Safety at Work, etc. Act 1974 (i.e. the duty of an employer to ensure, so far as is reasonably practicable, the health and safety of employees). The competent person carrying out the examination will be guided by appropriate guidance and recommendations (such as that contained in the relevant standards).

(2) Marking of lifting equipment (Informative)

General

Equipment used in rope access is primarily governed by the EC Directive on Personal Protective Equipment (PPE), 89/686/EEC (and its amending Directives, 93/68/EEC, 93/95/EEC and 96/58/EEC). Therefore, the marking of a safe working load (SWL), as required by LOLER, is not straightforward. Generally, the European Standards (ENs), to which most rope access equipment should conform, do not specify a SWL, either in the text of the Standard or in the marking requirements. Even though rope access equipment is not expected, in normal use, to withstand falls, ENs covering rope access equipment specify a minimum breaking load (static strength) and/or a maximum impact force. Where maximum impact forces are stated, the test masses employed are 100 kg (except for mountaineering equipment, which is 80 kg). These masses are taken to be the equivalent of the weight of a person.

PPE

Unlike most lifting equipment, PPE or similar equipment used in rope access may be designed to withstand the impact of dynamic falls, with static loading as a secondary consideration, e.g. EN 362 (connectors). Traditional lifting equipment, such as cranes and other installed lifting equipment, is generally rated for static loading only (with no requirement to withstand a dynamic force).

Low-stretch rope

The Machinery Directive (98/37/EC) states that textile ropes or slings should have a '...working coefficient...(which)...is, as a *general rule*, equal to 7...' (4.1.2.5(c)). In addition, for the lifting of persons, the working coefficient must '*...as a general rule, be doubled...*', i.e. a total factor of safety equal to fourteen.

In addition to this Information Sheet, IRATA prints the following useful publications

GUIDELINES on the use of rope access methods for industrial purposes

Compiled using the experience of established rope access contractors in co-operation with the Health and Safety Executive. The fully indexed document recommends known good working practice and covers: General principles and Methods for a safe and effective system of work using rope access: Selection, training and supervision of workers; Selection, certification and traceability, inspection and care and maintenance of equipment; Legislation and references. This latest edition also covers LOLER. The use of IRATA's Guidelines has been commended by the HSE.
43pp 2000 edition

GENERAL REQUIREMENTS for certification of personnel engaged in industrial rope access methods

Establishes the framework for a qualification and certification programme and provides recommended experience and training requirements for independent IRATA approved assessment. Includes question and answer lists for use in composing examinations.
36pp June 1996 edition

MEMBERS LIST

Provides comprehensive information on IRATA members (Equipment Suppliers, Operators and Trainers) including the services offered and areas of operation.
9 pp current edition

INFORMATION LEAFLET

General information on rope access, the aims of IRATA, its Code of Ethics and Membership Criteria.
9 pp current edition

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Details are also available on the web at www.irata.org

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Published by IRATA
Industrial Rope Access Trade Association
Association House, 99 West Street, Farnham, Surrey GU9 7EN
t: 01252 739150
f: 01252 739140
e: info@irata.org
www.irata.org

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